

TYPE

Oxidatively drying acrylic and urethane-modified alkyd resin in form of aqueous emulsion

Neutralization agent

0.7 % triethylamine, as salt
0.3 % N,N-dimethylethanolamine, as salt

FORM OF DELIVERY (f.o.d.)

45 % in water (45WA)
(containing also 6.9 % butyl glycol)

CONTENT OF FATTY ACIDS

approx. 50 % special unsaturated fatty acids (as triglycerides)

SPECIAL PROPERTIES AND USE

Rapid drying and good drying stability. Excellent water resistance and high degree of corrosion protection.
Good pigment wetting. Advantageous rheological behaviour, therefore excellent non-sag properties.

PRODUCT DATA

Determined per batch:

Dynamic Viscosity DIN EN ISO 3219

dynamic viscosity (10 1/s; 23 °C)	[mPa.s]	4000 - 12000
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pH-Value DIN ISO 976

pH-value (10 %)		8,5 - 9,5
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Non-Volatile Matter DIN 55671

non-volatile matter (120 °C; 5 min)	[%]	43,5 - 46,5
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Not continually determined:

Colour / Appearance VLN 250

colour		whitish
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Non-Volatile Matter DIN EN ISO 3251

non-volatile matter (1 h; 125 °C; 1 g)	[%]	43,5 - 46,5
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Density (Liquids) DIN EN ISO 2811-2

density approx. (20 °C)	[g/cm³]	1,04
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Flash Point (Pensky-Martens) DIN EN ISO 2719

flash point	[°C]	> 100
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Sole binder for air drying waterborne one-coat paints and anticorrosive primers.

SUGGESTED USES

Resydrol AZ 509w is suited for the formulation of anticorrosive primers applied by spraying. Such coatings show good drying properties and are waterproof after 24 hours air-drying. Coats of a thickness of over 50 µm offer very good corrosion protection. Due to its good pigment-wetting capacity Resydrol AZ 509w can also be used for making high-gloss coloured one-coat finishes.

Resydrol AZ 509w has been developed for air and forced drying paints. Its hardness can be increased by drying at 100 °C and use of small amounts of melamine resin.

Modification of Resydrol AZ 509w with carefully chosen polymer dispersions speeds up physical initial drying and increases film hardness. Its simultaneous use with Mowilith LDM 7670 (20 % solids content) has yielded optimum results.

DILUTABILITY

Resydrol AZ 509w is supplied as anionic/non-ionic stabilized emulsion of structural viscosity and can be diluted with deionized water as much as desired. Its viscosity can be increased by addition of small amounts of organic solvents, while addition of large amounts will decrease it.

COMPATIBILITY

Resydrol AZ 509w is compatible with most oxidative-drying water-soluble resins such as Resydrol AZ 248w, Resydrol AY 241w, etc. Water-dilutable reactive melamine resins can also be used with it in small amounts. Combinations with select acrylate dispersions, e. g. Mowilith DM 772, are also possible.

PROCESSING

Neutralization

Resydrol AZ 509w contains only small amounts of volatile amines for supporting the emulsion, which has its maximum stability in the pH range from 8.5 to 9.5. If the pH value of paints and primers falls below this range due to the influence of pigments and fillers or on account of the loss of amine by evaporation during grinding, it should be corrected to 8.6 - 9.3, preferably by using triethylamine.

Pigmentation

Resydrol AZ 509w has good pigment wetting properties. Pigment selection will be determined by the same criteria as with other Resydrol types, which means that only strongly basic fillers and pigments are to be excluded. Of anticorrosive pigments, zinc chromate-free multi-phase pigments such as Sisor NOP and Sisor SPO (BASF) have proved highly successful.

For grinding, microelement mixer mills are recommended. In order to minimize loss of amines, temperature of the mill base should not exceed 50 °C.

Auxiliary additives

In order to prevent skinning, addition of 1 - 2 % Additol XL 297 (referred to solid resin content) is recommended, while, e. g., Additol XL 270 has proved very successful as anti-settling agent.

Addition of driers

Water-emulsifiable special driers can be incorporated into the emulsion without any problem. We recommend use of the combination drier Additol VXXW 4940 (Co, Ba, Zr).

RHEOLOGICAL BEHAVIOUR OF ALKYD RESIN EMULSIONS

Aqueous alkyd resin emulsions differ fundamentally from synthetic resins dissolved and diluted in organic solvents:

- 1) Viscosity of aqueous alkyd resin emulsions is independent of the mean molar mass of the resins so that it is not possible to infer from their viscosity to the molecular weight of the resins.
- 2) Aqueous alkyd resin emulsions are characterized by structural viscosity, which means that with increasing shear stress viscosity will decrease. The values measured are strongly dependent on measuring conditions, and viscosity data without indication of shear rates are not very useful.
- 3) Viscosity of aqueous alkyd resin emulsions will be influenced by their respective pH value in the following way:
With increasing pH value viscosity will also increase. As during storage of alkyd resin emulsions their pH value will slowly decrease, a decrease of viscosity has also to be expected. By subsequent neutralization viscosity can again be raised to the original value.
- 4) The dilution curve of aqueous alkyd resin emulsions displays a very steep descent. Any reduction of solid matter content therefore results in a much stronger reduction of viscosity than with synthetic resins dissolved in organic solvents.

STORAGE

At temperatures up to 25 °C storage stability packed in original containers amounts to at least 365 days.

Synthetic resins containing water may freeze or get inhomogeneous at temperatures below 0 °C. By this the product will not suffer any damage, but the necessary regeneration requires extended heat treatment at 40 - 50 °C with continuous stirring. It is therefore recommended to ensure frostproof storage of such products.

Lowest storage temperature: - 5 °C

DISTINGUISHING FEATURES

Resydrol AZ 509w yields more flexible film coats than Resydrol AZ 436w, but will dry somewhat more slowly.