MACRYNAL® SM 518/55LG

Technical Datasheet

TYPE

Hydroxy functional acrylic resin, crosslinkable with polyisocyanates

FORM OF DELIVERY (f.o.d.)

55 % in solvent mixture (55LG)

Average hydroxyl content (solid resin)

approx. 4.7 %

OH equivalent weight (f.o.d.)

approx. 660

PRODUCT DATA

Determined per batch:

Dynamic Viscosity DIN EN ISO 3219		
dynamic viscosity (25 1/s; 23 °C)	[mPa.s]	4000 - 7000
Non-Volatile Matter DIN 55671		
non-volatile matter (150 °C; 15 min)	[%]	53 - 57
Hydroxyl Value (cat.) DIN EN ISO 4629		
hydroxyl value (solid matter content)	[mg KOH/g]	145 - 165
Colour Scale (Hazen) DIN EN ISO 6271-1		
Hazen colour value		<= 80
Colour / Appearance VLN 250		
colour		colourless
appearance		clear

Not continually determined:

Non-Volatile Matter DIN EN ISO 3251		
non-volatile matter (1 h; 125 °C; 1 g)	[%]	54 - 58
Density (Liquids) DIN EN ISO 2811-2		
density approx. (20 °C)	[g/cm³]	1,01
Flash Point DIN EN ISO 1523		
flash point approx.	[°C]	28

DILUTABILITY

special white spirit 100/140	○	methyl isobutyl ketone	●
white spirit	○	butyl acetate	●
turpentine oil	○	methoxypropyl acetate	●
xylene	◉	methoxypropanol	●
solvent naphtha 180/210	◉	ethanol	◉
acetone	●	butanol	●

● = unlimited dilutability
◉ = substantial dilutability
⊙ = limited dilutability
○ = very limited or no dilutability

COMPATIBILITY

% Macrynal SM 518	90	75	50	25	10
% other binder	10	25	50	75	90
Polyisocyanates					
Desmodur N, L	●	●	●	●	●
Desmodur HL, IL	○	○	○	○	○
Desmodur Z 4370	●	●	○	○	○
Desmodur N 3200	●	●	●	●	●
Beckopox PU 428	○	○	○	○	○
Alkyd resins					
Vialkyd AC 254, AC 260, AC 290	○	○	○	○	○
Vialkyd AY 422, AN 800, AN 928	○	○	○	○	○
Acrylic resins					
Viacryl SC 341, SC 370	●	●	●	●	●
Macrynal SM 564	●	●	○	○	○
Macrynal SM 500, SM 540, SM 548	○	○	○	○	○
Other binders					
Hostaflex CM 131	○	○	○	○	○
Vinyl VAGH, VROH	●	●	●	●	●
CAB-551-0.2	○	○	○	○	○
nitrocellulose 24 E	●	●	●	●	●

● = definite compatibility
○ = very limited or no compatibility

SPECIAL PROPERTIES AND USE

Quick initial and through drying.
Rapid increase in hardness, long potlife.
Good body, high gloss and excellent outdoor durability.
In combination with aliphatic polyisocyanates for high quality two-component automotive refinish paints and coatings for wide-bodied vehicles that cure under ambient conditions as well as forced drying (e.g. 30 minutes at 80 °C).

SUGGESTED USES

Macrynal SM 518 is formulated together with aliphatic polyisocyanates such as Desmodur N for fast curing high gloss and high bodied automotive refinish coatings as well as coating systems for wide-bodied vehicles. Macrynal SM 518 is also suited for pigmented coating systems, clear finishes and two coat metallics.

PROCESSING

Curing with polyisocyanates

Based on 100 % conversion of reactive groups the following equation can be used to calculate the quantity of polyisocyanate needed for crosslinking 100 parts Macrynal (on solids):

$$\text{polyisocyanate (f.o.d.)} = \frac{42 \times 100 \times \text{OH\% (solid resin)}}{17 \times \text{NCO\% (f.o.d.)}}$$

42 = molecular weight of the NCO group
17 = molecular weight of the OH group

To ensure that optimum properties are obtained it is necessary to have complete crosslinking.
For 100 parts by weigth of Macrynal SM 518 the following additional amounts of polyisocanate are required for 100 % crosslinkage:

Desmodur N/75 %	38.7 parts by weight

For stoichiometric cross-linkage, determined from the equivalent weights (NCO : OH = 1 : 1), approx. 660 parts by weight of Macrynal SM 518 (f.o.d.), require approx. 255 parts by weight of Desmodur N/75 %.

Pigmentation

Suitable materials for pigmentation of Macrynal SM 518 are inert pigments and fillers such as titanium dioxide, lithopone and iron oxide, as well as organic pigments, heavy spar, talcum, quartz powder, etc.
Care should, however, be taken that the material selected is completely dry and free of water. The suitability of the selected pigments and extenders should be established by preliminary testing.

Dilution

It is important to make sure that only solvents free of hydroxyl groups and water are used in combinations of Macrynal SM 518 with polyisocyanates. The most current diluents are propylene glycol ether acetates such as methoxypropyl acetate, esters such as ethyl acetate and butyl acetate, or ketones such as methyl ethyl ketone and methyl isobutyl ketone. For cutting the use of aromatics such as xylene or solvent naphtha 150/180 is possible.

Additives

Additol VXL 4930 can be used as slip and levelling agent. Paints based on Macrynal SM 518 do not require additional catalysts. Catalyzing Macrynal SM 518-Desmodur N-systems will not give a noticeable increase in hardness.

STORAGE

At temperatures up to 25 °C storage stability packed in original containers amounts to at least 730 days.

DISTINGUISHING FEATURES

Compared with Macrynal SM 510n, Macrynal SM 518 is drying significantly faster, whereas potlife is somewhat shorter.

Producers:

CAB-551-0.2 (Eastman)
Vinyl VAGH (Union Carbide)
Desmodur (Covestro)