

# High-End Emulsion for cold mix Microsurfacing and Bitumen Slurries



Emulsions



Repsol has developed the high-end emulsion **C65BP4 MIC d AP** which enables the attainment of cold mix microsurfacing with very rapid breaking and very high cohesion, capable of tolerating the most adverse work conditions.

This emulsion is suitable for areas that require excellent behaviour from the microsurfacing, both to obtain strong macrotextures and for safety reasons, avoiding the spray of debris by vehicular traffic, or to minimise the maintenance needs of the road surface.

## / APPLICATIONS

- Airport runways and platforms.
- Anti-reflective cracking techniques with polymer or metallic mesh.
- Wearing courses with high traffic: motorways and dual carriageways.
- Treatments to improve adhesion in areas with winding routes.
- Safety and warning road surfaces in dangerous stretches.

## / PRODUCT CHARACTERISTICS

The following table shows the characteristics of the C65BP4 MIC d AP emulsion:

UNE EN 13808 DENOMINATION			C60BP4 MIC	C65BP4 MIC d AP
Characteristics	UNE EN	Unit	Tests on original emulsion	
Polarity of the particles	1430	-	Positive	
Breaking Index (Forshamer filler)	13075-1	-	110-195 Class 4	110-195 Class 4
Binder content (from content in water)	1428	%	58-62 Class 6	63-67 Class 7
Residual binder after distillation	1431	%	≥ 58 Class 6	≥ 63 Class 7
Content in fluidiser by distillation	1431	%	≤ 2 Class 2	≤ 2 Class 2
Creep time (2 mm, 40 °C)	12846-1	s	15-70 Class 3	40-130 Class 4
Sieving residue (0.5 mm sieve)	1429	%	≤ 0.1 Class 2	≤ 0.5 Class 4
Sedimentation tendency (7d)	12847	%	≤ 10 Class 3	≤ 10 Class 3
Adhesiveness	13614	%	≥ 90 Class 3	≥ 90 Class 3
<b>Recovered binder: by evaporation according to EN 13074-1</b>				
Penetration at 25 °C	1426	0.1 mm	≤ 100 Class 3	≤ 100 Class 3
Softening Point	1427	°C	≥ 50 Class 4	≥ 50 Class 4
Cohesion by pendulum testing	13588	J/cm <sup>2</sup>	≥ 0.5 Class 6	≥ 0.5 Class 6
Elastic recovery at 25 °C	13398	%	DV Class 1	DV Class 1
<b>Stabilised binder: by evaporation according to EN 13074-1, followed by stabilisation according to EN 13074-2</b>				
Penetration at 25 °C	1426	0.1 mm	≤ 100 Class 3	≤ 100 Class 3
Softening Point	1427	°C	≥ 50 Class 4	≥ 50 Class 4
Cohesion by pendulum testing	13588	J/cm <sup>2</sup>	≥ 0.5 Class 6	≥ 0.5 Class 6
Elastic Recovery at 25 °C	13398	%	DV Class 1	DV Class 1

**/ BEHAVIOUR OF THE PRODUCT IN THE MIX**

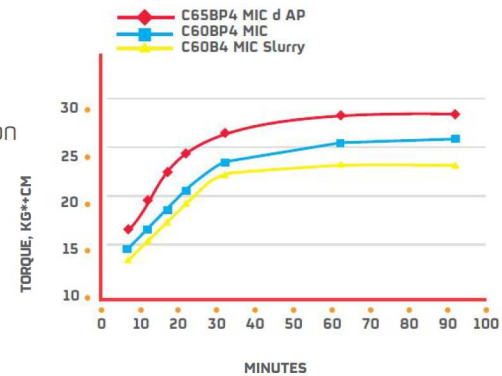
Compared to traditional emulsions used for bitumen slurry, the C65BP4 MIC d AP emulsion developed by Repsol has the following advantages:

- Greater cohesion (greater resistance to breakage under traction and torsion)
- Improved slipping resistance, due to the improvement to the surface macrotexture.
- Greater adhesiveness to aggregates.
- Improved resistance to ageing.
- Better performance at low temperatures.

This High-End Emulsion shows excellent behaviour in terms of cohesion and abrasion.

As shown in Figure 1, using the UNE torque test EN 12274-4, the High-End Emulsion manages to reach a minimum torque of 20 kg\*cm, which allows for opening to traffic in half the time compared to traditional emulsion C60BP5 MIC, with the time open to traffic being even lower than with the C60B5 MIC Slurry emulsion.

As shown, a lower loss of mass in g/m<sup>2</sup> can be achieved by using the Repsol C65BP5 MIC d AP emulsion.



**Figure 1:** Cohesion difference between the C60B4 MIC Slurry, C60BP4 MIC and C65BP4 MIC d AP emulsions for the same type of aggregate and granulometry corresponding to the MICROF 5 spindle.

LOSS OF MASS (g/m <sup>2</sup> )	C65BP4 MIC d AP	C60BP4 MIC	C60B4 MIC Slurry
	175	270	440

Wet track abrasion test UNE EN 12274-5.

