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# HOT MIX ASPHALT PRODUCTION

KOSOVO CLUSTER AND BUSINESS SUPPORT PROJECT



September 2006

This publication was produced for review by the United States Agency for International Development. It was prepared by the KCBS project team of Chemonics International Inc. based on a Final Report prepared by Short Term Technical Advisor, Dr. Jurgen Hutschenreuther.

# HOT MIX ASPHALT PRODUCTION

THIS REPORT EVALUATES THE MAIN ASPHALT PRODUCING PLANTS IN KOSOVO AND DESCRIBES THE NECESSARY PROCEDURES AND POLICIES THAT NEED TO BE INTRODUCED IN ORDER TO UPGRADE THEM SO THAT THEY BECOME SUCCESSFUL OPERATORS WITH POSSIBILITIES FOR FUTURE EXPANSION.

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Kosovo Cluster and Business Support project – Hot Mix Asphalt Production  
Contract No. AFP-I-00-03-00030-00, TO #800

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# PURPOSE OF ASSIGNMENT

The purpose of this assignment is to improve current business operations of the entire Asphalt industry in Kosovo. The goal is to upgrade asphalt production industry to the level of European Asphalt plants. The Hot Mix Asphalt [HMA] Processing Consultant will be responsible for preparing a “Working Manual for Processing of Hot Mix Asphalt” for quality production of asphalt based on EU standards. The Manual shall include all necessary procedures and policies in order to upgrade the asphalt plants in Kosovo so that they become successful operators with possibilities for future expansion.

## BACKGROUND

The private sector Kosovo asphalt production industry is very young as in the past there were SOE (State owned enterprises) only. The first private asphalt plant was built in 2000-2001 and became a successful company involved also in road construction. The assessment report about the asphalt industry in Kosovo was developed and will be given prior assignment. Other companies in the road construction industry followed and constructed asphalt plants, which they viewed as very profitable and with a long-term future. However, as there are no proper regulations in Kosovo, too many companies are operating these new asphalt plants with skilled staff but there are no procedures in place and the staff should become more professional.

Investors in road construction are having problems because the quality of asphalt is poor and it often does not last more than two-three years. The industry in Asphalt production only currently employs 50-100 workers depending on the season but the potential is to increase this number. All asphalt production in Kosovo is locally produced; the aggregate raw materials are obtained from several local quarries, bitumen is imported from neighboring countries usually with no quality control or testing. In Kosovo there is no proper plan, nor equipment, for recycling of asphalt. Proper procedures for QC/QA of raw materials and final product are required in order to upgrade staff skills and plant operation. The European Union's plans for a Regional road network does not foresee any “E” road passing through Kosovo, though linkages to these roads will be required within Kosovo. Moreover, the industry is well positioned to tender for construction on sections of the “E” roads. The HMA (Hot Mix Asphalt) designs and JMF (Job Mix Formulas) are not developed in Kosovo as there are no experts in such field and usually are used experts from abroad which do not pass the experience to the local staff therefore the hired specialist should work with local experts in order to develop a program/process for making HMA designs and JMF according to EU standards.

The market is shared between approximately 10-15 asphalt plants each with different production capacity. The market for the moment is very small and too many companies are chasing the limited work available. Few operate at full production capacity; some operate at as little as 25%. Nevertheless, new companies still appear to want to enter the field. Our aim is to increase production and quality at the existing plants. By raising the standard of performance at these plants, Kosovo's economy will get more value from its existing investments and deter other investments from being squandered in an already overcrowded field.

Main raw materials used in production are: aggregates from Kosovo, Bitumen from Macedonia, Greece and Albania. Key inputs required for a rapid expansion of operations are available. These include skilled manpower and abundant availability of raw material, all at reasonable cost. There is a possibility that the “Andesit” stone will be available for next construction season should test results prove positive. It is preferred that an independent and certified laboratory conduct these tests.

The main issues are to identify and implement the most efficient production and quality control for asphalt industry. The needs are: to reduce wastage; increase quality according to European standards; decrease operations cost; quality control of raw material; prepare mix designs; streamline the production line; and organize plant management.

Recently the group of nine plant managers was sent to Germany by World Learning program for a five-day training project on learning the EU standards for asphalt production management. The training program was made available to the specialist so he would have knowledge about main topics covered as during the STTA assignment the topics are to be implemented through on site training system.

## EXECUTIVE SUMMARY

This assignment was conducted in two visits to Kosovo during late August and September. Together with the KCBS construction materials specialist, I visited 13 asphalt mixing plants; 4 quarries; 4 laboratories; several government departments; and a number of building sites. The overwhelming impression is that there is no consistent implementation of standards being applied for road construction, and certainly not EU Standards. Standards need to be applied right from the start of planning a project, and continuously through the several phases of engineering, procurement and construction.

There needs to be technical training in the field of asphalt production and application. Quality management systems need to be introduced at all the operating plants. Of the thirteen plants we visited, only one was considered to be capable of immediate certification for EU standard production; two could reach certification with a small investment; six need considerable investment; and four should be closed down since no amount of investment could bring them to the required standard.

There is a willingness from asphalt plant owners, and quarry operators, to invest and learn how to achieve and maintain production to EU standards. But they are discouraged by a failure/reluctance to specify and implement these standards by the procuring agencies, the majority of which are under the control of central or municipal government.

All operations involved in road construction need to be certified; rock quarries, asphalt mixing plants and contractors. Materials, aggregates and bitumen, being incorporated in the construction should also be certified. This presupposes the materials have been adequately specified in the construction documents. Verification should initially be at contractor-managed in-house laboratories, of which there are only three operating in Kosovo at present, and by random testing performed for investors by an independent laboratory, which does not exist at all in Kosovo.

## FIELD ACTIVITIES TO ACHIEVE PURPOSES

The assignment was conducted in two visits to Kosovo [August 6 – 20; September 3 - 16]. During these visits, I visited 13 asphalt mixing plants; 4 quarries; 4 laboratories; several government departments; and a number of building sites.

The asphalt mixing plants I visited were:

|                     |                          |
|---------------------|--------------------------|
| ▪ Graniti           | Istog                    |
| ▪ N.N. Asfalti      | Peja                     |
| ▪ KAG Asphalt       | Prizren                  |
| ▪ UNIKOM            | Suhareke                 |
| ▪ Trasing           | Korotica                 |
| ▪ Drini             | Prizren [Malishevo]      |
| ▪ Eskavatori        | Ferizaj                  |
| ▪ Burimi            | Kacanik                  |
| ▪ Papenberg/Adriani | Ferizaj [Sojevo]         |
| ▪ Victoria Invest   | Pristina Industrial Zone |
| ▪ Victoria Invest   | Volljak                  |
| ▪ AS Put            | Leposavic                |
| ▪ GE Group          | Prizren                  |

The quality of the mixing plants was quite diverse. A three-part assessment, attached in Annex I, was made of each plant. The parts address:

- a photo record of the plant;
- an overview of its operations; and
- an evaluation of what has to be changed to meet EU standards.

## TASK FINDINGS AND RECOMMENDATIONS

In a summary, all mixing plants were entered into a matrix that allows an evaluation regarding the matching of criteria for the orderly production of asphalt in accordance with EU Standards. The matrix summary is attached in Annex II. It is to be noted that of the thirteen plants, a) only one is considered to be capable of immediate certification for EU standard production; b) two could reach certification with a small investment; c) six need considerable investment; and d) four should be closed down since no amount of investment could bring them to the required standard.

### GENERAL CONSIDERATIONS

To understand the final recommendations, it is necessary to describe some of the considerations for asphalt production. All these aspects were considered when visiting the plants and preparing the overview of the plants appended as Annex I.

#### **Basics:**

Asphalt is used in road construction in several steps of construction such as

- Asphalt base course
- Binder course
- Wearing course
- Bearing cover course
- Special construction (constructions pervious to water / open graded etc.).

The road must be evaluated based on statistics and forecasts regarding the traffic load as well as on calculation assumptions regarding the layer attributes and foundation. The entire construction must be defined by sets of rules. In Germany, the standardized surfaces of road traffic areas within and outside city limits are defined in the "Richtlinien für die Standardisierung des Oberbaues von Verkehrsflächen (RStO)" (Directive for the Standardization of Surfaces of Road Traffic Areas) as well as the "Richtlinien für die Standardisierung des Oberbaues bei der Erneuerung von Verkehrsflächen (RStO-E)" (Directive for the Standardization of Surfaces for the Renewal of Road Traffic Areas).

### **Traffic Loads**

The ongoing increase in heavy duty traffic requires special attention regarding the evaluation and the execution of the theoretically ascertained findings concerning such roads. Therefore, the development of traffic has to be seen in connection with the constructive development of utility vehicles.

*Vehicle Dimensions:* Since 1995 new limits were introduced European-wide. Max. truck length - 18,75 m; max width for container vehicles - 2,60 m; vehicles with normal cabin - 2,55 m. The max. height of 4,00 m remains constant.

*Total Weights:* As of today a European-wide regulation could not be agreed upon. However, the tendency is towards a total weight of 48 mt for 6-axle vehicle truck-trailer combinations.

*Axle Loads:* The max. axle load for driven axles has remained at 11,5 mt.

*Tires:* The tire industry expedites the development from tires with normal diameter to tires with low diameter as well as from twin-tires to so called super-single-tires in order to increase the load capacity of tires (up to a max. tire contact pressure of 1,1 N/mm<sup>2</sup>).

*Suspension Systems:* Mainly, there are less road stressing systems in use. The foreseeable development also tends to support that direction. The increased load on motorways and exposed highways can be accounted for in particular by:

- increase of load frequency
- increase load amount
- decrease of vehicle speed in certain traffic situations like: reduced road diameters; in construction sites; and on gradients.

The pre-mentioned conditions must have been considered during the bidding phase of road construction measures and an according classification of the separate construction sections has to be established or must be geared towards solutions that are attuned with cases of stress.

### **Structural pavement design**

The design of the road pavement can be achieved with the help of empirical rules, theoretical computing methods or by a combination of both. Usually, the multiple-layer-theory is sufficient for the practical side. In accordance to that theory there are many different computer applications available for the structural design like for instance BISAR or Moebius. The RStO is based on empiric assumptions.

The mechanical stresses caused by traffic load are the main cause for the changes of surface quality regarding the lifetime of road pavement. Therefore, depending on the kind of

pavement used and the kind of stresses, changes in the micro-texture (fine inclemency), macro-texture (rough inclemency), mega-texture, evenness and in the longitudinal profile can occur. Generally, the traffic load takes effect dynamically (with the exception of non-moving traffic like parking lots etc.).

### **RStO (Directive for the Standardization of Surfaces of Road Traffic Areas)**

According to the mechanical stresses, the road pavement is constructed decreasingly in the layers from top to bottom.

- Pavement structure: Wearing - and base course(s) including frost-free pavement structure
- Foundation: Artificial subsoil, backfilled and compacted (dam)
- Formation level: Level between subsurface or foundation respectively
- Sub-soil: Queuing natural soil after topsoil stripping
- Drainage: Over and underground.

The RStO mentions different ways of construction for identical construction classifications. The variants of asphalt pavements are the result from considering local conditions, regional experiences, technical and economical aspects as well as environmental conditions such as:

- locally available building materials
- particularities due to usage
- traffic routing during construction
- evenness requirements to road surfaces
- effects of conservation measures on construction-burdened residents and road users.

According to the traffic load, the RStO differentiates between seven construction classifications depending on the traffic load value. Some examples for asphalt usage are displayed in the chart in Annex III.

### **Special Stresses**

Traffic areas subjected to special stresses are those that are highly frequented by buses and trucks, especially in following constellations:

- lane-bound heavy duty traffic
- gradient stretches
- slow moving heavy duty traffic
- frequent breaking and accelerating activities (e.g. at traffic lights, traffic signs etc.)
- intersection- and merging areas
- non-moving traffic (e.g. bus areas, parking lots etc.)
- extreme climatic conditions (southward slopes, high temperatures for extended periods).

In exposed locations the weather impacts, in particular temperature impacts, can constitute a vital factor for the rutting or tears in the asphalt surface. In Germany, surface temperatures reaching up to 65 °C have been registered which was more than 30 °C above the surrounding air temperature. Combined with strong heavy duty traffic and an unfavourable asphalt mixture this often causes rutting.

During winter time road surfaces show substantially lower temperatures than the surrounding air temperature especially during high wind-speed and at a low relative humidity. In some German regions temperatures of up to -25°C can be reached. Asphalt becomes particularly fragile under such conditions.



The temperature variation reaches its peak in that area of the road surface, where the temperature exchange occurs with the surrounding air.

The pre-mentioned conditions must be considered imperatively when selecting the construction classification; while modifying the asphalt pavement in regards to the structure of layers; when designing asphalt mix (amount and kind of binder, aggregate composition, sort of aggregates used, etc.); and when selecting the kind of asphalt to be applied.

### **Thickness of Frost-Resistant Superstructures**

Authoritative for the total thickness of road pavement is therefore the frost sensibility of the subbase/subsoil. The matching of the minimum thickness of the frost secure pavement is to ensure that the mostly different subsoil will not be overstressed even in its weakest state.

### **Wearing Courses**

The top layer of an asphalt pavement is the wearing course. Most of the times, the wearing course and the binder course together constitute the covering course. Exceptions are for instance base cover courses. On roads with little traffic (construction classification IV) a base course can be applied as a single course of bitumen fortification. Also, on roads with low traffic load (construction classification IV - VI), the use of a binder course can be waived.

### **Covering Course**

First of all, the covering course serves to absorb the stresses inflicted by traffic and to relay and distribute such stresses through the binder course into the base course. Beside the load distribution function, covering courses must meet a variety of other requirements.

In general:

- Evenness, grip, deformation- and wear resistance, protection of the asphalt construction from water infiltration.

Modified:

- noise reduction (open graded asphalt)
- water permeability (drain asphalt).

### **Binder Course**

The term “binder” originates in the early days of asphalt road construction. The purpose of the application of a “connecting course” was to create a good relay of loads between the gravel base course and the covering course. Actually, the asphalt binder course still has to serve that purpose. In that context it was most important to achieve a good gearing of these courses. Due to the constantly increasing and still growing traffic load the binder course is heavily stressed.

The most significant requirements are:

- High durability even under extreme climatic conditions
- Water permeability
- Material-fatigue resistance.

Therefore, the following requirements have to be met by the composition of a durable binder:

- High crushed stone contents of edge-firm stone
- High percentage of crushed sand (up to a proportion of 1:0 between crushed sand and natural sand)
- Medium binder material (bitumen) content

- Medium void content

## **Base Courses**

Asphalt base courses are applied directly to the foundation mainly in new road constructions. They consist of a single- or multi-layer asphalt mix.

Grain-stepped mixtures with a maximum grain size of 32 mm are used as aggregates. Mainly, regionally available aggregates come into use.

Originally, there were the mixing compositions A, B and C. They met the regional and geological specifics very well. Then, the mixing composition AO came into use for the lower half of the asphalt base courses in asphalt superstructure. The mixing composition CS has tighter specifications and comes into use on sites with heavy traffic loads.

The technical requirements for base courses are not as high as for binder- or wearing courses. In practice that means:

- The load distribution is already achieved by the above laying layers to such a degree that only a relatively low load- and tension concentration remains.
- The climatic impacts like high temperatures in summer and low temperatures in winter are minimized by the “built-in” course.
- The penetration of water is avoided by the superstructure.

Therefore, the requirements to the aggregates and the mix composition do not have to be quite that high.

## **Foundation**

The foundation constitutes the aggregate bed for the road, artificially created for instance by levee-style aggregation. Preferably, locally available soil is being used therefore.

Since the road foundation is always assumed to have an adequate bearability, an according mechanical agglomeration needs to be achieved. Since the natural poured soil often shows insufficient deformation resistance, it can be improved by artificial measures regarding its composition.

The surface of the foundation is the planum or formation level. The following criteria have to be met by the planum:

- Resilient modulus:  $EV2 \geq 45 \text{ MN/m}^2$  on planum, in accordance with RStO - E
- Density:  $DPr \geq 103 \%$  or.  $EV2 / EV1 \leq 2,2$
- Evenness and required level.

## **Subsoil**

The subsoil consists of the queuing natural soil after stripping off topsoil and other non-bearing layers.

Frost security for the subsoil requires special attention with regards to the locally given frost impact zones. Insufficient construction of the pavement or disregarding the specifics of the given construction grounds regarding the frost impact of water-sensitive grounds respectively (capillary water drawing into cavity-poor binding grounds), can result in:

- formation of ice lenses
- uncontrolled liftings and saggings
- loss of bearing capacity

## **ESSENTIALS FOR ASPHALT CONSTRUCTION IN KOSOVO**

### **Aggregates**

For asphalt road construction in Kosovo limestone comes into use almost exclusively for asphalt base- and binder courses, as well as for wearing courses. The limestone deposits in Kosovo do not meet the requirements for covering course materials regarding its abrasion resistance (polish stone value – PSV), impact crushing strength (LA test), water absorption and edge stability in any respect.

A total of 5 stone quarries was examined:

- Bejta Commerce Quarries (2)
- SOE Quarry at Strezovce
- Trasing at Koritica
- Benita Company at Klina

There is hope that some deposits (Andesit) can meet the requirements. In order to ensure that, further testing needs do be done.

## **Bitumen**

90-95% of the bitumen used for asphalt production in Kosovo is imported from Albania. Additional imports originate from Greece, Macedonia and Bulgaria.

The crude oil origin is very similar and so are the specifics especially regarding its paraffin content (high wax content). Also, it is highly unpredictable regarding the purity of sorts (deviation from standards). In practice that means that the buyer never really knows what sort of bitumen he is actually receiving. Each delivery invoice from Albanian refineries show three different sorts of crude oil base see Annex IV. Exact bitumen specifications are not available.

Also, the bitumen is totally unfit in regards to the climatic conditions. These are:

Summer max: +43°C and above

Winter min: - 25°C and below

That means that the asphalt temperature can rise up to 80°C and above in summer time and can fall down to -30°C in winter time.

In the high temperature situation that means regarding the bitumen characteristics, that a ring and ball value of >85°C ought to be realized, and regarding the low temperature behaviour the breaking point according to Fraaß may not be above -20°C at least.

In order to meet such requirements the local bitumen must be modified. Since a mere SBS (polymer) modification does not solve the problem, the modification must occur by use of a modifier especially developed for the respective crude oil origin. This way it is possible to create a “high-tech” bitumen out of a very low quality bitumen, so all requirements, even those regarding road construction under extreme climatic conditions and highest traffic loads (heavy duty traffic), are entirely met. See Annex V for the comparison between a domestic bitumen and a modified one.

## **Asphalt mix design (by independent laboratory)**

In order to produce high-grade asphalt it is mandatory to perform careful mix designs (recipe for asphalt production) in accordance with the applicable regulations (EU standards). The mix design constitutes the proof for the applicability regarding the designated usage in accordance with the specifications stated in the construction contract. The additional specs of the construction contract are to be considered.

In particular, this applies to Construction Classification.

Special stresses caused by lane-bound heavy duty traffic, slow moving heavy duty traffic, frequent break- and acceleration occurrences and non-moving traffic as well as

- local, climatic- and topographic conditions

- additional requirements regarding mix aggregates and -sorts
- binder aggregate and -sort
- layer thickness
- layers to be applied

Concerning the examinations to be performed during the aptitude testing, it must be ensured, that:

- the aggregates are subjected to a quality assurance in accordance with the applicable regulations and that it meets the requirements of such regulations (in cases of doubt additional research is necessary).
- the binder material meets the standards of DIN EN 12591 part 1 or the applicable essential technical delivery term regulations (in cases of doubt additional research is necessary).
- the aggregates and bitumen materials are actually being used in the respective asphalt production process
- the recipe (mix design) can actually be realized in the respective mixing plant with its existing plant technology.

Minimum requirements for examination in the during the aptitude testing are:

- aggregate evaluation by sight
- determination of grain size of the delivered granulation

Further mandatory steps in the production process are:

- selecting of the fittest composition of the aggregate mix and calculation determination of the grain size distribution in the mix under consideration of the requirements stated in the construction contract
- selecting of the appropriate binder (bitumen)
- selecting of additives if needed
- provision of sample mixtures and sample grains (Marshall-sample aggregates for rolled asphalt)

## **QMS Quality Management**

Necessary examinations regarding an efficient quality assurance are:

- mix design,
- aptitude supervising tests,
- control tests.

The **mix design** is described above. The obligation to perform these tests remains with the contractor and may only be performed by an independent, adequately certified laboratory.

With regards to aptitude tests, Kosovo currently refers to Yugoslavian-, Macedonian-, German-, Austrian- or no standards at all (experience).

The **self aptitude tests** are contractor tests in order to ensure the quality of the materials being used, the material compositions and the accordance of the delivered product with the requirements stated in the contract. The test results are to be documented, presented to the purchaser and in case of occurred deviations those are to be spotted and eliminated immediately. In accordance with the "Technical Delivery Terms for Asphalt in Road Construction, Section Quality Assurance" (Technische Lieferbedingungen für Asphalt im Straßenbau Teil: Güteüberwachung, TLG-Asphalt StB) the obligation also implies the supervision during mixing procedures. The testing periods in which mixing samples are to be probed are defined too. Regarding wearing courses, binder courses and base courses, different production amounts are to be probed. In addition, the pre-mentioned regulations

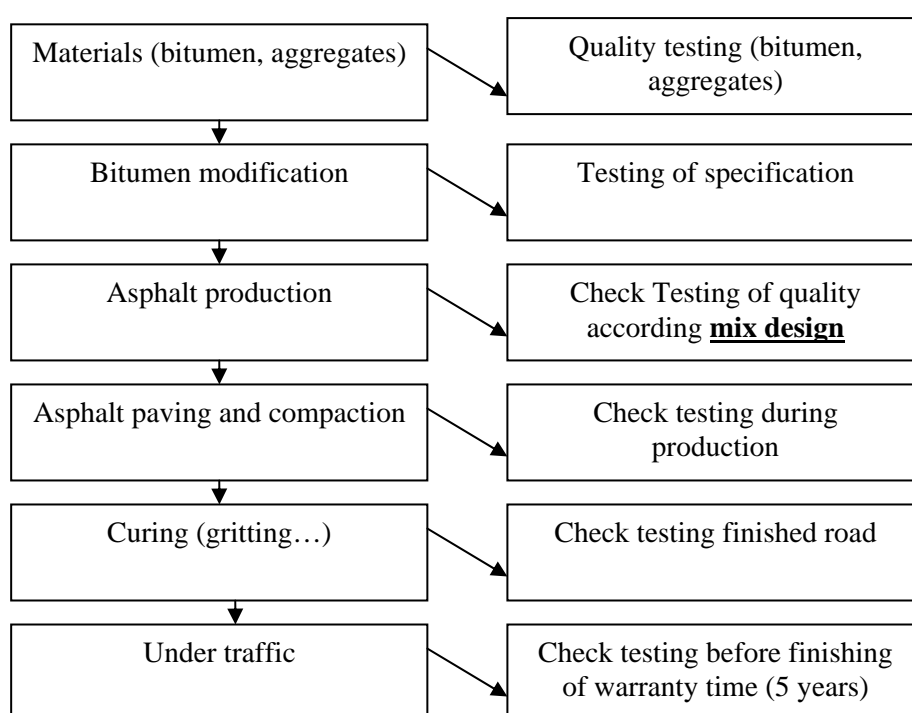
define (TLG Asphalt) the probing frequency for composition asphalt. Also, apart from the probing of mixtures, the TLG Asphalt defines the peripheral conditions like checking of the mixing plant functionality, delivery control of minerals and bitumen if applicable.

The laboratory required for mixing plant check-ups must provide adequate test devices and its staff has to be adequately qualified to perform such check-ups.

The **control tests** are tests to be performed by the purchaser to ensure the quality of construction materials, mixtures and finished products and that requirements defined in the construction contract are met. The results are the basis for the acceptance of work. The probe (sample) taking is performed by the purchaser and contractor together.

The control test laboratory is a totally independent private and certified laboratory.

Basis for the QMS execution in accordance with EU standards is the consistent implementation of EU standards in Kosovo. This means, that in respect of asphalt production, the steps below must be followed:



## Laboratories

The following Laboratories were frequented:

- Eskavatori Ferizaj
- Papenberg/Adriani Ferizaj/Sojevo
- Uni Pristina Pristina
- Eurokos [not operating] Pristina

The equipment and qualification of staff and managers encountered was quite diverse. None of the laboratories was certified in accordance with EU Standards (RAP Stra). The laboratories do not work in accordance to any uniform standard. The involvement of an independent laboratory working in accordance with EU Standards (RAP Stra) is vital in order to protect sovereign interests in control tests in Kosovo.

# CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE ACTIVITY

The basis for all further activity must be the consistent implementation of EU Standards. Standardization must be the main thread running through all road construction projects. Standardization needs to be addressed at all phases of road construction:

- Planning
- Bidding / tendering
- Placing
- Construction (entirely)
- Construction materials (bitumen, aggregates, filler)
- Asphalt production (mixing plants)
- Asphalt application / paving
- Quality management / -control

To meet these targets the following steps should be taken:

1. Analysis of this report
2. Training in the field of asphalt production / asphalt application / QMS
3. Certification of construction materials (aggregates, bitumen etc.)
4. Certification of rock quarries / asphalt mixing plants / contractors
5. Implementation of QMS incl. an independent laboratory for road construction, aggregates, asphalt and earthworks.

# ANNEXES

|         |  |                          |
|---------|--|--------------------------|
| Annex I | A three-part assessment of each asphalt plant. |                          |
|         | ▪ Graniti                                      | Istog                    |
|         | ▪ N.N. Asfalti                                 | Peja                     |
|         | ▪ KAG Asphalt                                  | Prizren                  |
|         | ▪ UNIKOM                                       | Suhareke                 |
|         | ▪ Trasing                                      | Korotica                 |
|         | ▪ Drini  | Prizren [Malishevo]      |
|         | ▪ Eskavatori                                   | Ferizaj                  |
|         | ▪ Burimi                                       | Kacanik                  |
|         | ▪ Papenberg/Adriani                            | Ferizaj [Sojevo]         |
|         | ▪ Victoria Invest                              | Pristina Industrial Zone |
|         | ▪ Victoria Invest                              | Volljak                  |
|         | ▪ AS Put                                       | Leposavic                |
|         | ▪ GE Group                                     | Prizren                  |

Each assessment includes:

- a photo record of the plant;
- an overview of its operations; and
- an evaluation of what has to be changed to meet EU standards.

Annex II      Evaluation matrix of asphalt plants

Annex III     Some examples for asphalt usage.

Annex IV      Delivery Invoice from an Albanian Refinery

Annex V       Comparison between a Domestic Bitumen and a Modified Bitumen



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Asphalt in KOSOVO – in the present  
and ways to meet the quality requirements  
according EU standards in compliance with  
EU test specifications in future

**27th of September 2006**







## Climate:

- Winter - 25°C and below
- Summer + 43°C and above
- More and more heavy duty traffic



# REPORT

- 13 mixing plants
- 4 Quarries
- Different departments of Kosovo
- ICMM
- University
- Very close cooperation with Kosovo  
Asphalt association SHKNRR



# inspected asphalt mixing plants

|    |                        |                       |
|----|------------------------|-----------------------|
| 1  | Graniti                | Istog                 |
| 2  | N. N. Asfalti          | Peje                  |
| 3  | KAG Asphalt            | Prizren               |
| 4  | UNIKOM                 | Suhareke              |
| 5  | Trasing                | Korotica              |
| 6  | Drini                  | Prizren (Malishevo)   |
| 7  | Eskavatori             | Ferizaj               |
| 8  | Burimi                 | Kaqanik               |
| 9  | Papenburg /<br>Adriani | Ferizaj / Sojevo      |
| 10 | Victoria Invest        | Pristina Indust. Zone |
| 11 | Victoria Invest        | Volljak               |
| 12 | AS Put                 | Leposavic             |
| 13 | GE Group               | Prizren               |



# reports

Consisting of 3 parts

- 1st report in general with remarks  
3pages
- 2nd picture report  
1 or 2 pages
- 3rd listing of changes to be ready for EU  
standards  
1 or 2 pages






**DR. HUTSCHENREUTHER GmbH**





|   |                   |             |
|---|-------------------|-------------|
| company:  |                   | consultant: |
|  |                   | Dr. Hutsche |
| Asphalt mixing plant:   | Type of plant:    |             |
| „GRABIS“ (Srbija)   | Type of dryer:    |             |
|   | Type of batching: |             |
| Year of construction: 2006  |                   |             |
| Last review: 04/2006  |                   |             |
| <b>1 company assessment</b>   |                   |             |
| 1.1 aggregate   | Limestone 0/8     |             |
| 1.1.1 separated storage   | yes               |             |
| 1.1.2 identification  | no                |             |
| 1.1.3 purity (without harmful ingredients)  | no Gyc            |             |
| 1.1.4 certificate of compliance   | no Con            |             |
| 1.2 Filler  | Limestone         |             |
| 1.2.1 identification  | no                |             |
| 1.3 Bitumen storage tanks, amount   |                   |             |
| 1.3.1 identification  | No no             |             |
| 1.3.2 Temperature measurement device  | Yes Yes           |             |
| 1.4 oilblows  | No use            |             |
| 1.4.1 identification  | -                 |             |
| 1.4.2 quality and storage   | -                 |             |
| 1.5 asphalt production  |                   |             |
| 1.5.1 storage quality   | Black material    |             |
| 1.5.2 Temperature measurement device  | Yes Not           |             |
| <b>2 Organisation of factory production control</b>                               |                   |             |
| Labor   |                   |             |
| 2.1 Laboratories (where situated)   |                   |             |
| 2.1.1 responsibility for control tests  |                   |             |
| 2.1.2 equipment   |                   |             |
| 2.1.3 staff   |                   |             |
| 2.1.4 remarks (external page 1)   |                   |             |
| 2.2 production control  |                   |             |
| 2.2.1 binder content and grading  |                   |             |
| 2.2.2 max density and bulk density  |                   |             |
| 2.2.3 Marshallability and Marshall flow   |                   |             |
| 2.2.4 indentation test  |                   |             |
| 2.2.5 binder recovery (Marshall test 4.1)   |                   |             |

**3 factory****3.1 mix des**

Base cours

Binder cours

**Wearing cour**

asphalt concn

SMA

**4. staff**

qualification

1

2

3

4

**5 Envirc**

Pollution prote

Pollution prote

**6 resume**

Aggregates / W

Bitumen / stora

Filler

additivs

Comparison mi

Impression of p

Laboratory

Management

Manual / autom

Asphalt mixing

Asphalt-mixing

Unicom

**Mr ELSH.****7. remarks to report**

The aggregates (limestone) are not in accordance with the requirements for the use as aggregates in the quality for wearing courses for roads and for runways (airports)

The aggregates are not without harmful ingredients, like gypsum.  
No test results or certifications on the delivery note are available

The bitumen is delivered from Albania. The quality varies between bitumen 50/70, 60/80 and 70/100.  
No self control test results or real test results on the delivery note are available

**This asphalt mixing plant is under this conditions not able to produce high quality asphalt for the airport runways or for the wearing course of classified roads**



company:

NDËRMARRJA PËR PROJEKTIM DHE NDËRTIM "UNICOM"



logo

consultant:

Dr. Hutschenreuther



General view



General view



Bitumen and masut tanks



Dosage overflow



chance selected aggregates



purity (with harmful ingredients)



Dust (filler) filter system





What has to be changed according EU standards

|        |   |   |
|--------|---|---|
| No.    | Test review: 04/2006                              | Company: UNIKOM   |
|        | <b>company assesment</b>                          |   |
| 1.     | aggregates  | Using aggregates according EU standards   |
| 1.1.   | separated storage                                 | (boxes)   |
| 1.1.   | identification                                    | Istall indentification signs  |
| 1.1.   | purity (without harmful ingredients)              | No use of material with harmful ingredients   |
| 1.1.   | certificate of compliance                         | Only use aggregates with certificate  |
| 1.2.   | Filler  |   |
| 1.2.   | identification                                    | Istall indentification signs  |
| 1.3.   | Bitumen   | using modified bitumen according climatig conditiones   |
| 1.3.1. | storage tanks identification                      | Istall indentification signs  |
| 1.4.   | asphalt produktion                                |   |
| 1.4.1. | obvious quality                                   | Constant checking of quality acc. TLG Asphalt   |
| 1.4.2. | Temperature measurement device                    | Constant checking of quality acc. TLG Asphalt   |
| 2      | <b>Organisation of factory production control</b> |   |
| 2.1.   | Laboratories (where situated)                     | Make an contract with lab   |
| 2.2.   | production control                                | should made by itself or contractor   |
| 3.1.   | mix design  | Make mix design according EU  |
|        | Base course                                       | x   |
|        | Binder course                                     | x   |
|        | Wearing course-                                   | x   |
|        | asphaltconcrete                                   | x   |
| 4.     | <b>staff</b>                                      |   |
|        | qualification                                     | Organise training, min once a year  |
| 5      | <b>Environment</b>                                | Make check according EU (TA Luft)   |
|        | Pollution protection (dust)                       | X   |
|        | Pollution protection (noise)                      | x   |
|        | Aggregates / Weightning                           | Install weightbridge  |
|        | Bitumen / storage tanks                           | Check the quality of steel frames   |
|        | Filler  |   |
|        | additivs  | (no use)  |
|        | Comparison mix design / asphalt products          | Install QMS   |
|        | Impression of plant                               | Improve storage space   |
|        | Laboratory  | Make contract with EU certified lab   |
|        | Management  |   |
|        | Manual / automatic (computer added) production    | Calibration of production system  |
|        | <b>remarks to report</b>                          | Use aggregates and bitumen according EU standards or special modified bitumen<br>All parts of mixing plant have to be calibrated once a Year or every second Year |



# Ready for EU?

Asphalt check KOSOVO 2006

|         | aggregates   | valid certificate | filler             | bitumen                  | valid certificate | delivery control system | self production control        | weight bridge | own laboratory | valid mix design | produced mixes | staff     | environmental test (pollution) | Year of construction of plant | Year of RE installation of plant | producer of plant          | impression    |
|---------|--|-------------------|--------------------|--------------------------|-------------------|-------------------------|--------------------------------|---------------|----------------|------------------|----------------|-----------|--------------------------------|-------------------------------|----------------------------------|----------------------------|---------------|
| 09/2006 | limestone  | no                | limestone          | Albania 60/80            | any               | no                      | yes                            | yes           | yes            | no               | ac be tds      | 1 + 2 + 1 | yearly by telomat              | 2000                          | 2000                             | Telomat                    | good          |
| 07/2006 | limestone/ crushed river gravel - own crusher        | no                | limestone          | Albania 60/80            | no                | no                      | yes no (no production in 2006) | yes           | yes            | no               | ac be tds      | 1 + 5 + 1 | no                             | 2003                          | 2003                             | Bernardi                   | good          |
| 13/2006 | limestone / crushed river gravel / in future others  | no                | limestone / cement | Albania 60/80 or Greek?  | no                | no                      | sporadic in UNI Pli            | no            | no             | no               | ac be tds      | ??        | no                             | 2006                          | 2006                             | Nilgata                    | good          |
| 01/2006 | limestone  | no                | limestone          | Albania 60/80            | no                | no                      | sporadic in UNI Pli            | no            | no             | no               | ac be tds      | 1 + 1     | no                             |                               | 2004                             | Benninghoven               | medium        |
| 02/2006 | limestone  | no                | limestone          | Albania 60/80            | no                | no                      | sporadic in UNI Pli            | no            | no             | no               | ac be tds      | 1 + 3     | no                             | 1990                          | 2001                             | Marini                     | medium        |
| 03/2006 | limestone/ crushed river gravel                      | no                | limestone          | Albania 60/80            | no                | no                      | sporadic in Austria            | no            | no             | no               | ac be tds      | 1 + 4     | no                             | 1975 / 1964                   | 2000                             | Alsfelder Grads (Slovenia) | medium        |
| 04/2006 | limestone  | no                | limestone          | Albania 60/80            | no                | no                      | sporadic in UNI Pli            | no            | no             | no               | ac be tds      | 1 + 5     | no                             | 2005                          | 2005                             | AMMANN WIBAU               | medium        |
| 06/2006 | limestone  | no                | limestone          | Albania 60/80            | no                | no                      | sporadic in Skopje             | no            | no             | no               | ac be tds      | 1 + 3     | no                             | 1983                          | 2002                             | Marini                     | medium        |
| 11/2006 | limestone  | no                | limestone          | Albania 60/80            | no                | no                      | not installed                  | no            | no             | no               | ac be tds      | 1+2+1+1   | no                             | 1990                          |                                  | Marini                     | medium        |
| 08/2006 | limestone  | no                | limestone          | Albania 60/80            | no                | no                      | sporadic in UNI Pli            | no            | no             | no               | ac be tds      | 1 + 2     | no                             | 1986                          | 2004                             | Bernardi                   | very bad      |
| 12/2006 | limestone / crushed river gravel / in future basalt? | no                | limestone          | Albania 60/80 or Serbian | no                | no                      | no (no production in 2006)     | no            | no             | no               | ac be tds      | ??        | no                             | 1978                          | ???                              | Marini                     | very bad      |
| 05/2006 | limestone  | no                | limestone          | Albania 60/80            | no                | no                      | no (no production in 2006)     | no            | no             | no               | ac be tds      | ?         | no                             | 1980                          | 2001                             | WIBAU                      | very bad      |
| 10/2006 | limestone  | no                | limestone          | Albania 60/80            | no                | no                      |                                | no            | no             | no               | ac be tds      | 1+3       | no                             | 1990                          | ???                              | Marini                     | very very bad |



# results

| amount | plants                                      | assesment                         |
|--------|---|-----------------------------------|
| 3      | Papenburg /Adriani, Eskavatori,<br>GE Group | near by                           |
| 6      |   | with higher technical investments |
| 2      |   | close?                            |
| 2      |   | close!!                           |



## inspected quarries

|   |                           |           |
|---|---------------------------|-----------|
| 1 | Bejta Commerce            | Quarry 1  |
| 2 | Bejta Commerce            | Quarry 2  |
| 3 | SOE Quarry                | Strezovce |
| 4 | Trasing                   | Korotica  |
| 5 | Benita Company            | Klina     |
| 6 | New Quarry ( stra ga bau) | Mitrovica |







### Water absorption

05.09.2006

|                | Pyknometer 51 | Pyknometer 63 |
|----------------|---------------|---------------|
| $m_1$ [g]      | 753,20        | 737,70        |
| $m_2$ [g]      | 1431,10       | 1367,90       |
| $M_w$ [g]      | 704,00        | 662,30        |
| $M_f$ [g]      | 2416,00       | 2383,50       |
| $W_F$ [%]      | 3,9           | 5,1           |
| $\phi W_F$ [%] | 4,5           |               |

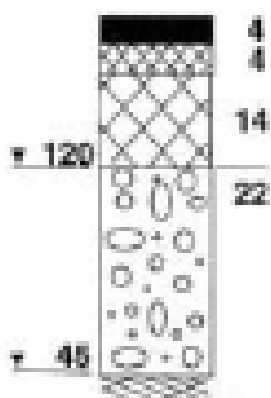
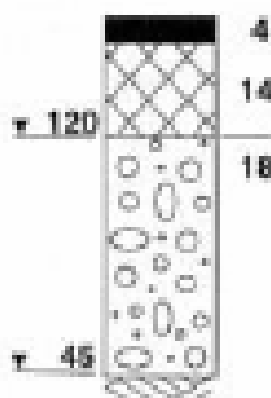
Wenn diese Wasseraufnahme der in der Tabelle 18 festgelegten Kategorie  $W_{cm0,5}$  entspricht, ist von einer ausreichenden Widerstandsfähigkeit der Gesteinskörnung gegen Frostbeanspruchung auszugehen. Wird die Anforderung der Kategorie  $W_{cm0,5}$  nicht eingehalten, ist der Widerstand gegen Frostbeanspruchung nach dem Abschnitt 2.2.14.2 zu prüfen.

**Tabelle 18: Anforderungen an die Wasseraufnahme von Gesteinskörnungen**

| Wasseraufnahme<br>M.-%  | Kategorie<br>$W_{cm}$ |
|---|-----------------------|
| $\leq 0,5$  | $W_{cm 0,5}$          |
| Anmerkung: Die Prüfung der Wasseraufnahme ist bei Hochofenstüchschlacke und anderen porösen Gesteinskörnungen nicht zweckmäßig. |                       |



# inspected building sites

| III  |                  |    |    | IV   |    |    |    |
|--|------------------|----|----|--|----|----|----|
| > 0,8 - 3  |                  |    |    | > 0,3 - 0,8  |    |    |    |
| 45   | 55               | 65 | 75 | 45   | 55 | 65 | 75 |
|  |                  |    |    |  |    |    |    |
| -  | 33 <sup>2)</sup> | 43 | 53 | 27 <sup>3)</sup>   | 37 | 47 | 57 |

Min.  $14 + 4 = 18\text{cm}$  Asphalt

Nomal:

$14 + 4 + 4 = 22\text{cm}$  Asphalt

**Reality in 2006:**  
**6 – 7cm Asphalt**



**DR. HUTSCHENREUTHER GmbH**





# Problems and mistakes

- General preparations
- Choice of material (limestone aggregates / albanian bitumen)
- Choice of equipment (quality of mixing plants)
- mix designs are not valid
- Bad storage of materials
- Paving
- Compacting
- grip



# THE PRESENCE



# Rutting on the highways

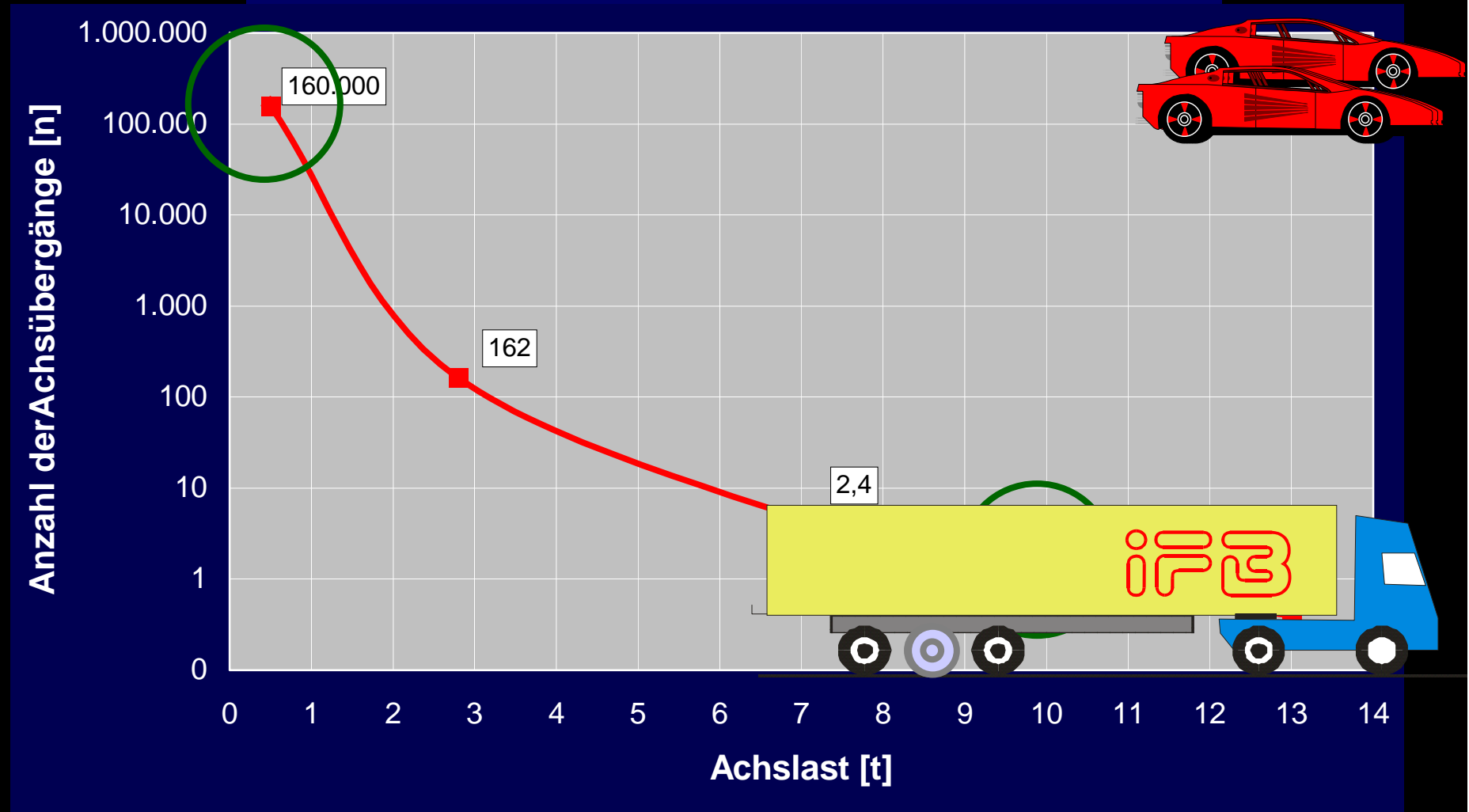


# THE FUTURE



# Development of traffic

## Loads on the roads



# BASICS

1. Aggregates
2. Bitumen
3. Mix design
4. Testing
  - Self supervision material production
  - Self supervision paving / road construction
  - Check testing



# BASICS 1 - aggregates

- aggregates

(limestone for wearing course???)

- Edge stability
- Cubic
- hardness < 18%(impact crushing strength)
- PSV (polish stone value)
- Constant quality
- ongoing supervision



## BASICS 2 - Bitumen

Used provinces:

Albania, Macedonia, Greece, Bulgarian

Very unstable quality, very soft

For **heavy duty traffic** and extreme climatic conditions not usable

- Special -modified Bitumina (CCBit 113, not every other modification is suitable)-
- Constant quality of bitumen, ongoing supervision







Albanian Refining and Marketing of Oil  
Sh. a. Lagjja "Maj" Fier - Albania

|          |           |                     |
|----------|-----------|---------------------|
| Tel& Fax | 0342 3931 | STATE STANDART      |
| TEL      | 0342 3928 | QUALITY CERTIFICATE |
|          | 042 2141  |                     |

**LIQUID BITUMEN**  
**TYPE 50 - 70, 60 - 80, 80 - 100**

|  |           |           |        |
|--|-----------|-----------|--------|
| 1. Penetration .....   | 50-70     | 60-80     | 80-100 |
| 2. Ductility in 250C not less than .....                                       | 100       | 100       | 100    |
| 3. Smelt Point 0C .....  | 47-52     | 46-52     | 45-48  |
| 4. Flash Point 0C not less than  | 225       | 225       | 220    |
| 5. Spinbility in tricloretilencloroform or<br>benzene in %, not less than..... | 99        | 99        | 99     |
| 6. Lost of weight in 5 hours t=160 0C<br>not more than .....                   | 0,8       | 0,8       | 0,8    |
| 7. Ash in % weight not more weight ....  | 0,2       | 0,2       | 0,2    |
| 8. Reduction of penet. after loss of weight...                                 | 55        | 55        | 55     |
| 9. Density at 200C gr/cm 3 .....   | 1,02-1,07 | 1,02-1,07 | ---    |

**ARMO SHA FIER**



**Domestic bitumen  
to soft (f.ex. R&B 48°C)**



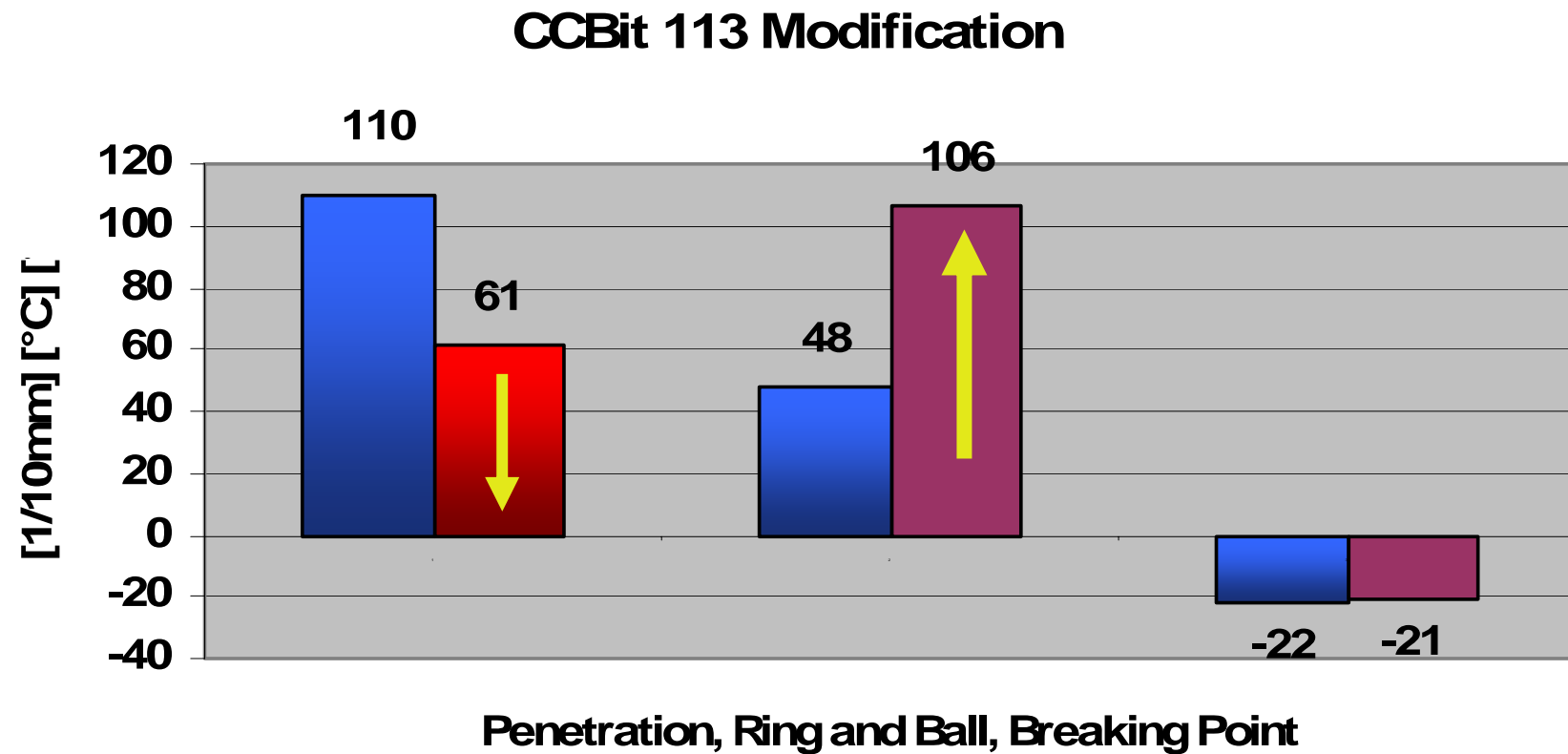
**Bitumen modification plant**



**Modified bitumen  
High quality (f.ex. R&B >90°C)  
Breaking point < -20°C**



# Bitumenmodification



## **BASICS 3 - Mix design (by indep. lab)**

- mix design according Germans/European standardization
- size of aggregates  
0/8 or 0/11 for wearing course (0/16 for TDS)  
0/16 or 0/22 for binder course  
0/22 or 0/32 for base course
- No use of "soft" aggregates (limestone) for wearing course
- aggregate composition after "gap graded granulation" - very stable
- Optimization of the Bitumen quantity



# Prüfungsfang für die einzelnen Mischgutarten

## Anlage 1

| Prüfungsfang | Mischgutarten   | Gruppe A  | Gruppe B               | Gruppe C                          | Gruppe D                | Gruppe E   |
|--------------|---|---|------------------------|-----------------------------------|-------------------------|--|
|              |   | Asphaltbeton,<br>Asphaltbinder,<br>Asphalttragschicht,<br>Tragdeckschicht | Spülmastix-<br>asphalt | Gußasphalt,<br>Asphalt-<br>mastix | Offenporiger<br>Asphalt | Asphalt für<br>Dünne<br>Schichten im<br>Kaltsteinbau |
| 4.2.1        | MINERALSTOFFE<br>RG Min-Nachweis<br>Äußere Beschaffenheit<br>Kornform nach Augenschein<br>Kornform experimentell<br>Bruchfähigkeit nach Augenschein<br>Bruchfähigkeit experimentell<br>Korngrößenverteilung (KGV) nach TP-Min, trocken<br>Korngrößenverteilung (KGV) nach TP-Min, naß <sup>1)</sup><br>Rohdichte nach TP-Min (je Lieferkörnung) | +   | +                      | +                                 | +                       | +  |
| 4.2.2        | ASPHALTGRANULAT<br>Äußere Beschaffenheit<br>Rohdichte des Mineralstoffgemisches nach Extraktion<br>Korngrößenverteilung nach Extraktion (DIN 1996-6, -14)<br>Art der Mineralstoffe (gebrochen/rund)<br>Bindemittelgehalt und Erweichungspunkt (EP RuK)  | +   |                        | +                                 |                         |  |
| 4.2.3        | BINDEMittel <sup>2)</sup><br>Bindemittelart (StB, PmB, HVB, TL, PmBE-DSK...)<br>Bindemittelsorte (EP RuK, Nadelpenetration)<br>Bindemittelsorte (Rückstellung [Halbfadenmethode])   | +   | +                      | +                                 | +                       | +  |
| 4.2.4        | ZUSATZSTOFFE<br>Eignung<br>Art des Zusatzstoffes nach Augenschein   |   | X                      | X                                 | X                       | X  |
| 4.2.5        | ZUSAMMENSETZUNG DES MISCHGUTES<br>Rechnerische Ermittlung der KGV<br>Wahl der Bindemittelgehalte<br>Wahl der Menge des Zusatzstoffes  | +   | +                      | +                                 | +                       | +  |
| 4.2.6        | PROBEMISCHUNGEN<br>Gesamtwassergehalt<br>Mineralstoff-Temperatur<br>Bindemittel-Temperatur<br>Mischguttemperatur (Raumtemperatur)<br>Mischung maschinell<br>Mischung von Hand<br>Reihenfolge der Zugabe<br>Mischzeitende nach Augenschein<br>Äußere Beschaffenheit Mischgut   | +   | +                      | +                                 | +                       | +  |
| 4.2.7        | HERSTELLUNG VON PROBEKÖRPERN<br>Marshall-Probekörper (2 x 50 Schläge)<br>Normenwürfel<br>Herstellungstemperaturen   | +   | +                      | + 3)                              | +                       | +  |
| 4.2.8        | PRÜFUNG DER PROBEMISCHUNG<br>Rechnerische Ermittlung der Rohdichte<br>Ablaufzeit<br>Extraktion der Probekörper<br>Erweichungspunkt Wilhelmi   | +   | +                      | +                                 | + 4)                    | +  |
| 4.2.9        | PRÜFUNG DER PROBEKÖRPER<br>Raumdichte nach DIN 1996-7<br>Wasseraufnahme nach DIN 1996-8 7)<br>Marshall-Test<br>Stempel-Eindringversuch  | +   | +                      | + 3)                              | +                       | +  |
| 4.2.10       | AUSWERTUNG<br>Hohlraumgehalt Mineralmasse $H_{M,holl}$<br>Hohlraumgehalt Asphalt $H_{holl}$<br>Wasseraufnahme 7)<br>Bindemittelvolumen $H_B$<br>Hohlraumausfüllung $H_A$<br>Stabilität/Fließwert<br>Eindringtiefe<br>Ablaufzeit<br>Erweichungspunkt Wilhelmi  | +   | +                      | + 8)                              | +                       | +  |
| 5.           | ZUSÄTZLICHE PRÜFUNGEN<br>(erweiterte Eignungsprüfung)<br>Spurbildungsversuch / Druck-Schwell-Versuch<br>Verdichtbarkeit<br>Verhalten bei tiefen Temperaturen  | X   | X                      | X                                 | X                       | X  |

Kennzeichnung:

± Regeluntersuchung  
(+) empfohlen

Fußnoten:

1) Sande, außer solchen, die während des Herstellungs-  
prozesses einen Waschvorgang durchlaufen haben  
2) je Gebinde

3) bei Verwendung von Ausbaumasphalt aus der empfohle-  
nen Mischung

4) nur bei Asphaltmastix

7) bei Mischgut mit kapillarporösen Mineralstoffen oder  
solchen mit offener Poren



## **BASICS 4 – Testing self supervision by indep. lab**

- Ongoing self supervision during the asphalt production
- Ongoing initial control of all building-materials (agreggates, Bitumen, additivs)
- At daily production begin first taking samples after the 2nd mixture (batch)
- Extraction, size of aggregates, Bitumen content, Bitumen, binder drainage test, Marshall body production and void content
- Result: direct correction of the formula to mixing plant (just in time)



## self own supervision during the paving and compacting

- Temperature measurings -- ongoing
- Obvious check of the mixing good one quality on every delivery
- taking samples of asphalt mix
- Instantaneous examinations of the mix in the laboratory, influencing control on mixing for production
- Profile adjusted position
- Layer thickness
- gritting
- compaction control with Isotope measurement system if necessary





## **Control inspections after finishing by central lab of KOSOVO (indept. lab)**

- eveness measurings with planograph
- layer thickness with layer thickness system  
or at the drilling core
- Drilling, extraction and examinations
- asphalt mix examinations
- Grip testing with SRT or SCRIMM



# Steps to go - today

- **Congress on the 27th of September**  
participants:  
Ministry of Transportation  
USAID  
RCAK members  
AKM (Municipalities)

**Planning, construction, QMS, Asphalt  
according EU standards**



# Next steps to go

- Application of EU standards
- Certification programm:  
Quarries  
Asphalt mixing plants  
Bitumen
- Training programmes beginning in 2007
- Installation of independent, private lab



**Gouvernement  
Ministry of  
Transport..**

**Implementation  
EU Standards**

**Independent**

**Planning**

**Institutes**

**Tender**

**and**

**Laboraties**

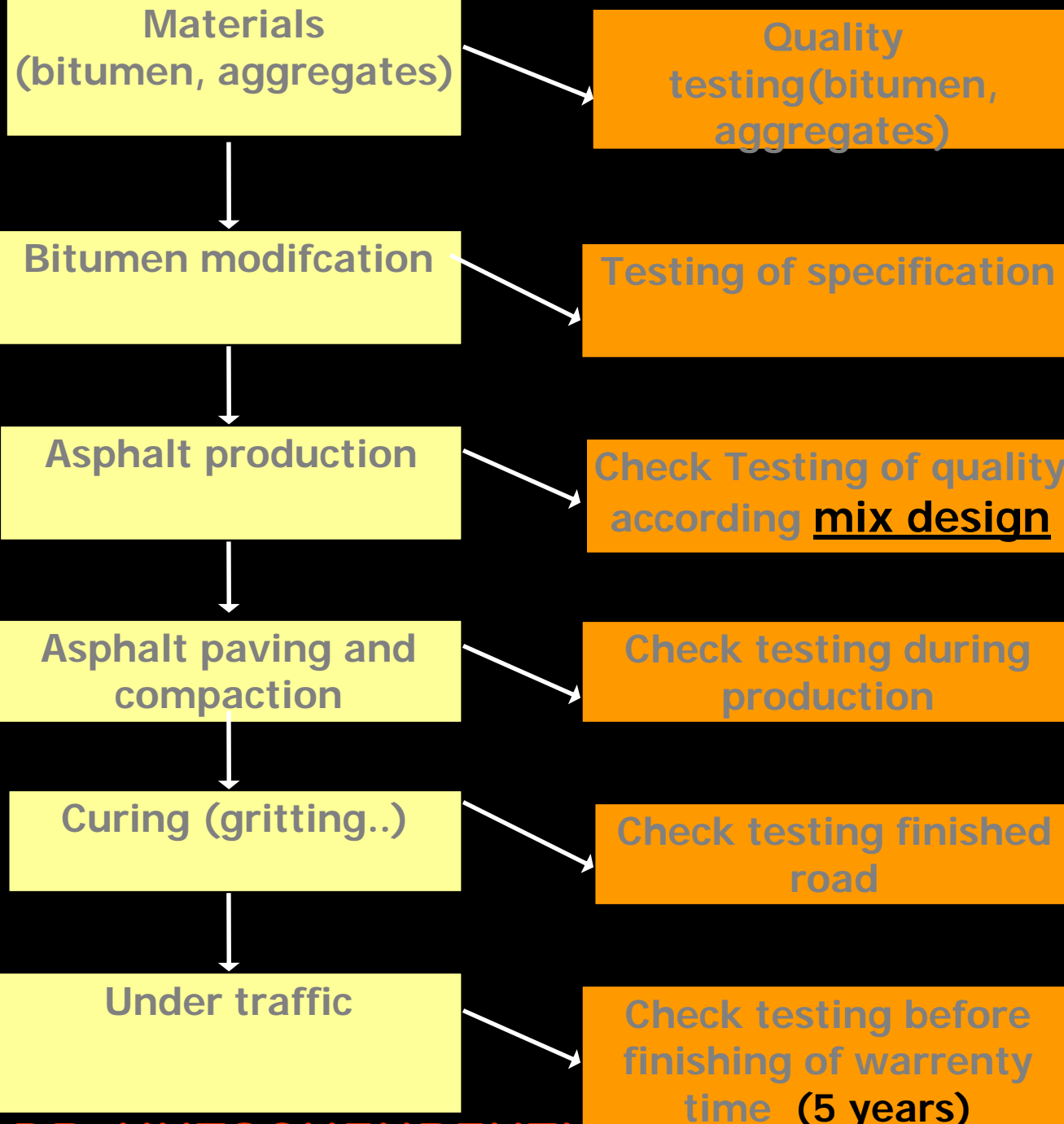
**Qualification of  
building companies**

**According EU  
standards**

**Supervision and check  
testing**

**QMS**





- Think together
- Work together
- control
- Have together excellent results for the infrastructure of KOSOVO



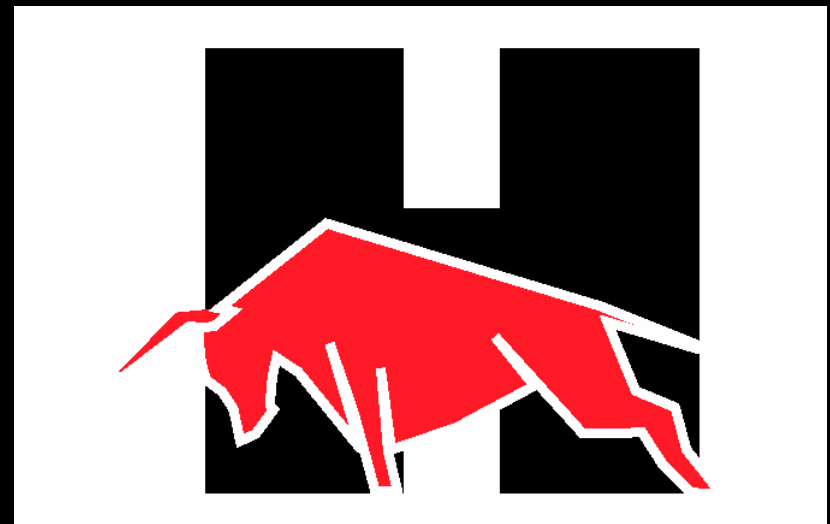


# DR. HUTSCHENREUTHER

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[Jh@hutschenreuther.de](mailto:Jh@hutschenreuther.de)

FOR MORE INFO...



**DR. HUTSCHENREUTHER GmbH**





General view

company: 01/2006



Bitumen – temperature measurement



Aggregates storage




Bitumen storage tanks



aggregates



Thermo asphalt truck

|   |                |   |                                     |                                   |   |
|---|----------------|---|-------------------------------------|-----------------------------------|---|
| company:  |                | consultant:   |                                     |                                   |   |
|  |                | Dr. Hutschenreuther   |                                     |                                   |   |
| Asphalt mixing plant:<br>„Benninghoven“   |                | Type of mixer: batch mixer 100 - 120 t/h<br>Type of dryer: Turbofilter year: 2004<br>type of batching device year: 2004 |                                     |                                   |   |
| Year of construction: 2004  |                |   |                                     |                                   |   |
| Test review: 01/2006  |                |   |                                     |                                   |   |
| <b>1 company assesment</b>  |                |   |                                     |                                   |   |
| <b>1.1 aggregates</b>   |                | Limestone 0/2, 2/4, 4/8, 8/11, 11/16, 16/22   |                                     |                                   |   |
| 1.1.1 separated storage   | yes            |   |                                     |                                   |   |
| 1.1.2 identification  | no             |   |                                     |                                   |   |
| 1.1.3 purity (without harmful ingredients)  | no             | Gypsum and others   |                                     |                                   |   |
| 1.1.4 certificate of compliance   | no             | Company was not able to show me   |                                     |                                   |   |
| <b>1.2 Filler</b>   |                | Limestone   |                                     |                                   |   |
| 1.2.1 identification  | no             |   |                                     |                                   |   |
|   |                |   |                                     |                                   |   |
|   |                |   |                                     |                                   |   |
| <b>1.3 Bitumen storage tanks, amount</b>  | 1              | 2   | x                                   | x                                 | x |
| 1.3.1 identification  | No             | no  | Only 60/80 from Albania             |                                   |   |
| 1.3.2 Temperature measurement device  | Yes            | Yes   |                                     |                                   |   |
| <b>1.4 additives</b>  |                | No use  |                                     |                                   |   |
| 1.4.1 identification  | -              |   |                                     |                                   |   |
| 1.4.2 quality and storage   | -              |   |                                     |                                   |   |
| <b>1.5 asphalt produktion</b>   |                |   |                                     |                                   |   |
| 1.5.1 obvious quality   | Black material |   |                                     |                                   |   |
| 1.5.2 Temperature measurement device  | yes            | Normal mixing temp  |                                     |                                   |   |
| <b>2 Organisation of factory production control</b>                               |                | Laboratory  |                                     | Sporadic tests in UNI<br>Pristina |   |
| <b>2.1 Laboratories</b> (where situated)  | Not available  |   | No test report available            |                                   |   |
| 2.1.2 responsibility for control tests  |                |   |                                     |                                   |   |
| 2.1.3 equipment   |                |   |                                     |                                   |   |
| 2.1.4 staff   |                |   |                                     |                                   |   |
| 2.1.5 remarks (use rear page )  |                |   |                                     |                                   |   |
| <b>2.2 production control</b>   |                |   | remarks<br>No test report available |                                   |   |
| 2.2.1 binder content and grading  |                |   |                                     |                                   |   |
| 2.2.2 max density and bulk density  |                |   |                                     |                                   |   |
| 2.2.5 Marshall-stability and Marshall flow  |                |   |                                     |                                   |   |
| 2.2.6 indentation test  |                |   |                                     |                                   |   |
| 2.2.7 binder recovery / ring and ball (R & B )                                    |                |   |                                     |                                   |   |

Next page 2

| 3 factory production  |                    | components |                            |           |           | remarks      |
|---|--------------------|------------|----------------------------|-----------|-----------|--------------|
|   |                    |            |                            |           |           |              |
| 3.1 mix design: origin Germany???                               |                    | bitumen    | aggregates                 | filler    | additives | EU standard  |
| Base course   | 0/22               | 60/80      | Limestone                  | limestone | no        | No standards |
| Binder course   | No production      |            |                            |           |           |              |
| Wearing course-<br>asphaltconcrete<br>SMA                       | TDS 0/16           | 60/80      | Limestone                  | limestone | no        | No standards |
|   | 0/ 8, 0/11         | 60/80      | Limestone                  | limestone | no        | No standards |
|   | No production      |            |                            |           |           |              |
| 4. staff  |                    |            |                            |           |           |              |
| qualification   |                    | age        |                            |           | amount    |              |
| 1   | chief              |            |                            |           | 1         |              |
| 2   | operator           |            |                            |           | 1         |              |
| 3   | Mechanics / dosage |            |                            |           | 1         |              |
| 4   | Unskilled helper   |            |                            |           |           |              |
|   |                    |            |                            | Total     | 3         |              |
|   |                    |            |                            |           |           |              |
| 5 Environment   |                    |            |                            |           |           |              |
| Pollution protection (dust)                                     |                    | No         | EU standard                | No        |           |              |
| Pollution protection (noise)                                    |                    | No         | EU standard                | No        |           |              |
| Old tüv certificate from Germany – not valid                    |                    |            |                            |           |           |              |
|   |                    |            |                            |           |           |              |
| 6 resume of assesment   |                    |            |                            |           |           |              |
| Aggregates / Weightning   |                    | Bad        | No weight bridge available |           |           |              |
| Bitumen / storage tanks   |                    | Bad        |                            |           |           |              |
| Filler  |                    | Bad        |                            |           |           |              |
| additives   |                    | No         |                            |           |           |              |
| Comparison mix design / asphalt products                        |                    | No         |                            |           |           |              |
| Impression of plant   |                    | medium     |                            |           |           |              |
| Laboratory  |                    | No         |                            |           |           |              |
| Management  |                    | Bad        |                            |           |           |              |
| Manual / automatic (computer added) production                  |                    | CAP        |                            |           |           |              |
| Asphalt mixing plant according requirements EU standardisation? |                    |            | no                         |           |           |              |
| Asphalt-mixing-plant  |                    |            |                            |           |           |              |
| Graniti   |                    |            |                            |           |           |              |
| ISMET LOSHAJ  |                    |            |                            |           |           |              |
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| +377 – 44 – 502 506   |                    |            |                            |           |           |              |

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**7. remarks to report**

The aggregates (limestone) are not in accordance with the requirements for the use as aggregates in the quality for wearing courses for roads

The aggregates are not without harmful ingredients, like gypsum.

No test results or certifications on the delivery note are available

The bitumen is delivered from Albania. The quality varies between bitumen 50/70, 60/80 and 70/100.

No self control test results or real test results on the delivery note are available

Problems with Filtration

**This asphalt mixing plant is under this conditions not able to produce high quality asphalt for the wearing course of classified roads according European Standards**

For the repairing of roads were thermo transporters used!

## What has to be changed according EU standards

|       |   |   |
|-------|---|---|
| No.   | Test review: 01/2006                              | Company: Granit   |
|       | <b>company assesment</b>                          |   |
| 1.    | <b>aggregates</b>                                 | Using aggregates according EU standards   |
| 1.1.  | separated storage                                 | installation of storages (boxes)  |
| 1.1.  | identification                                    | Install identification signs  |
| 1.1.  | purity (without harmful ingredients)              | No use of material with harmful ingredients   |
| 1.1.  | certificate of compliance                         | Only use aggregates with certificate  |
| 1.2   | <b>Filler</b>                                     |   |
| 1.2.  | identification                                    | Install identification signs  |
| 1.3   | <b>Bitumen</b>                                    | using modified bitumen according climatic conditions  |
| 1.3.1 | <b>storage tanks</b> identification               | Install identification signs  |
| 1.4   | <b>asphalt produktion</b>                         |   |
| 1.4.1 | obvious quality                                   | Constant checking of quality acc. TLG Asphalt   |
| 1.4.2 | Temperature measurement device                    | Constant checking of quality acc. TLG Asphalt   |
| 2     | <b>Organisation of factory production control</b> |   |
| 2.1   | <b>Laboratories</b> (where situated)              | Make an contract with lab   |
| 2.2   | <b>production control</b>                         | should made by itself or contractor   |
| 3.1   | <b>mix design</b>                                 | Make mix design according EU  |
|       | <b>Base course</b>                                | x   |
|       | <b>Binder course</b>                              | x   |
|       | <b>Wearing course-</b>                            | x   |
|       | <b>asphaltconcrete</b>                            | x   |
| 4.    | <b>staff</b>                                      |   |
|       | <b>qualification</b>                              | Organise training, min once a year  |
| 5     | <b>Environment</b>                                | Make check according EU (TA Luft)   |
|       | <b>Pollution protection (dust)</b>                | X   |
|       | <b>Pollution protection (noise)</b>               | x   |
|       | Aggregates / Weightning                           | Install weightbridge  |
|       | Bitumen / storage tanks                           |   |
|       | Filler  |   |
|       | additivs  | (no use)  |
|       | Comparison mix design / asphalt products          | Install QMS   |
|       | Impression of plant                               | Improve storage space   |
|       | Laboratory  | Make contract with EU certified lab   |
|       | Management  |   |
|       | Manual / automatic (computer added) production    | Calibration of production system  |
|       | <b>remarks to report</b>                          | Use aggregates and bitumen according EU standards or special modified bitumen<br>All parts of mixing plant have to be calibrated once a Year or every second Year |





General view



Company 02/20065



Dosage of aggregates



Storage of aggregates



Aggregates with different origin (not clean)



detail

|   |   |                                 |               |                                     |   |
|---|---|---------------------------------|---------------|-------------------------------------|---|
| company:  | consultant:<br><b>Dr. Hutschenreuther</b>   |                                 |               |                                     |   |
| Asphalt mixing plant:<br>N.N. Asfalti<br>Marini     | Type of mixer:                              | batch mixer                     | 120 - 160 t/h |                                     |   |
|   | Type of dryer:                              | Marini                          | year:1990     |                                     |   |
|   | type of batching device                     |                                 | year: 1990    |                                     |   |
| Year of construction: 1990, reconstructed 2001      | Filter: Bernardi                            |                                 |               |                                     |   |
| Test review: 02/2006                                |   |                                 |               |                                     |   |
| <b>1 company assesment</b>                          |   |                                 |               |                                     |   |
| <b>1.1 aggregates</b>                               | Limestone 0/2, 2/4, 4/8, 8/11, 11/16, 16/22 |                                 |               |                                     |   |
| 1.1.1 separated storage                             | yes   | Quality mix                     |               |                                     |   |
| 1.1.2 identification                                | no  |                                 |               |                                     |   |
| 1.1.3 purity (without harmful ingredients)          | no  | River gravel and others         |               |                                     |   |
| 1.1.4 certificate of compliance                     | no  | Company was not able to show me |               |                                     |   |
| <b>1.2 Filler</b>                                   | Limestone                                   |                                 |               |                                     |   |
| 1.2.1 identification                                | no  |                                 |               |                                     |   |
|   |   |                                 |               |                                     |   |
|   |   |                                 |               |                                     |   |
| <b>1.3 Bitumen storage tanks, amount</b>            | 1   | 2                               | 3             | x                                   | x |
| 1.3.1 identification                                | No  | no                              | No            | Only 60/80 from Albania             |   |
| 1.3.2 Temperature measurement device                |   |                                 |               |                                     |   |
| <b>1.4 additives</b>                                | No use                                      |                                 |               |                                     |   |
| 1.4.1 identification                                | -   |                                 |               |                                     |   |
| 1.4.2 quality and storage                           | -   |                                 |               |                                     |   |
| <b>1.5 asphalt produktion</b>                       |   |                                 |               |                                     |   |
| 1.5.1 obvious quality                               | Black material                              |                                 |               |                                     |   |
| 1.5.2 Temperature measurement device                | yes   | Normal mixing temp              |               |                                     |   |
| <b>2 Organisation of factory production control</b> | Laboratory                                  |                                 |               | Sporadic tests in UNI<br>Pristina   |   |
| <b>2.1 Laboratories</b> (where situated)            | Not available                               |                                 |               | No test report available            |   |
| 2.1.2 responsibility for control tests              |   |                                 |               |                                     |   |
| 2.1.3 equipment                                     |   |                                 |               |                                     |   |
| 2.1.4 staff   |   |                                 |               |                                     |   |
| 2.1.5 remarks (use rear page )                      |   |                                 |               |                                     |   |
| <b>2.2 production control</b>                       |   |                                 |               | remarks<br>No test report available |   |
| 2.2.1 binder content and grading                    |   |                                 |               |                                     |   |
| 2.2.2 max density and bulk density                  |   |                                 |               |                                     |   |
| 2.2.5 Marshall-stability and Marshall flow          |   |                                 |               |                                     |   |
| 2.2.6 indentation test                              |   |                                 |               |                                     |   |
| 2.2.7 binder recovery / ring and ball (R & B )      |   |                                 |               |                                     |   |

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| 3 factory production  |                       | components  |                            |           |          | remarks     |
|---|-----------------------|-------------|----------------------------|-----------|----------|-------------|
|   |                       |             |                            |           |          |             |
| 3.1 mix design: sporadic UNI Pristina                           |                       | bitumen     | aggregates                 | filler    | additivs | EU standard |
| Base course   | 0/22; 0/32            | 60/80       | Limestone                  | limestone | no       | No stadards |
| Binder course   | No production         |             |                            |           |          |             |
| Wearing course-<br>asphaltconcrete                              | TDS 0/16              | 60/80       | Limestone                  | limestone | no       | No stadards |
|   | 0/ 8, 0/11            | 60/80       | Limestone                  | limestone | no       | No stadards |
| SMA   | No production         |             |                            |           |          |             |
| 4. staff  |                       |             |                            |           |          |             |
| qualification   |                       | age         |                            |           | amount   |             |
| 1   | chief                 |             |                            |           | 1        |             |
| 2   | Delivering aggregates |             |                            |           | 1        |             |
| 3   | Mechanics             |             |                            |           | 0        |             |
| 4   | Unskilled helper      |             |                            |           | 3        |             |
|   |                       |             |                            | Total     | 4        |             |
|   |                       |             |                            |           |          |             |
| 5 Environment   |                       |             |                            |           |          |             |
| Pollution protection (dust)                                     | No                    | EU standard | No                         |           |          |             |
| Pollution protection (noise)                                    | No                    | EU standard | No                         |           |          |             |
| certificate by ministry?? Not available                         |                       |             |                            |           |          |             |
|   |                       |             |                            |           |          |             |
|   |                       |             |                            |           |          |             |
| 6 resume of assesment   |                       |             | remarks                    |           |          |             |
| Aggregates / Weightning   |                       | Bad         | No weight bridge available |           |          |             |
| Bitumen / storage tanks   |                       | Bad         |                            |           |          |             |
| Filler  |                       | Bad         |                            |           |          |             |
| additivs  |                       | No          |                            |           |          |             |
| Comparison mix design / asphalt products                        |                       | No          |                            |           |          |             |
| Impression of plant   |                       | bad         |                            |           |          |             |
| Laboratory  |                       | No          |                            |           |          |             |
| Management  |                       | Bad         |                            |           |          |             |
| Manual / automatic (computer added) production                  |                       | manually    |                            |           |          |             |
| Asphalt mixing plant according requirements EU standardisation? |                       |             | no                         |           |          |             |
| Asphalt-mixing-plant  |                       |             |                            |           |          |             |
| N.N. Asfalti  |                       |             |                            |           |          |             |
| .....   |                       |             |                            |           |          |             |
| Mr Nazimi Kadrijaj  |                       |             |                            |           |          |             |
| .....   |                       |             |                            |           |          |             |

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**7. remarks to report**

The aggregates (limestone) are not in accordance with the requirements for the use as aggregates in the quality for wearing courses for roads

The aggregates are not without harmful ingredients, like gypsum.

No test results or certifications on the delivery note are available

The bitumen is delivered from Albania. The quality varies between bitumen 50/70, 60/80 and 70/100.

No self control test results or real test results on the delivery note are available

**This asphalt mixing plant is under these conditions not able to produce high quality asphalt for the wearing course of classified roads according to European Standards**

The company has the idea to install a small laboratory

No weight bridge available

## What has to be changed according EU standards

|       |   |   |
|-------|---|---|
| No.   | Test review: 02/2006                              | Company: N.N. Asfalti   |
|       | <b>company assesment</b>                          |   |
| 1.    | <b>aggregates</b>                                 | Using aggregates according EU standards   |
| 1.1.  | separated storage                                 | installation of storages (boxes)  |
| 1.1.  | identification                                    | Install identification signs  |
| 1.1.  | purity (without harmful ingredients)              | No use of material with harmful ingredients   |
| 1.1.  | certificate of compliance                         | Only use aggregates with certificate  |
| 1.2   | <b>Filler</b>                                     |   |
| 1.2.  | identification                                    | Install identification signs  |
| 1.3   | <b>Bitumen</b>                                    | using modified bitumen according climatic conditions  |
| 1.3.1 | <b>storage tanks</b> identification               | Install identification signs  |
| 1.4   | <b>asphalt produktion</b>                         |   |
| 1.4.1 | obvious quality                                   | Constant checking of quality acc. TLG Asphalt   |
| 1.4.2 | Temperature measurement device                    | Constant checking of quality acc. TLG Asphalt   |
| 2     | <b>Organisation of factory production control</b> |   |
| 2.1   | <b>Laboratories</b> (where situated)              | Make an contract with lab   |
| 2.2   | <b>production control</b>                         | should made by itself or contractor   |
| 3.1   | <b>mix design</b>                                 | Make mix design according EU  |
|       | <b>Base course</b>                                | x   |
|       | <b>Binder course</b>                              | x   |
|       | <b>Wearing course-</b>                            | x   |
|       | <b>asphaltconcrete</b>                            | x   |
| 4.    | <b>staff</b>                                      |   |
|       | <b>qualification</b>                              | Organise training, min once a year  |
| 5     | <b>Environment</b>                                | Make check according EU (TA Luft)   |
|       | <b>Pollution protection (dust)</b>                | X   |
|       | <b>Pollution protection (noise)</b>               | x   |
|       | Aggregates / Weightning                           | Install weightbridge  |
|       | Bitumen / storage tanks                           |   |
|       | Filler  |   |
|       | additivs  | (no use)  |
|       | Comparison mix design / asphalt products          | Install QMS   |
|       | Impression of plant                               | Improve storage space   |
|       | Laboratory  | Make contract with EU certified lab   |
|       | Management  |   |
|       | Manual / automatic (computer added) production    | Calibration of production system  |
|       | <b>remarks to report</b>                          | Use aggregates and bitumen according EU standards or special modified bitumen<br>All parts of mixing plant have to be calibrated once a Year or every second Year |



Company 03/20065

**General view**



**Dosage of aggregates**



**Storage of aggregates**




**Bitumen storage**



**Detail – dosage overflow**



|   |                      |   |   |                                      |   |
|---|----------------------|---|---|--------------------------------------|---|
| company:  |                      | consultant:   |   |                                      |   |
|  |                      | Dr. Hutschenreuther   |   |                                      |   |
| Asphalt mixing plant:   |                      | Type of mixer: batch mixer 100 - 120 t/h                                  |   |                                      |   |
| KAG Asphalt company   |                      | Type of dryer: Alsfelder year:1975  |   |                                      |   |
| Alsfelder   |                      | type of batching device year:1975   |   |                                      |   |
| Year of construction:1975, reconstructed 1994 and 2000                            |                      | Filter:   |   |                                      |   |
| Test review: 03/2006  |                      |   |   |                                      |   |
| <b>1 company assesment</b>  |                      |   |   |                                      |   |
| <b>1.1 aggregates</b>   |                      | Limestone 0/2, 2/4, 4/8, 8/11, 11/16, 16/22, 2/32<br>crushed river gravel |   |                                      |   |
| 1.1.1 separated storage   | yes                  |   |   |                                      |   |
| 1.1.2 identification  | no                   |   |   |                                      |   |
| 1.1.3 purity (without harmful ingredients)  | no                   | River gravel and others   |   |                                      |   |
| 1.1.4 certificate of compliance   | no                   | Company was not able to show me   |   |                                      |   |
| <b>1.2 Filler</b>   |                      | Limestone   |   |                                      |   |
| 1.2.1 identification  | no                   |   |   |                                      |   |
|   |                      |   |   |                                      |   |
|   |                      |   |   |                                      |   |
| <b>1.3 Bitumen storage tanks, amount</b>  | 1                    | 2   |   | x                                    | x |
| 1.3.1 identification  | No                   | no  | only 60/80 from Albania                 |                                      |   |
| 1.3.2 Temperature measurement device  |                      |   |   |                                      |   |
| <b>1.4 additives</b>  | No use               |   |   |                                      |   |
| 1.4.1 identification  | -                    |   |   |                                      |   |
| 1.4.2 quality and storage   | -                    |   |   |                                      |   |
| <b>1.5 asphalt produktion</b>   |                      |   |   |                                      |   |
| 1.5.1 obvious quality   | Black material       |   |   |                                      |   |
| 1.5.2 Temperature measurement device  | yes                  | Normal mixing temp  |   |                                      |   |
| <b>2 Organisation of factory production control</b>                               |                      | Laboratory  |   | Sporadic tests in Austria and Skopje |   |
| <b>2.1 Laboratories</b> (where situated)  | <b>Not available</b> |   | reports available                       |                                      |   |
| 2.1.2 responsibility for control tests  |                      |   |   |                                      |   |
| 2.1.3 equipment   |                      |   |   |                                      |   |
| 2.1.4 staff   |                      |   |   |                                      |   |
| 2.1.5 remarks (use rear page )  |                      |   |   |                                      |   |
| <b>2.2 production control</b>   |                      |   | remarks                                 |                                      |   |
|   |                      |   | Sporadic tests made in Austria / Skopje |                                      |   |
| 2.2.1 binder content and grading  |                      |   |   |                                      |   |
| 2.2.2 max density and bulk density  |                      |   |   |                                      |   |
| 2.2.5 Marshall-stability and Marshall flow  |                      |   |   |                                      |   |
| 2.2.6 indentation test  |                      |   |   |                                      |   |
| 2.2.7 binder recovery / ring and ball (R & B )                                    |                      |   |   |                                      |   |

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| 3 factory production  |                       | components                 |            |           |          | remarks     |
|---|-----------------------|----------------------------|------------|-----------|----------|-------------|
|   |                       | bitumen                    | aggregates | filler    | additivs |             |
| 3.1 mix design: from Austria                                    |                       | bitumen                    | aggregates | filler    | additivs | EU standard |
| Base course   | 0/22; 0/32            | 60/80                      | Limestone  | limestone | no       | No stadards |
| Binder course   | No production         |                            |            |           |          |             |
| Wearing course-<br>asphaltconcrete                              | TDS 0/16              | 60/80                      | Limestone  | limestone | no       | No stadards |
|   | 0/ 8, 0/11            | 60/80                      | Limestone  | limestone | no       | No stadards |
| SMA   | No production         |                            |            |           |          |             |
| 4. staff  |                       |                            |            |           |          |             |
| qualification   |                       | age                        |            |           | amount   |             |
| 1   | chief                 |                            |            |           | 1        |             |
| 2   | Delivering aggregates |                            |            |           | 1        |             |
| 3   | Mechanics             |                            |            |           | 1        |             |
| 4   | Unskilled helper      |                            |            |           | 2        |             |
|   |                       |                            |            | Total     | 5        |             |
|   |                       |                            |            |           |          |             |
| 5 Environment   |                       |                            |            |           |          |             |
| Pollution protection (dust)                                     | No                    | EU standard                | No         |           |          |             |
| Pollution protection (noise)                                    | No                    | EU standard                | No         |           |          |             |
| certificate by ministry?? Not available                         |                       |                            |            |           |          |             |
|   |                       |                            |            |           |          |             |
|   |                       |                            |            |           |          |             |
| 6 resume of assesment   |                       | remarks                    |            |           |          |             |
| Aggregates / Weightning   | Bad                   | No weight bridge available |            |           |          |             |
| Bitumen / storage tanks   | Bad                   |                            |            |           |          |             |
| Filler  | Bad                   |                            |            |           |          |             |
| additivs  | No                    |                            |            |           |          |             |
| Comparison mix design / asphalt products                        | No                    |                            |            |           |          |             |
| Impression of plant   | medium                |                            |            |           |          |             |
| Laboratory  | No                    |                            |            |           |          |             |
| Management  | Bad                   |                            |            |           |          |             |
| Manual / automatic (computer added) production                  | CAD and manually      |                            |            |           |          |             |
| Asphalt mixing plant according requirements EU standardisation? |                       | no                         |            |           |          |             |
| Asphalt-mixing-plant  |                       |                            |            |           |          |             |
| KAG Asphalt Prizren   |                       |                            |            |           |          |             |
| Mr Ramadan Gashi..  |                       |                            |            |           |          |             |

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**7. remarks to report**

The aggregates (limestone) are not in accordance with the requirements for the use as aggregates in the quality for wearing courses for roads

The aggregates are not without harmful ingredients, like gypsum.

No test results or certifications on the delivery note are available

The bitumen is delivered from Albania. The quality varies between bitumen 50/70, 60/80 and 70/100.

No self control test results or real test results on the delivery note are available

The crushed river gravel is possible to use for wearing course if it meets the existing requirements. **It has to be proved by ICMM because of the possible destruction of the river beds!**

**This asphalt mixing plant is under this conditions not able to produce high quality asphalt for the wearing course of classified roads according European Standards**

The company has the idea to install a small laboratory

No weight bridge available

Some tests / mix designs were made in Skopje according Macedonian Standards

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## What has to be changed according EU standards

|       |   |   |
|-------|---|---|
| No.   | Test review: 03/2006                              | Company: KAG Asphalt company  |
|       | <b>company assesment</b>                          |   |
| 1.    | <b>aggregates</b>                                 | Using aggregates according EU standards   |
| 1.1.  | separated storage                                 | installation of storages (boxes)  |
| 1.1.  | identification                                    | Install identification signs  |
| 1.1.  | purity (without harmful ingredients)              | No use of material with harmful ingredients   |
| 1.1.  | certificate of compliance                         | Only use aggregates with certificate  |
| 1.2   | <b>Filler</b>                                     |   |
| 1.2.  | identification                                    | Install identification signs  |
| 1.3   | <b>Bitumen</b>                                    | using modified bitumen according climatic conditions  |
| 1.3.1 | <b>storage tanks</b> identification               | Install identification signs  |
| 1.4   | <b>asphalt produktion</b>                         |   |
| 1.4.1 | obvious quality                                   | Constant checking of quality acc. TLG Asphalt   |
| 1.4.2 | Temperature measurement device                    | Constant checking of quality acc. TLG Asphalt   |
| 2     | <b>Organisation of factory production control</b> |   |
| 2.1   | <b>Laboratories</b> (where situated)              | Make an contract with lab   |
| 2.2   | <b>production control</b>                         | should made by itself or contractor   |
| 3.1   | <b>mix design</b>                                 | Make mix design according EU  |
|       | <b>Base course</b>                                | x   |
|       | <b>Binder course</b>                              | x   |
|       | <b>Wearing course-</b>                            | x   |
|       | <b>asphaltconcrete</b>                            | x   |
| 4.    | <b>staff</b>                                      |   |
|       | <b>qualification</b>                              | Organise training, min once a year  |
| 5     | <b>Environment</b>                                | Make check according EU (TA Luft)   |
|       | <b>Pollution protection (dust)</b>                | X   |
|       | <b>Pollution protection (noise)</b>               | x   |
|       | Aggregates / Weightning                           | Install weightbridge  |
|       | Bitumen / storage tanks                           | Check the quality of steel frames   |
|       | Filler  |   |
|       | additivs  | (no use)  |
|       | Comparison mix design / asphalt products          | Install QMS   |
|       | Impression of plant                               | Improve storage space   |
|       | Laboratory  | Make contract with EU certified lab   |
|       | Management  |   |
|       | Manual / automatic (computer added) production    | Calibration of production system  |
|       | <b>remarks to report</b>                          | Use aggregates and bitumen according EU standards or special modified bitumen<br>All parts of mixing plant have to be calibrated once a Year or every second Year |

company:



logo

consultant:

Dr. Hutschenreuther



General view



General view



Bitumen and masut tanks



Dosage overflow



chance selected aggregates






**purity (with harmful ingredients)**



**Dust (filler) filter system**

|   |                      |   |  |                                   |   |
|---|----------------------|---|--|-----------------------------------|---|
| company:<br><br> |                      | consultant:<br><br><b>Dr. Hutschenreuther</b>   |  |                                   |   |
| Asphalt mixing plant:<br>„GRADIS“ (Slovenia)  |                      | Type of mixer: batch mixer <b>70 t/h</b><br>Type of dryer: Strjansek      year: 2005<br>type of batching device      year: 2005 |  |                                   |   |
| Year of construction: 2006  |                      |   |  |                                   |   |
| Test review: 04/2006  |                      |   |  |                                   |   |
| <b>1 company assesment</b>  |                      |   |  |                                   |   |
| <b>1.1 aggregates</b>   |                      | Limestone 0/2, 2/4, 4/8, 8/11, 11/16, 16/22   |  |                                   |   |
| 1.1.1 separated storage   | yes                  |   |  |                                   |   |
| 1.1.2 identification  | no                   |   |  |                                   |   |
| 1.1.3 purity (without harmful ingredients)  | no                   | Gypsum and others   |  |                                   |   |
| 1.1.4 certificate of compliance   | no                   | Company was not able to show me   |  |                                   |   |
| <b>1.2 Filler</b>   |                      | Limestone   |  |                                   |   |
| 1.2.1 identification  | no                   |   |  |                                   |   |
|   |                      |   |  |                                   |   |
|   |                      |   |  |                                   |   |
| <b>1.3 Bitumen storage tanks, amount</b>  | 1                    | 2   | x  | x                                 | x |
| 1.3.1 identification  | No                   | no  | Only 60/80 from Albania                    |                                   |   |
| 1.3.2 Temperature measurement device  | Yes                  | Yes   |  |                                   |   |
| <b>1.4 additives</b>  | No use               |   |  |                                   |   |
| 1.4.1 identification  | -                    |   |  |                                   |   |
| 1.4.2 quality and storage   | -                    |   |  |                                   |   |
| <b>1.5 asphalt produktion</b>   |                      |   |  |                                   |   |
| 1.5.1 obvious quality   | Black material       |   |  |                                   |   |
| 1.5.2 Temperature measurement device  | yes                  | Normal mixing temp  |  |                                   |   |
| <b>2 Organisation of factory production control</b>   |                      | Laboratory  |  | Sporadic tests in UNI<br>Pristina |   |
| <b>2.1 Laboratories</b> (where situated)  | <b>Not available</b> |   | <b>No test report available</b>            |                                   |   |
| 2.1.2 responsibility for control tests  |                      |   |  |                                   |   |
| 2.1.3 equipment   |                      |   |  |                                   |   |
| 2.1.4 staff   |                      |   |  |                                   |   |
| 2.1.5 remarks (use rear page )  |                      |   |  |                                   |   |
| <b>2.2 production control</b>   |                      |   | remarks<br><b>No test report available</b> |                                   |   |
| 2.2.1 binder content and grading  |                      |   |  |                                   |   |
| 2.2.2 max density and bulk density  |                      |   |  |                                   |   |
| 2.2.5 Marshall-stability and Marshall flow  |                      |   |  |                                   |   |
| 2.2.6 indentation test  |                      |   |  |                                   |   |
| 2.2.7 binder recovery / ring and ball (R & B )  |                      |   |  |                                   |   |

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| 3 factory production  |                       | components                 |            |           |          | remarks     |
|---|-----------------------|----------------------------|------------|-----------|----------|-------------|
|   |                       |                            |            |           |          |             |
| 3.1 mix design: UNI Pristina                                    |                       | bitumen                    | aggregates | filler    | additivs | EU standard |
| Base course   | 0/22                  | 60/80                      | Limestone  | limestone | no       | No stadards |
| Binder course   | No production         |                            |            |           |          |             |
| Wearing course-<br>asphaltconcrete                              | TDS 0/16              | 60/80                      | Limestone  | limestone | no       | No stadards |
|   | 0/ 8, 0/11            | 60/80                      | Limestone  | limestone | no       | No stadards |
| SMA   | No production         |                            |            |           |          |             |
| 4. staff  |                       |                            |            |           |          |             |
| qualification   |                       | age                        |            |           | amount   |             |
| 1   | chief                 |                            |            |           | 1        |             |
| 2   | Delivering aggregates |                            |            |           | 1        |             |
| 3   | Mechanics             |                            |            |           | 2        |             |
| 4   | Unskilled helper      |                            |            |           | 2        |             |
|   |                       |                            |            | Total     | 6        |             |
|   |                       |                            |            |           |          |             |
| 5 Environment   |                       |                            |            |           |          |             |
| Pollution protection (dust)                                     | No                    | EU standard                | No         |           |          |             |
| Pollution protection (noise)                                    | No                    | EU standard                | No         |           |          |             |
|   |                       |                            |            |           |          |             |
|   |                       |                            |            |           |          |             |
|   |                       |                            |            |           |          |             |
| 6 resume of assesment   |                       | remarks                    |            |           |          |             |
| Aggregates / Weightning   | Bad                   | No weight bridge available |            |           |          |             |
| Bitumen / storage tanks   | Bad                   |                            |            |           |          |             |
| Filler  | Bad                   |                            |            |           |          |             |
| additivs  | No                    |                            |            |           |          |             |
| Comparison mix design / asphalt products                        | No                    |                            |            |           |          |             |
| Impression of plant   | medium                |                            |            |           |          |             |
| Laboratory  | No                    |                            |            |           |          |             |
| Management  | Bad                   |                            |            |           |          |             |
| Manual / automatic (computer added) production                  | CAP                   |                            |            |           |          |             |
| Asphalt mixing plant according requirements EU standardisation? |                       | no                         |            |           |          |             |
| Asphalt-mixing-plant  |                       |                            |            |           |          |             |
| Unicom  |                       |                            |            |           |          |             |
| Mr ELSHANI MALIQ  |                       |                            |            |           |          |             |

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**7. remarks to report**

The aggregates (limestone) are not in accordance with the requirements for the use as aggregates in the quality for wearing courses for roads and for runways (airports)

The aggregates are not without harmful ingredients, like gypsum.

No test results or certifications on the delivery note are available


The bitumen is delivered from Albania. The quality varies between bitumen 50/70, 60/80 and 70/100.

No self control test results or real test results on the delivery note are available

**This asphalt mixing plant is under these conditions not able to produce high quality asphalt for the airport runways or for the wearing course of classified roads**

## What has to be changed according EU standards

|       |   |   |
|-------|---|---|
| No.   | Test review: 04/2006                              | Company: UNIKOM   |
|       | <b>company assesment</b>                          |   |
| 1.    | <b>aggregates</b>                                 | Using aggregates according EU standards   |
| 1.1.  | separated storage                                 | (boxes)   |
| 1.1.  | identification                                    | Install identification signs  |
| 1.1.  | purity (without harmful ingredients)              | No use of material with harmful ingredients   |
| 1.1.  | certificate of compliance                         | Only use aggregates with certificate  |
| 1.2   | <b>Filler</b>                                     |   |
| 1.2.  | identification                                    | Install identification signs  |
| 1.3   | <b>Bitumen</b>                                    | using modified bitumen according climatic conditions  |
| 1.3.1 | <b>storage tanks</b> identification               | Install identification signs  |
| 1.4   | <b>asphalt produktion</b>                         |   |
| 1.4.1 | obvious quality                                   | Constant checking of quality acc. TLG Asphalt   |
| 1.4.2 | Temperature measurement device                    | Constant checking of quality acc. TLG Asphalt   |
| 2     | <b>Organisation of factory production control</b> |   |
| 2.1   | <b>Laboratories</b> (where situated)              | Make an contract with lab   |
| 2.2   | <b>production control</b>                         | should made by itself or contractor   |
| 3.1   | <b>mix design</b>                                 | Make mix design according EU  |
|       | <b>Base course</b>                                | x   |
|       | <b>Binder course</b>                              | x   |
|       | <b>Wearing course-</b>                            | x   |
|       | <b>asphaltconcrete</b>                            | x   |
| 4.    | <b>staff</b>                                      |   |
|       | <b>qualification</b>                              | Organise training, min once a year  |
| 5     | <b>Environment</b>                                | Make check according EU (TA Luft)   |
|       | <b>Pollution protection (dust)</b>                | X   |
|       | <b>Pollution protection (noise)</b>               | x   |
|       | Aggregates / Weightning                           | Install weightbridge  |
|       | Bitumen / storage tanks                           | Check the quality of steel frames   |
|       | Filler  |   |
|       | additivs  | (no use)  |
|       | Comparison mix design / asphalt products          | Install QMS   |
|       | Impression of plant                               | Improve storage space   |
|       | Laboratory  | Make contract with EU certified lab   |
|       | Management  |   |
|       | Manual / automatic (computer added) production    | Calibration of production system  |
|       | <b>remarks to report</b>                          | Use aggregates and bitumen according EU standards or special modified bitumen<br>All parts of mixing plant have to be calibrated once a Year or every second Year |


|   |  |
|---|--|
|    |  <p>Company 05/20065</p> |
|   |                          |
| aggregates  | Shape of aggregates  |
|  |                        |
| General view of quarry  | Chance selected aggregates   |



**Dosage of aggregates**



**plant**

|   |  |                                 |    |                                      |   |
|---|--|---------------------------------|----|--------------------------------------|---|
| <br>company:         | consultant:<br><br><b>Dr. Hutschenreuther</b>  |                                 |    |                                      |   |
| <b>Asphalt mixing plant:</b><br>Trasing company, Korotica<br>WIBAU, technical equipment from Slovenia | Type of mixer: batch mixer <b>100 - 120 t/h</b><br>Type of dryer: WIBAU      year:1980<br>type of batching device      year:1980 |                                 |    |                                      |   |
| Year of construction:1980, reconstructed 2001   | Filter:  |                                 |    |                                      |   |
| Test review: 05/2006  |  |                                 |    |                                      |   |
| <b>1 company assesment</b>  |  |                                 |    |                                      |   |
| <b>1.1 aggregates</b>   | own quarry and Limestone   |                                 |    |                                      |   |
| 1.1.1 separated storage   | yes  |                                 |    |                                      |   |
| 1.1.2 identification  | no   |                                 |    |                                      |   |
| 1.1.3 purity (without harmful ingredients)  | no   | Mixture of different qualities  |    |                                      |   |
| 1.1.4 certificate of compliance   | no   | Company was not able to show me |    |                                      |   |
| <b>1.2 Filler</b>   | Limestone  |                                 |    |                                      |   |
| 1.2.1 identification  | no   |                                 |    |                                      |   |
|   |  |                                 |    |                                      |   |
|   |  |                                 |    |                                      |   |
| <b>1.3 Bitumen storage tanks, amount</b>  | 1  | 2                               | 3  | x                                    | x |
| 1.3.1 identification  | No   | no                              | No | only 60/80 from Albenia              |   |
| 1.3.2 Temperature measurement device  |  |                                 |    |                                      |   |
| <b>1.4 additives</b>  | No use   |                                 |    |                                      |   |
| 1.4.1 identification  | -  |                                 |    |                                      |   |
| 1.4.2 quality and storage   | -  |                                 |    |                                      |   |
| <b>1.5 asphalt produktion</b>   |  |                                 |    |                                      |   |
| 1.5.1 obvious quality   | Not under production   |                                 |    |                                      |   |
| 1.5.2 Temperature measurement device  | yes  | Not under production            |    |                                      |   |
| <b>2 Organisation of factory production control</b>   | Laboratory   |                                 |    | Sporadic tests from ESKAVATORI lab ? |   |
| <b>2.1 Laboratories</b> (where situated)  | Not available  |                                 |    | reports not available                |   |
| 2.1.2 responsibility for control tests  |  |                                 |    |                                      |   |
| 2.1.3 equipment   |  |                                 |    |                                      |   |
| 2.1.4 staff   |  |                                 |    |                                      |   |
| 2.1.5 remarks (use rear page )  |  |                                 |    |                                      |   |
| <b>2.2 production control</b>   |  |                                 |    | remarks                              |   |
|   | Not able to be shown   |                                 |    |                                      |   |
| 2.2.1 binder content and grading  |  |                                 |    |                                      |   |
| 2.2.2 max density and bulk density  |  |                                 |    |                                      |   |
| 2.2.5 Marshall-stability and Marshall flow  |  |                                 |    |                                      |   |
| 2.2.6 indentation test  |  |                                 |    |                                      |   |
| 2.2.7 binder recovery / ring and ball (R & B )  |  |                                 |    |                                      |   |

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| 3 factory production  |                       | components        |                            |           |             | remarks     |
|---|-----------------------|-------------------|----------------------------|-----------|-------------|-------------|
|   |                       |                   |                            |           |             |             |
| 3.1 mix design: from former owner                               |                       | bitumen           | aggregates                 | filler    | additivs    | EU standard |
| Base course   | 0/22; 0/32            | 60/80             | Limestone and others       | limestone | no          | No stadards |
| Binder course   | No production         |                   |                            |           |             |             |
| Wearing course-<br>asphaltconcrete<br><br>SMA                   | TDS 0/16              | 60/80             | Limestone and others       | limestone | no          | No stadards |
|   | 0/ 8, 0/11            | 60/80             | Limestone and others       | limestone | no          | No stadards |
|   | No production         |                   |                            |           |             |             |
| 4. staff  |                       |                   |                            |           |             |             |
| qualification   |                       | age               |                            |           | Am-<br>ount |             |
| 1   | chief                 |                   |                            |           | 1           |             |
| 2   | Delivering aggregates |                   |                            |           | ?           |             |
| 3   | Mechanics             |                   |                            |           | ?           |             |
| 4   | Unskilled helper      |                   |                            |           | ?           |             |
|   |                       |                   |                            | Total     | ?           |             |
|   |                       |                   |                            |           |             |             |
| 5 Environment   |                       |                   |                            |           |             |             |
| Pollution protection (dust)                                     | No                    | EU standard       | No                         |           |             |             |
| Pollution protection (noise)                                    | No                    | EU standard       | No                         |           |             |             |
|   |                       |                   |                            |           |             |             |
|   |                       |                   |                            |           |             |             |
| 6 resume of assesment   |                       |                   |                            |           |             |             |
| Aggregates / Weightning   |                       | Very Bad          | No weight bridge available |           |             |             |
| Bitumen / storage tanks   |                       | Bad               |                            |           |             |             |
| Filler  |                       | Bad               |                            |           |             |             |
| additivs  |                       | No                |                            |           |             |             |
| Comparison mix design / asphalt products                        |                       | No                |                            |           |             |             |
| Impression of plant   |                       | Very Bad          |                            |           |             |             |
| Laboratory  |                       | No                |                            |           |             |             |
| Management  |                       | Very Bad          |                            |           |             |             |
| Manual / automatic (computer added) production                  |                       | CAD? and manually |                            |           |             |             |
| Asphalt mixing plant according requirements EU standardisation? |                       |                   | no                         |           |             |             |
| Asphalt-mixing-plant  |                       |                   |                            |           |             |             |
| TRASING   |                       |                   |                            |           |             |             |
| Mr Veli, Dakaj M..  |                       |                   |                            |           |             |             |

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**7. remarks to report**

The aggregates (limestone and self production of quarry) are not in accordance with the requirements for the use as aggregates in the quality for wearing courses for roads

The aggregates are not without harmful ingredients, like gypsum, mixture of different materials & quality.  
No test results or certifications on the delivery note are available

The bitumen will be from Albania. As known, the quality varies between bitumen 50/70, 60/80 and 70/100.  
No self control test results or real test results on the delivery note are available

**This asphalt mixing plant is under this conditions not able to produce quality asphalt for the wearing course of classified roads and runways according European Standards**

No weight bridge available

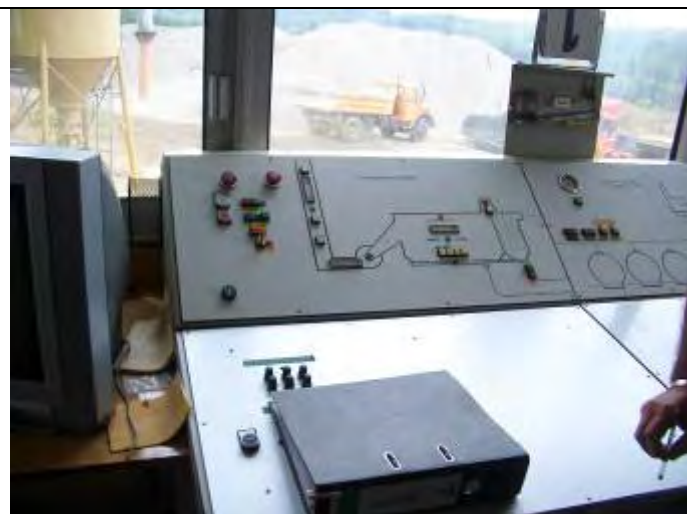
This asphalt mixing plant was not under production. To start production will be a problem.

**The staff showed me an historic mix design, hand made, hand written and from the year 1997, nobody knows who did write it and what materials were used and in which location in Europe!**



## What has to be changed according EU standards

|       |   |  |
|-------|---|--|
| No.   | Test review: 05/2006                              | Company: TRASING   |
|       | <b>company assesment</b>                          |  |
| 1.    | <b>aggregates</b>                                 | Using aggregates according EU standards  |
| 1.1.  | separated storage                                 | (boxes)  |
| 1.1.  | identification                                    | Install identification signs   |
| 1.1.  | purity (without harmful ingredients)              | No use of material with harmful ingredients  |
| 1.1.  | certificate of compliance                         | Only use aggregates with certificate   |
| 1.2   | <b>Filler</b>                                     |  |
| 1.2.  | identification                                    | Install identification signs   |
| 1.3   | <b>Bitumen</b>                                    | using modified bitumen according climatic conditions   |
| 1.3.1 | <b>storage tanks</b> identification               | Install identification signs   |
| 1.4   | <b>asphalt produktion</b>                         | Check the plant and construction if it's possible to work in accordance to safety instructions |
| 1.4.1 | obvious quality                                   | Constant checking of quality acc. TLG Asphalt  |
| 1.4.2 | Temperature measurement device                    | Constant checking of quality acc. TLG Asphalt  |
| 2     | <b>Organisation of factory production control</b> |  |
| 2.1   | <b>Laboratories</b> (where situated)              | Make an contract with lab  |
| 2.2   | <b>production control</b>                         | should made by itself or contractor  |
| 3.1   | <b>mix design</b>                                 | Make mix design according EU   |
|       | <b>Base course</b>                                | X  |
|       | <b>Binder course</b>                              | X  |
|       | <b>Wearing course-</b>                            | X  |
|       | <b>asphaltconcrete</b>                            | X  |
| 4.    | <b>staff</b>                                      |  |
|       | <b>qualification</b>                              | Organise training, min once a year   |
| 5     | <b>Environment</b>                                | Make check according EU (TA Luft)  |
|       | <b>Pollution protection (dust)</b>                | X  |
|       | <b>Pollution protection (noise)</b>               | x  |
|       | Aggregates / Weightning                           | Install weightbridge   |
|       | Bitumen / storage tanks                           | Check the quality of steel frames  |
|       | Filler  |  |
|       | additivs  | (no use)   |
|       | Comparison mix design / asphalt products          | Install QMS  |
|       | Impression of plant                               | Improve storage space  |
|       | Laboratory  | Make contract with EU certified lab  |
|       | Management  |  |
|       | Manual / automatic (computer added) production    | Calibration of production system   |
|       | <b>remarks to report</b>                          | <b>Check if it is responsible to invest in any reconstructions</b>                             |



Company 06/20065

Heart of plant




aggregates



Mixer (inside)



|   |                      |  |                       |   |   |
|---|----------------------|--|-----------------------|---|---|
| company:<br> |                      | consultant:<br><b>Dr. Hutschenreuther</b>  |                       |   |   |
| Asphalt mixing plant:<br>Drini, Malishevo<br>AMMANN / WIBAU                                   |                      | Type of mixer: batch mixer <b>130 - 160 t/h</b><br>Type of dryer: WIBAU      year:1983<br>type of batching device      year:1983 |                       |   |   |
| Year of construction:1983, reconstructed 2002   |                      | Filter:  |                       |   |   |
| Test review: 06/2006  |                      |  |                       |   |   |
| <b>1 company assesment</b>  |                      |  |                       |   |   |
| <b>1.1 aggregates</b>   |                      | Crushed river gravel and Limestone   |                       |   |   |
| 1.1.1 separated storage   | yes                  |  |                       |   |   |
| 1.1.2 identification  | no                   |  |                       |   |   |
| 1.1.3 purity (without harmful ingredients)  | no                   | Mixture of different qualities   |                       |   |   |
| 1.1.4 certificate of compliance   | no                   | Company was not able to show me  |                       |   |   |
| <b>1.2 Filler</b>   |                      | Limestone 35 – 50% + own filler  |                       |   |   |
| 1.2.1 identification  | no                   |  |                       |   |   |
|   |                      |  |                       |   |   |
|   |                      |  |                       |   |   |
| <b>1.3 Bitumen storage tanks, amount</b>  | 1                    | 2  | 3                     | x   | x |
| 1.3.1 identification  | No                   | no   | No                    | only 60/80 from Albania                   |   |
| 1.3.2 Temperature measurement device  |                      |  |                       |   |   |
| <b>1.4 additives</b>  | No use               |  |                       |   |   |
| 1.4.1 identification  | -                    |  |                       |   |   |
| 1.4.2 quality and storage   | -                    |  |                       |   |   |
| <b>1.5 asphalt produktion</b>   |                      |  |                       |   |   |
| 1.5.1 obvious quality   | Normal, black        |  |                       |   |   |
| 1.5.2 Temperature measurement device  | yes                  |  |                       |   |   |
| <b>2 Organisation of factory production control</b>   |                      | Laboratory   |                       | Sporadic tests from<br>UNI Pris. / Skopje |   |
| <b>2.1 Laboratories</b> (where situated)  | <b>Not available</b> |  | reports not available |   |   |
| 2.1.2 responsibility for control tests  |                      |  |                       |   |   |
| 2.1.3 equipment   |                      |  |                       |   |   |
| 2.1.4 staff   |                      |  |                       |   |   |
| 2.1.5 remarks (use rear page )  |                      |  |                       |   |   |
| <b>2.2 production control</b>   |                      |  | remarks               |   |   |
|   |                      | Not able to be shown   |                       |   |   |
| 2.2.1 binder content and grading  |                      |  |                       |   |   |
| 2.2.2 max density and bulk density  |                      |  |                       |   |   |
| 2.2.5 Marshall-stability and Marshall flow  |                      |  |                       |   |   |
| 2.2.6 indentation test  |                      |  |                       |   |   |
| 2.2.7 binder recovery / ring and ball (R & B )  |                      |  |                       |   |   |

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| 3 factory production  |                       | components       |                            |                      |             | remarks      |
|---|-----------------------|------------------|----------------------------|----------------------|-------------|--------------|
|   |                       |                  |                            |                      |             |              |
| 3.1 mix design: from former owner                               |                       | bitumen          | aggregates                 | filler               | additivs    | EU standard  |
| Base course   | 0/22; 0/32            | 60/80            | Limestone and others       | Limestone and others | no          | No standards |
| Binder course   | No production         |                  |                            |                      |             |              |
| Wearing course-<br>asphaltconcrete                              | TDS 0/16              | 60/80            | Limestone and others       | Limestone and others | no          | No standards |
|   | 0/ 8, 0/11            | 60/80            | Limestone and others       | Limestone and others | no          | No standards |
| SMA   | No production         |                  |                            |                      |             |              |
| 4. staff  |                       |                  |                            |                      |             |              |
| qualification   |                       | age              |                            |                      | Am-<br>ount |              |
| 1   | chief                 |                  |                            |                      | 1           |              |
| 2   | Delivering aggregates |                  |                            |                      | 1           |              |
| 3   | Mechanics             |                  |                            |                      | 0           |              |
| 4   | Unskilled helper      |                  |                            |                      | 2           |              |
|   |                       |                  |                            | Total                | 4           |              |
|   |                       |                  |                            |                      |             |              |
| 5 Environment   |                       |                  |                            |                      |             |              |
| Pollution protection (dust)                                     | No                    | EU standard      | No                         |                      |             |              |
| Pollution protection (noise)                                    | No                    | EU standard      | No                         |                      |             |              |
|   |                       |                  |                            |                      |             |              |
|   |                       |                  |                            |                      |             |              |
|   |                       |                  |                            |                      |             |              |
| 6 resume of assesment   |                       | remarks          |                            |                      |             |              |
| Aggregates / Weightning   |                       | Very Bad         | No weight bridge available |                      |             |              |
| Bitumen / storage tanks   |                       | medium           |                            |                      |             |              |
| Filler  |                       | medium           |                            |                      |             |              |
| additivs  |                       | No               |                            |                      |             |              |
| Comparison mix design / asphalt products                        |                       | No               |                            |                      |             |              |
| Impression of plant   |                       | medium           |                            |                      |             |              |
| Laboratory  |                       | No               |                            |                      |             |              |
| Management  |                       | medium           |                            |                      |             |              |
| Manual / automatic (computer added) production                  |                       | CAD and manually |                            |                      |             |              |
| Asphalt mixing plant according requirements EU standardisation? |                       | no               |                            |                      |             |              |
| Asphalt-mixing-plant  |                       |                  |                            |                      |             |              |
| Drimi   |                       |                  |                            |                      |             |              |
| Mr Miaim Gashi..  |                       |                  |                            |                      |             |              |

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**7. remarks to report**

The aggregates (limestone and self production of crushed river gravel) are not in accordance with the requirements for the use as aggregates in the quality for wearing courses for roads

The aggregates are not without harmful ingredients, like gypsum, mixture of different materials & quality. No test results or certifications on the delivery note are available

The bitumen is delivered from Albania. The quality varies between bitumen 50/70, 60/80 and 70/100. No self control test results or real test results on the delivery note are available

**This asphalt mixing plant is under this conditions not able to produce high quality asphalt for the wearing course of classified roads according European Standards**

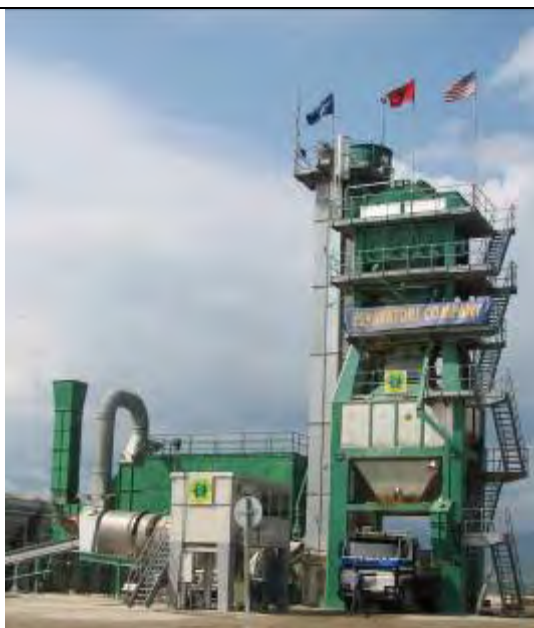
The crushed river gravel is possible to use for wearing course if it meets the existing requirements. **It has to be proved by ICMM because of the possible destruction of the river beds!**

No weight bridge available

## What has to be changed according EU standards

|       |   |  |
|-------|---|--|
| No.   | Test review: 06/2006                              | Company: DRINI   |
|       | <b>company assesment</b>                          |  |
| 1.    | <b>aggregates</b>                                 | Using aggregates according EU standards  |
| 1.1.  | separated storage                                 | (boxes)  |
| 1.1.  | identification                                    | Install identification signs   |
| 1.1.  | purity (without harmful ingredients)              | No use of material with harmful ingredients  |
| 1.1.  | certificate of compliance                         | Only use aggregates with certificate   |
| 1.2   | <b>Filler</b>                                     |  |
| 1.2.  | identification                                    | Install identification signs   |
| 1.3   | <b>Bitumen</b>                                    | using modified bitumen according climatic conditions   |
| 1.3.1 | <b>storage tanks</b> identification               | Install identification signs   |
| 1.4   | <b>asphalt produktion</b>                         | Check the plant and construction if it's possible to work in accordance to safety instructions |
| 1.4.1 | obvious quality                                   | Constant checking of quality acc. TLG Asphalt  |
| 1.4.2 | Temperature measurement device                    | Constant checking of quality acc. TLG Asphalt  |
| 2     | <b>Organisation of factory production control</b> |  |
| 2.1   | <b>Laboratories</b> (where situated)              | Make an contract with lab  |
| 2.2   | <b>production control</b>                         | should made by itself or contractor  |
| 3.1   | <b>mix design</b>                                 | Make mix design according EU   |
|       | <b>Base course</b>                                | X  |
|       | <b>Binder course</b>                              | X  |
|       | <b>Wearing course-</b>                            | X  |
|       | <b>asphaltconcrete</b>                            | X  |
| 4.    | <b>staff</b>                                      |  |
|       | <b>qualification</b>                              | Organise training, min once a year   |
| 5     | <b>Environment</b>                                | Make check according EU (TA Luft)  |
|       | <b>Pollution protection (dust)</b>                | X  |
|       | <b>Pollution protection (noise)</b>               | x  |
|       | Aggregates / Weightning                           | Install weightbridge   |
|       | Bitumen / storage tanks                           | Check the quality of steel frames  |
|       | Filler  |  |
|       | additivs  | (no use)   |
|       | Comparison mix design / asphalt products          | Install QMS  |
|       | Impression of plant                               | Improve storage space  |
|       | Laboratory  | Make contract with EU certified lab  |
|       | Management  |  |
|       | Manual / automatic (computer added) production    | Calibration of production system   |
|       | <b>remarks to report</b>                          | <b>Check if it is responsible to use crushed river gravel</b>                                  |





General view of plant



Company 07/20065



aggregates



Dosage overflow



Bitumen and fuel storage



Temperature measurement




**Ring and ball bitumen test device**



**Laboratory is working**



|   |  |   |     |  |                         |
|---|--|---|-----|--|-------------------------|
| company:<br> |  | consultant:<br><b>Dr. Hutschenreuther</b>   |     |  |                         |
| Asphalt mixing plant:<br>Eskavatori, Ferizaj<br>Bernardi                                      |  | Type of mixer: batch mixer <b>130 - 160 t/h</b><br>Type of dryer: Bernardi      year:2003<br>Type of batching device      year:2003 |     |  |                         |
| Year of construction: 2003, new   |  | Filter:   |     |  |                         |
| Test review: 07/2006  |  |   |     |  |                         |
| <b>1 company assesment</b>  |  |   |     |  |                         |
| <b>1.1 aggregates</b>   |  | Limestone   |     |  |                         |
| 1.1.1 separated storage   |  | yes   |     |  |                         |
| 1.1.2 identification  |  | Not good  |     |  |                         |
| 1.1.3 purity (without harmful ingredients)  |  | yes   |     |  |                         |
| 1.1.4 certificate of compliance   |  | yes   |     |  |                         |
| <b>1.2 Filler</b>   |  | Limestone   |     |  |                         |
| 1.2.1 identification  |  | no  |     |  |                         |
|   |  |   |     |  |                         |
|   |  |   |     |  |                         |
| <b>1.3 Bitumen storage tanks, amount</b>  |  | 1   | 2   | 3                                      | x                       |
| 1.3.1 identification  |  | No  | no  | No                                     | only 60/80 from Albania |
| 1.3.2 Temperature measurement device  |  | yes   | yes | yes                                    |                         |
| <b>1.4 additives</b>  |  | No use  |     |  |                         |
| 1.4.1 identification  |  | -   |     |  |                         |
| 1.4.2 quality and storage   |  | -   |     |  |                         |
| <b>1.5 asphalt produktion</b>   |  |   |     |  |                         |
| 1.5.1 obvious quality   |  | Normal, black   |     |  |                         |
| 1.5.2 Temperature measurement device  |  | yes   |     |  |                         |
| <b>2 Organisation of factory production control</b>   |  | Laboratory  |     | Sporadic tests from UNI Pris. / Skopje |                         |
| <b>2.1 Laboratories</b> (where situated)  |  | Own laboratory operating  |     | reports available                      |                         |
| 2.1.2 responsibility for control tests  |  |   |     |  |                         |
| 2.1.3 equipment   |  |   |     |  |                         |
| 2.1.4 staff   |  |   |     |  |                         |
| 2.1.5 remarks (use rear page )  |  |   |     |  |                         |
| <b>2.2 production control</b>   |  | yes<br>no calibration of devices  |     | remarks                                |                         |
| 2.2.1 binder content and grading  |  | Yes   |     |  |                         |
| 2.2.2 max density and bulk density  |  | Yes   |     |  |                         |
| 2.2.5 Marshall-stability and Marshall flow  |  | Yes   |     |  |                         |
| 2.2.6 indentation test  |  | Yes   |     |  |                         |
| 2.2.7 binder recovery / ring and ball (R & B )  |  | yes   |     |  |                         |

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| 3 factory production  |  | components              |            |           |             | remarks      |
|---|--|-------------------------|------------|-----------|-------------|--------------|
|   |  | bitumen                 | aggregates | filler    | additivs    |              |
| 3.1 mix design: from former owner                               |  | bitumen                 | aggregates | filler    | additivs    | EU standard  |
| Base course   | 0/22;                                    | 60/80                   | Limestone  | Limestone | no          | No standards |
| Binder course   | No production                            |                         |            |           |             |              |
| Wearing course-<br>asphaltconcrete<br>SMA                       | TDS 0/16                                 | 60/80                   | Limestone  | Limestone | no          | No standards |
|   | 0/ 8, 0/11                               | 60/80                   | Limestone  | Limestone | no          | No standards |
|   | No production                            |                         |            |           |             |              |
| 4. staff  |  |                         |            |           |             |              |
| qualification   |  | age                     |            |           | Am-<br>ount |              |
| 1   | chief                                    |                         |            |           | 1           |              |
| 2   | Delivering aggregates / Weight<br>bridge |                         |            |           | 1           |              |
| 3   | Mechanics                                |                         |            |           | 2           |              |
| 4   | Unskilled helper                         |                         |            |           | 2           |              |
|   |  |                         |            | Total     | 6           |              |
|   |  |                         |            |           |             |              |
| 5 Environment   |  |                         |            |           |             |              |
| Pollution protection (dust)                                     | No                                       | EU standard             | No         |           |             |              |
| Pollution protection (noise)                                    | No                                       | EU standard             | No         |           |             |              |
| New fiters  |  |                         |            |           |             |              |
|   |  |                         |            |           |             |              |
|   |  |                         |            |           |             |              |
|   |  |                         |            |           |             |              |
| 6 resume of assesment   |  | remarks                 |            |           |             |              |
| Aggregates / Weightning   | O.K                                      | weight bridge available |            |           |             |              |
| Bitumen / storage tanks   | medium                                   |                         |            |           |             |              |
| Filler  | medium                                   |                         |            |           |             |              |
| additivs  | No                                       |                         |            |           |             |              |
| Comparison mix design / asphalt products                        | Yes                                      |                         |            |           |             |              |
| Impression of plant   | good                                     |                         |            |           |             |              |
| Laboratory  | good                                     |                         |            |           |             |              |
| Management  | good                                     |                         |            |           |             |              |
| Manual / automatic (computer added) production                  | CAD                                      |                         |            |           |             |              |
| Asphalt mixing plant according requirements EU standardisation? |  | no                      |            |           |             |              |
| Asphalt-mixing-plant  |  |                         |            |           |             |              |
| Eskavatori  |  |                         |            |           |             |              |
| Haziz Rysha   |  |                         |            |           |             |              |

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**7. remarks to report**

The aggregates (limestone) are not in accordance with the requirements for the use as aggregates in the quality for wearing courses for roads

The aggregates are not without harmful ingredients, like gypsum, mixture of different materials & quality. Test results or certifications on the delivery note are available

The bitumen is delivered from Albania. The quality varies between bitumen 50/70, 60/80 and 70/100. Self control test results are available, but real test results on the delivery note are not available.

**This asphalt mixing plant is under this conditions is near to produce high quality asphalt for the wearing course of classified roads according European Standards**

Weight bridge is available

Mixing plant has a well equipped lab. But there is no calibration report available. Not all devices are in process.

Eskavatori tried to develop own mix designs without the knowledge of EU standards.

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## What has to be changed according EU standards

|       |   |  |
|-------|---|--|
| No.   | Test review: 07/2006                              | Company: ESKAVATORI                                  |
|       | <b>company assesment</b>                          |  |
| 1.    | <b>aggregates</b>                                 | aggregates according EU standards                    |
| 1.1.  | separated storage                                 |  |
| 1.1.  | identification                                    |  |
| 1.1.  | purity (without harmful ingredients)              |  |
| 1.1.  | certificate of compliance                         | aggregates with certificate                          |
| 1.2   | <b>Filler</b>                                     |  |
| 1.2.  | identification                                    | I  |
| 1.3   | <b>Bitumen</b>                                    | using modified bitumen according climatic conditions |
| 1.3.1 | <b>storage tanks</b> identification               |  |
| 1.4   | <b>asphalt produktion</b>                         |  |
| 1.4.1 | obvious quality                                   | Constant checking of quality acc. TLG Asphalt        |
| 1.4.2 | Temperature measurement device                    | Constant checking of quality acc. TLG Asphalt        |
| 2     | <b>Organisation of factory production control</b> |  |
| 2.1   | <b>Laboratories</b> (where situated)              |  |
| 2.2   | <b>production control</b>                         |  |
| 3.1   | <b>mix design</b>                                 | Make mix design according EU                         |
|       | <b>Base course</b>                                | X  |
|       | <b>Binder course</b>                              | X  |
|       | <b>Wearing course-</b>                            | X  |
|       | <b>asphaltconcrete</b>                            | X  |
| 4.    | <b>staff</b>                                      |  |
|       | <b>qualification</b>                              | Organise training, min once a year                   |
| 5     | <b>Environment</b>                                | Make check according EU (TA Luft)                    |
|       | <b>Pollution protection (dust)</b>                | X  |
|       | <b>Pollution protection (noise)</b>               | X  |
|       | Aggregates / Weightning                           |  |
|       | Bitumen / storage tanks                           |  |
|       | Filler  |  |
|       | additivs  | (no use)   |
|       | Comparison mix design / asphalt products          | Install QMS  |
|       | Impression of plant                               | Improve dosage (no overflow)                         |
|       | Laboratory  | Make contract with EU certified lab                  |
|       | Management  |  |
|       | Manual / automatic (computer added) production    | Calibration of production system                     |
|       | <b>remarks to report</b>                          | <b>Not big investments needed</b>                    |



General view of plant



Company 08/2006



aggregates



Aggregates with harmful ingredients



Bitumen and fuel storage



Storage place






**Bitumen temperature measurement**



**Control system for heating**

|   |                |   |                       |  |   |
|---|----------------|---|-----------------------|--|---|
| company:<br> |                | consultant:<br><b>Dr. Hutschenreuther</b>   |                       |  |   |
| Asphalt mixing plant:<br><b>Burimi Company, Mr Naser Imeri, Babush Bernardi</b>               |                | Type of mixer: batch mixer <b>120 t/h</b><br>Type of dryer: Bernardi      year:1986<br>Type of batching device      year:1986 |                       |  |   |
| Year of construction: 1986, new 2004  |                | Filter:   |                       |  |   |
| Test review: 08/2006  |                |   |                       |  |   |
| <b>1 company assesment</b>  |                |   |                       |  |   |
| <b>1.1 aggregates</b>   |                | Limestone   |                       |  |   |
| 1.1.1 separated storage   | yes            | Overflow between different materials  |                       |  |   |
| 1.1.2 identification  | Not good       |   |                       |  |   |
| 1.1.3 purity (without harmful ingredients)  | no             |   |                       |  |   |
| 1.1.4 certificate of compliance   | yes            | Uni Pristina  |                       |  |   |
| <b>1.2 Filler</b>   |                | Limestone   |                       |  |   |
| 1.2.1 identification  | no             |   |                       |  |   |
|   |                |   |                       |  |   |
|   |                |   |                       |  |   |
| <b>1.3 Bitumen storage tanks, amount</b>  | 1              | 2   | 3                     | x                                      | x |
| 1.3.1 identification  | No             | no  | No                    | only 60/80 from Albania                |   |
| 1.3.2 Temperature measurement device  | yes            | yes   | yes                   |  |   |
| <b>1.4 additives</b>  | No use         |   |                       |  |   |
| 1.4.1 identification  | -              |   |                       |  |   |
| 1.4.2 quality and storage   | -              |   |                       |  |   |
| <b>1.5 asphalt produktion</b>   |                |   |                       |  |   |
| 1.5.1 obvious quality   | Normal, black  |   |                       |  |   |
| 1.5.2 Temperature measurement device  | yes            |   |                       |  |   |
| <b>2 Organisation of factory production control</b>   |                | Laboratory  |                       | Sporadic tests from UNI Pris. / Skopje |   |
| <b>2.1 Laboratories</b> (where situated)  | <b>Not own</b> |   | reports not available |  |   |
| 2.1.2 responsibility for control tests  |                |   |                       |  |   |
| 2.1.3 equipment   |                |   |                       |  |   |
| 2.1.4 staff   |                |   |                       |  |   |
| 2.1.5 remarks (use rear page )  |                |   |                       |  |   |
| <b>2.2 production control</b>   | ?              |   | remarks               |  |   |
| 2.2.1 binder content and grading  |                |   |                       |  |   |
| 2.2.2 max density and bulk density  |                |   |                       |  |   |
| 2.2.5 Marshall-stability and Marshall flow  |                |   |                       |  |   |
| 2.2.6 indentation test  |                |   |                       |  |   |
| 2.2.7 binder recovery / ring and ball (R & B )  |                |   |                       |  |   |

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| 3 factory production  |                       | components                  |            |           |             | remarks      |
|---|-----------------------|-----------------------------|------------|-----------|-------------|--------------|
|   |                       | bitumen                     | aggregates | filler    | additivs    |              |
| 3.1 mix design: from former owner                               |                       | bitumen                     | aggregates | filler    | additivs    | EU standard  |
| Base course   | 0/22;                 | 60/80                       | Limestone  | Limestone | no          | No standards |
| Binder course   | No production         |                             |            |           |             |              |
| Wearing course-<br>asphaltconcrete<br>SMA                       | TDS 0/16              | 60/80                       | Limestone  | Limestone | no          | No standards |
|   | 0/ 8, 0/11            | 60/80                       | Limestone  | Limestone | no          | No standards |
|   | No production         |                             |            |           |             |              |
| 4. staff  |                       |                             |            |           |             |              |
| qualification   |                       | age                         |            |           | Am-<br>ount |              |
| 1   | chief                 |                             |            |           | 1           |              |
| 2   | Delivering aggregates |                             |            |           | 1           |              |
| 3   | Mechanics             |                             |            |           |             |              |
| 4   | Unskilled helper      |                             |            |           | 1           |              |
|   |                       |                             |            | Total     | 3           |              |
|   |                       |                             |            |           |             |              |
| 5 Environment   |                       |                             |            |           |             |              |
| Pollution protection (dust)                                     | No                    | EU standard                 | No         |           |             |              |
| Pollution protection (noise)                                    | No                    | EU standard                 | No         |           |             |              |
| New fiters  |                       |                             |            |           |             |              |
|   |                       |                             |            |           |             |              |
|   |                       |                             |            |           |             |              |
|   |                       |                             |            |           |             |              |
| 6 resume of assesment   |                       | remarks                     |            |           |             |              |
| Aggregates / Weightning   | bad                   | weight bridge not available |            |           |             |              |
| Bitumen / storage tanks   | bad                   |                             |            |           |             |              |
| Filler  | medium                |                             |            |           |             |              |
| additivs  | No                    |                             |            |           |             |              |
| Comparison mix design / asphalt products                        | no                    |                             |            |           |             |              |
| Impression of plant   | bad                   |                             |            |           |             |              |
| Laboratory  | no                    |                             |            |           |             |              |
| Management  | medium                |                             |            |           |             |              |
| Manual / automatic (computer added) production                  | Man /CAD              |                             |            |           |             |              |
| Asphalt mixing plant according requirements EU standardisation? |                       | no                          |            |           |             |              |
| Asphalt-mixing-plant  |                       |                             |            |           |             |              |
| Burimi  |                       |                             |            |           |             |              |
| Naser Jmeri   |                       |                             |            |           |             |              |

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**7. remarks to report**

The aggregates (limestone) are not in accordance with the requirements for the use as aggregates in the quality for wearing courses for roads

The aggregates are not without harmful ingredients, like plastics,  
Test results or certifications on the delivery note are available

The bitumen is delivered from Albania. The quality varies between bitumen 50/70, 60/80 and 70/100.  
Self control test results are available, but real test results on the delivery note are not available.

**This asphalt mixing plant is under this conditions is not able to produce high quality asphalt for the wearing course of classified roads according European Standards**

Weight bridge is not available

Mixing plant has not own lab.

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## What has to be changed according EU standards

|            |   |   |
|------------|---|---|
| <b>No.</b> | <b>Test review:</b> 08/2006                       | <b>Company:</b> BURIMI  |
|            | <b>company assesment</b>                          |   |
| <b>1.</b>  | <b>aggregates</b>                                 | Using aggregates according EU standards   |
| 1.1.       | separated storage                                 | (boxes)   |
| 1.1.       | identification                                    | Install identification signs  |
| 1.1.       | purity (without harmful ingredients)              | No use of material with harmful ingredients   |
| 1.1.       | certificate of compliance                         | Only use aggregates with certificate  |
| <b>1.2</b> | <b>Filler</b>                                     |   |
| 1.2.       | identification                                    | Install identification signs  |
| <b>1.3</b> | <b>Bitumen</b>                                    | using modified bitumen according climatic conditions  |
| 1.3.1      | <b>storage tanks</b> identification               | Install identification signs  |
| <b>1.4</b> | <b>asphalt produktion</b>                         | Check the plant and construction if it's possible to work in accordance to safety instructions  |
| 1.4.1      | obvious quality                                   | Constant checking of quality acc. TLG Asphalt   |
| 1.4.2      | Temperature measurement device                    | Constant checking of quality acc. TLG Asphalt   |
| <b>2</b>   | <b>Organisation of factory production control</b> |   |
| 2.1        | <b>Laboratories</b> (where situated)              | Make an contract with lab   |
| 2.2        | <b>production control</b>                         | should made by itself or contractor   |
| 3.1        | <b>mix design</b>                                 | Make mix design according EU  |
|            | <b>Base course</b>                                | X   |
|            | <b>Binder course</b>                              | X   |
|            | <b>Wearing course-</b>                            | X   |
|            | <b>asphaltconcrete</b>                            | X   |
| <b>4.</b>  | <b>staff</b>                                      |   |
|            | <b>qualification</b>                              | Organise training, min once a year  |
| <b>5</b>   | <b>Environment</b>                                | Make check according EU (TA Luft)   |
|            | <b>Pollution protection (dust)</b>                | X   |
|            | <b>Pollution protection (noise)</b>               | X   |
|            | Aggregates / Weightning                           | Install weightbridge  |
|            | Bitumen / storage tanks                           | Check the quality of steel frames   |
|            | Filler  |   |
|            | additivs  | (no use)  |
|            | Comparison mix design / asphalt products          | Install QMS   |
|            | Impression of plant                               | Improve storage space   |
|            | Laboratory  | Make contract with EU certified lab   |
|            | Management  |   |
|            | Manual / automatic (computer added) production    | Calibration of production system  |
|            | <b>remarks to report</b>                          | Use aggregates and bitumen according EU standards or special modified bitumen<br>All parts of mixing plant have to be calibrated once a Year or every second Year |



General view of plant



Company 07/20065



aggregates



Dosage overflow



Bitumen and fuel storage




Chief technican



**Ring and ball bitumen test device (automatic)**



**Laboratory is working**

|   |   |   |                   |   |   |
|---|---|---|-------------------|---|---|
| company:<br> |   | consultant:<br><b>Dr. Hutschenreuther</b>   |                   |   |   |
| Asphalt mixing plant:<br>Papenburg Adriani, Ferizaj / Sojeve<br>Teltomat                      |   | Type of mixer: batch mixer <b>180 t/h</b><br>Type of dryer: Teltomat      year:2000<br>Type of batching device      year:2000 |                   |   |   |
| Year of construction: 2000, new   |   | Filter:   |                   |   |   |
| Test review: 09/2006  |   |   |                   |   |   |
| <b>1 company assesment</b>  |   |   |                   |   |   |
| <b>1.1 aggregates</b>   |   | Limestone   |                   |   |   |
| 1.1.1 separated storage   | yes                                     |   |                   |   |   |
| 1.1.2 identification  | O.K.                                    |   |                   |   |   |
| 1.1.3 purity (without harmful ingredients)  | yes                                     |   |                   |   |   |
| 1.1.4 certificate of compliance   | yes                                     |   |                   |   |   |
| <b>1.2 Filler</b>   |   | Limestone (only)  |                   |   |   |
| 1.2.1 identification  | no                                      |   |                   |   |   |
|   |   |   |                   |   |   |
|   |   |   |                   |   |   |
| <b>1.3 Bitumen storage tanks, amount</b>  | 1                                       | 2   | 3                 | x   | x |
| 1.3.1 identification  | No                                      | no  | No                | only 60/80 from Albania                                   |   |
| 1.3.2 Temperature measurement device  | yes                                     | yes   | yes               |   |   |
| <b>1.4 additives</b>  | No use                                  |   |                   |   |   |
| 1.4.1 identification  | -                                       |   |                   |   |   |
| 1.4.2 quality and storage   | -                                       |   |                   |   |   |
| <b>1.5 asphalt produktion</b>   |   |   |                   |   |   |
| 1.5.1 obvious quality   | Normal, black                           |   |                   |   |   |
| 1.5.2 Temperature measurement device  | yes                                     |   |                   |   |   |
| <b>2 Organisation of factory production control</b>   |   | Laboratory  |                   | Sporadic tests from<br>UNI Pris. / Skopje /<br>Wismar (D) |   |
| <b>2.1 Laboratories</b> (where situated)  | <b>Own laboratory<br/>operating</b>     |   | reports available |   |   |
| 2.1.2 responsibility for control tests  |   |   |                   |   |   |
| 2.1.3 equipment   |   |   |                   |   |   |
| 2.1.4 staff   |   |   |                   |   |   |
| 2.1.5 remarks (use rear page )  |   |   |                   |   |   |
| <b>2.2 production control</b>   | <b>yes</b><br>no calibration of devices |   | remarks           |   |   |
| 2.2.1 binder content and grading  | Yes                                     |   |                   |   |   |
| 2.2.2 max density and bulk density  | Yes                                     |   |                   |   |   |
| 2.2.5 Marshall-stability and Marshall flow  | Yes                                     |   |                   |   |   |
| 2.2.6 indentation test  | Yes                                     |   |                   |   |   |
| 2.2.7 binder recovery / ring and ball (R & B )  | yes                                     |   |                   |   |   |

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| 3 factory production   |  | components              |            |           |             | remarks      |
|--|--|-------------------------|------------|-----------|-------------|--------------|
|  |  | bitumen                 | aggregates | filler    | additivs    |              |
| 3.1 mix design: from former owner  |  | bitumen                 | aggregates | filler    | additivs    | EU standard  |
| Base course  | 0/22; 0/32                               | 60/80                   | Limestone  | Limestone | no          | No standards |
| Binder course  | No production                            |                         |            |           |             |              |
| Wearing course-<br>asphaltconcrete<br>SMA  | TDS 0/16                                 | 60/80                   | Limestone  | Limestone | no          | No standards |
|  | 0/ 8, 0/11                               | 60/80                   | Limestone  | Limestone | no          | No standards |
|  | 0/16                                     | 60/80                   | Limestone  | Limestone | no          | No standards |
| 4. staff   |  |                         |            |           |             |              |
| qualification  |  | age                     |            |           | Am-<br>ount |              |
| 1  | chief                                    |                         |            |           | 1           |              |
| 2  | Delivering aggregates / Weight<br>bridge |                         |            |           | 1           |              |
| 3  | Mechanics                                |                         |            |           | 1           |              |
| 4  | Unskilled helper                         |                         |            |           |             |              |
|  |  |                         |            | Total     | 3           |              |
|  |  |                         |            |           |             |              |
| 5 Environment  |  |                         |            |           |             |              |
| Pollution protection (dust)  | No                                       | EU standard             | (yes)      |           |             |              |
| Pollution protection (noise)   | No                                       | EU standard             | (yes)      |           |             |              |
| New filters , every tested by telmat   |  |                         |            |           |             |              |
|  |  |                         |            |           |             |              |
|  |  |                         |            |           |             |              |
|  |  |                         |            |           |             |              |
| 6 resume of assesment  |  | remarks                 |            |           |             |              |
| Aggregates / Weightning  | O.K                                      | weight bridge available |            |           |             |              |
| Bitumen / storage tanks  | medium                                   |                         |            |           |             |              |
| Filler   | medium                                   |                         |            |           |             |              |
| additivs   | No                                       |                         |            |           |             |              |
| Comparison mix design / asphalt products   | Yes                                      |                         |            |           |             |              |
| Impression of plant  | good                                     |                         |            |           |             |              |
| Laboratory   | good                                     |                         |            |           |             |              |
| Management   | good                                     |                         |            |           |             |              |
| Manual / automatic (computer added) production                                       | CAD                                      |                         |            |           |             |              |
| Asphalt mixing plant according requirements EU standardisation?                      |  | No, but very close      |            |           |             |              |
| Asphalt-mixing-plant<br><br>Papenburg<br>.....<br><br>GF Dieter Mertensotto<br>..... |  |                         |            |           |             |              |

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**7. remarks to report**

The aggregates (limestone) are not in accordance with the requirements for the use as aggregates in the quality for wearing courses for roads

Test results or certifications on the delivery note are available

The bitumen is delivered from Albania. The quality varies between bitumen 50/70, 60/80 and 70/100. Self control test results are available, but real test results on the delivery note are not available.

**This asphalt mixing plant is under this conditions is near to produce high quality asphalt for the wearing course of classified roads according European Standards**

Weight bridge is available and unde use







Mixing plant has a well equipped lab. But there is only calibration report by Teltomat (not independent office) available.

No valid mix designs, but under progress. Lab has to be calibrated.

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## What has to be changed according EU standards

|            |   |  |
|------------|---|--|
| No.        | Test review: 09/2006                              | Company: PAPENBURG /ADRIANI                          |
|            | <b>company assesment</b>                          |  |
| <b>1.</b>  | <b>aggregates</b>                                 | aggregates according EU standards                    |
| 1.1.       | separated storage                                 | cleaner storage!                                     |
| 1.1.       | identification                                    |  |
| 1.1.       | purity (without harmful ingredients)              |  |
| 1.1.       | certificate of compliance                         | aggregates with certificate                          |
| <b>1.2</b> | <b>Filler</b>                                     |  |
| 1.2.       | identification                                    | I  |
| <b>1.3</b> | <b>Bitumen</b>                                    | using modified bitumen according climatic conditions |
| 1.3.1      | storage tanks identification                      |  |
| <b>1.4</b> | <b>asphalt produktion</b>                         |  |
| 1.4.1      | obvious quality                                   |  |
| 1.4.2      | Temperature measurement device                    |  |
| <b>2</b>   | <b>Organisation of factory production control</b> |  |
| <b>2.1</b> | <b>Laboratories</b> (where situated)              |  |
| <b>2.2</b> | <b>production control</b>                         |  |
| <b>3.1</b> | <b>mix design</b>                                 | Make mix design according EU every 2 years           |
|            | <b>Base course</b>                                | X  |
|            | <b>Binder course</b>                              | X  |
|            | <b>Wearing course-</b>                            | X  |
|            | <b>asphaltconcrete</b>                            | X  |
| <b>4.</b>  | <b>staff</b>                                      |  |
|            | qualification                                     | Organise training, min once a year                   |
| <b>5</b>   | <b>Environment</b>                                |  |
|            | <b>Pollution protection (dust)</b>                |  |
|            | <b>Pollution protection (noise)</b>               |  |
|            | Aggregates / Weightning                           |  |
|            | Bitumen / storage tanks                           |  |
|            | Filler  |  |
|            | additivs  | (no use)   |
|            | Comparison mix design / asphalt products          | Install QMS  |
|            | Impression of plant                               | Improve dosage (no overflow)                         |
|            | Laboratory  | Make contract with EU certified lab                  |
|            | Management  |  |
|            | Manual / automatic (computer added) production    |  |
|            | <b>remarks to report</b>                          | <b>Only very small investments needed</b>            |

|   |   |
|---|---|
|  A photograph showing a large industrial facility with several tall, orange-colored structures, including a prominent tower and a large cylindrical tank, situated in an open area under a clear blue sky. |  <p><b>VICTORIA INVEST</b><br/>Internacional Group</p> <p>Construction<br/>Production<br/>Equipments<br/>Trade<br/>T&amp;B</p> <p>Company 10/2006</p>   |
| <b>General view of plant</b>  |   |
|  A photograph showing a large pile of dark, granular material, likely aggregates, in an outdoor setting.  |  A photograph showing a large pile of dark, granular material, likely aggregates, in an outdoor setting. The material appears to be mixed with a liquid substance, possibly water or oil, creating a muddy, brownish slurry. |
| <b>aggregates</b>   | <b>Aggregates with harmful ingredients</b>  |
|  A photograph showing two large, cylindrical metal storage tanks, likely for bitumen or fuel, situated outdoors. The tanks are surrounded by a dark, oily substance on the ground.                       |  A photograph showing a large, dark, muddy area of ground, likely a result of environmental pollution. The ground is covered in a thick, dark slurry, and there are some small, white objects scattered around.             |
| <b>Bitumen and fuel storage</b>   | <b>environmantal pollution</b>  |



Bitumen temperature measurement



Control system (balance) from 1967

|   |  |                         |     |  |                         |
|---|--|-------------------------|-----|--|-------------------------|
| company:  |  | consultant:             |     |  |                         |
|   |  | Dr. Hutschenreuther     |     |  |                         |
| Asphalt mixing plant:                               |  | Type of mixer:          |     | batch mixer 120 t/h                    |                         |
| Victoria Invest International, Mr Musli Shala       |  | Type of dryer:          |     | Bernardi year:1987                     |                         |
| Bernardi  |  | Type of batching device |     | Bernardi year:1987                     |                         |
| Year of construction: 1987, new                     |  | Filter:                 |     |  |                         |
| Test review: 10/2006                                |  |                         |     |  |                         |
| <b>1 company assesment</b>                          |  |                         |     |  |                         |
| <b>1.1 aggregates</b>                               |  | Limestone CMA company   |     |  |                         |
| 1.1.1 separated storage                             |  | yes                     |     |  |                         |
| 1.1.2 identification                                |  | O.K.                    |     |  |                         |
| 1.1.3 purity (without harmful ingredients)          |  | yes                     |     |  |                         |
| 1.1.4 certificate of compliance                     |  | yes                     |     |  |                         |
| <b>1.2 Filler</b>                                   |  | Limestone (only)        |     |  |                         |
| 1.2.1 identification                                |  | no                      |     |  |                         |
|   |  |                         |     |  |                         |
|   |  |                         |     |  |                         |
| <b>1.3 Bitumen storage tanks, amount</b>            |  | 1                       | 2   | 3                                      | x x                     |
| 1.3.1 identification                                |  | No                      | no  | No                                     | only 60/80 from Albania |
| 1.3.2 Temperature measurement device                |  | yes                     | yes | yes                                    |                         |
| <b>1.4 additives</b>                                |  | No use                  |     |  |                         |
| 1.4.1 identification                                |  | -                       |     |  |                         |
| 1.4.2 quality and storage                           |  | -                       |     |  |                         |
| <b>1.5 asphalt produktion</b>                       |  |                         |     |  |                         |
| 1.5.1 obvious quality                               |  | No production in 2006   |     |  |                         |
| 1.5.2 Temperature measurement device                |  | yes                     |     |  |                         |
| <b>2 Organisation of factory production control</b> |  | Laboratory              |     | Sporadic tests from UNI Pris. / Skopje |                         |
| <b>2.1 Laboratories</b> (where situated)            |  | Not own laboratory      |     | reports available                      |                         |
| 2.1.2 responsibility for control tests              |  |                         |     |  |                         |
| 2.1.3 equipment                                     |  |                         |     |  |                         |
| 2.1.4 staff   |  |                         |     |  |                         |
| 2.1.5 remarks (use rear page )                      |  |                         |     |  |                         |
| <b>2.2 production control</b>                       |  | ?                       |     | remarks                                |                         |
| 2.2.1 binder content and grading                    |  |                         |     |  |                         |
| 2.2.2 max density and bulk density                  |  |                         |     |  |                         |
| 2.2.5 Marshall-stability and Marshall flow          |  |                         |     |  |                         |
| 2.2.6 indentation test                              |  |                         |     |  |                         |
| 2.2.7 binder recovery / ring and ball (R & B )      |  |                         |     |  |                         |

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| 3 factory production  |  | components            |                         |           |             | remarks      |
|---|--|-----------------------|-------------------------|-----------|-------------|--------------|
|   |  | bitumen               | aggregates              | filler    | additivs    |              |
| 3.1 mix design: from former owner                               |  | bitumen               | aggregates              | filler    | additivs    | EU standard  |
| Base course   | No mix design available                  | 60/80                 | Limestone               | Limestone | no          | No standards |
| Binder course   | No mix design available                  |                       |                         |           |             |              |
| Wearing course-<br>asphaltconcrete<br>SMA                       | No mix design available                  | 60/80                 | Limestone               | Limestone | no          | No standards |
|   | No mix design available                  | 60/80                 | Limestone               | Limestone | no          | No standards |
|   |  | 60/80                 | Limestone               | Limestone | no          | No standards |
| 4. staff  |  |                       |                         |           |             |              |
| qualification   |  | age                   |                         |           | Am-<br>ount |              |
| 1   | chief                                    |                       |                         |           | 1           |              |
| 2   | Delivering aggregates / Weight<br>bridge |                       |                         |           |             |              |
| 3   | Mechanics                                |                       |                         |           |             |              |
| 4   | Unskilled helper                         |                       |                         |           | 3           |              |
|   |  |                       |                         | Total     | 4           |              |
|   |  |                       |                         |           |             |              |
| 5 Environment   |  |                       |                         |           |             |              |
| Pollution protection (dust)                                     |  | No                    | EU standard             | No        |             |              |
| Pollution protection (noise)                                    |  | No                    | EU standard             | No        |             |              |
|   |  |                       |                         |           |             |              |
|   |  |                       |                         |           |             |              |
|   |  |                       |                         |           |             |              |
| 6 resume of assesment   |  | remarks               |                         |           |             |              |
| Aggregates / Weightning   |  | Bad                   | weight bridge available |           |             |              |
| Bitumen / storage tanks   |  | Very bad              |                         |           |             |              |
| Filler  |  | bad                   |                         |           |             |              |
| additivs  |  | No                    |                         |           |             |              |
| Comparison mix design / asphalt products                        |  | No                    |                         |           |             |              |
| Impression of plant   |  | bad                   |                         |           |             |              |
| Laboratory  |  | no                    |                         |           |             |              |
| Management  |  | bad                   |                         |           |             |              |
| Manual / automatic (computer added) production                  |  | ?                     |                         |           |             |              |
| Asphalt mixing plant according requirements EU standardisation? |  | No, but very far away |                         |           |             |              |
| Asphalt-mixing-plant  |  |                       |                         |           |             |              |
| Victoria  |  |                       |                         |           |             |              |
| Victoria Invest International, Mr Musli Shala                   |  |                       |                         |           |             |              |

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**7. remarks to report**

The aggregates (limestone) are not in accordance with the requirements for the use as aggregates in the quality for wearing courses for roads

Test results or certifications on the delivery note are available

The bitumen should be delivered from Albania. The quality varies between bitumen 50/70, 60/80 and 70/100.

**This asphalt mixing plant is under this conditions is very far to produce high quality asphalt for the wearing course of classified roads according European Standards**

Weight bridge is available and under use

Mixing plant has not own lab.

No valid mix designs.

NO PRODUCTION IN 2006

AREA WAS CLOSED AND UNDER CONTROL OF SECURITY SERVICE!



## What has to be changed according EU standards

|       |   |  |
|-------|---|--|
| No.   | Test review: 10/2006                              | Company: VICTORIA INVEST Pristina  |
|       | <b>company assesment</b>                          |  |
| 1.    | <b>aggregates</b>                                 | Using aggregates according EU standards  |
| 1.1.  | separated storage                                 | (boxes)  |
| 1.1.  | identification                                    | Install identification signs   |
| 1.1.  | purity (without harmful ingredients)              | No use of material with harmful ingredients  |
| 1.1.  | certificate of compliance                         | Only use aggregates with certificate   |
| 1.2   | <b>Filler</b>                                     |  |
| 1.2.  | identification                                    | Install identification signs   |
| 1.3   | <b>Bitumen</b>                                    | using modified bitumen according climatic conditions   |
| 1.3.1 | <b>storage tanks</b> identification               | Install identification signs   |
| 1.4   | <b>asphalt produktion</b>                         | Check the plant and construction if it's possible to work in accordance to safety instructions |
| 1.4.1 | obvious quality                                   | Constant checking of quality acc. TLG Asphalt  |
| 1.4.2 | Temperature measurement device                    | Constant checking of quality acc. TLG Asphalt  |
| 2     | <b>Organisation of factory production control</b> |  |
| 2.1   | <b>Laboratories</b> (where situated)              | Make an contract with lab  |
| 2.2   | <b>production control</b>                         | should made by itself or contractor  |
| 3.1   | <b>mix design</b>                                 | Make mix design according EU   |
|       | <b>Base course</b>                                | X  |
|       | <b>Binder course</b>                              | X  |
|       | <b>Wearing course-</b>                            | X  |
|       | <b>asphaltconcrete</b>                            | X  |
| 4.    | <b>staff</b>                                      |  |
|       | <b>qualification</b>                              | Organise training, min once a year   |
| 5     | <b>Environment</b>                                | Make check according EU (TA Luft)  |
|       | <b>Pollution protection (dust)</b>                | X  |
|       | <b>Pollution protection (noise)</b>               | x  |
|       | Aggregates / Weightning                           | Install weightbridge   |
|       | Bitumen / storage tanks                           | Check the quality of steel frames  |
|       | Filler  |  |
|       | additivs  | (no use)   |
|       | Comparison mix design / asphalt products          | Install QMS  |
|       | Impression of plant                               | Improve storage space  |
|       | Laboratory  | Make contract with EU certified lab  |
|       | Management  |  |
|       | Manual / automatic (computer added) production    | Calibration of production system   |
|       | <b>remarks to report</b>                          | <b>Check if it is responsible to invest in any reconstructions</b>                             |



Company 11/2006

General view of plant



aggregates



Aggregates with ingredients



Bitumen and fuel storage



Dosage of aggregates

|   |           |           |     |     |                |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
|---|-----------|-----------|-----|-----|----------------|------|--------|--|--|---|-----------|---------|-----|-----|----|--|--|--|--|---|-----------|---------|-----|-----|----|--|--|--|--|---|-----------|----------|-----|-----|----|--|--|--|--|---|-----------|-----------|-----|-----|----|--|--|--|--|---|-----------|-----------|-----|-----|----|--|--|--|--|-------|--|--|--|--|----------------|--|--|--|--|--|--|--|--|--|--|------|--------|--|--|
| <div> <div>Beton- Zhavor - 0 - 22</div> <div> <div>* Fraktsionel - 665 kg</div> <table> <tr><td>1</td><td>Fraktsion</td><td>0 den 4</td><td>20%</td><td>20%</td><td>kg</td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td>Fraktsion</td><td>4 den 8</td><td>50%</td><td>50%</td><td>kg</td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td>Fraktsion</td><td>8 den 11</td><td>10%</td><td>10%</td><td>kg</td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td>Fraktsion</td><td>11 den 16</td><td>10%</td><td>10%</td><td>kg</td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td>Fraktsion</td><td>16 den 22</td><td>20%</td><td>20%</td><td>kg</td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="5">Summa</td><td>35 kg / 700 kg</td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="5"></td><td></td><td>100%</td><td>665 kg</td><td></td><td></td></tr> </table> </div> </div> |           |           |     |     |                |      |        |  |  | 1 | Fraktsion | 0 den 4 | 20% | 20% | kg |  |  |  |  | 2 | Fraktsion | 4 den 8 | 50% | 50% | kg |  |  |  |  | 3 | Fraktsion | 8 den 11 | 10% | 10% | kg |  |  |  |  | 4 | Fraktsion | 11 den 16 | 10% | 10% | kg |  |  |  |  | 5 | Fraktsion | 16 den 22 | 20% | 20% | kg |  |  |  |  | Summa |  |  |  |  | 35 kg / 700 kg |  |  |  |  |  |  |  |  |  |  | 100% | 665 kg |  |  |
| 1   | Fraktsion | 0 den 4   | 20% | 20% | kg             |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| 2   | Fraktsion | 4 den 8   | 50% | 50% | kg             |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| 3   | Fraktsion | 8 den 11  | 10% | 10% | kg             |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| 4   | Fraktsion | 11 den 16 | 10% | 10% | kg             |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| 5   | Fraktsion | 16 den 22 | 20% | 20% | kg             |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| Summa   |           |           |     |     | 35 kg / 700 kg |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
|   |           |           |     |     |                | 100% | 665 kg |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| <div> <div>Asfalt - Beton - 0 - 11</div> <div> <div>* Fraktsionel - 660 kg</div> <table> <tr><td>1</td><td>Fraktsion</td><td>0 den 4</td><td>50%</td><td>50%</td><td>kg</td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td>Fraktsion</td><td>4 den 8</td><td>20%</td><td>20%</td><td>kg</td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td>Fraktsion</td><td>8 den 11</td><td>20%</td><td>20%</td><td>kg</td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="5">Summa</td><td>40 kg / 700 kg</td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="5"></td><td></td><td>100%</td><td>660 kg</td><td></td><td></td></tr> </table> </div> </div>  |           |           |     |     |                |      |        |  |  | 1 | Fraktsion | 0 den 4 | 50% | 50% | kg |  |  |  |  | 2 | Fraktsion | 4 den 8 | 20% | 20% | kg |  |  |  |  | 3 | Fraktsion | 8 den 11 | 20% | 20% | kg |  |  |  |  | 4 |           |           |     |     |    |  |  |  |  | 5 |           |           |     |     |    |  |  |  |  | Summa |  |  |  |  | 40 kg / 700 kg |  |  |  |  |  |  |  |  |  |  | 100% | 660 kg |  |  |
| 1   | Fraktsion | 0 den 4   | 50% | 50% | kg             |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| 2   | Fraktsion | 4 den 8   | 20% | 20% | kg             |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| 3   | Fraktsion | 8 den 11  | 20% | 20% | kg             |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| 4   |           |           |     |     |                |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| 5   |           |           |     |     |                |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| Summa   |           |           |     |     | 40 kg / 700 kg |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
|   |           |           |     |     |                | 100% | 660 kg |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| <div> <div>Asfalt - Beton - 0 - 16</div> <div> <div>* Fraktsionel - 661 kg</div> <table> <tr><td>1</td><td>Fraktsion</td><td>0 den 4</td><td>50%</td><td>50%</td><td>kg</td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td>Fraktsion</td><td>4 den 8</td><td>11%</td><td>11%</td><td>kg</td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td>Fraktsion</td><td>8 den 11</td><td>12%</td><td>12%</td><td>kg</td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td>Fraktsion</td><td>11 den 16</td><td>10%</td><td>10%</td><td>kg</td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="5">Summa</td><td>72 kg / 700 kg</td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="5"></td><td></td><td>100%</td><td>661 kg</td><td></td><td></td></tr> </table> </div> </div>                          |           |           |     |     |                |      |        |  |  | 1 | Fraktsion | 0 den 4 | 50% | 50% | kg |  |  |  |  | 2 | Fraktsion | 4 den 8 | 11% | 11% | kg |  |  |  |  | 3 | Fraktsion | 8 den 11 | 12% | 12% | kg |  |  |  |  | 4 | Fraktsion | 11 den 16 | 10% | 10% | kg |  |  |  |  | 5 |           |           |     |     |    |  |  |  |  | Summa |  |  |  |  | 72 kg / 700 kg |  |  |  |  |  |  |  |  |  |  | 100% | 661 kg |  |  |
| 1   | Fraktsion | 0 den 4   | 50% | 50% | kg             |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| 2   | Fraktsion | 4 den 8   | 11% | 11% | kg             |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| 3   | Fraktsion | 8 den 11  | 12% | 12% | kg             |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| 4   | Fraktsion | 11 den 16 | 10% | 10% | kg             |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| 5   |           |           |     |     |                |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
| Summa   |           |           |     |     | 72 kg / 700 kg |      |        |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |
|   |           |           |     |     |                | 100% | 661 kg |  |  |   |           |         |     |     |    |  |  |  |  |   |           |         |     |     |    |  |  |  |  |   |           |          |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |   |           |           |     |     |    |  |  |  |  |       |  |  |  |  |                |  |  |  |  |  |  |  |  |  |  |      |        |  |  |

Mix design published in plant



Asphalt on the truck

|  |  |   |    |  |                         |
|--|--|---|----|--|-------------------------|
| company:<br>Victoria Invest International,                     |  | consultant:<br><br><b>Dr. Hutschenreuther</b>   |    |  |                         |
| Asphalt mixing plant:<br>Volljak, Mr Abdylrahman Uka<br>Marini |  | Type of mixer: batch mixer <b>60 t/h</b><br>Type of dryer: Marini year:<br>Type of batching device Marini year: |    |  |                         |
| Year of construction: not available                            |  | Filter:   |    |  |                         |
| Test review: 11/2006   |  |   |    |  |                         |
| <b>1 company assesment</b>                                     |  |   |    |  |                         |
| <b>1.1 aggregates</b>  |  | Limestone   |    |  |                         |
| 1.1.1 separated storage  |  | yes   |    |  |                         |
| 1.1.2 identification   |  |   |    |  |                         |
| 1.1.3 purity (without harmful ingredients)                     |  |   |    |  |                         |
| 1.1.4 certificate of compliance                                |  |   |    |  |                         |
| <b>1.2 Filler</b>  |  | Limestone (only)  |    |  |                         |
| 1.2.1 identification   |  | no  |    |  |                         |
|  |  |   |    |  |                         |
|  |  |   |    |  |                         |
| <b>1.3 Bitumen storage tanks, amount</b>                       |  | 1   | 2  | 3  | x x                     |
| 1.3.1 identification   |  | no  | no | no   | only 60/80 from Albania |
| 1.3.2 Temperature measurement device                           |  |   |    |  |                         |
| <b>1.4 additives</b>   |  | No use  |    |  |                         |
| 1.4.1 identification   |  | -   |    |  |                         |
| 1.4.2 quality and storage                                      |  | -   |    |  |                         |
| <b>1.5 asphalt produktion</b>                                  |  |   |    |  |                         |
| 1.5.1 obvious quality  |  | good  |    |  |                         |
| 1.5.2 Temperature measurement device                           |  | yes   |    |  |                         |
| <b>2 Organisation of factory production control</b>            |  | Laboratory  |    | Now Sporadic tests from UNI Pris. / before Skopje (up to 2005) |                         |
| <b>2.1 Laboratories</b> (where situated)                       |  | Not own laboratory  |    |  |                         |
| 2.1.2 responsibility for control tests                         |  |   |    |  |                         |
| 2.1.3 equipment  |  |   |    |  |                         |
| 2.1.4 staff  |  |   |    |  |                         |
| 2.1.5 remarks (use rear page )                                 |  |   |    |  |                         |
| <b>2.2 production control</b>                                  |  | ?   |    | remarks  |                         |
| 2.2.1 binder content and grading                               |  |   |    |  |                         |
| 2.2.2 max density and bulk density                             |  |   |    |  |                         |
| 2.2.5 Marshall-stability and Marshall flow                     |  |   |    |  |                         |
| 2.2.6 indentation test   |  |   |    |  |                         |
| 2.2.7 binder recovery / ring and ball (R & B )                 |  |   |    |  |                         |

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| 3 factory production  |  | components                               |            |           |             | remarks      |
|---|--|--|------------|-----------|-------------|--------------|
|   |  | bitumen                                  | aggregates | filler    | additivs    |              |
| 3.1 mix design: from former owner                               |  | bitumen                                  | aggregates | filler    | additivs    | EU standard  |
| Base course   | mix design available                     | 60/80                                    | Limestone  | Limestone | no          | No standards |
| Binder course   |  |  |            |           |             |              |
| Wearing course-<br>asphaltconcrete<br>SMA                       | mix design available                     | 60/80                                    | Limestone  | Limestone | no          | No standards |
|   | mix design available                     | 60/80                                    | Limestone  | Limestone | no          | No standards |
|   |  | 60/80                                    | Limestone  | Limestone | no          | No standards |
| 4. staff  |  |  |            |           |             |              |
| qualification   |  | age                                      |            |           | Am-<br>ount |              |
| 1   | chief                                    |  |            |           | 1           |              |
| 2   | Delivering aggregates / Weight<br>bridge |  |            |           | 1           |              |
| 3   | Mechanics                                |  |            |           | 1           |              |
| 4   | Unskilled helper                         |  |            |           | 2           |              |
|   |  |  |            | Total     | 5           |              |
|   |  |  |            |           |             |              |
| 5 Environment   |  |  |            |           |             |              |
| Pollution protection (dust)                                     | No                                       | EU standard                              | No         |           |             |              |
| Pollution protection (noise)                                    | No                                       | EU standard                              | No         |           |             |              |
|   |  |  |            |           |             |              |
|   |  |  |            |           |             |              |
|   |  |  |            |           |             |              |
| 6 resume of assesment   |  | remarks                                  |            |           |             |              |
| Aggregates / Weightning   | medium                                   | No weight bridge installed               |            |           |             |              |
| Bitumen / storage tanks   | medium                                   |  |            |           |             |              |
| Filler  | medium                                   |  |            |           |             |              |
| additivs  | No                                       |  |            |           |             |              |
| Comparison mix design / asphalt products                        | No ?                                     | No available, should be faxed to office? |            |           |             |              |
| Impression of plant   | medium                                   |  |            |           |             |              |
| Laboratory  | no                                       |  |            |           |             |              |
| Management  | medium                                   |  |            |           |             |              |
| Manual / automatic (computer added) production                  | CAD                                      |  |            |           |             |              |
| Asphalt mixing plant according requirements EU standardisation? |  | No                                       |            |           |             |              |
| Asphalt-mixing-plant  |  |  |            |           |             |              |
| Victoria  |  |  |            |           |             |              |
| Victoria Invest International, Mr Abdyyrahman Uka               |  |  |            |           |             |              |

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**7. remarks to report**

The aggregates (limestone) are not in accordance with the requirements for the use as aggregates in the quality for wearing courses for roads

Test results or certifications on the delivery note are available

The bitumen should be delivered from Albania. The quality varies between bitumen 50/70, 60/80 and 70/100.

**This asphalt mixing plant is under these conditions is able to produce high quality asphalt for the wearing course of classified roads according to European Standards**

Mixing plant has not own lab.

No valid mix designs according to EU standard.

## What has to be changed according EU standards

|       |   |   |
|-------|---|---|
| No.   | Test review: 11/2006                              | Company: VICTORIA INVEST  |
|       | <b>company assesment</b>                          |   |
| 1.    | <b>aggregates</b>                                 | Using aggregates according EU standards   |
| 1.1.  | separated storage                                 | (boxes)   |
| 1.1.  | identification                                    | Install identification signs  |
| 1.1.  | purity (without harmful ingredients)              | No use of material with harmful ingredients   |
| 1.1.  | certificate of compliance                         | Only use aggregates with certificate  |
| 1.2   | <b>Filler</b>                                     |   |
| 1.2.  | identification                                    | Install identification signs  |
| 1.3   | <b>Bitumen</b>                                    | using modified bitumen according climatic conditions  |
| 1.3.1 | <b>storage tanks</b> identification               | Install identification signs  |
| 1.4   | <b>asphalt produktion</b>                         |   |
| 1.4.1 | obvious quality                                   | Constant checking of quality acc. TLG Asphalt   |
| 1.4.2 | Temperature measurement device                    | Constant checking of quality acc. TLG Asphalt   |
| 2     | <b>Organisation of factory production control</b> |   |
| 2.1   | <b>Laboratories</b> (where situated)              | Make an contract with lab   |
| 2.2   | <b>production control</b>                         | should made by itself or contractor   |
| 3.1   | <b>mix design</b>                                 | Make mix design according EU  |
|       | <b>Base course</b>                                | x   |
|       | <b>Binder course</b>                              | x   |
|       | <b>Wearing course-</b>                            | x   |
|       | <b>asphaltconcrete</b>                            | x   |
| 4.    | <b>staff</b>                                      |   |
|       | <b>qualification</b>                              | Organise training, min once a year  |
| 5     | <b>Environment</b>                                | Make check according EU (TA Luft)   |
|       | <b>Pollution protection (dust)</b>                | X   |
|       | <b>Pollution protection (noise)</b>               | x   |
|       | Aggregates / Weightning                           | Install weightbridge  |
|       | Bitumen / storage tanks                           | Check the quality of steel frames   |
|       | Filler  |   |
|       | additivs  | (no use)  |
|       | Comparison mix design / asphalt products          | Install QMS   |
|       | Impression of plant                               | Improve storage space   |
|       | Laboratory  | Make contract with EU certified lab   |
|       | Management  |   |
|       | Manual / automatic (computer added) production    | Calibration of production system  |
|       | <b>remarks to report</b>                          | Use aggregates and bitumen according EU standards or special modified bitumen<br>All parts of mixing plant have to be calibrated once a Year or every second Year |







General view of plant



Company 12/2006



aggregates



Aggregates with ingredients



Bitumen and fuel storage



Dosage of aggregates



**Bitumen storage**



**Detail of plant**

|  |  |         |                        |                         |   |
|--|--|---------|------------------------|-------------------------|---|
| company:<br>AS putevy  | consultant:<br><br><b>Dr. Hutschenreuther</b>    |         |                        |                         |   |
| Asphalt mixing plant: Leposavic<br>Mr Milorad Andonia Antonievic<br>Marini | Type of mixer: batch mixer                       |         | 60 t/h                 |                         |   |
|  | Type of dryer:                                   | Marini  | year:1978              |                         |   |
|  | Type of batching device                          | Marini  | year:1978              |                         |   |
| Year of construction: 1978, under construction                             | Filter:  |         |                        |                         |   |
| Test review: 12/2006   |  |         |                        |                         |   |
| <b>1 company assesment</b>   |  |         |                        |                         |   |
| <b>1.1 aggregates</b>  | Limestone, crused river gravel, in future basalt |         |                        |                         |   |
| 1.1.1 separated storage  | yes  |         |                        |                         |   |
| 1.1.2 identification   |  |         |                        |                         |   |
| 1.1.3 purity (without harmful ingredients)                                 |  |         |                        |                         |   |
| 1.1.4 certificate of compliance  |  |         |                        |                         |   |
| <b>1.2 Filler</b>  | Limestone (only) imported from Serbia            |         |                        |                         |   |
| 1.2.1 identification   | no   |         |                        |                         |   |
|  |  |         |                        |                         |   |
|  |  |         |                        |                         |   |
| <b>1.3 Bitumen storage tanks, amount</b>                                   | 1  | 2       | 3                      | x                       | x |
| 1.3.1 identification   | no   | no      | no                     | only 60/80 from Albania |   |
| 1.3.2 Temperature measurement device                                       |  |         |                        |                         |   |
| <b>1.4 additivs</b>  | No use   |         |                        |                         |   |
| 1.4.1 identification   | -  |         |                        |                         |   |
| 1.4.2 quality and storage  | -  |         |                        |                         |   |
| <b>1.5 asphalt produktion</b>  |  |         |                        |                         |   |
| 1.5.1 obvious quality  | good   |         |                        |                         |   |
| 1.5.2 Temperature measurement device                                       | yes  |         |                        |                         |   |
| <b>2 Organisation of factory production control</b>                        | Laboratory                                       |         | Will be Rashka, Serbia |                         |   |
| <b>2.1 Laboratories</b> (where situated)                                   | Not own laboratory                               |         |                        |                         |   |
| 2.1.2 responsibility for control tests                                     |  |         |                        |                         |   |
| 2.1.3 equipment  |  |         |                        |                         |   |
| 2.1.4 staff  |  |         |                        |                         |   |
| 2.1.5 remarks (use rear page )   |  |         |                        |                         |   |
| <b>2.2 production control</b>  | ?  | remarks |                        |                         |   |
| 2.2.1 binder content and grading   |  |         |                        |                         |   |
| 2.2.2 max density and bulk density   |  |         |                        |                         |   |
| 2.2.5 Marshall-stability and Marshall flow                                 |  |         |                        |                         |   |
| 2.2.6 indentation test   |  |         |                        |                         |   |
| 2.2.7 binder recovery / ring and ball (R & B )                             |  |         |                        |                         |   |

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| 3 factory production  |  | components |                            |           |             | remarks      |
|---|--|------------|----------------------------|-----------|-------------|--------------|
|   |  | bitumen    | aggregates                 | filler    | additivs    |              |
| 3.1 mix design: from belgrad?                                   |  | bitumen    | aggregates                 | filler    | additivs    | EU standard  |
| Base course   | No mix design available                  | 60/80      | diffrent                   | Limestone | no          | No standards |
| Binder course   |  |            |                            |           |             |              |
| Wearing course-<br>asphaltconcrete<br>SMA                       | No mix design available                  | 60/80      | diffrent                   | Limestone | no          | No standards |
|   | No mix design available                  | 60/80      | diffrent                   | Limestone | no          | No standards |
|   |  |            |                            |           | no          | No standards |
| 4. staff  |  |            |                            |           |             |              |
| qualification   |  | age        |                            |           | Am-<br>ount |              |
| 1   | chief                                    |            |                            |           | 1           |              |
| 2   | Delivering aggregates / Weight<br>bridge |            |                            |           |             |              |
| 3   | Mechanics                                |            |                            |           |             |              |
| 4   | Unskilled helper                         |            |                            |           |             |              |
|   |  |            |                            | Total     | ?           |              |
|   |  |            |                            |           |             |              |
| 5 Environment   |  |            |                            |           |             |              |
| Pollution protection (dust)                                     |  | No         | EU standard                | No        |             |              |
| Pollution protection (noise)                                    |  | No         | EU standard                | No        |             |              |
|   |  |            |                            |           |             |              |
|   |  |            |                            |           |             |              |
|   |  |            |                            |           |             |              |
|   |  |            |                            |           |             |              |
| 6 resume of assesment   |  | remarks    |                            |           |             |              |
| Aggregates / Weightning   |  | medium     | No weight bridge installed |           |             |              |
| Bitumen / storage tanks   |  | bad        |                            |           |             |              |
| Filler  |  | medium     |                            |           |             |              |
| additivs  |  | No         |                            |           |             |              |
| Comparison mix design / asphalt products                        |  | No ?       | No available               |           |             |              |
| Impression of plant   |  | Very bad   |                            |           |             |              |
| Laboratory  |  | no         |                            |           |             |              |
| Management  |  | medium     |                            |           |             |              |
| Manual / automatic (computer added) production                  |  | CAD ?      |                            |           |             |              |
| Asphalt mixing plant according requirements EU standardisation? |  | No         |                            |           |             |              |
| Asphalt-mixing-plant  |  |            |                            |           |             |              |
| Victoria  |  |            |                            |           |             |              |
| AS °putevy  |  |            |                            |           |             |              |

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**7. remarks to report**

The aggregates (limestone) are not in accordance with the requirements for the use as aggregates in the quality for wearing courses for roads

Test results or certifications on the delivery note are available

The bitumen should be delivered from Albania. The quality varies between bitumen 50/70, 60/80 and 70/100.

**This asphalt mixing plant is under these conditions is able to produce high quality asphalt for the wearing course of classified roads according to European Standards**

Mixing plant has not own lab.

No valid mix designs according to EU standard.

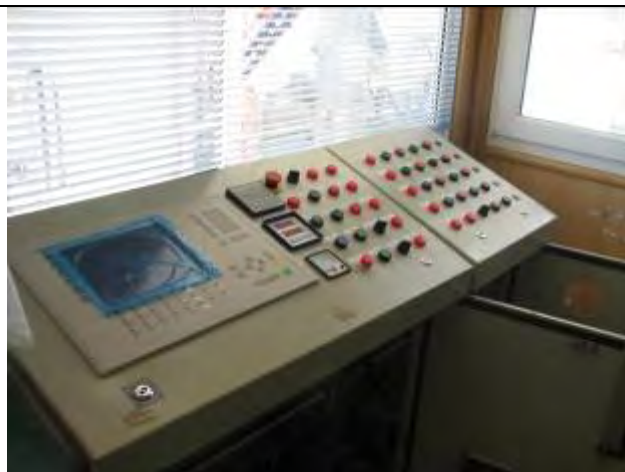
## What has to be changed according EU standards

|       |   |  |
|-------|---|--|
| No.   | Test review: 12/2006                              | Company: As putevy   |
|       | <b>company assesment</b>                          |  |
| 1.    | <b>aggregates</b>                                 | Using aggregates according EU standards  |
| 1.1.  | separated storage                                 | (boxes)  |
| 1.1.  | identification                                    | Install identification signs   |
| 1.1.  | purity (without harmful ingredients)              | No use of material with harmful ingredients  |
| 1.1.  | certificate of compliance                         | Only use aggregates with certificate   |
| 1.2   | <b>Filler</b>                                     |  |
| 1.2.  | identification                                    | Install identification signs   |
| 1.3   | <b>Bitumen</b>                                    | using modified bitumen according climatic conditions   |
| 1.3.1 | <b>storage tanks</b> identification               | Install identification signs   |
| 1.4   | <b>asphalt produktion</b>                         | Check the plant and construction if it's possible to work in accordance to safety instructions |
| 1.4.1 | obvious quality                                   | Constant checking of quality acc. TLG Asphalt  |
| 1.4.2 | Temperature measurement device                    | Constant checking of quality acc. TLG Asphalt  |
| 2     | <b>Organisation of factory production control</b> |  |
| 2.1   | <b>Laboratories</b> (where situated)              | Make an contract with lab  |
| 2.2   | <b>production control</b>                         | should made by itself or contractor  |
| 3.1   | <b>mix design</b>                                 | Make mix design according EU   |
|       | <b>Base course</b>                                | X  |
|       | <b>Binder course</b>                              | X  |
|       | <b>Wearing course-</b>                            | X  |
|       | <b>asphaltconcrete</b>                            | X  |
| 4.    | <b>staff</b>                                      |  |
|       | <b>qualification</b>                              | Organise training, min once a year   |
| 5     | <b>Environment</b>                                | Make check according EU (TA Luft)  |
|       | <b>Pollution protection (dust)</b>                | X  |
|       | <b>Pollution protection (noise)</b>               | x  |
|       | Aggregates / Weightning                           | Install weightbridge   |
|       | Bitumen / storage tanks                           | Check the quality of steel frames  |
|       | Filler  |  |
|       | additivs  | (no use)   |
|       | Comparison mix design / asphalt products          | Install QMS  |
|       | Impression of plant                               | Improve storage space  |
|       | Laboratory  | Make contract with EU certified lab  |
|       | Management  |  |
|       | Manual / automatic (computer added) production    | Calibration of production system   |
|       | <b>remarks to report</b>                          | <b>Check if it is responsible to invest in any reconstructions</b>                             |



**GE GROUP NIIGATA ASPHALT MIXING PLANT**

Company 13/2006

**General view of plant****Future storage of aggregates****CAD production****Bitumen and fuel storage****Silo for hot mix asphalt**

|  |   |         |           |                                    |   |
|--|---|---------|-----------|------------------------------------|---|
| company:<br>GE Group                                   | consultant:<br><br><b>Dr. Hutschenreuther</b> |         |           |                                    |   |
| GE Group Prizren<br>Mr Remzi Bilalli<br>NIIGATA, Japan | Type of mixer: batch mixer                    |         | 150 t/h   |                                    |   |
|  | Type of dryer:                                | Niigata | year:2006 |                                    |   |
|  | Type of batching device                       | Niigata | year:2006 |                                    |   |
| Year of construction:2006, under construction          | Filter:                                       |         |           |                                    |   |
| Test review: 13/2006                                   |   |         |           |                                    |   |
| <b>1 company assesment</b>                             |   |         |           |                                    |   |
| <b>1.1 aggregates</b>                                  | Limestone, and others                         |         |           |                                    |   |
| 1.1.1 separated storage                                | yes   |         |           |                                    |   |
| 1.1.2 identification                                   |   |         |           |                                    |   |
| 1.1.3 purity (without harmful ingredients)             |   |         |           |                                    |   |
| 1.1.4 certificate of compliance                        |   |         |           |                                    |   |
| <b>1.2 Filler</b>                                      | Limestone, cement                             |         |           |                                    |   |
| 1.2.1 identification                                   | no  |         |           |                                    |   |
|  |   |         |           |                                    |   |
|  |   |         |           |                                    |   |
| <b>1.3 Bitumen storage tanks, amount</b>               | 1   | 2       | 3         | x                                  | x |
| 1.3.1 identification                                   | ?   | ?       | ?         | only 60/80 from Albania and Greece |   |
| 1.3.2 Temperature measurement device                   | Yes   |         |           |                                    |   |
| <b>1.4 additives</b>                                   | No use  |         |           |                                    |   |
| 1.4.1 identification                                   | -   |         |           |                                    |   |
| 1.4.2 quality and storage                              | -   |         |           |                                    |   |
| <b>1.5 asphalt produktion</b>                          |   |         |           |                                    |   |
| 1.5.1 obvious quality                                  | No production                                 |         |           |                                    |   |
| 1.5.2 Temperature measurement device                   | yes   |         |           |                                    |   |
| <b>2 Organisation of factory production control</b>    | Laboratory                                    |         |           |                                    |   |
| <b>2.1 Laboratories</b> (where situated)               | Not own laboratory                            |         |           |                                    |   |
| 2.1.2 responsibility for control tests                 |   |         |           |                                    |   |
| 2.1.3 equipment  |   |         |           |                                    |   |
| 2.1.4 staff  |   |         |           |                                    |   |
| 2.1.5 remarks (use rear page )                         |   |         |           |                                    |   |
| <b>2.2 production control</b>                          | ?   | remarks |           |                                    |   |
| 2.2.1 binder content and grading                       |   |         |           |                                    |   |
| 2.2.2 max density and bulk density                     |   |         |           |                                    |   |
| 2.2.5 Marshall-stability and Marshall flow             |   |         |           |                                    |   |
| 2.2.6 indentation test                                 |   |         |           |                                    |   |
| 2.2.7 binder recovery / ring and ball (R & B )         |   |         |           |                                    |   |

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| 3 factory production  |  | components                 |            |           |             | remarks      |
|---|--|----------------------------|------------|-----------|-------------|--------------|
|   |  | bitumen                    | aggregates | filler    | additivs    |              |
| 3.1 mix design: from belgrad?   |  |                            |            |           |             | EU standard  |
| Base course   | No mix design available                  | 60/80                      | diffrent   | Limestone | no          | No standards |
| Binder course   |  |                            |            |           |             |              |
| Wearing course-<br>asphaltconcrete<br>SMA                             | No mix design available                  | 60/80                      | diffrent   | Limestone | no          | No standards |
|   | No mix design available                  | 60/80                      | diffrent   | Limestone | no          | No standards |
|   |  |                            |            |           | no          | No standards |
| 4. staff  |  |                            |            |           |             |              |
| qualification   |  | age                        |            |           | Am-<br>ount |              |
| 1   | chief                                    |                            |            |           | 1           |              |
| 2   | Delivering aggregates / Weight<br>bridge |                            |            |           |             |              |
| 3   | Mechanics                                |                            |            |           |             |              |
| 4   | Unskilled helper                         |                            |            |           |             |              |
|   |  |                            |            | Total     | ?           |              |
|   |  |                            |            |           |             |              |
| 5 Environment   |  |                            |            |           |             |              |
| Pollution protection (dust)   | No                                       | EU standard                | No         |           |             |              |
| Pollution protection (noise)  | No                                       | EU standard                | No         |           |             |              |
|   |  |                            |            |           |             |              |
|   |  |                            |            |           |             |              |
|   |  |                            |            |           |             |              |
| 6 resume of assesment   |  | remarks                    |            |           |             |              |
| Aggregates / Weightning   | ?  | No weight bridge installed |            |           |             |              |
| Bitumen / storage tanks   | Very good                                |                            |            |           |             |              |
| Filler  | Very good                                |                            |            |           |             |              |
| additivs  | No                                       |                            |            |           |             |              |
| Comparison mix design / asphalt products                              | No ?                                     | No available               |            |           |             |              |
| Impression of plant   | Very good                                |                            |            |           |             |              |
| Laboratory  | no                                       |                            |            |           |             |              |
| Management  | ?  |                            |            |           |             |              |
| Manual / automatic (computer added) production                        | CAD                                      |                            |            |           |             |              |
| Asphalt mixing plant according requirements EU standardisation?       |  | No                         |            |           |             |              |
| Asphalt-mixing-plant<br><br>Prizren<br>.....<br><br>GE Group<br>..... |  |                            |            |           |             |              |

Next page 3

**7. remarks to report**

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This mixing plant is under construction.

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Inspection has to be repeated after beginning of production.

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-----  
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## What has to be changed according EU standards

|       |   |  |
|-------|---|--|
| No.   | Test review: 13/2006                              | Company: GE Group Prizren  |
|       | <b>company assesment</b>                          | <b>This plant is under construction</b>  |
| 1.    | <b>aggregates</b>                                 | Using aggregates according EU standards  |
| 1.1.  | separated storage                                 | (boxes)  |
| 1.1.  | identification                                    | Install identification signs   |
| 1.1.  | purity (without harmful ingredients)              | No use of material with harmful ingredients  |
| 1.1.  | certificate of compliance                         | Only use aggregates with certificate   |
| 1.2   | <b>Filler</b>                                     |  |
| 1.2.  | identification                                    | Install identification signs   |
| 1.3   | <b>Bitumen</b>                                    | using modified bitumen according climatic conditions   |
| 1.3.1 | <b>storage tanks</b> identification               | Install identification signs   |
| 1.4   | <b>asphalt produktion</b>                         | Check the plant and construction if it's possible to work in accordance to safety instructions |
| 1.4.1 | obvious quality                                   | Constant checking of quality acc. TLG Asphalt  |
| 1.4.2 | Temperature measurement device                    | Constant checking of quality acc. TLG Asphalt  |
| 2     | <b>Organisation of factory production control</b> |  |
| 2.1   | <b>Laboratories</b> (where situated)              | Make an contract with lab  |
| 2.2   | <b>production control</b>                         | should made by itself or contractor  |
| 3.1   | <b>mix design</b>                                 | Make mix design according EU   |
|       | <b>Base course</b>                                | X  |
|       | <b>Binder course</b>                              | X  |
|       | <b>Wearing course-</b>                            | X  |
|       | <b>asphaltconcrete</b>                            | X  |
| 4.    | <b>staff</b>                                      |  |
|       | <b>qualification</b>                              | Organise training, min once a year   |
| 5     | <b>Environment</b>                                | Make check according EU (TA Luft)  |
|       | <b>Pollution protection (dust)</b>                | X  |
|       | <b>Pollution protection (noise)</b>               | x  |
|       | Aggregates / Weightning                           | Install weightbridge   |
|       | Bitumen / storage tanks                           | Check the quality of steel frames  |
|       | Filler  |  |
|       | additivs  | (no use)   |
|       | Comparison mix design / asphalt products          | Install QMS  |
|       | Impression of plant                               | Improve storage space  |
|       | Laboratory  | Make contract with EU certified lab  |
|       | Management  |  |
|       | Manual / automatic (computer added) production    | Calibration of production system   |
|       | <b>remarks to report</b>                          | <b>Has to be checked after production began. During the erecting it looks good</b>             |

# Asphalt check KOSOVO 2006

|         | aggregates   | valid certificate | filler             | bitumen                  | valid certificate | delivery control system | self production control    | weight bridge | own laboratory | valid mix design | produced mixes | staff     | environmental test (pollution) | Year of construction of plant | Year of RE installation of plant | producer of plant          | Impression    |
|---------|--|-------------------|--------------------|--------------------------|-------------------|-------------------------|----------------------------|---------------|----------------|------------------|----------------|-----------|--------------------------------|-------------------------------|----------------------------------|----------------------------|---------------|
| 06/2008 | limestone  | no                | limestone          | Albania 50/80            | any               | no                      | yes                        | yes           | yes            | no               | ac bc tds      | 1 + 2 + 1 | yearly by telomat              | 2000                          | 2000                             | Telomat                    | good          |
| 07/2008 | limestone/ crushed river gravel - own crusher        | no                | limestone          | Albania 50/80            | no                | no                      | yes                        | yes           | yes            | no               | ac bc tds      | 1 + 5 + 1 | no                             | 2003                          | 2003                             | Bernard                    | good          |
| 13/2008 | limestone / crushed river gravel / In future others  | no                | limestone / cement | Albania 50/80 or Greek?  | no                | no                      | no (no production in 2006) | no            | no             | no               | ac bc tds      | ??        | no                             | 2006                          | 2006                             | Nilgata                    | good          |
| 01/2008 | limestone  | no                | limestone          | Albania 50/80            | no                | no                      | sporadic in UNI Pri        | no            | no             | no               | ac bc tds      | 1 + 1     | no                             |                               | 2004                             | Benning-hoven              | medium        |
| 02/2008 | limestone  | no                | limestone          | Albania 50/80            | no                | no                      | sporadic in UNI Pri        | no            | no             | no               | ac bc tds      | 1 + 3     | no                             | 1990                          | 2001                             | Marini                     | medium        |
| 03/2008 | limestone/ crushed river gravel                      | no                | limestone          | Albania 50/80            | no                | no                      | sporadic in Austria        | no            | no             | no               | ac bc tds      | 1 + 4     | no                             | 1975 / 1994                   | 2000                             | Asfelder Gradls (Slovenia) | medium        |
| 04/2008 | limestone  | no                | limestone          | Albania 50/80            | no                | no                      | sporadic in UNI Pri        | no            | no             | no               | ac bc tds      | 1 + 5     | no                             | 2005                          | 2005                             | AMMANN WIBAU               | medium        |
| 06/2008 | limestone  | no                | limestone          | Albania 50/80            | no                | no                      | sporadic in Skopje         | no            | no             | no               | ac bc tds      | 1 + 3     | no                             | 1983                          | 2002                             | WIBAU                      | medium        |
| 11/2008 | limestone  | no                | limestone          | Albania 50/80            | no                | no                      | not installed              | no            | no             | no               | ac bc tds      | 1+2+1+1   | no                             | 1990                          |                                  | Marini                     | medium        |
| 08/2008 | limestone  | no                | limestone          | Albania 50/80            | no                | no                      | sporadic in UNI Pri        | no            | no             | no               | ac bc tds      | 1 + 2     | no                             | 1986                          | 2004                             | Bernard                    | very bad      |
| 12/2008 | limestone / crushed river gravel / In future basalt? | no                | limestone          | Albania 50/80 or Serbian | no                | no                      | no (no production in 2006) | no            | no             | no               | ac bc tds      | ??        | no                             | 1978                          | ???                              | Marini                     | very bad      |
| 05/2008 | limestone  | no                | limestone          | Albania 50/80            | no                | no                      | no (no production in 2006) | no            | no             | no               | ac bc tds      | ?         | no                             | 1980                          | 2001                             | WIBAU                      | very bad      |
| 10/2008 | limestone  | no                | limestone          | Albania 50/80            | no                | no                      |                            | no            | no             | no               | ac bc tds      | 1+3       | no                             | 1990                          | ???                              | Marini                     | very very bad |

14/2006

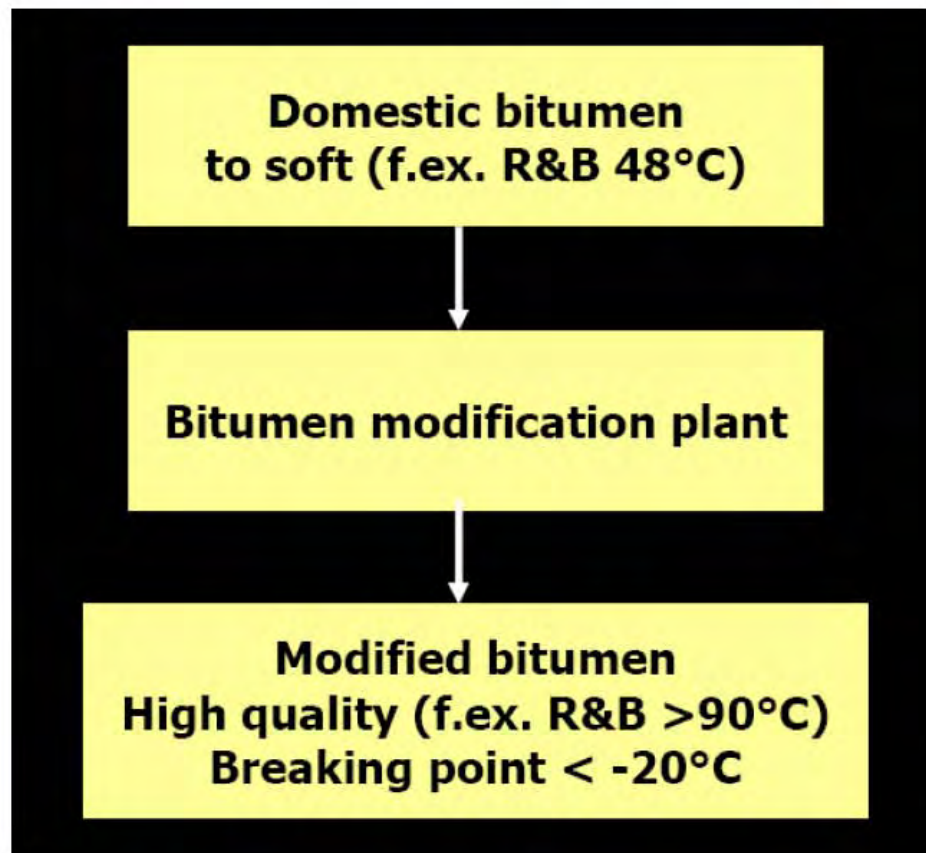
**Tafel 1: Bauweisen mit Asphaltdecke für Fahrbahnen auf F2- und F3-Untergrund/Unterbau  
(Bauweisen auf F1-Böden s. Abschnitt 3.1.2)**

(Dickenangaben in cm;  $\nabla$   $E_{v2}$  - Mindestwerte in MN/m<sup>2</sup>)

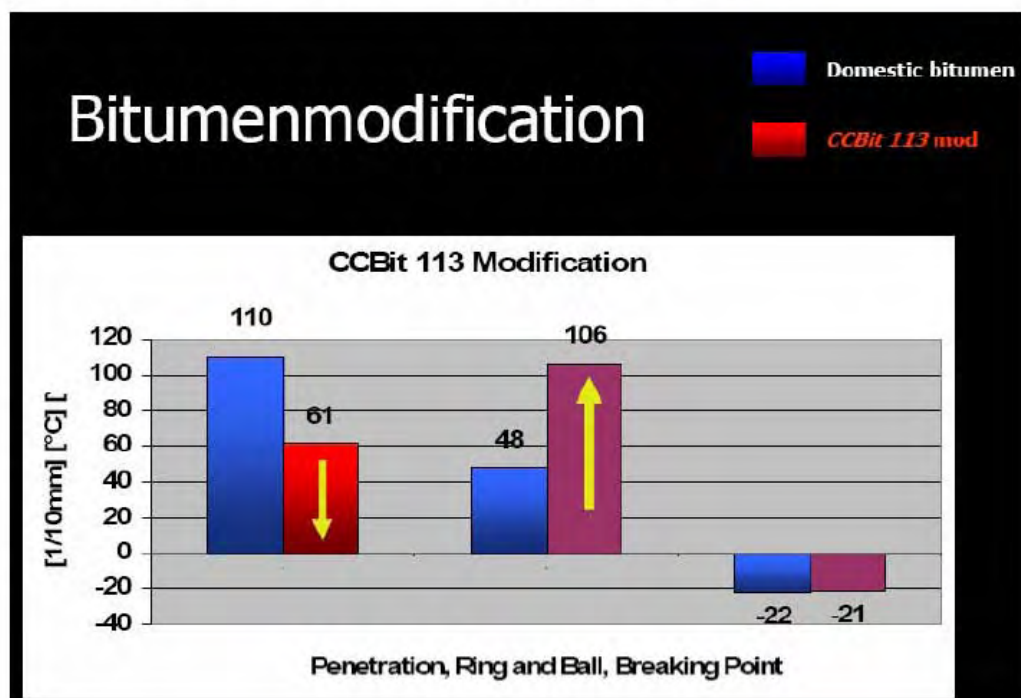
| Zeile   | Bauklasse  |                  | SV   |                  |                  |    | I                |                  |    |    | II               |                  |    |    | III              |                  |                  |                  | IV               |                  |                  |    | V               |                  |                  |    | VI              |                  |                  |    |    |  |  |  |
|---|--|------------------|------|------------------|------------------|----|------------------|------------------|----|----|------------------|------------------|----|----|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----|-----------------|------------------|------------------|----|-----------------|------------------|------------------|----|----|--|--|--|
|   | Äquivalente<br>10-t-Achsübergänge<br>in Mio.   | B                | > 32 |                  |                  |    | > 10 - 32        |                  |    |    | > 3 - 10         |                  |    |    | > 0,8 - 3        |                  |                  |                  | > 0,3 - 0,8      |                  |                  |    | > 0,1 - 0,3     |                  |                  |    | ≤ 0,1           |                  |                  |    |    |  |  |  |
|   | Dicke des frostsich. Oberbaues <sup>1)</sup>   |                  | 55   | 65               | 75               | 85 | 55               | 65               | 75 | 85 | 55               | 65               | 75 | 85 | 45               | 55               | 65               | 75               | 45               | 55               | 65               | 75 | 35              | 45               | 55               | 65 | 35              | 45               | 55               | 65 |    |  |  |  |
| 1   | Asphalttragschicht auf Frostschutzschicht  |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Asphaltdeckschicht   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Asphaltbinderschicht   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Asphalttragschicht   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Frostschutzschicht   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
| Dicke der Frostschutzschicht                        |  | -                |      | 31 <sup>2)</sup> | 41               | 51 | 25 <sup>3)</sup> | 35               | 45 | 55 | 29 <sup>3)</sup> | 39               | 49 | 59 | -                |                  | 33 <sup>2)</sup> | 43               | 53               | 27 <sup>3)</sup> | 37               | 47 | 57              | 21 <sup>2)</sup> | 31               | 41 | 51              | 25               | 35               | 45 | 55 |  |  |  |
| 2.1   | Asphalttragschicht und Tragschicht mit hydraulischem Bindemittel auf Frostschutzschicht bzw. Schicht aus frostunempfindlichem Material |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Asphaltdeckschicht   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Asphaltbinderschicht   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Asphalttragschicht   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Hydraulisch gebundene Tragschicht (HGT)  |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
| Frostschutzschicht                                  |  |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
| Dicke der Frostschutzschicht                        |  | -                |      | -                | 34 <sup>2)</sup> | 44 | -                | 28 <sup>3)</sup> | 38 | 48 | -                | 30 <sup>2)</sup> | 40 | 50 | -                |                  | -                | 34 <sup>2)</sup> | 44               | -                | 26 <sup>3)</sup> | 36 | 46              | -                | 16 <sup>3)</sup> | 26 | 36              | -                | 16 <sup>3)</sup> | 26 | 36 |  |  |  |
| 2.2   | Asphaltdeckschicht   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Asphaltbinderschicht   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Asphalttragschicht   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Verfestigung   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Schicht aus frostunempfindlichem Material - weit- oder intermittierend gestuft gemäß DIN 18196 -                                       |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
| Dicke der Schicht aus frostunempfindlichem Material |  | 10 <sup>4)</sup> |      | 20 <sup>4)</sup> | 30               | 40 | 14 <sup>4)</sup> | 24               | 34 | 44 | 18 <sup>4)</sup> | 28               | 38 | 48 | 12 <sup>4)</sup> | 22               | 32               | 42               | 16 <sup>4)</sup> | 26               | 36               | 46 | 6 <sup>4)</sup> | 16 <sup>4)</sup> | 26               | 36 | 6 <sup>4)</sup> | 16 <sup>4)</sup> | 26               | 36 |    |  |  |  |
| 2.3   | Asphaltdeckschicht   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Asphaltbinderschicht   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Asphalttragschicht   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Verfestigung   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
|   | Schicht aus frostunempfindlichem Material - enggestuft gemäß DIN 18196 -   |                  |      |                  |                  |    |                  |                  |    |    |                  |                  |    |    |                  |                  |                  |                  |                  |                  |                  |    |                 |                  |                  |    |                 |                  |                  |    |    |  |  |  |
| Dicke der Schicht aus frostunempfindlichem Material |  | 5 <sup>4)</sup>  |      | 15 <sup>4)</sup> | 25               | 35 | 9 <sup>4)</sup>  | 19 <sup>4)</sup> | 29 | 39 | 13 <sup>4)</sup> | 23               | 33 | 43 | 7 <sup>4)</sup>  | 17 <sup>4)</sup> | 27               | 37               | 16 <sup>4)</sup> | 26               | 36               | 46 | 6 <sup>4)</sup> | 16 <sup>4)</sup> | 26               | 36 | 6 <sup>4)</sup> | 16 <sup>4)</sup> | 26               | 36 |    |  |  |  |



## ANNEX V COMPARISON BETWEEN A DOMESTIC BITUMEN WITH A MODIFIED BITUMEN



The modification result of bitumen with similar origin is displayed below:



# ANNEX IV DELIVERY REPORT FROM AN ALBANIAN REFINERY



Albanian Refining and Marketing of Oil  
Sh. a. Lagjja "Maj" Fier - Albania

Tel& Fax 0342 3931  
TEL 0342 3928  
042 2141

STATE STANDART  
QUALITY CERTIFICATE

## LIQUID BITUMEN TYPE 50 - 70, 60 - 80, 80 - 100

| 1. Penetration .....  | 50-70     | 60-80     | 80-100 |
|---|-----------|-----------|--------|
| 2. Ductility in 250C not less than .....                                | 100       | 100       | 100    |
| 3. Smelt Point 0C .....   | 47-52     | 46-52     | 45-48  |
| 4. Flash Point 0C not less than .....                                   | 225       | 225       | 220    |
| 5. Spinability in trichlorethylene or benzene in %, not less than ..... | 99        | 99        | 99     |
| 6. Lost of weight in 5 hours t=160 0C not more than .....               | 0,8       | 0,8       | 0,8    |
| 7. Ash in % weight not more weight ....                                 | 0,2       | 0,2       | 0,2    |
| 8. Reduction of penet. after loss of weight...                          | 55        | 55        | 55     |
| 9. Density at 200C gr/cm 3 .....  | 1,02-1,07 | 1,02-1,07 | —      |

ARMO SHA FIER

