

Styrofan[®] D 623 na

Chemical Nature

Aqueous styrene-butadiene copolymer dispersion for the modification of cementitious mixtures and other hydraulic setting systems

Properties

Typical Properties

Solids content	%	50.0 – 52.0
pH		8.0 – 10.0

Other properties of the dispersion

Viscosity, 23 °C (Brookfield LV, Spindle #2, at 20 rpm)	mPa s	ca. 70
Density	lbs/gal	ca. 8.50
	g/cm ³	ca. 1.02
Average particle size	µm	ca. 0.2
Film-forming temperature	°C	ca. 16 min.
Sensitivity to frost	cycles	> 3
Dispersion type		anionic

Properties of the film

Appearance		pale yellow, transparent
Surface		tack free
Flexibility		good
Density	g/cm ³	ca. 1.04
Glass transition temperature (DSC)	°C	ca. 14
Water absorption (After 24 hr immersion in water)	%	ca. 10
Mechanical strength*		
Tensile strength	psi	ca. 400
	N/mm ²	ca. 3
Elongation at break	%	ca. 500

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

Compatible with

Polymer dispersions

With many other nonionic and anionic aqueous polymer dispersion grades. Note that dried films of such mixtures often appear cloudy.

Thickeners

Commercial cellulosics. It must be noted that some thickeners commonly used in cement mixtures have a stiffening effect and disturb the setting process as well as impair the wet strength of the hardened mixtures.

Plasticizers

High molecular weight glycol ethers.

Fillers

Amorphous and crystalline calcium carbonate, dolomite, silica flour, fine sand, clay, etc. The good compatibility of Styrofan D 623 na with pigments and fillers can be further improved by adding Pigment Disperser A or N alone or in combination with potassium polyphosphate.

Others

Water-dispersible silanes

Application

Fields of application

Styrofan D 623 na is used for improving the tensile and flexural strengths of mortars and concrete. At low water to cement ratios the flow properties are improved relative to unmodified mixtures. The product offers low odor and low volatile organic compounds (VOC's), and can be used for repair mortars, floor screeds and other mixtures that contain Portland cement or other hydraulic binders. At the proper usage level, Styrofan D 623 na forms elastic membranes throughout the matrix, reducing the formation of voids and hairline cracks during the curing stage. The resultant concrete shows improved resistance to penetration of acid rain, oil, and salts; aids in the adhesion of the new concrete to old; and has increased abrasion resistance and reduced shrinkage. These improvements are relative to a mixture that does not contain any polymer dispersion as a modifier.

Styrofan D 623 na is used as a base material for producing ceramic tile thinset adhesives.

Processing

Additions of 10 - 30% by weight of the dispersion, in terms of the weight of cement, are common for improving adhesion to the substrate and improving impermeability of the repair mixture.

Although Styrofan D 623 na contains an antifoam, in common with all dispersions of small particle size, Styrofan D 623 na can have a tendency to foam, and it is generally necessary to add a conventional antifoam in proportions of 1% by weight of the dispersion.

It is usually necessary to disperse the fillers and pigments with sufficient wetting and dispersing agents (Pigment Disperser A or N, water-soluble polyphosphates, etc.) in order to obtain products with adequate storage stability.

Products containing Styrofan D 623 na 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.

Manufacturers must carry out their own trials for developing products based on Styrofan D 623 na because in our trials, we cannot consider a great variety of factors that may have an influence on the compatibility of the constituents of the mixture with one another, the adhesion of the products to the various substrates, etc.

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 Styrofan D 623 na.

Storage

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

Important

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