RESYDROL® AY 430w/42WA

Technical Datasheet

TYPE

Oxidatively drying, ammonia neutralized, APEO (alkylphenolethoxylate) free, alkyd-acryl hybrid system as aqueous emulsion

FORM OF DELIVERY (f.o.d.)

42 % in water (42WA)
(containing also 4.6 % butyl glycol)

Neutralization agent

0.4 % ammonia, as salt

CONTENT OF FATTY ACIDS

approx. 44 % special vegetable fatty acids (as triglycerides)

PRODUCT DATA

Determined per batch:

Dynamic Viscosity DIN EN ISO 3219		
dynamic viscosity (10 1/s; 23 °C)	[mPa.s]	6000 - 11000
pH-Value DIN ISO 976		
pH-value (10 %)		7,5 - 9,0
Non-Volatile Matter DIN 55671		
non-volatile matter (120 °C; 5 min)	[%]	40,5 - 43,5

Not continually determined:

Colour / Appearance VLN 250		
colour		whitish
appearance		cloudy
Non-Volatile Matter DIN EN ISO 3251		
non-volatile matter (1 h; 125 °C; 1 g)	[%]	40,5 - 43,5
Density (Liquids) DIN EN ISO 2811-2		
density approx. (20 °C)	[g/cm³]	1,03
Flash Point (Pensky-Martens) DIN EN ISO 2719		
flash point	[°C]	> 100

SPECIAL PROPERTIES

Very rapid drying, good brushability, high gloss and good weather resistance.

SUGGESTED USES

Resydrol AY 430w is suited for the formulation of decorative paints to be used on wood or iron substrates. With appropriate adjustment of viscosity the paint can be applied by dipping or spraying. Besides for decorative topcoats and primers, Resydrol AY 430w can also be used for the formulation of anticorrosive paints, which, however, requires careful consideration of pigment compatibility.
Recoating of conventional old paint coats and application on conventional primers are possible without further pre-treatment.

Resydrol AY 430w can also be used for the formulation of exterior wood stains; by addition of Resydrol AY 548wtix, these lacquers can be made thixotropic, while addition of Vialkyd VAF 6068 will improve their brushability and open time. Certain types of wood of high tannin content (e. g. oak) may be subject to colour change. Previous testing is therefore recommended when clear lacquers are to be used.

DILUTABILITY

For adjustment to processing viscosity it is sufficient to dilute Resydrol AY 430w with deionized water alone. Addition of organic solvents is not necessary.

COMPATIBILITY

Combination with other air-drying Resydrol types is possible. Addition of Resydrol AY 548wtix yields thixotropic paints.

PROCESSING

Neutralization

During milling a certain amount of neutralization agent, e.g. ammonia, may evaporate and therefore has to be replaced. Before adjustment of paint viscosity with deionized water, the pH value has to be checked by measurement with a pH meter in 10 % aqueous solution. If necessary, adjustment of the pH value with ammonia to a range of 8.5 - 9.0 (referred to approx. 10 % resin concentration) should be perfomed in order to ensure good stability of the paint also during storage.

Pigmentation

Resydrol AY 430w shows very good pigment wetting and therefore yields pigmented paint coats of good gloss. However, only pigments of low content of water-soluble constituents should be used with it. Strong basic pigments are not suited, as they lend to cause gel formation and problems with storage stability, which has to be carefully tested befor such basic pigments are employed.
Current rutile type grades of titanium dioxide without zinc oxide coating yield paints 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.

For the production of high gloss top coats, we recommend a paint formulation using a pigment paste, e. g. based on the pigment paste resin Resydrol VAY 6093w or on the dispering additive Additol VXW 6208.

Auxiliary additives

Efficient defoaming is achieved with Additol XW 376, Additol XW 372, Additol XW 375, Additol VXW 6211 or VXW 6210. Skinning can be avoided by addition of 1 - 2 % of Additol XL 297 (referred to solids content).

Addition of driers

With Resydrol AY 430w only water-emulsifiable driers such as Additol VXW 4940, Additol VXW 4952 or Additol VXW 6206 can be used. However, on account of its reduced colour stability caused by its manganese content, Additol VXW 4952 should only be used in primers or coloured paints. Addition of 2 - 3 % of driers (referred to solid content) is recommended. For black paints on the basis of carbon black the amount of drier could have to be doubled.

Additions of Additol VXW 4940 should be diluted with deionized water at a ratio of 1 : 1 in order to ensure homogeneous distribution within the paint. Additol VXW 4940, Additol VXW 4952 and also Additol
VXW 6206 are added to the material before grinding. For the formulation of white paints the addition of antiskinning agent and driers can be omitted without negatively effecting the drying properties.

RHEOLOGICAL BEHAVIOUR

The rheological behaviour of Resydrol AY 430w is comparable with aqueous alkyd resin emulsions. The viscosity is indpendent of the average molar mass and decreases with increasing shear rate, because of its pseudoplasic behavior. The increase of the pH value causes a raise in viscosity.

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 temperatues 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

Compared with Resydrol AY 586w, Resydrol AY 430w shows, because of its lower oil length and its acrylic modification as hybrid system, a quicker initial and through-drying as well as lower yellowing.