

## Technical Services

### Typical Mix Test Results

Material: AC 10 EME2 base/bin  
 Specification: BS594987 / TRL636  
 Plant: Loch-Hills Coating Plant, Aberdeen.

**Constituents**  
 Coarse Aggregate: Leiths, North Last Quarry, Aberdeen.  
 Fine Aggregate: Leiths, Blackhills Quarry, Cove.  
 Limestone Filler: Howies, Torlundy.  
 Binder: Nynas, Nypave FX20

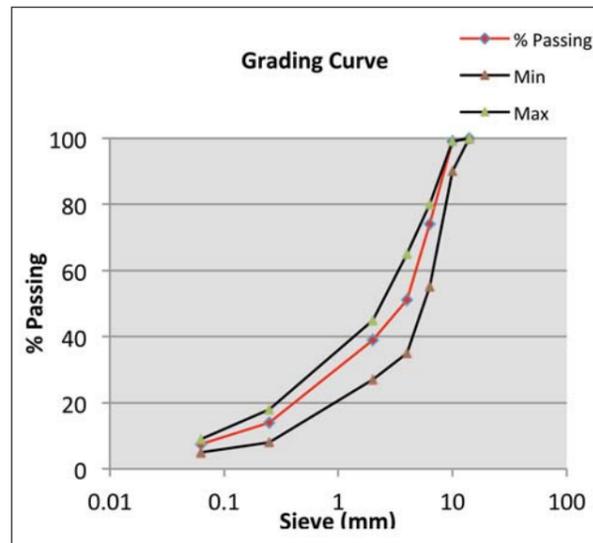
Composition	%
10/20	0
6/14	0
4/10	41.5
2/6	16.0
0/4 Fines	33.0
Filler	3.8
Binder Content (UK)	5.7
Total	100

Target Grading		Limits
Sieve (mm)	% Passing	
14	100	100
10	99	90 - 99
6,3	74	55 - 80
4	51	35 - 65
2	39	27 - 45
0,250	14	8 - 18
0,063	7.5	5 - 9

Bitumen Properties	
Bitumen Grade	Nynas Nypave FX20

Aggregate	
Combined Aggregate Density	(Mg/m <sup>3</sup> ) 2.78

Mixture	
Binder Richness Modulus	3.60
Binder Content (ppc)	6.0%
Bulk Density (Air & water)	(Mg/m <sup>3</sup> ) 2.393
Maximum Density (BS EN 12697 - 5)	(Mg/m <sup>3</sup> ) 2.516



Mixture Performance				
Test	Standard	Parameter	Result	Limit
Gyratory (PCG)	BS EN 12697 - 31: 2007	Percentage voids at 100 gyrations (weighed in Air & Water)	4.9	≤ 6%
Duriez	NFP-98-251-1	Resistance at 18°C (MPa) Retained strength ratio	-	r/R ≥ 0.75
Wheel Tracking (Large)	BS EN 12697 - 22: 2003	% rut depth after 30000 cycles at 60°C	4.4	≤ 7.5%
Stiffness Modulus	BS EN 12697 - 26: 2004	ITSM 20°C at 2.5Hz		
Fatigue	BS EN 12697 - 24: 2004	Deformation at 10 <sup>6</sup> cycles		

For further guidance or information, please call Leith's Technical Services:  
 E: [Tech-info@leiths-group.co.uk](mailto:Tech-info@leiths-group.co.uk)

# EME2

## Built on Quality

High Modulus (stiff) long life base and binder courses



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BS EN ISO 9001  
 BS EN ISO 14001  
 BS OHSAS 18001



# Long Life Base and Binder Courses

## EME2

There is a new generation of materials currently specified for the trunk road network. This material known as **EME2** provides a product which is essentially impermeable and has excellent load spreading and deformation resistant properties. This is achieved by the use of a carefully controlled aggregate grading in conjunction with a hard binder. A number of tests are required; water sensitivity, void content, deformation resistance to prove the suitability of the material. Leiths have the capability to design, manufacture and control this material.

Nominal aggregate sizes 10mm, 14mm and 20mm which can be laid in layers up to 150mm thick. They often replace a traditional base and binder layer with one layer. They are very dense materials with a thick binder film which offers high durability and stiffness within the lower layers of a pavement. All mixes have been designed in the laboratory and are manufactured and laid in accordance with a well defined method statement. Their use is normally restricted to long life pavements in major works but they can be used in other applications as below.

## RUTFIX

Rutting and deformation of bus lanes and traffic junctions is experienced in many urban road networks. The problem occurs as a result of slow moving, channelised or static heavy traffic. Hot rolled asphalt is commonly used as a surfacing material and the bitumen/sand/filler mortar determines the performance characteristics of the layer. The finished surface of such a mix is smooth and pre-coated chippings are added to impart texture to the surface. This type of mix does not perform well in bus lanes or the inside lanes of urban roads and rutting and loss of texture are common modes of failure.

Leiths have a successful process, **RUTFIX** to address this issue. The **RUTFIX** process removes the deformed surface and the base/binder layers and replaces them with **EME2**. As the finished surface of this type of material is smooth and compact and to provide texture and skid resistance a high friction surface dressing will be applied to the EME surface. This surface can be pigmented to provide any colour the client demands. The aggregate used to provide skid resistance is a very high quality natural aggregate produced in Scotland, laboratory skid resistant values for the 2mm grade are in excess of 70.

**Whatever the challenge, we have a product that can meet it.**

