

TYPE

Oxidatively drying acrylic modified alkyd resin as aqueous emulsion

Neutralization agent

0.5 % ammonia, as salt

Lowest storage temperature: - 5 °C

FORM OF DELIVERY (f.o.d.)

38 % in water (38WA)
(containing also 5.6 % butyl glycol)

CONTENT OF FATTY ACIDS

approx. 46 % special vegetable fatty acids (as triglycerides)

SPECIAL PROPERTIES AND USE

Rapid initial and through-drying. High gloss. Excellent water and weather resistance. Good storage and drying stability. Free from organic amines.

Sole binder for waterborne industrial topcoats.

PRODUCT DATA

Determined per batch:

Dynamic Viscosity DIN EN ISO 3219
dynamic viscosity [mPa.s] 3000 - 11000
(10 1/s; 23 °C)

pH-Value DIN ISO 976
pH-value 7,5 - 9,0
(10 %)

Non-Volatile Matter DIN 55671
non-volatile matter [%] 37 - 39
(120 °C; 5 min)

Not continually determined:

Non-Volatile Matter DIN EN ISO 3251
non-volatile matter [%] 37 - 39
(1 h; 125 °C; 1 g)

Density (Liquids) DIN EN ISO 2811-2
density [g/cm³] 1,03
approx.
(20 °C)

Flash Point (Pensky-Martens) DIN EN ISO 2719
flash point [°C] > 100

DILUTABILITY

For adjustment to processing viscosity, it is sufficient to dilute Resydrol AY 466w with deionized water alone. Addition of organic solvents is not necessary.

COMPATIBILITY

Combination with other air-drying Resydrol types is possible. Addition of, e. g. Resydrol AY 241w can speed up initial and through-drying. For combinations with other binders, previous testing of compatibility is always required.

SUGGESTED USES

Resydrol AY 466w is used as sole binder for the formulation of industrial topcoats which are suited for coating agricultural vehicles and construction machinery. Furthermore, Resydrol AY 466w can also be used in combination with Resydrol AY 241w or Mowilith LDM 7760 for the formulation of exterior wood stains applied by industrial processes.

Although paints on the basis of Resydrol AY 466w dry very fast and are therefore ideally suited for spray application, they can also be applied by brush on smaller surfaces, e.g. in repair work.

Resydrol AY 466w also shows good adhesion on old paint coats, which can be recoated without any problem with paints on the basis of Resydrol AY 466w.

PROCESSING

Neutralization

The amount of neutralization agent evaporated during dispersing has to be replaced in all cases. It is also important to check the pH value with deionized water before adjustment of paint viscosity. Post-neutralization with ammonia to a pH range 9.0 - 9.5 (measured for approx. 10 % resin concentration) should be performed in order to ensure good stability of the paint.

Pigmentation

Due to its good pigment wetting capacity, Resydrol AY 466w/38WA yields high-gloss paint films. However, only pigments without or with only a very low content of water-soluble constituents should be used. Strong basic pigments tend to cause gel formation. When basic pigments are to be used, their storage stability has to be tested in advance. Rutile type grades of titanium dioxide without zinc oxide coating yield formulations of good storage stability.

For grinding, microelement mixer mills are recommended. In order to minimize loss of ammonia, care should be taken that temperature of the mill base does not exceed 50 °C.

Auxiliary additives

Efficient defoaming is achieved with a combination of Additol VXW 4909 and Additol XW 376 at ratio of 1 : 1. Skinning can be avoided by addition of 1 - 2 % Additol XL 297 (referred to solid resin content). Pigment sedimentation is prevented by using suitable wetting and anti-settling agents such as Additol XL 270.

Addition of driers

Water-emulsifiable driers such as Additol VXW 4940, which is a drier combination consisting of Co, Ba and Zr, have to be used for this purpose. Additions of 2 - 3 % of this substance (referred to the amount of solid binder) are recommended. In order to ensure homogeneous distribution in the paint, Additol VXW 4940 should be diluted with deionized water at a ration of 1 : 1 before being added. Optimum incorporation is to be expected when the drier is added to the material before grinding.

RHEOLOGICAL BEHAVIOUR OF ALKYD RESIN EMULSIONS

Aqueous alkyd resin emulsions differ fundamentally from synthetic resins dissolved and diluted inorganic 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, viscosity decrease 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.

DISTINGUISHING FEATURES

In comparison with Resydrol AY 334w, Resydrol AY 466w/38WA shows faster initial and through-drying values. Dried paint films of Resydrol AY 466w are also less susceptible to scratching.