

RESYDROL[®] AZ 436w/45WA

TYPE

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

Neutralization agents

0.2 % ammonia, as salt
0.2 % N,N-dimethylethanolamine, as salt

FORM OF DELIVERY (f.o.d.)

45 % in water (45WA)
(containing also 5.7 % butyl glycol)

CONTENT OF FATTY ACIDS

approx. 43 % special vegetable fatty acids (as triglycerides)

SPECIAL PROPERTIES

Very rapid initial and through-drying.
High film hardness.
Excellent water and corrosion resistance.
Adequate compatibility with anticorrosive pigments.

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:

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/cm ³]	1,04
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Flash Point (Pensky-Martens) DIN EN ISO 2719 flash point	[°C]	> 100
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SUGGESTED USES

Resydrol AZ 436w is used as sole binder for the formulation of anticorrosive primers. Such primers can be recoated with both conventional and water-thinnable paints already after a few hours air-drying. After drying these films show high water resistance and excellent corrosion resistance.

Further more, Resydrol AZ 436w lends itself to the formulation of rapidly drying primer surfacers which can be easily sanded already after a short time.

The fomulation of finishing and one-coat paints is also possible if not too high demands are made on gloss.

Aqueous painting materials on the basis of Resydrol AZ 436w are preferably applied by spraying, dipping, flow coating etc. For air-pressure spraying, viscosity in the range of 45 - 70 s (DIN EN ISO 2431, 5 mm, 23 °C) is recommended; for brush application rapid drying of the material has to be considered.

DILUTABILITY

In its form of delivery, Resydrol AZ 436w can be diluted with deionized water as much as desired. The application viscosity of paints on this basis can therefore be adjusted with deionized water alone, not requiring the additional use of organic solvents.

COMPATIBILITY

Resydrol AZ 436w is compatible with other air-drying Resydrol binders. Initial and through-drying can be speed up by using it together with Resydrol AY 241w.

Combinations with acrylate dispersions are also possible; however, compatibility has to be tested in every individual case.

PROCESSING

Neutralization

After formulation of the paint its pH value has to be checked and, if necessary, adjusted by addition of ammonia. Care should be taken that the pH value of the finished formulation is adjusted between 9.0 and 9.5 (measured with approx. 10 % resin concentration), as only in this case good stability of the paint is to be expected.

Pigmentation

Sicor SPO (BASF), Shieldex AC 3 (Grace) and Delaphos zinc phosphate (ISC Alloys Ltd.) have proved to be successful anticorrosive pigments. On principle, the use of strong basic pigments should be avoided, as they will cause viscosity pickup. Paints of good storage stability are obtained by using rutile type grades of titanium dioxide without zinc oxide modification.

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

Auxiliary additives

Skinning in storage containers can be prevented by addition of 1 - 2 % Additol XL 297 (referred to solids content). As an effective wetting and dispersion agent to avoid settling in containers Additol XL 270 is recommended, whereas Additol VXW 4909 prevents foaming.

Addition of driers

With alkyd resin emulsions, only water-emulsifiable driers can be used. Addition of 2 - 3 % (referred to solid binder content) of a combination drier such as Additol VXW 4940 (Co, Ba, Zr) has proved very successful. In order to ensure homogeneous distribution, Additol VXW 4940 should be diluted with deionized water at a ratio of 1 : 1 before being added to the paint. Both the drier and other auxiliary substances (Additol XL 297, Additol XL 270, Additol VXW 4909, etc.) should be added to the mill base before dispersion.

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, 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 436w dries faster than Resydrol AZ 509w, but has the same good anticorrosive properties.

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• Worldwide Contact Info: www.allnex.com •

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