Conventional and modified cationic bituminous emulsions

APPLICATION	TYPE OF EMULSION
Primer coats	Repsol ADVANCE C50BF4 IMP
	Repsol ADVANCE C60BF4 IMP
	Repsol EFI ADVANCE C50B4 IMP HPP
Tack coats	Repsol ADVANCE C50B3 ADH
	Repsol ADVANCE C60B3 and C60B2 ADH C60BP2 ADH C60BP3 ADH C60BP3 ADH d
	Repsol ADVANCE C60B3 ADH d Repsol ADVANCE C69BP3 ADH d
	Repsol EFI ADVANCE C60B3 TER and TER PLUS C60BP3 TER and TER PLUS
Seal coats	Repsol ADVANCE C50B3 CUR
	Repsol ADVANCE C60B3 and C60B2CUR
	Repsol ADVANCE C60B3 CUR d
Cold microsurfacing and slurry seals	Repsol EFI ADVANCE C60B4 MIC C60BP4 MIC C60BP4 MIC b C65BP5 MIC d HP
Gravel emulsion	Repsol ADVANCE C60B5 GE
Surface dressing with gravel chippings	Repsol ADVANCE C65B2 and C65B3TRG C65BP2 TRG C65BP3 TRG
	Repsol ADVANCE C65B3 TRG d C65BP2 TRG d C65BP3 TRG d
	Repsol ADVANCE C69B3 and C69B2 TRG C69BP2 TRG C69BP3 TRG
Open-graded bituminous mixtures	Repsol ADVANCE C67BF3 MBA C67BPF3 MBA
	Repsol ADVANCE C67BF3 MBA d
	Repsol ADVANCE C69BF3 MBA d
Half war mix asphalt	Repsol EFI ADVANCE C67B2 HW and C69B2 HW C67PB2 HW and C69BP2 HW
Anti-dust coat emulsions	Repsol ADVANCE C35B3 ERP
Emulsions for cold-mix recycling	Repsol EFI ADVANCE C60B5 REC C60B5 REC REJUV
Surface dressing with emulsion	Repsol ADVANCE C50B2 PROTECT and C50BP2 PROTECT

PRODUCT CHARACTERISTICS

The following table shows the characteristics of bituminous emulsions:

Conventional cationic bituminous emulsions described in the national annex in Spain of the EN 13808 standard

Standard EN 13808			Repsol ADVANCE C50BF4 IMP	Repsol ADVANCE C60BF4 IMP	Repsol ADVANCE C60B3 ADH[1]	Repsol EFI ADVANCE C60B3 TER PLUS
CHARACTERISTICS	EN STANDARD	UNIT	TESTS ON ORIGINAL EMULSION			
Particle polarity	1430	-	Positive	Positive	Positive	Positive
Breaking value	13075-1	-	110-195 class 4	110-195 class 4	70-155 class 3	70-155 class 3
Binder content (per water content)	1428	%	48-52 class 4	58-62 class 6	58-62 class 6	58-62 class 6
Binder content recovered by distillation	1431	%	≥48 class 4	≥58 class 6	≥58 class 6	≥58 class 6
Fluxing agent content recovered by distillation	1431	%	5-15 class 7	≤ 8 class 5	≤ 2,0 class 2	≤ 2,0 class 2
Fluency time (2 mm, 40°C)	12846-1	s	15-70 class 3	15-70 class 3	15-70 class 3	15-70 class 3
Residue after sieving (0.5 mm sieve)	1429	%	≤ 0,1 class 2	≤ 0,1 class 2	≤ 0,1 class 2	≤ 0,1 class 2
Sedimentation tendency (7 days)	12847	%	≤ 10 class 3	≤ 10 class 3	≤ 10 class 3	≤ 10 class 3
Adhesion	13614	%	≥ 90 class 3	≥ 90 class 3	≥ 90 class 3	≥ 90 class 3
RECOVERY BY DISTILLATION, ACCORDING TO EN 1431						
Needle penetration at 25ºC	1426	0,1 mm	≤ 270 class 6	≤ 220 class 5	≤ 220 class 5	≤ 50 class 2
Softening point	1427	ºC	≥ 35 class 8	≥ 35 class 8	≥ 35 class 8	≥ 50 class 4
RECOVERY BY EVAPORATION, ACCORDING TO EN 13074-1						
Needle penetration at 25ºC	1426	0,1 mm	90-170 class 8	≤ 330 class 7	≤ 330 class 7	≤ 50 class 2
Softening point	1427	ºC	≥ 35 class 8	≥ 35 class 8	≥ 35 class 8	≥ 50 class 4
RECOVERY BY EVAPORATION, ACCORDING TO EN 13074-1 AND STABILISATION EN 13074-2						
Needle penetration at 25ºC	1426	0,1 mm	≤ 220 class 5	≤ 220 class 5	≤ 220 class 5	≤ 50 class 2
Softening point	1427	ºC	≥ 35 class 8	≥ 35 class 8	≥ 35 class 8	≥ 50 class 4

Standard EN 13808			Repsol ADVANCE C60B3[1] CUR	Repsol EFI ADVANCE C60B4 MIC	Repsol ADVANCE C60B5 GE	Repsol EFI ADVANCE C60B5 REC
CHARACTERISTICS	EN STANDARD	UNIT	TESTS ON ORIGINAL EMULSION			
Particle polarity	1430	-	Positive	Positive	Positive	Positive
Breaking value	13075-1	-	70-155 class 3	110-195 class 4	> 170 class 5	> 170 class 5
Binder content (per water content)	1428	%	58-62 class 6	58-62 class 6	58-62 class 6	58-62 class 6
Binder content recovered by distillation	1431	%	≥ 58 class 6	≥ 58 class 6	≥ 58 class 6	≥ 58 class 6
Fluxing agent content recovered by distillation	1431	%	≤ 2,0 class 2	≤ 2,0 class 2	≤ 2,0 class 2	≤ 2,0 class 2
Fluency time (2 mm, 40ºC)	12846-1	s	15-70 class 3	15-70 class 3	15-70 class 3	15-70 class 3
Residue after sieving (0.5 mm sieve)	1429	%	≤ 0,1 class 2	≤ 0,1 class 2	≤ 0,1 class 2	≤ 0,1 class 2
Sedimentation tendency (7 days)	12847	%	≤ 10 class 3	≤ 10 class 3	≤ 10 class 3	≤ 10 class 3
Adhesion	13614	%	≥ 90 class 3	≥ 90 class 3	≥ 90 class 3	≥ 90 class 3
RECOVERY BY DISTILLATION, ACCORDING TO EN 1431						
Needle penetration at 25ºC	1426	0,1 mm	≤ 220 class 5	≤ 100 class 3	≤ 220 class 5	≤ 270 class 6
Softening point	1427	ºC	≥ 35 class 8	≥ 43 class 6	≥ 39 class 7	≥ 35 class 8
RECOVERY BY EVAPORATION, ACCORDING TO EN 13074-1						
Needle penetration at 25ºC	1426	0,1 mm	≤ 330 class 7	≤ 100 class 3	≤ 220 class 5	≤ 330 class 7
Softening point	1427	ºC	≥ 35 class 8	≥ 43 class 6	≥ 39 class 7	≥ 35 class 8
RECOVERY BY EVAPORATION, ACCORDING TO EN 13074-1 AND STABILISATION EN 13074-2						
Needle penetration at 25ºC	1426	0,1 mm	≤ 220 class 5	≤ 100 class 3	≤ 220 class 5	≤ 270 class 6
Softening point	1427	ºC	≥ 35 class 8	≥ 43 class 6	≥ 39 class 7	≥ 35 class 8

[1] Emulsions are available with class 2 rupture index value <110.

Standard EN 13808			Repsol ADVANCE C65B2[2] TRG	Repsol ADVANCE C69B2[2] TRG	Repsol ADVANCE C67BF3 MBA
CHARACTERISTICS	EN STANDARD	UNIT	TESTS ON ORIGINAL EMULSION		
Particle polarity	1430	-	Positive	Positive	Positive
Breaking value	13075-1	-	<110 class 2	<110 class 2	70-155 class 3
Binder content (per water content)	1428	%	63-67 class 7	67-71 class 9	65-69 class 8
Binder content recovered by distillation	1431	%	≥ 63 class 7	≥ 67 class 9	≥ 65 class 8
Fluxing agent content recovered by distillation	1431	%	≤ 2,0 class 2	≤ 2,0 class 2	≤ 10 class 6
Fluency time (4 mm, 40ºC)	12846-1	s	5-70 class 5	5-70 class 5	5-70 class 5
Residue after sieving (0.5 mm sieve)	1429	%	≤ 0,1 class 2	≤ 0,1 class 2	≤ 0,1 class 2
Sedimentation tendency (7 days)	12847	%	≤ 10 class 3	≤ 5 class 2	≤ 5 class 2
Adhesion	13614	%	≥ 90 class 3	≥ 90 class 3	≥ 90 class 3
RECOVERY BY DISTILLATION, ACCORDING TO EN 1431					
Needle penetration at 25ºC	1426	0,1 mm	≤ 220 class 5	≤ 220 class 5	≤ 330 class 7
Softening point	1427	ºC	≥ 35 class 8	≥ 35 class 8	≤ 35 class 9
RECOVERY BY EVAPORATION, ACCORDING TO EN 13074-1					
Needle penetration at 25ºC	1426	0,1 mm	≤ 330 class 7	≤ 330 class 7	140-260 class 9
Softening point	1427	ºC	≥ 35 class 8	≥ 35 class 8	≤ 35 class 9
RECOVERY BY EVAPORATION, ACCORDING TO EN 13074-1 AND STABILISATION EN 13074-2					
Needle penetration at 25ºC	1426	0,1 mm	≤ 220 class 5	≤ 220 class 5	≤ 220 class 5
Softening point	1427	ºC	≥ 35 class 8	≥ 35 class 8	≥ 39 class 7

(2) Emulsions with class 3 rupture index value 70-155 are available.