We create chemistry

Acronal® 4120

Chemical Nature **All acrylic latex dispersion for durable exterior coatings and stains**

Properties

Typical Properties	Solids content, weight	%	49.0 – 51.0
	pH		7.5 – 9.0
	Viscosity at 23 °C (Brookfield RV, Spindle #5, at 20 rpm)	mPa s	3000 – 8000
Other properties of the dispersion	Specific gravity	g/cm^3	ca. 1.04
	Average particle size	µm	ca. 0.1
	Film-forming temperature	°F	ca. 72 min.
		°C	ca. 22
	Dispersion type		anionic
	Plasticizer content		free from plasticizer
	Sensitivity to frost	°F	below 32
		°C	below 0
Properties of the film	Density	lb/gal	ca. 8.66
	Glass transition temperature Tg (DSC)	°C	ca. 22
	Water absorption (After 24 hrs. immersion in water)	%	ca. 12
	Mechanical strength*		
	Tensile strength	psi	ca. 1400
		N/mm^2	ca. 10
	Elongation at break at 23 °C	%	ca. 300
	Appearance		colorless, transparent
	Surface		tack free

* These figures should be taken for comparison purposes only. All that can be obtained from it is an idea of the order of magnitude.

Application

Features

Acronal 4120 is a fine particle size dispersion of medium viscosity, compatible with most of the pigments and extenders used in the coatings industry, thus allowing high pigment/binder ratios. Films obtained from it are tough, flexible and tack-free at room temperature and very resistant to water and hydrolysis. Acronal 4120 displays good stability to light, outdoor exposures and there is very little tendency for blushing after immersion in water.

Fields of application

Acronal 4120 is used as a binder for textured coatings, wood stains and semi-transparent varnishes, wood paints and exterior architectural paints. For applications requiring wet adhesion, Acronal 4220 or Acronal PLUS 4230 should be used.

Processing

Emulsion paints and textured finishes are produced from Acronal 4120 by conventional techniques such as dispersers or high speed ribbon blenders. In order to help stabilize the viscosity of the made-up paints during long storage periods, the pigments and extenders must be dispersed with

adequate amounts of wetting and dispersing agents (e.g. Pigment Disperser A along with polyphosphates.)

Acronal 4120 is shear stable and can be used in the grind paste under most circumstances.

Various thickeners may be added to regulate the viscosity and flow and to improve the brushability. Most cellulose ethers, either by themselves or mixed with polyacrylates of the Collacral® P type, may be used for this purpose. Inorganic thickeners (e.g. montmorillonites and fine particle size silica) are also suitable.

Collacral® VL or polyurethane thickeners are strongly recommended for improving the flow. Hydroxyethylcellulose, alone 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 can also aid in improving stability, but tests for compatibility and storage stability should be carried out prior to their use.

Most fine particle size dispersions exhibit a tendency for foam formation. It thus becomes necessary to add a defoamer in the proportions recommended by the manufacturer (usually 0.3 - 1%). The efficiency of the antifoams should be checked by experimentation.

Small amounts of coalescents should be included in the formulations in order that a satisfactory film can be formed at temperatures below 55 ^{0}F (13 ^{0}C). Suitable solvents for this purpose are glycol ethers and their acetates, mineral spirits and Texanol® either individually or mixed together. The maximum suggested level would be 2% based on the total formulation. Solvents that are freely miscible with water (e.g. lower alcohols or glycols) are unsuitable as coalescents but improve the freeze thaw stability of the formulations. Water miscible, higher boiling solvents (e.g. propylene glycol and diethylene glycol monobutyl ether) lengthen the wet edge time but temporarily slow the resistance to blocking and increase the sensitivity to water.

Preferably concentrated solvents and thickeners should be premixed with the pigment paste or diluted with water prior to incorporating them into the formulation.

Products containing Acronal 4120 should be blended with a preservative in order to protect them from the attack of microorganisms. The suitability of the preservative must be determined by trials and regular inspections.

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.

Safety Data Sheet

All safety information is provided in the Safety Data Sheet for Acronal 4120.

Storage

Storage should be 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.

Important

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