

FLEXILON RS 3173

Three Component Cast Resin System

DESCRIPTION

General

Flexilon RS-3173 is a mercury free polymer alloy system which has superior thermal and hydrolytic stability when compared to conventional liquid processed systems such as polyurethane.

Uses

Flexilon RS-3173 is suitable for use in a wide range of moulding applications, particularly those where toughness and fast cycle times are required.

| | |
|-----------------------------------|--------|
| Maximum Service Temperature - Dry | 140°C |
| Maximum Service Temperature - Wet | 120°C |
| Maximum Water Depth | >3000m |

TYPICAL PROPERTIES

Flexilon R3173 (Resin)

| | |
|-------------------------------|-----------------|
| S.G. (20°C) | 1.02 |
| Appearance | Coloured liquid |
| Viscosity @ 50°C | 6200 mPas |
| Storage Stability (temperate) | 12 months |

Flexilon i3173 (Isocyanate)

| | |
|-------------------------------|---------------------|
| S.G. | 1.22 |
| Appearance | Clear yellow liquid |
| Viscosity @ 25°C | 500 mPas |
| Storage Stability (temperate) | 12 months |

Mix Ratio 100 : 176: 3.0 (Flexilon R3173 : Flexilon i3173 : C3547)

Mechanical Properties

Typical properties based on material moulded at 80°C under laboratory conditions.

| Property | Value | Test Method |
|---------------------------------------|-------|----------------------|
| Shore D Hardness | 73 D | BS ISO 7619-1:2004 |
| Tensile Strength (N/mm ²) | 30 | BS ISO 37:2005 |
| Elongation at Break (%) | 30 | BS ISO 37:2005 |
| Thermal Conductivity (W/mK) | 0.185 | ISO 8301 (Fox 50) |
| Cured Density (kg/m ³) | 1156 | Rosehill Test Method |

Gel Time

As a guideline a gel time of approximately 5-9 minutes is measured under laboratory conditions using the recommended processing temperatures. Typical de-mould time when processed at recommended conditions is 10 minutes.

FLEXILON RS 3173

PROCESSING

Material Preparation

Due to the viscosity of the resin, heating may be required to facilitate removal from the packaging and tank filling. It is recommended that a fan assisted oven is used to heat containers of Flexilon R3173. Exposure to temperature of 70°C should be kept to a minimum and the materials should not be heated to this temperature for any significant length of time. After opening, it is recommended that the vapour space in the drum be flushed with an inert gas such as nitrogen, prior to reclosure.

Processing Requirements

Ideally the material should be processed using a suitable three component polyurethane processing machine with temperature control and vacuum storage tanks. The catalyst (C3547) should be dosed as a third stream into the resin prior to mixing with the isocyanate. Please refer to Rosehill Technical Support for guidance.

The system can be moulded using a variety of mould materials including polymer and metal. If the mould material of choice will cause a heat sink e.g. metal, it is advised that the mould be pre-heated prior to use.

Once de-moulded, products benefit from post-curing for a number of hours at elevated temperatures, this speeds up cure, and ensures the full attainment of final mechanical properties and hardness.

Material Temperature

Processing temperature should be maintained between 50-55°C for the resin component (Flexilon R3173) and the isocyanate component (Flexilon i3173) should be between 25-30°C.

Mould Temperature

The mould temperature for metal moulds should be maintained between 70 - 80°C.

Machine Conditions

All machine components including, tanks, lines and heat exchangers should be maintained at the recommended processing temperature.

Reactivity

The reactivity of the system is influenced by a number of factors including:

- Material Processing Temperature
- Mould Temperature
- Mould Material & Geometry
- Catalysis

FLEXILON RS 3173

STORAGE

Store in a cool, dry place, indoors and avoid unnecessary opening of containers. Ideal storage temperatures of +5 to +30°C should be maintained. The shelf life of the polyol system will be reduced if it is stored at elevated temperatures. Do not add any other materials to this product without written permission from the manufacturer. Keep all components out of rain, frost, snow and direct sunlight.

Once opened all components are sensitive to water. Partly used containers should be resealed immediately and re-used as quickly as possible.

Each component should be stored in its own tightly sealed container to prevent the ingress of moisture. Wet raw materials will seriously affect the properties of the finished polymer system.

USED CONTAINERS

Treatment/Decontamination

ISO Container

Rinse thoroughly with a strong aqueous detergent solution and leave open. The reaction of isocyanates with water leads to the formation of carbon dioxide, which can result in pressure build-up in closed containers. This treatment converts any liquid residue into an inert solid.

It is advisable to superimpose a 'Decontaminated' label after treatment.

HEALTH & SAFETY

The recommendations made in the material safety data sheet (MSDS) for these products should be followed at all times.

Rosehill Polymers Limited has taken care to ensure that the information contained herein is correct in every aspect and is given in good faith. The Company cannot, however, be held responsible for any errors or omissions and will not accept responsibility for any use which may be made of the information. Properties shown are typical and do not imply a specification. Whilst this information is based on practical experience and laboratory testing, successful use depends on the conditions applicable at the time. Users must ensure, by thorough testing, that the products perform adequately in each specific situation.

Rosehill Polymers Limited

Rose Hill Mills · Beech Road · Sowerby Bridge
West Yorkshire · United Kingdom · HX6 2JT

Telephone: 01422 839610

Fax: 01422 835786

Email: sales@rosehillpolymers.com

Online: www.rosehillpolymers.com