

### TYPE

Hard, water-emulsifiable, unsaturated polyester resin (wax-free)

### USES

In the formulation of conventional and UV-curing, clear and pigmented, gloss and matt aqueous coatings containing no monomers, solvents or amines. The resultant films are brilliant and resistant to scratching, water, alcohols, solvents and household cleaning agents.

### FORM SUPPLIED

Solvent-free

### SPECIFICATION

**Viscosity (23 °C):** 12,000 ± 3,000 mPa·s

DIN EN ISO 3219/A.3

**Acid value, supply form:** 17 ± 5 mg KOH/g

DIN EN ISO 2114

**Iodine color value:** ≤ 3

DIN EN 1557

### OTHER DATA\*

**Water content:** < 0.2 %

DIN 51 777-1

**Density (20 °C):** approx. 1.12 g/cm<sup>3</sup>

DIN EN ISO 2811-2

**Flash point:** > 100 °C

DIN EN ISO 2719

\* These values provide general information and are not part of the product specification.

### PROPERTIES / APPLICATIONS

ROSKYDAL 850 W is easily emulsifiable in a dissolver. 70 parts resin are placed in the dissolver and 30 parts tap water slowly stirred in. The components are then emulsified for approx. 2 min at a high speed (20 m/s rim speed). The resultant base emulsion (oil in water) is not stable. The dissolver is slowed and the remaining aqueous components of the formulation are added. Any non-aqueous additives must be pre-dispersed in ROSKYDAL 850 W before emulsification. Pigmented coatings can also be formulated in the dissolver. The pigments and extenders are dispersed in the base emulsion. Formulation then continues as described above for clear coats. If dispersing in the resin, the mill base must be cooled to approx. 35 °C before emulsification. Tap water is then added to adjust the viscosity of the formulation. Air bubbles trapped during dispersion can be removed by sieving. This prevents water from accumulating on the surface. Polyethylene containers have been found to be ideal for storing the finished coating. The viscosity and solids content can be adjusted to the required level by the addition of a suitable thickener. Good results have been obtained using approx. 3 - 5 % Borch Gel L 75<sup>1</sup> calculated on the ROSKYDAL 850 W content. 2 - 4 % Bentone LT<sup>2</sup> can be used with or instead of Borch Gel but must be properly homogenized and stabilized before use (e.g. with Deuterol 201 E<sup>3</sup>). Suitable matting agents include Syloid ED 30<sup>4</sup>, Acematt TS 100<sup>5</sup>, OK 412<sup>5</sup>. The first three products can be dispersed in the resin before emulsification. Deuterol is added as a paste after emulsification. Coalescents should not be added as they may cause cracking in the paint film.

Coating systems based on ROSKYDAL 850 W can be applied by conventional methods such as spraying, roller coating or curtain coating. A maximum film weight of 100 g/m<sup>2</sup> should not be exceeded otherwise trapped water may result in film defects.

### Curing

#### 1. Curing with peroxide

As with conventional UP resins, the polymerization of ROSKYDAL 850 W is initiated using redox systems. The reaction begins immediately after the water is removed. It is standard to use water-soluble peroxides such as hydrogen peroxide and water-soluble cobalt salts such as cobalt acetate. In principle it is also possible to work with conventional active primers. Curing takes approx. 2 h at room temperature, 20 min at 50 °C or 2 min at 150 °C. Many woods such as oak or walnut contain substances which inhibit curing. The only way of overcoming this is to apply a barrier coating, e.g. a two-pack polyurethane system.

## 2. UV-curing

UV-curing requires the use of liquid photo-initiators which are added to the resin before emulsification. All the water must be evaporated out of the coating before it is exposed to UV radiation. This can be done very quickly using a jet dryer. The advantage of UV-curing is that it is unaffected by the substances contained in wood. When using the monocure process for pigmented coatings, the photo-initiator, e.g. Darocur 4265<sup>6</sup>, should be pre-dissolved in the resin.

The curing of such coatings requires the use of gallium-doped, high-pressure mercury vapour lamps which produce radiation in the long-wave spectrum.

## Cleaning

The application equipment can be cleaned with a 95 : 5 mixture of water and acetone.

<sup>1</sup> Borchers

<sup>2</sup> Kronos

<sup>3</sup> Deuteron

<sup>4</sup> Grace

<sup>5</sup> Evonik

<sup>6</sup> BASF

## SOLUBILITY / THINNABILITY

Alcohols	partly soluble
Ketones	soluble
Esters	soluble
Aliphatic hydrocarbons	partly soluble

## STORAGE

When stored in its sealed containers at a temperature not exceeding 23 °C, the product will remain stable for at least 365 days.

## LABELING AND REACH APPLICATIONS

This product data sheet is only valid in conjunction with the latest edition of the corresponding Safety Data Sheet. Any updating of safety-relevant information – in accordance with statutory requirements – will only be reflected in the Safety Data Sheet, copies of which will be revised and distributed. Information relating to the current classification and labeling, applications and processing methods and further data relevant to safety can be found in the currently valid Safety Data Sheet.