Acronal® PRO 770

Product description

Acrylic emulsion polymer for direct to metal (DTM) paints and anticorrosive primers

Key benefits

- Superior corrosion protection
- Good adhesion to metal substrates
- Excellent application properties (airless spray, dip coating, etc.)
- Excellent outdoor durability
- Excellent protection achieved by zinc-free formulations or with low zinc content
- Zero add on of APEO and zinc

Chemical nature

Styrene acrylic dispersion

Properties

Physical form

White emulsion

Technical data
(not supply specification)

Solids by weight	ISO 3251	48.0 – 50.0 %
Viscosity at 25 °C (Brookfield; #2/ 30 rpm / 25 °C / 30 sec)	ASTM D-1824-72	200 – 900 mPa.s
Density (as supplied)	DIN 53217	~ 1.05 g/cm^3
pH value	DIN ISO 976	7.0 – 8.3
Minimum film-forming temperature (MFFT)	DIN ISO 2115	~ 19 °C
Acid value (solids)	calculated	~ 7 mg KOH/g
Freeze/thaw-stable		no

Application

Acronal® PRO 770 is the latest development in terms of waterborne one component corrosion protection. It can be used universally to formulate waterborne direct to metal (DTM) paints and anticorrosive primers. It shows excellent adhesion to metal substrates. .

Acronal® PRO 770 shows outstanding anti-corrosive properties both in glossy DTM and matt monocoat/ primer applications even without or with only limited addition of phosphate anticorrosive pigments. This dispersion is suitable for dry film thicknesses (DFT) from 50 µm up to 200 µm or more. It is possible to achieve a corrosion protection of C3 to C4 at a DFT of min. 80 µm.

Formulation guideline

Coalescents

To achieve good film formation, it is necessary to have sufficient coalescing solvent present after most of the water has evaporated. Acronal® PRO 770 has been shown to form a good film at room temperature with levels of approximately 1,5-4 % coalescing solvent on total formulation. Typical coalescent solvents may be used, in particular butyl diglycol showed good results for glossier paints. For higher filled primers we recommend a combination of butyl glycol or butyl diglycol with white spirit or crystal oil K21 (1:1).

For anti-corrosive paint the adhesion and early water resistance may be further improved by the addition of high boiling solvents (e.g. Loxanol® CA 5308) or plasticizers (e.g. Efka® PL 5646).

Dispersing agents

Acronal® PRO 770 is medium shear stable. That is why it is preferred to work with slurries and pastes and use the dispersion in the let-down step. Adding the slurry/paste to the dispersion ensures improved stability. For colored glossy paint Dispex® Ultra PX 4290 was found to show superior performance as compared to other dispersants.

Please note that this dispersion shows moderate stability to bivalent ions like Zn^{2+}. We have seen good corrosion protection coupled with good hot box stability by using Dispex® Ultra CX 4452 as dispersant (for formulations containing up to 6 % zinc phosphate or similar type anticorrosive pigment). However equally good salt spray performance has been observed without any anti-corrosion pigments. Such zinc-free formulations still outperform other dispersions in zinc phosphate containing paint paints.

Defoamers

Typical defoamers for waterborne industrial paint may be used. For glossy paint we found good properties with FoamStar® SI 2210. Typical dosage levels are app. 0.2 % of delivery form on total formulation for pigment grinding and let down. For primer formulations mineral oil defoamers like Foamaster® MO NDW have been found benefitial.

Rheology modifiers

For the application of Acronal® PRO 770 in anticorrosive paint especially on untreated metal it is recommended to use urethane thickeners (HEUR), e.g. Rheovis® PU 1193.

Flash rust / Organic inhibitors

It is recommended to use an inhibitor on metal surfaces to avoid the formation of flash rust. Acronal® PRO 770 shows good compatibility with common types on the market (nitrite and organic). CHE®[1]-COAT-CI LAF1 and Halox®[2] 515 have been tested successfully.

®[1] registered trademark of C.H. Erbslöh
®[2] registered trademark of ICL Advanced Additives

Storage

Acronal® PRO 770 shall be stored in its tightly sealed original packaging at temperatures between 5 °C and 40 °C.

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Safety

When handling this product, please comply with the advice and information given in the safety data sheet and observe protective and workplace hygiene measures adequate for handling chemicals.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information
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