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Acronal® 4250

Chemical Nature

Aqueous acrylate copolymer dispersion with room temperature crosslinking for use in flexible roof coatings

Properties

Typical Properties

Solids content	%	~ 55.0
pH		~ 8.0
Viscosity at 73 °F	mPa s	~ 100 – 500
(Brookfield RV viscometer, Spindle #4, at 100 rpm)		

Other properties of the dispersion

Density	lbs/gal	ca. 8.63
	g/cm³	ca. 1.04
Film-forming temperature	°F	ca. >32
	°C	ca. >0
Dispersion type		Anionic
Plasticizer content		Free from plasticizer
Sensitivity to freezing	°F	below 32
	°C	below 0

Properties of the film

Density	g/cm³	ca. 1.06
Glass transition temperature Tg (DSC)	°C	ca. -28
Water absorption (After 24 hours immersion in water)	%	ca. 6
Mechanical strength*		
Tensile strength	psi	ca. 150
	N/mm²	ca. 1.0
Elongation at break at 23 °C	%	ca. 600
Appearance		clear, transparent
Surface		tacky

* These typical values should not be interpreted as specifications.

Application

Fields of application

Acronal 4250 may be used for the production of flexible coating compounds. Such coatings may be used for the sealing of concrete roofs and the protection of polyurethane insulation foam, rolled roofing felts or asphalt roof systems against the effects of weathering. For areas where permanent water loading is anticipated or the slope is <2°, Acronal 4250 is not recommended.

Processing

Acronal 4250 is a pure acrylic polymer dispersion designed for high flexibility at low temperatures. The glass transition temperature of minus 28 ºC (DSC midpoint) makes it ideally suitable for designing mixtures that need to meet ASTM D 6083 - 05 requirements.

Acronal 4250 was developed to give excellent adhesion to polyurethane roofing foam and many other substrates. In addition, it contains internal crosslinking agents that crosslink the polymer film after the water has evaporated. This crosslinking occurs both on the surface and through

the coating to give good elastic film properties with only a slightly tacky surface. This aids in the resistance of the film to pick up dirt and retain good reflectivity.

Acronal 4250 does not require Zinc Oxide for additional crosslinking of the polymer. However if one chooses to use Zinc Oxide for this purpose or for fungal protection, precaution should be taken to stabilize the Acronal 4250 in the presence of the zinc oxide.

Acronal 4250 is a mechanically stable anionic dispersion that can be pigmented and formulated into flexible coatings as shown in Table 1. This includes mixtures prepared with the dispersion in the grind (#1 through 3) or as an addition to pigment dispersion (#4).

Table 1

Formulation Number:	1.	2.	3.	4.
Raw Materials -		Weight %		
Water	6.88	6.81	6.81	14.79
Propylene glycol	2.23	2.24	2.24	2.08
30% Pigment Disperser® NL[1]	0.45	0.45	0.45	0.42
Acronal® 4250[1]	28.45	28.53	28.52	0.00
BYK 035[2]	0.45	0.45	0.45	0.45
Iconol NP-40[3]	0.00	0.00	0.00	0.13
Natrosol 250 MXR[4]	0.00	0.00	0.00	0.06
Kronos 2101[5]	11.17	11.20	7.83	10.18
Kadox 915[6] (Zinc oxide)	0.00	0.00	3.41	0.00
Duramite[7]	26.36	21.92	21.91	24.31
Atomite[7]	1.34	5.94	5.94	1.25
Omyacarb UFT[8]	0.00	7.94	7.93	0.00
Microtalc MP 10-52[9]	8.27	0.00	0.00	7.48
Proxel GXL[10]	0.22	0.22	0.22	0.21
Acronal® 4250	12.78	12.81	12.81	37.78
Natrosol 250 MXR	0.34	0.34	0.34	0.34
Ammonia	0.23	0.23	0.23	0.23
BYK 035	0.91	0.92	0.92	0.91
Totals	100.0	100.0	100.0	100.0
~ Weight (% solids)	72	72	72	66

Mix ingredients in the above order until smooth.

Mixture Properties:		
	PVC (%)	~ 42
	Viscosity (Krebs)	~ 105
	Volume % solids	~ 59

Suppliers for ingredients shown in Table 1.

[1] BASF Corporation, Charlotte, NC
[2] BYK-Chemie USA, Wallingford, CT
[3] BASF Corporation, Performance Chemicals, Mount Olive, NJ
[4] Aqualon, A Div. of Hercules Inc., Wilmington, DE
[5] Kronos, Inc., Houston, TX
[6] Zinc Corporation of America, Monaca. PA
[7] Imerys; or Distributor Fitz Chem Corporation, Itasca, Il
[8] Omya, Inc., Alpharetta, GA
[9] Barretts Minerals, Easton, PA
[10] Zeneca Biocides, Wilmington, DE

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 4250.

Storage

Please refer to the “Handling and Storage of Polymer Dispersions brochure”.

Important

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