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TECHNICAL DATA

Greenlink HDR400

HIGH DENSITY RIGID POLYURETHANE FOAM

Greenlink HDR400 is a two component polyurethane product that comprises of polyol and isocyanate. When mixed in their correct proportions they produce a fine-celled foam with a free rise density of 400 kg/m³.

The product can be hand-mixed or processed through a polyurethane foam dispensing equipment, we recommend and sell the GUSMER and CANNON range. Typical applications include structural self-skinning components such as computer cabinets, shoe heels, imitation wood etc.

PRODUCT SPECIFICATIONS

	Polyol	Isocyanate
Appearance	Clear, honey liquid	Clear, brown liquid
Viscosity @ 25°C (cps)	800	250
Specific Gravity	1.02	1.2

REACTION PROFILE

Laboratory results based on hand-mix @ 20°C

Mix ratio by weight (Polyol: Iso) 100:100

Mix Time (seconds)	20
Cream Time (seconds)	85
Gel Time (seconds)	160
Tack Free Time (seconds)	200
Density (kg/m³)	400

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MIXING PROCEDURES

There are a number of ways to successfully produce foam. It is greatly dependant on the type of mould and desired finish. Two methods will be explained below which highlights the difference in finish and mould cost.

RIGID MOULD METHOD

This technique utilises simple and low cost mould production. It is limited to relatively simple shapes.

MOULD MATERIAL

Can be produced from most workable products including wood, aluminium, steel and plaster. Porous materials such as wood and plaster must be sealed with adequate coats of appropriate sealant.

MOULD PRODUCTION

- Typically a cavity is formed from the original mould or machined into the mould.
- Moulds are usually two part (base and lid joined with hinges). This type of suit case mould will allow the mixed material to be poured around in the cavity quickly and easily. It also allows the lid to be secured quickly and safely.
- The product is rigid foam and is only easily removed from a rigid mould if the cavity has a slight taper.
- Breather holes (1-2 mm) should be placed strategically around the mould to allow air to escape during the foaming process.

METHOD

1. Coat the mould with Erlease brand release agent.
2. Weigh out Polyol into a clean dry container.
3. Into the same container, add the correct amount of Isocyanate.
4. Drill stir (2,000 - 3,000 rpm) for approximately 20 seconds.
5. Pour mixed material around into the mould cavity.
6. Close lid and clamp shut.
7. Open mould after 10-15 minutes and de-mould carefully.
8. Wipe release agent off foam thoroughly with compatible solvent before painting.

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FLEXIBLE MOULD METHOD

This technique enables complex shapes to be reproduced easily. The mould construction is more involved but large production runs are possible.

An original should be made first. Again many materials are available including wood, aluminium, steel and plaster. Porous materials such as wood and plaster must be sealed with adequate coats of appropriate sealant.

Make a frame around the original and cast a good quality silicone (Era Polymers recommend the Dow Corning Mould Making Silicone range).

Enclose the silicone mould in a suit case type frame.

A release agent is not required with silicones; however, the polyurethane foam will react with the silicone over a long period of time resulting in hardening of the silicone. To eliminate this reaction, an in-mould coating is used which has a dual function. It protects the silicone from reacting with polyurethane foam and the finished foam is coated with a primer (ready for painting).

Method

1. Spray in-mould coating into mould cavity.
2. Weigh out Polyol into a clean dry container.
3. Into the same container, add the correct amount of Isocyanate.
4. Drill stir (1,000 - 2,000 rpm) for approximately 20 seconds.
5. Pour mixed material around the mould cavity.
6. Close lid and clamp shut.
7. Open mould after 10-15 minutes and de-mould carefully.

STORAGE CONDITIONS AND HANDLING

The components are sensitive to humidity and should at all times be stored in sealed drums. The recommended storage temperatures are 18-25°C, which will give a normal shelf life of 3 months. At elevated temperatures problems may arise with pressure build-up within the drums. When opening these drums extreme care must be exercised in releasing the internal pressure. It is recommended that the drum contents should be mixed well before use.

HEALTH AND PERSONAL PROTECTION

Before handling these chemicals please consult the Material Safety Data Sheets for the two components. The polyol component contains tertiary amines. Contact with the skin or eyes must be avoided. Safety goggles and protective gloves should be worn whenever handling both of the chemicals. Splashes that come into contact with the skin must be wiped off immediately and the contaminated area washed with soap and water. Splashes in the eye must be flushed immediately with plenty of clean running water. If irritation occurs thereafter contact an eye specialist.

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