

TYPE

Hydroxy functional acrylic resin, cross-linkable with polyisocyanates

FORM OF DELIVERY (f.o.d.)

60 % in xylene (60X)
(containing also 4 % butyl acetate)

SPECIAL PROPERTIES AND USE

High gloss, excellent mechanical properties and superior adhesion to metals and non-iron metals (aluminium, zinc).

In combination with polyisocyanates for air-drying as well as forced drying primers and topcoats for industrial applications.

Average hydroxyl content (solid resin)

ca. 1.4 %

PRODUCT DATA

Determined per batch:

Dynamic Viscosity DIN EN ISO 3219
dynamic viscosity [mPa.s] 1400 - 2400
(25 1/s; 23 °C)

Colour Scale (Hazen) DIN EN ISO 6271-1
Hazen colour value <= 200

Hydroxyl Value (cat.) DIN EN ISO 4629
hydroxyl value [mg KOH/g] 40-50
(solid matter content)

Non-Volatile Matter DIN EN ISO 3251
non-volatile matter [%] 58 - 62
(1 h; 125 °C; 2 g; EAC)

Not continually determined:

Density (Liquids) DIN EN ISO 2811-2
density approx. [g/cm³] 0,99
(20 °C)

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 dilutability
○ = substantial dilutability

⊙ = limited dilutability
○ = very limited or no dilutability

COMPATIBILITY

% Macrynal SM 540	90	75	50	25	10
% other binder	10	25	50	75	90

Alkyd resins

Vialkyd AC 290	●	●	●	●	●
Vialkyd AC 451n, AF 342, AN 950	○	○	○	○	○

Acrylic resins

Viacryl SC 121, SC 370	●	●	●	●	●
Macrynal SM 500, SM 548	●	●	●	●	●
Macrynal SM 510, SM 513, SM 515	○	○	○	○	○
Macrynal SM 516	●	○	○	○	●

Polyisocyanates

Desmodur L	○	○	○	○	○
Desmodur N	●	●	●	●	●
Beckocoat PU 428, PU 432	○	○	○	●	●

Other binders

Beckopox EP 140	●	●	●	●	●
Beckopox EP 301	○	○	○	○	○
Alresat KE 300	●	●	●	●	●
Hostaflex CM 158	○	○	○	●	●
Hostaflex CM 620	○	○	○	○	●
Vinyl VAGH	●	●	●	●	●
CAB-551-0.2	○	○	○	○	●
CAB-381-0.1	○	○	○	○	○
nitrocellulose 24 E	●	●	●	●	●

● = definite compatibility

○ = very limited or no compatibility

SUGGESTED USES

In combination with polyisocyanates Macrynal SM 540 is suggested for highly elastic air-drying and forced drying two-pack systems. The principal application area is industrial coatings, in particular - due to the good adhesion to metals - primers.

PROCESSING

As a two-pack system Macrynal SM 540 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.

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

For stoichiometric (equivalent) crosslinking (NCO : OH = 1 : 1) - calculated from the equivalent weights - approx. 2025 parts per weight Macrynal SM 540 (f.o.d.) require approx. 255 parts per weight Desmodur N/75 %.

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

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

DISTINGUISHING FEATURES

Compared to Macrynal SM 548 coatings based on Macrynal SM 540 show higher flexibility and excellent adhesion to aluminium and zinc.

Producers:

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