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Resin systems E320/E321/E322/E323

Epoxy resin systems for SIGRAPREG® prepregs

Product Description

E320/E321/E322/E323 are resin systems based on a modified high performance epoxy resin and offers a manifold use in different areas such as interior applications. Additionally the resin systems are high toughened with a typical curing temperature of 125°C for 1 hour. The curing conditions are quite flexible and the range is from 80°C until 160°C for short term curing. By adjusting the curing condition the desired properties of the material can be reached.

Properties

- Controlled flow properties
- Long storage stability at room temperature (3 months)
- Brittle temperature of 100 - 120°C
- Good tack stages and variation possibilities (Tack 0 - 2)
- Excellent adhesive strength with metal

Application

This resin system can be used for all customary reinforced materials like woven fabrics, non-wovens or uni- and multiaxial fabrics with an areal weight up to 1000 g/m². The resin content is flexible from 30 to 50 % as needed for the acquirement of the construction and the process.

Storage

After the date of dispatch the prepregs can be stored at -18°C for a period of at least 12 months. Before fabrication the prepreg rolls, in their protective sheets, have to be conditioned to room temperature. In this context it is absolutely necessary to avoid the formation of condensation water directly on the prepregs. At room temperature (approximately 20°C) the prepregs remain processable for 3 months. If the fabrication time exceeds this period the fabrication properties should be checked by measuring the resin flux.

Application procedures

Prepregs with E320/E321/E322/E323 can be used in manually or in mechanical laying procedures.

Curing

E320/E321/E322/E323 was formulated for autoclave-, press- or vacuum processing.

Figure 1 shows the time/turnover graphs which illustrate the possible cure temperatures and turnovers depending on the cure time and cure temperature.

It's a versatile cure system for curing temperatures of 80°C to 160°C. The recommended heat up rate is 1°C/min to 4°C/min.

The E320/E321/E322/E323 resin systems also offer a two-step-processing with an initial curing and a stand-alone post-curing. Parts can be demoulded after the initial cure at a shorter cure cycle in order to increase tooling availability.

The combined time of both cure cycles should not fall short of the total recommended duration of a one-step cure cycle which is depending on lay-up procedure, part design and tooling properties and therefore needs to be evaluated individually on a case-by-case-basis by carrying out internal tests.

The recommended pressure during curing can vary between vacuum pressure (>0.7 bar) and a positive pressure of approx. 8 bar. This depends on the specific application and the kind of reinforcement

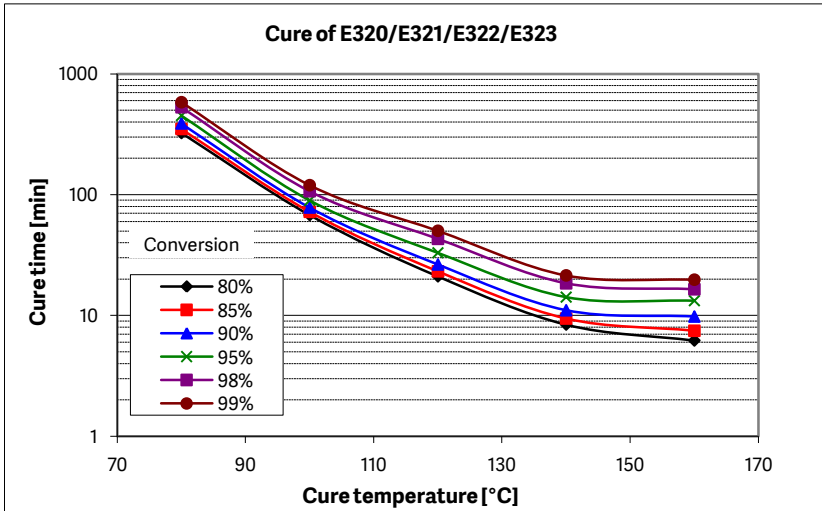


Fig. 1: Time/turnover plot of E320/E321/E322/E323

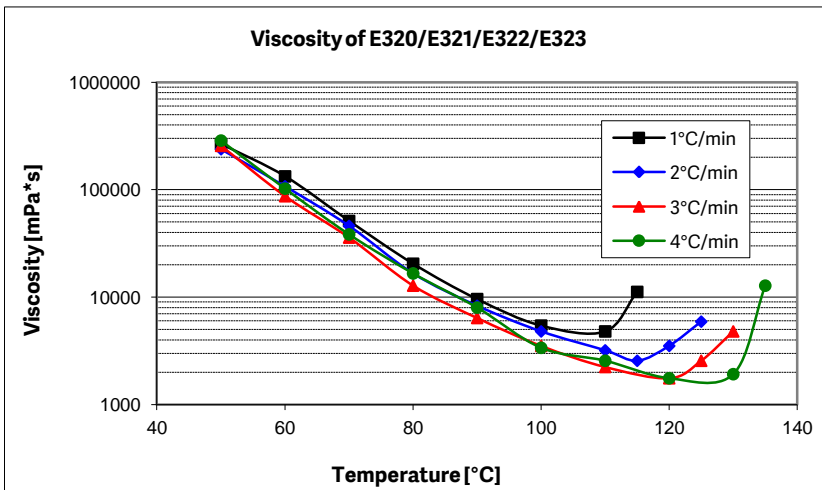


Fig. 2: Viscosity/temperature graph of E320/E321/E322/E323

Safety guidelines

When processing the above-mentioned products the guidelines issued by the chemical industry and the employers' liability insurance in connection with the safety data sheets have to be complied with.

General remarks

These data and information are based on carefully conducted tests and experiments and shall inform the user. They should not be regarded as a guarantee for the suitability of certain applications.

Users should at any rate ensure and confirm the suitability of these products for the intended purpose by carrying out their own tests and research.

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This information is based on our present state of knowledge and is intended to provide general notes on our products and their uses. It should therefore not be construed as guaranteeing specific properties of the products described or their suitability for a particular application. Any existing industrial property rights must be observed. The quality of our products is guaranteed under our "General Conditions of Sale".

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