MACRYNAL® SM 507/53XBAC

Technical Datasheet

TYPE

With polyisocyanates cross-linkable, hydroxyl groups containing acrylic resin

FORM OF DELIVERY (f.o.d.)

53 % in xylene/butylacetate (53XBAC)

SPECIAL PROPERTIES AND USE

High quality two-pack clear lacquers for wood and furniture coatings, parquet sealings.
For fast drying two-pack lacquers for industrial applications at ambient temperature as well as forced drying . Superior adhesion to Aluminium and plastic parts (ABS and PC)

Average hydroxyl content (solid resin)

ca. 1.8 %

PRODUCT DATA

Determined per batch:

Dynamic Viscosity DIN EN ISO 3219		
dynamic viscosity (25 1/s; 23 °C)	[mPa.s]	5500 - 7500
Colour Scale (Hazen) DIN EN ISO 6271-1		
Hazen colour value		<=70
Non-Volatile Matter DIN EN ISO 3251		
non-volatile matter (1 h; 125 °C; 2 g; ethyl acetate)	[%]	51 - 55

Not continually determined:

Hydroxyl Value (cat.) DIN EN ISO 4629		
hydroxyl value (solid matter content)	[mg KOH/g]	60
Density (Liquids) DIN EN ISO 2811-2		
density approx. (20 °C)	[g/cm³]	1,00
Flash Point DIN EN ISO 1523		
flash point approx.	[°C]	26

DILUTABILITY

white spirit	⦿	methoxypropyl acetate	●
xylene	◉	butyl acetate	●
solvent naphtha 180/210	◉	ethanol	●
acetone	●	butanol	●
methoxypropanol	●		

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

COMPATIBILITY

% Macrynal SM 507	90	75	50	25	10
% other binder	10	25	50	75	90
Polyisocyanates					
Desmodur N, L, HL, IL	●	●	●	●	●
Beckocoat PU 428	●	●	●	●	●
Acrylic resins					
Macrynal SM 500	●	○	○	○	●
Macrynal SM 510n, SM 513, SM 516, VSM 9410	●	●	●	●	●
Viacryl SC 135	●	●	●	○	●
Alkyd resins					
Vialkyd AC 290	●	●	●	●	●
Other binders					
CAB-381-0.1, CAB-381-0.5	●	●	●	●	●
CAB-381-20	●	●	○	○	○
CAB-551-0.2	●	●	○	○	●
nitrocellulose 24 E, Vinyl VAGH	●	●	●	●	●

● = definite compatibility
○ = very limited or no compatibility

SUGGESTED USES

Macrynal SM 507 is suitable for the manufacture of high quality two-pack coatings for furnitur and parquet, even on a industrial scale.
In combination with polyisocyanate hardeners e.g. Desmodur N or Desmodur L, clear and pigmented lacquers for furniture can be formulated, which exhibit high chemical resistance, light fastness and quick drying velocity. Remarkable is the good compatibility of Macrynal SM 507 with Desmodur HL.

On dark stained wood high gloss coatings can be obtained.
For industrial applications aliphatic polyisocyanates like Desmodur N should be preferably selected as hardeners. Such combinations yield in highly resistant lacquers, which exhibit excellent drying properties, high mechanical strength and high surface hardness after spray application.

Due to its rapid drying and excellent compatibility Macrynal SM 507 is especially suitable for the formulation of metallic base and automotive refinshing clearcoats.

PROCESSING

Curing with polyisocyanates

For an equivalent reaction of the reactive groups (NCO : OH = 1 : 1) the following equation applies, to the calculation of the necessary quantity of polyisocyanate, calculated on 100 parts by weight of Macrynal (solid resin):

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

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

For 100 parts by weight of Macrynal SM 507 (f.o.d.) the following quantities of polyisocyanate are necessary for a 100 % crosslinking reaction:

polyisocyanates	*parts by weight*
Desmodur N/75 %ig	14.4
Desmodur L/75 %ig	18.3
Desmodur L/67 %ig	20.7
Desmodur IL/51 %ig	29.8
Desmodur HL/60 %ig	22.7
Beckocoat PU 428/51 %ig	60.0

For stoichiometric crosslinking, calculated from the equivalent weights (NCO : OH = 1 : 1), ca. 1760 parts by weight of Macrynal SM 507 (f.o.d.), require ca. 255 parts by weight of Desmodur N/75 %.

Pigmentation

Suitable materials for the pigmentation of Macrynal SM 507 are inert pigments and fillers such as titanium dioxide, lithopone and iron oxide, as well as organic pigments, barytes, talcum, quartz powder, etc.
Care should be taken, however, that all admixtures used are absolutely dry. Suitability of pigments and fillers should be checked by preliminary tests in every individual case.

Dilution

It is important to make sure that only solvents free form hydroxyl groups and water be used in combinations of Macrynal SM 507 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.

Additives

Initial and through-drying of Macrynal SM 507 occurs so rapidly that addition of catalysts will hardly speed up these processes. For obtaining open-cell wood varnishes of high quality, combinations with nitrocellulose or copolymerisates are possible.

STORAGE

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

Producers:

CAB-551-0.2, CAB-381-0.1, CAB-381-0.5, CAB-381-20 (Eastman)
Vinyl VAGH (Union Carbide)
Desmodur (Covestro)