

Architectural Coatings

Technical Data Sheet

Acronal[®] 4220 (old: Acronal Optive[®] 220)



Chemical Nature

An aqueous acrylic ester copolymer dispersion with wet adhesion on alkyd substrates

Properties

Typical Properties

Solids content	%	49.0 – 51.0
pH		7.5 – 9.5
Viscosity at 23 °C (Brookfield RV, Spindle #4, at 50 rpm)	cps	600 – 1800

Other properties of the dispersion

Density	lbs/gal g/cm ³	ca. 8.83 ca. 1.06
Film forming temperature	°C °F	ca. 14 min. ca. 57 min.
Dispersion type		nonionic/anionic
Sensitivity to frost	°F °C	< 32 < 0

Applications

Fields of application

The main field of application for Acronal[®] 4220 is as a binder for architectural coatings, flat through semi-gloss. Acronal[®] 4220 has excellent wet adhesion on aged alkyd substrates and demonstrates excellent durability on exterior exposure.

Processing

Emulsion paints are produced from Acronal[®] 4220 by conventional techniques. In order to ensure that the viscosity of the made-up paints does not undergo any change during long storage periods, the pigments and extenders must be dispersed with adequate amounts of wetting and dispersing agents (e.g., Pigment Disperser A together with polyphosphates).

Various thickeners may be added to regulate the viscosity and flow and to improve the brushability. All kinds of cellulose ethers, either by themselves or together with polyacrylates, may be used for this purpose. Inorganic thickeners (e.g., montmorillonites and finely divided silica), are also suitable. Polyurethane thickeners are strongly recommended for improving the flow.

Hydroxyethylcellulose, either by itself or together with other thickeners, has given extremely good results in preventing creaming or pigment flocculation in paints colored with preparations of chromatic pigments (e.g., Luconyl[®] types). Small amounts of nonionic surfactants (e.g., Lumiten[®] N-types); also exert a beneficial effect in this connection. In any event, compatibility and storage stability tests are recommended.

In common with all other finely divided dispersions, Acronal[®] 4220 tends to foam. Consequently the addition of a defoamer is essential in the proportions recommended by the manufacturer (usually of the order of 0.3 - 1%). Its efficiency should be checked by prior experiment.

Small amounts of coalescents should be included in the formulations in order to ensure that a satisfactory film can be formed at temperatures below 14 °C. Suitable solvents for this purpose are Texanol® and Dowanol® DPnB® (registered trademarks of Dow Chemical), and similar coalescents. In general, the maximum proportion that would suffice for coalescents is 2.5% on latex solids. Glycols can be used to improve the freeze-thaw stability and increase the open time of paints produced with Acronal® 4220.

Because of the risk of local coagulation, solvents and thickeners in the concentrated form should not be added directly to the dispersion. It is preferable to mix them with the pigment paste or dilute them with water before they are incorporated into the paints.

Preservatives must be added as a safeguard against microorganisms if the paints are to be stored for long periods. Their compatibility and efficiency should be checked by prior experiment. The proportions to be added depend on the manufacturer's instructions and the ambient storage conditions.

Safety

General

The usual safety precautions when handling chemicals must be observed. These include the measures described in Federal, State and Local health and safety regulations, thorough ventilation of the workplace, good skin care and wearing of protective goggles.

Material Safety Data Sheet

All safety information is provided in the Material Safety Data Sheet for Acronal® 4220.

Storage

Acronal® 4220 has a shelf life of six months from delivery date, provided it is stored in accordance with the "Handling and Storage of polymer dispersions" brochure. Technical information regarding the storage of BASF polymer dispersion products is available upon request.

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