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**CERTIFICATION**  
**BUTON EPURE (BE-50)**

Buton Epure (BE) is a natural asphalt originally from Buton of Indonesia which contains filler from the same origin and having very good quality for asphaltic concrete mixture (grading IV, maximum size 19.1 mm).

BE50 (consists of 50 % asphalt and 50 % filler) is produced by reducing the soil (filler) content in the Buton rock asphalt (ASBUTON). The process is carried out by extraction, than the extract bitumen is improved, and added by selected filler, which has been prepared, to make type of Buton Epure product. This Buton Epure is homogeneous binding material suitable for heavy road construction.

**Work Capability**

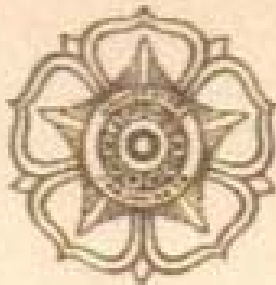
Up to now, there is still no specific standard for Buton Epure type (mixture of asphalt, filler and additive) in Indonesia or in other developed countries. By comparing the results of the Marshall test for asphaltic concrete mixture between Petroleum asphalt and BE50, it proved that BE50 has very superior characteristic especially in its stability. The stability is higher than 1000 kg (specification standard  $> 800$  kg). By using procedure in production of Buton Epure concrete mixture in the laboratory, all conditions in the Marshall test specification standard for asphaltic concrete mixture (grading IV) was fulfilled.

**The Use of Buton Epure**

Buton Epure can be used for heavy road and high performance construction .

For road having lower subgrade, this type of asphalt mixture will bring no problems. In developed countries which have developed Superior Performing Asphalt Pavement (Superpave) construction, this type of asphalt mixture will meet the expectation, as it will fulfill the expected criteria.

In the development of asphaltic concrete, attention should be paid on the work ability which is influenced by the viscosity of the binder material (Buton Epure). For this purpose, BE50 is used for preparing an asphaltic concrete mixture. However, in the field due to asphalt absorption and based on the mix design, BE55 is used . The viscosity of Buton Epure is in the range of 996.5 to 418 cst at temperature between 150 and 163 °C for BE50. For BE55 the viscosity is at 389.7 to 197.1 cst at temperature between 145 to 160 °C.



*Procedure of The Development of Asphaltic Concrete Mixture from Buton Epure*

The development of asphaltic concrete mixture follows the existing procedure by paying more attention on the material composition of the asphaltic concrete mixture.

*Characteristic*

1. Quality of BE50

No	Type of testing	Unit	Result
1.	Penetration	0.1 mm	2
2.	Ductility	cm	35
3.	Flash point	°C	undefectable
4.	Softening point	°C	70.25
5.	Specific gravity	g/cc	1.3908
6.	Loss on heating	%	0.693
7.	Penetration after loss on heating	% original	0
8.	Solubility in the CCl <sub>4</sub>	%	91.011

2. Quality of asphaltic concrete BE50 content of - 11 % and external filler 0.3 %

No	Standard specification values	SP BM ***	SP AI	BE 50, 11 % and external filler 0.3 %
1.	Stability	> 800 kg	-	4088 kg
2.	Flow	> 2 mm	-	2.25 mm
3.	Voids in the mineral of aggregate (VMA) %	> 16 %	> 13 %	15.37 %
4.	Voids in the mix (VITM)	3 - 5 %	-	4 %
5.	Voids filled with asphalt (VFA)	> 75 %	65 - 75 %**	73.87 %
6.	Marshall Quotient	200 - 500 kg/mm	-	1816.89 kg/mm

Legend

- For aggregate of maximum size 19.1 mm
- \*\* For load > 100 million ESALs
- \*\*\* S.M = Indonesia Road Construction Standard (Bina Marga)
- SP = Superpave, AI = Asphalt Institute

Yogyakarta, August 12<sup>th</sup> 1998

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