PRODUCT DATA SHEET

UrePac® Rigid 80 130

System Description

UrePac® Rigid 80 130 is a two component, polyurethane rigid foam comprising of a polyether polyol and MDI based isocyanate. The system has been developed with a long cream time and low exotherm for use as a medium density, discontinuous block foam.

Product Description and Features.

The system has been developed with excellent insulation and fast reaction properties for use in hot water or refrigeration applications.

- High strength
- Slow Reactivity
- Low viscosity

UrePac Rigid 80 130 (Polyol) Specification:

Specific Gravity (22°C):	1.10 +- 0.02 g/ml
Viscosity (Brookfield) (22°C):	800 +- 200 m.Pas

Spindle 1 Speed 50

Appearance: Clear pale straw liquid

UrePac 2001 (Isocyanate) Specification:

Specific Gravity (22°C):	1.23 +- 0.02 g/ml
Viscosity (Brookfield) (22°C):	210 +- 70 m.Pas

Spindle 1 Speed 50

Appearance: Clear Brown liquid

Mixed System Specification

Mix Ratio:	By Weight	100 Polyol (Part A): 110 Isocyanate (Part B)
	By Volume	100 Polyol (Part A): 100 Isocyanate (Part B)
Cream Time (22°C):		80+-10 seconds

Time from when mixing commences till the liquid starts to expand.

String time (22°C): 280+-20 seconds

Time from when mixing commences till "strings can be pulled from the surface of the rising foam.

Rise time (22°C):	360+-30 seconds

Time from when mixing commences till the foam finishes expanding.

Typical Demould 22°C)	Overnight
Free Rise Density (22°C):	130+-10 Kg/m^3

(Obtained from Laboratory 50g cup test, results will vary depending on mix quantities)

Packaging Options:

Packaging	Component A (Polyol)	Component B (Isocyanate)
23L White Open top pail	**20kg**	**22kg**
60L Open Top Drum	**60kg**	**66kg**
205L Closed Head Drum	**210kg**	**250kg**
1000L IBC	**1050kg**	**1250kg**

Typical Cured Foam Properties

After 7 days cure @ 22°C unless otherwise specified.

Core Density:	ASTM D1622	120+-2 Kg/m^3
Dimensional Stability (70°C)	+-5% (@ 24 hours)	Pass
Closed Cell Content:	ASTM D6226	90-95%
K Value:	ASTM C518	0.0350 W/mK

K value will decline over time, so if this value is critical please ask for longer term tests to be conducted.

R Value at 50mm		1.43

(Calculated by dividing the insulation thickness in meters by the K value)

Compressive Strength:	ASTM D1621	1,100+-100 KPa
Water Absorption	ASTM D8242	< 5%
Horizontal Burn	ISO 3582	
Burn Time:		5 sec
Burn Length:		24 mm
Burn Rate:		0.37 mm/sec

Storage

Component A should be stored in closed containers under dry conditions out of direct sunlight between 18 and 25°C.

Component B should be stored separately from *Component A*, but under the same conditions.

Both products will have a minimum shelf life of six months when stored under these conditions.

Cured Product: Like all polyurethanes based on aromatic isocyanates this foam is **not** UV stable and will have surface discolouration and degradation if exposed to UV radiation and sunlight. Please speak to our technical consultants regarding your options if this product is required for use in external applications.

Processing Conditions:

Component Preparation

Component A (polyol) should be thoroughly mixed each day prior to use as the components can separate out overnight. If this component is held in day tanks they should be continuously agitated to prevent any separation during production.

Component B (isocyanate) does not need to be mixed prior to use.

Both Components should be preconditioned to 22-25°C to ensure that the components will have consistent reactivity and performance. If processing in a machine this usually requires recirculation for at least an hour prior to production commencing.

Mould Preparation

The mould should have a clean dry surface and preferably should be uniformly heated to approximately 35-45°C for optimal skin reproduction. We recommend a wax based release agent. Discontinuous block foam is usually poured in an open mould with a floating lid placed on the rising foam during the last 30-40% of the rise profile to produce a flat block.

Shot Weight Calculation

The amount of foam required to fill a mould cavity is dependent on the free rise density of the system, and also the volume of the cavity to be filled. Our Technical consultants will be happy to make this calculation for you, but here is a typical example of how it is calculated for your reference:

Free Rise Density: 34kg/m^3

Mould Volume: 0.09 m^3

Overpack: 10% (This is important to ensure that the cavity is filled)

Therefore Target Moulded Density: 38kg/m^3

Shot Weight (in Kg) = 0.09 (Volume) x 38 (Moulded Density of Foam)

Shot Weight = 3.42Kg

Then to determine the amount of each component to add:

Mix Ratio = 100 Polyol :110 Isocyanate

Polyol Weight = Shot Weight (3.42) / Isocyanate + Polyol Ratio (100+110) x Polyol Ratio (100)

Polyol Weight = 3.42 / 210 x 100

Polyol Weight = 1.63kg

Isocyanate Weight = Shot Weight (3.42) – (Polyol Weight) 1.63

Isocyanate Weight = 1.79kg

Caution: Please ensure that the volume of the mould and shot weight is accurately determined. If too much material is added to the mould then very high levels of pressure can be generated from the reacting foam.

Dispensing

Mix Ratio – It is absolutely essential that the mix ratio of the two components is accurately measured and maintained to within 1% of the specified value. This ensures that the chemical reaction will proceed to completion and that the optimum physical properties are achieved. We highly recommend that calibration of mix ratio is conducted daily before production commences to ensure that the correct ratio is being maintained.

Please note: The reactivity of the system will not be altered if the level of one component is increased/decreased as it is not simply a catalyst. If you want to adjust the reactivity or mix ratio please discuss your specific requirements with our technical consultants.

High Pressure Machines – Not recommended for block foams.

Low Pressure Machines – Low pressure machines dispense the two components at a controlled ratio through a mechanically driven mix head. It is essential with foams that a small amount of nucleating air is added to the liquid components as they are dispensed to attain a fine even cell structure. The machine will then clean the residual reacting components out of the mix head with a solvent flush. We can supply UrePac+ 7112 which is a non flammable and non toxic solvent suitable for flushing of low pressure mix heads.

Hand Mix – Not recommended for block foams.

Demould

The demould times of foam can vary considerably depending on a number of factors and is the optimal time is usually determined by systematic trial and error. The thickness of the part, mould temperatures, mixing method, level of overpack and the reactivity of the system will all affect the time required to achieve sufficient cure. If the foam is not sufficiently cured then the parts will expand after demould and may also have internal splitting as the core of the part is not sufficiently cured to handle the release of pressure.

Clean Up

It is essential that any liquid spills are cleaned up immediately, as the isocyanate (which reacts with atmospheric moisture) and reacting urethane is very difficult to remove once it has fully cured. For liquid spills we recommend using UrePac+7102 which is a non flammable, quick drying solvent. For cleaning of cured urethane from small utensils we recommend using UrePac+ 7108 heated to 70°C in a deep fryer for 1-2 hours.

Safety Requirements:

PPSE

We recommend the use of eye protection and latex or nitrile gloves when processing any polyurethane systems. We would also recommend the use of disposable overalls as splashing of the isocyanate can cause temporary staining of the skin, and some individuals can become sensitized to isocyanates with skin contact. In normal use the isocyanates will generally remain below the allowable exposure limits, however if they are heated or dispensed as an aerosol into the atmosphere then a respirator with organic vapour filter is essential.

Transport (Dangerous Goods) Classification

Component A: None

Component B: None

Isocyanates

Classified as Hazardous according to Worksafe Australia

HARMFUL VAPOUR

SKIN AND EYE IRRITANT

SKIN AND RESPIRATORY SENSITISER

FIRST AID

If inhaled: remove from exposure. For all but the most minor symptoms arrange for a doctor or transport to the nearest hospital.

In case of eye contact: immediately flush eyes with plenty of water for at least 15 minutes. Contact medical attention.

In case of skin contact: immediately wash skin with soap and plenty of water. Get medical attention immediately if symptoms occur. Remove contaminated clothing Wash clothes before re-use.

Other information: Never give fluids or induce vomiting

Advice to Doctor: May cause respiratory sensitisation or asthma-like symptoms. Bronchodilators, expectorants and anti tussives may be of help. Respiratory Symptoms, including pulmonary oedema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. No specific antidote. Treatment based on judgement of the physician in response to reactions of the patient.

WATER CONTAMINATION CAUSES DANGEROUS PRESSURE

Store in a DRY place. The combined evolution of CO_2 and heat can produce sufficient pressure to rupture a closed container.

IN CASE OF FIRE: use CO_2, dry chemical or foam extinguishers. If water is used it should be in very LARGE quantity. The reaction between water and hot isocyanate may be vigorous. Wear a positive pressure self-contained breathing apparatus.

IN CASE OF SPILL OR LEAK: evacuate and ventilate spill area. Do not use water. Dyke to prevent entry into waterways. If temporary control of isocyanate vapour is required, a blanket of foam may be placed over the spill. Use appropriate safety equipment including respiratory protection during clean up. Soak up with sawdust or other absorbent. Shovel into suitable open-top containers. Do not make pressure tight.

Remove from the area for decontamination. Use a solution of 3-8% ammonia in water or 5-10% sodium carbonate at about a 10 to 1 ratio to isocyanate. Detergent may be added to facilitate wetting of ammonia solution. Let stand 1-2 days before disposal in approved manner.

EMERGENCY RESPONSE (All Hours)

1800 033 882 (Australia Only)

Disposal

Liquid Systems: Liquid polyurethanes should be disposed of with an EPA approved industrial waste company which meet all applicable federal, state and local laws and regulations.

Cured Urethanes: Fully reacted and cured polyurethanes are inert and can be disposed of as normal landfill.

Container: Dispose of decontaminated drums in accordance with all applicable federal, state and local laws and regulations.

Do Not Re-use Empty Container.

Do Not Cut or Weld Empty Container.

Disclaimer

This information is given in good faith but without warranty and is supplied to users based on our general experience and, where applicable, on the results of tests on samples of typical manufacture.

However, because of the many factors which are outside our knowledge and control that can affect the use of these products, it is imperative that the end user is satisfied that the material will meet their individual processing and performance requirements. Pacific Urethanes Pty Ltd cannot accept liability for any injury, loss or damage resulting from reliance upon this information.

All sales of this product shall be subject to Pacific Urethanes' Terms and Conditions of Sale. For a copy of these terms please contact us at info@pacificurethanes.com .

For additional information, consult the Material Safety Data Sheet for this product.