

# Asphalt Bitumens



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**Asphalt bitumens** are hydrocarbonated binders resulting from the distillation of oil, with viscoelastic behaviour depending on the temperature and high chemical stability. They are also called penetration grade bitumens as it is this property by which they are classified.

Bitumen is the component that binds and gives cohesion to bituminous mixes and is the main factor in their properties. Their consistency can be modified with the temperature, which allows for their easy manipulation, the mixture of the aggregates, the compression of the mixtures and their adequate behaviour at service temperatures.

After an adequate selection of the crude oil basket, Repsol employs fractional vacuum distillation (straight-run) in all its plants, which allows it to obtain **asphalt bitumens** that meet the most demanding of specifications.

## / APPLICATIONS

Asphalt bitumens are used in:

### • Roads:

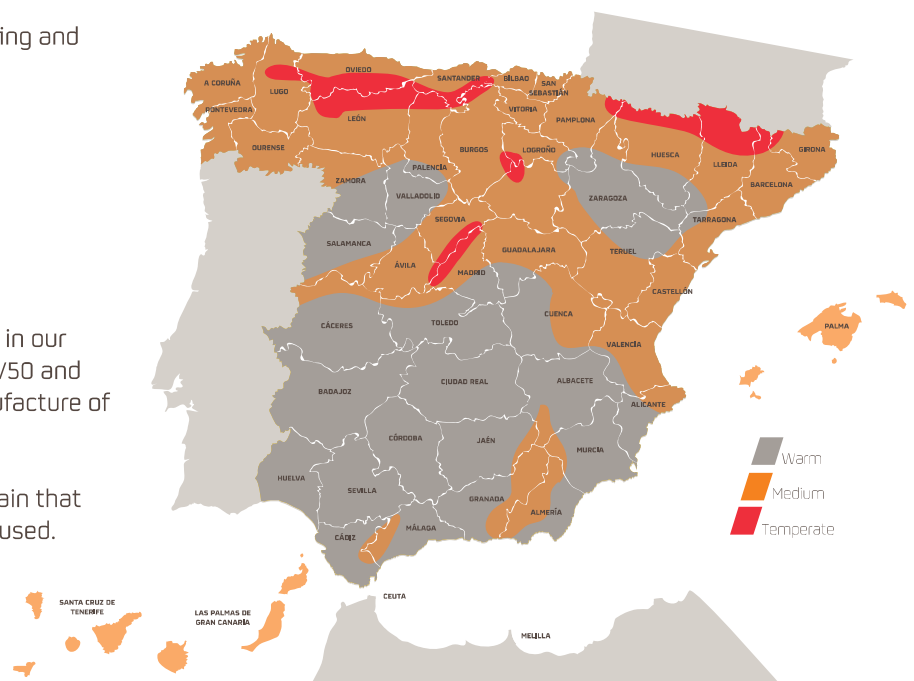
- Conventional hot bituminous mixes.
- Polymer-modified bitumens.
- Bitumens modified with crumb rubber.
- Anti-fuel bitumen.
- Multigrade bitumen.
- Emulsions (conventional and modified).

### • Industrial applications.

- Emulsions and mastics for waterproofing and industrial flooring.
- Asphalt sheets.
- Pipe lining.
- Hydraulic works.
- Sealing of joints.
- Asphalt paints, etc.

The conventional bitumens that are most used in our country, mainly for climatic reasons, are the 35/50 and 50/70 penetration bitumens, used for the manufacture of conventional bituminous mixes.

The map below shows the climatic zones in Spain that determine the type of bituminous binder to be used.



## / PRODUCT CHARACTERISTICS

The following table shows the characteristics of the asphalt bitumens for roads that are commercialised in Spain:

CHARACTERISTICS		UNE EN	UNIT	15/25 <sup>(1)</sup>	35/50	50/70	70/100	160/220
Penetration at 25°C		1426	0,1 mm	15-25	35-50	50-70	70-100	160-220
Softening point		1427	°C	60-76	50-58	46-54	43-51	35-43
Resistance to age UNE EN 12607-1	Change of mass	12607-1	%	≤ 0,5	≤ 0,5	≤ 0,5	≤ 0,8	≤ 1,0
	Retained penetration	1426	%	≥ 55	≥ 53	≥ 50	≥ 46	≥ 37
	Increase in softening point	1427	°C	≤ 10	≤ 11	≤ 11	≤ 11	≤ 12
Penetration ratio		12591 13924 Appendix A	-	From -1,5 to +0,7	From -1,5 to +0,7	From -1,5 to +0,7	From -1,5 to +0,7	From -1,5 to +0,7
Fraass breaking point		12593	°C	TBR	≤ -5	≤ -8	≤ -10	≤ -15
Flash point in open cup		ISO 2592	°C	≥ 245	≥ 240	≥ 230	≥ 230	≥ 220
Solubility		12592	%	≥ 99,0	≥ 99,0	≥ 99,0	≥ 99,0	≥ 99,0

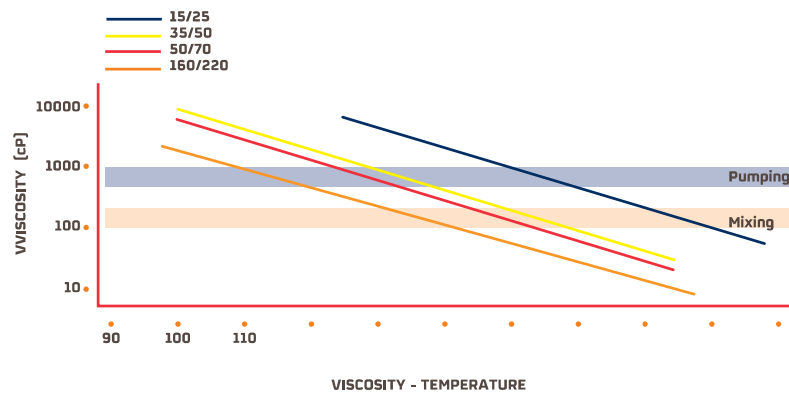
Specifications included in article 211 of PG-3.

[1] View specific file for High Modulus Bitumen product

• TBR (To Be Reported): value will be reported

## / RECOMMENDATIONS FOR USE

The most appropriate temperatures used for bitumens are given by the viscosity (see figure).



Indicative data, not contractual and not subject to specifications.  
These values may change depending on the origin of the product.

