MACRYNAL® SM 510n/60LG

Technical Datasheet

TYPE

Hydroxy functional acrylic resin designed for crosslinking with polyisocyanates

SPECIAL PROPERTIES AND USE

At ambient temperature drying or forced drying two pack systems with high gloss, excellent mechanical properties, superior outdoor durability and chemical resistance, in particular for automotive repair topcoats or clearcoats.

FORM OF DELIVERY

60 % in solvent mixture (60LG)

Average hydroxyl content (solid resin)
ca. 4.5 %

PRODUCT DATA

Determined per batch:

Dynamic Viscosity DIN EN ISO 3219		
dynamic viscosity (25 1/s; 23 °C)	[mPa.s]	2400 - 3600
Colour Scale (Hazen) DIN EN ISO 6271-1		
Hazen colour value		<= 25
Hydroxyl Value (cat.) DIN EN ISO 4629		
hydroxyl value (solid matter content; potentiometric)	[mg KOH/g]	140 - 155
Non-Volatile Matter DIN EN ISO 3251		
non-volatile matter (1 h; 125 °C; 2 g; ethyl acetate)	[%]	58 - 62

Not continually determined:

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]	27

DILUTABILITY

white spirit	○	methyl ethyl ketone	●
toluene	●	methyl isobutyl ketone	●
xylene	●	methoxypropyl acetate	●
solvent naphtha 150/180	◎	ethyl acetate	●
acetone	●	butyl acetate	●

● = unlimited dilutabiliy
◎ = substantial dilutability
⊙ = limited dilutability
○ = very limited or no dilutability

COMPATIBILITY

% MACRYNAL® SM 510n	90	75	50	25	10
% other binder	10	25	50	75	90
Alkyd resins					
VIALKYD® AC 290, AC 451n, AN 950	●	●	●	●	●
Acrylic resins					
VIACRYL® SC 121, MACRYNAL® SM 500, SM 540	○	○	○	○	○
VIACRYL® SC 370	●	●	●	●	●
MACRYNAL® SM 510, SM 513, SM 515, SM 516	●	●	●	●	●
MACRYNAL® SM 548	●	●	○	○	○
Polyisocyanates					
Desmodur L, N	●	●	●	●	●
BECKOCOAT® PU 428	●	●	●	●	●
Other binders					
BECKOPOX™ EP 140	●	●	●	●	○
BECKOPOX™ EP 301	●	●	●	●	●
nitrocellulose 24 E, Ucar vinyl resin VAGH	●	●	●	●	●
CAB-551-0.2	●	○	○	○	●
CAB-381-0.1	○	○	○	○	●

● = definite compatibility
○ = very limited or no compatibility

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SUGGESTED USES

In combination with aliphatic polyisocyanates MACRYNAL® SM 510n/60LG is recommended for at ambient temperature drying or forced drying two pack systems. The principal application field is automotive refinishing (topcoats and clearcoats).

PROCESSING

As a two pack system MACRYNAL® SM 510n must be combined with polyisocyanates. Dried at room temperature, the coatings reach their optimum properties after 10 to 12 days. If forced dried, 30 min at 80 °C is sufficient for complete curing. The addition of cellulose acetobutyrate speeds up physical drying.

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® SM 510n (on solids):

$$\text{polyisocyanate (form of delivery)} = \frac{42 \times 100 \times \text{OH\% (solid resin)}}{17 \times \text{NCO\% (form of delivery)}}$$

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

To ensure that optimal properties are obtained it is necessary to have complete crosslinking. Over - or under - crosslinking is possible within certain limits.

Catalysis
Drying can be accelerated by the addition of suitable catalysts, like dibutyl tin dilaurate (0.2 - 0.5 % of a 1 % solution, based on solid resin), in combination with amines like diethyl amino ethanol (ca. 0.2 %, based on solid resin). Potlife is thereby reduced, however.

Pigmentation
Inert pigments and extenders are suitable for pigmentation. Care should be taken that the material selected is free of water. Suitability should be established by preliminary testing.

Dilution
Suitable diluents are butyl acetate, methyl isobutyl ketone, 2-methoxypropyl acetate, xylene and mixtures of these solvents. Anhydrous solvents as well as solvents free of hydroxy functional groups should be used in the presence of isocyanates.

STORAGE

MACRYNAL® SM 510n/60LG should be stored in the original containers at temperatures of maximum 25 °C.

SHELF LIFE

Standard Shelf Life is 730 days from the date of manufacturing.
For products still in allnex possession allnex may extend the expiration date of a batch upon re-testing by QC.

DISTINGUISHING FEATURES

Compared to MACRYNAL® SM 513, MACRYNAL® SM 510n has a higher hydroxyl content. This results in higher crosslinking density and better outdoor durability.

Producers:

Desmodur (Covestro)
Ucar vinyl resin VAGH (Dow)
CAB-551-0.2, CAB-381-0.1 (Eastman)

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