Product Data
Epoxy Resin Systems

PRF
Composite Materials

Epoxy additive for flexibilising epoxy resin systems

Flexibiliser RS-V51

Applications

For use with epoxy resin systems to increase the flexibility of the cured resin.

PRF Composite Materials
3 Upton Road, Poole, Dorset BH17 7AA, England
• t: +44 (0) 1202 680022 • f: +44 (0) 1202 680077
• e: orders@prfcomposites.com
www.prfcomposites.com

Introduction

Generally, there are two types of additive that may be used to make epoxy resins more flexible:

• Reactive flexibilisers
• Plasticisers (also known as non-reactive flexibilisers)

The two materials are distinguished by the following characteristics:

Reactive flexibilisers such as RS-V51, become incorporated into the molecular structure during setting. Due to their long-chain, linear structure, they provide for the high degree of extensibility of the hardened, moulded material. Since they are integrated in the epoxy resin molecule, the extensibility is retained and therefore resins flexbilised with these agents do not embrittle.

Plasticisers act in a non-reactive manner. They are slow evaporating additives which are not incorporated in the epoxy resin molecule and may diffuse, particularly from thin layers, thereby embrittling the moulded material. Even small proportions of additives will significantly reduce heat and chemical resistance.

For this reason we recommend only the use of reactive flexibilisers.

Storage

The flexibiliser RS-V51 may be stored for a minimum of 12 months in the original, sealed containers at 15 - 25°C. Crystallisation of these materials may occur at temperatures below 15°C and is visible as a clouding or solidification of the liquid within the container. Before processing, the crystallisation must be removed. This can be done, without any degredation to the product, by slowly warming the material to approximately 50 - 60°C in a water bath or oven and stirring or mixing until the liquid becomes clear.

Only use completely transparent products.

Caution

- **Do not heat over a naked flame**
- **Before warming, open containers to equalise pressure**
- **Use safety equipment (gloves, safety glasses, respirator)**

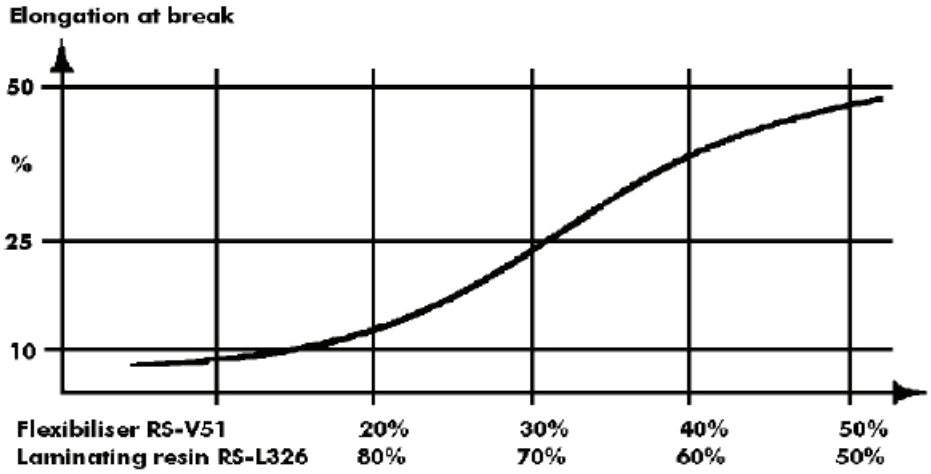
Health and Safety - Refer to the full Material Safety Datasheet before use.

Processing Specification

	RS-V51
Density (g/cm^3)	1.0 - 1.1
Viscosity (mPa·s)	30 - 80
Epoxide equivalent	300 - 330
Epoxide Value	0.30 - 0.33

Elongation

Example:
Resin: RS-L326
Flexibiliser: RS-V51
Hardener: RS-265



Mixing Ratios

When mixing laminating epoxy resin together with flexibilising resin RS-V51, the mixing ratio must be correct according to the specified epoxide value (EP).

Example: A mixture of : 70% by weight of laminating resin RS-L326 and
: 30% by weight of flexibiliser RS-V51
: processed together with hardener RS-H265

EP value of RS-L326: 0.55 x 70% = 0.39
EP value of RS-V51: 0.31 x 30% = 0.09
> EP value of mixture = 0.48

The hardener component is determined using the following formula:

Parts by weight of hardener for 100 parts by weight of resin = EP value x amine equivalent

In this example: 0.48 x 48 = 23.04
In practice 100 : 23 (parts resin to parts hardener by weight)

The above formula may be used to calculate the mixture ratios of RS-V51 with other resins in our range. However, caution is required as many of the systems are modified epoxies, the glass transition temperature of which will be lowered by the addition of flexilising additives. Technical support for the individual systems in the range can be obtained from our office.

Find out what PRF can do for your business

Make an enquiry today at:
t: +44 (0) 1202 680022
e: enquiries@prfcomposites.com
www.prfcomposites.com

PRF Composite Materials
3 Upton Road
Poole
Dorset BH17 7AA

Important Notice

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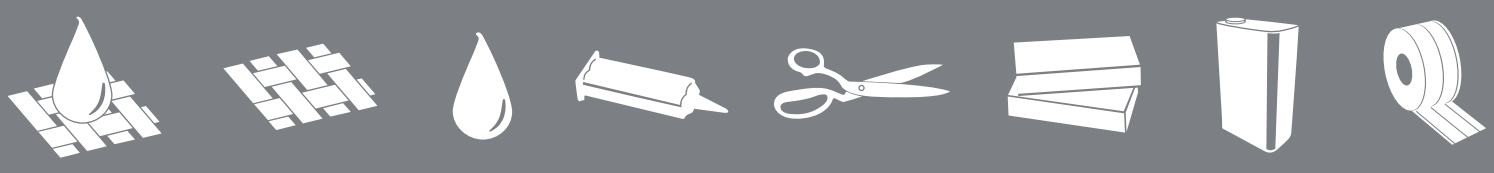
RS-V51 ed. 2.2 Jul 2015

Plastic Reinforcement Fabrics Ltd

CERTIFICATE NO. RS 12803



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