

## TECHNICAL DATA HR50

HR50 is a high performance, high resilience polyurethane foam. This product is free of CFC compounds.

### COMPONENT PROPERTIES

	Polyol	Isocyanate
Appearance	White opaque liquid	Brown liquid
Brookfield Viscosity (cps)	1000	145
Specific Gravity	1.06	1.22

### REACTION PROFILE

Laboratory results based on hand-mix @ 20°C

Mix ratio by weight (Polyol: Iso) 100 : 45

Mix time (seconds)	8
Cream time (seconds)	11
Gel time (seconds)	72
Tack free time (seconds)	317
Free rise densities (kg/m <sup>3</sup> )	50

### MIXING PROCEDURES

To produce high quality foam it is essential that the following procedures be carefully followed.

1. The polyol should be accurately weighed. Suitable containers include metal or plastic. Ensure that the containers are clean and dry.
2. The Isocyanate should then also be accurately weighed into the same container. The reaction between the two products essentially begins immediately when the two products meet.
3. The product should be mixed with an electric drill to which a paint mixer has been attached. It is essential that the drill is capable of mixing at least at 2000 rpm. A slower speed will produce poor quality foam.
4. The product should be mixed for typically 8 seconds. The mixing time will depend on a variety of factors including:

**Cream time of the material:** The product should be mixed and poured into the mould before the cream time has been reached.

**The temperature of the iso / poly:** If ambient and chemical temperatures are too high then the cream time is much faster.

**Batch size:** Generally a larger batch size will react faster than a smaller batch.

### MOULD TEMPERATURE

Ideally the mould temperature should be 20°C HIGHER than the chemical temperature. Therefore if the chemical temperatures are 25°C then the mould temperature will be 45°C.

## MOULDS

### a. FABRICATION

Moulds can be fabricated from a variety of substances including metal, plastics, fibreglass and timber. A mould release, such as Eralease must be used before each moulding.

### b. CONDITIONING

When using a new mould, some release agent conditioning of the mould surface may be necessary. To do this, 2-3 coats of release agent should be applied one after the other, with sufficient time between each coat to allow for solvent evaporation.

### c. VENTING

These foams generate pressure inside a mould. It is important therefore to incorporate a few small (about 1 mm) vent holes in the mould. This will allow contained air and gas to escape. It is important however, to only allow a minimal amount of material to escape. If a large amount escapes either through the vent holes or through the part line of the mould, then this effect will produce large holes near the escape point.

### d. POSITIONING OF MOULD

If a void free space is required it may be necessary to angle the mould in such a way that the air vents are at the highest point.

## POST CURE

Erathane HR50 foam will cure at ambient temperatures, providing of course that these temperatures are over 20°C.

**NOTE:** The foams when de-moulded will still be "green". It should therefore be handled carefully so as not to introduce a permanent set.

Additionally, moulded HR foams may have a certain percentage of closed cells. These closed cells will shrink as the foam cools. The cells can be "opened" by gently crushing the foam after demoulding.

## HANDLING OF RAW MATERIALS

### HR50 Isocyanate

As previously mentioned, this is a polyether/MDI. It is a liquid at room temperature, hence:

1. Store in a dry environment, i.e. exclude moisture by blanketing with nitrogen.
2. Stores between 20 - 35°C. If the temperature falls below 20°C, the product may dimerise.
3. As with all isocyanates, good industrial practice should be employed, e.g. avoid contact with eyes, skin and clothing. Avoid breathing in vapours.

### HR50 Polyol

Presents no particular health hazards. Until more work is carried out to determine whether the system "phases" or "splits" - it is suggested that the entire contents be stirred thoroughly before decanting.

**NOTE:** The polyol may solidify if the temperature drops below 15°C. Heating to 50°C will re-melt the polyol.

## PROCEDURE

As with all foamed systems the "Iso" should always be added to the "polyol" and NOT visa versa.