

# FLEXILON RS 3604

## Three Component Cast Resin System

### DESCRIPTION

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#### General

Flexilon RS-3604 is a polymer alloy system which has superior thermal and hydrolytic stability when compared to conventional liquid processed systems such as polyurethane.

#### Uses

Flexilon RS-3604 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

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#### Flexilon R3604 (Resin)

S.G. (20°C)	0.95
Appearance	Coloured liquid
Viscosity @ 50°C	6200 mPas
Storage Stability (temperate)	12 months

#### Flexilon i3604 (Isocyanate)

S.G.	1.2
Appearance	Clear yellow liquid
Viscosity @ 25°C	100 mPas
Storage Stability (temperate)	12 months

**Mix Ratio 100 : 70: 3** (by weight) (**Flexilon R3604 : Flexilon i3604 : Flexilon C3604**)

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#### Mechanical Properties

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

Property	Value	Test Method
Shore D Hardness	53 D	BS ISO 7619-1:2004
Tensile Strength (N/mm <sup>2</sup> )	21	BS ISO 37:2005
Elongation at Break (%)	79	BS ISO 37:2005
Thermal Conductivity (W/mK)	0.195	ISO 8301 (Fox 50)
Cured Density (kg/m <sup>3</sup> )	1110	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 15 minutes.

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## PROCESSING

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### 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 R3604. 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 (Flexilon C3604) 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 R3604) and the isocyanate component (Flexilon i3604) 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

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## STORAGE

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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

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### 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

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

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