

Acrodur[®] 950 L

Formaldehyde-free binder for wood fibers, natural fibers and cork, and for bonding glass fiber and mineral fibers and natural and synthetic fibers.

Chemical Nature

Clear, colorless or slightly yellowish, aqueous solution of a modified polycarboxylic acid with a polyol as the crosslinking agent

Properties

Typical Properties

Solids content (2 hours at 120 °C)	%	50 ± 2
pH		3 – 4
Viscosity at 23 °C (Brookfield LV, Spindle 3, 30 or 60 rpm)	mPa s	900 – 2500

Other properties

Density at 20 °C	g/cm ³	approx. 1.2
Miscibility with water		Miscible in all proportions

Film properties

Film formation	Forms film at room temperature
Before curing	Thermoplastic
After curing	Thermosetting, transparent

Compatibility with polymer

Acrodur 950 L is compatible with some polymer dispersions, but in dispersions it is always advisable to carry out preliminary tests at the appropriate concentration, pH and temperature in the presence of all additives. The polymer dispersion may need to be stabilized in advance. Surfactants such as Lutensol TO 89, Emulan[®] P and Emulphor FAS 30 are particularly effective for stabilizing mixtures of Acrodur 950 L and polymer dispersions.

Depending on the intended application and the type of process, Acrodur 950 L can also be modified with auxiliaries such as water repellents and antifoams. Here again, tests may be necessary in specific cases to determine any adverse effects.

Application

Acrodur 950 L is employed as a formaldehyde-free binder for wood fibers, other natural fibers such as flax, sisal, jute, hemp and kenaf, cork chips, cotton, and finely divided inorganic materials such as sand. It also performs very well as a formaldehyde-free binder for nonwovens composed of mineral fibers, especially glass fiber.

General notes on processing

Acrodur 950 L can be applied at the concentration at which it is supplied or it can be diluted in advance. It can be applied by spraying, curtain coating, wet impregnation, foam impregnation or roll coating.

Acrodur 950 L crosslinks when it is dried at a temperature of 160 – 180 °C. A high degree of crosslinking can be obtained by adjusting the curing time and curing temperature, taking the speed of the production process into account, in order to obtain optimum wet strength and heat resistance.

Bonding wood, natural fibers

To ensure that they have maximum strength, substrates impregnated with and cork Acrodur 950 L should contain approx. 10 % residual moisture before they are cured in a heated press or oven. The ideal moisture content depends on the substrate and the equipment used. Preliminary trials need

to be performed to determine the optimum moisture content, the amount of binder that needs to be applied and the curing conditions.

Acrodur 950 L can be combined with polymer dispersions that form films of different hardness in order to modify its mechanical properties, water absorption and other properties. The compatibility of these dispersions with Acrodur 950 L and their effect on its crosslinking behavior need to be tested in each individual case.

Bonding glass fiber

Acrodur 950 L can be employed as a formaldehyde-free binder for nonwovens composed of mineral fibers, especially glass fiber.

Assuming that high-speed production processes are used, we would recommend that Acrodur 950 L is dried at a temperature of approx. 200 °C. This guarantees a high degree of crosslinking, which in turn ensures that nonwovens have the maximum possible wet strength and heat stability.

The bonding agent can be applied to the glass fiber mat by spraying, impregnation or curtain coating. An excess of bonding agent is usually applied, because it is important to ensure that the substrate is thoroughly saturated. The excess can then be extracted and recycled.

Customers have to carry out their own trials when developing and processing binders and coatings based on Acrodur 950 L. The properties of mixtures of Acrodur 950 L and other ingredients of formulations and the performance of nonwovens manufactured with this product are affected by a variety of factors which are too numerous for us to take into account in our own trials.

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 Acrodur 950 L.

Important

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