PRODUCT DATA SHEET

UrePac® Rigid 3 30 Chlorine Free

System Description

UrePac® Rigid 3 30 is a two component, polyurethane rigid foam comprising of a polyether polyol and MDI based isocyanate. The system has been developed with HFC blowing agent for optimal insulation performance.

Product Description and Features.

The system has been developed with excellent insulation and fast reaction properties for use as a closed cell spray foam insulation for general purpose requirements.

- Exceptional Insulation
- Fast Reactivity
- Low Smell
- Halogen free for Stainless Steel Applications

Polyol Component (UrePac Rigid 3 30) Specification:

Specific Gravity (22°C):	1.17 +- 0.02 g/ml
Viscosity (Brookfield) (22°C):	300 +- 100 m.Pas
Appearance:	Clear pale yellow liquid

Isocyanate Component (UrePac 2001) Specification:

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

Mixed System Specification

Mix Ratio:	By Weight	100 Polyol (Part A): 105 Isocyanate (Part B)
	By Volume	100 Polyol (Part A): 100 Isocyanate (Part B)
Cream Time (22°C):		3+-1 seconds

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

String time (22°C): 8+-2 seconds

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

Rise time (22°C): 12+-3 seconds

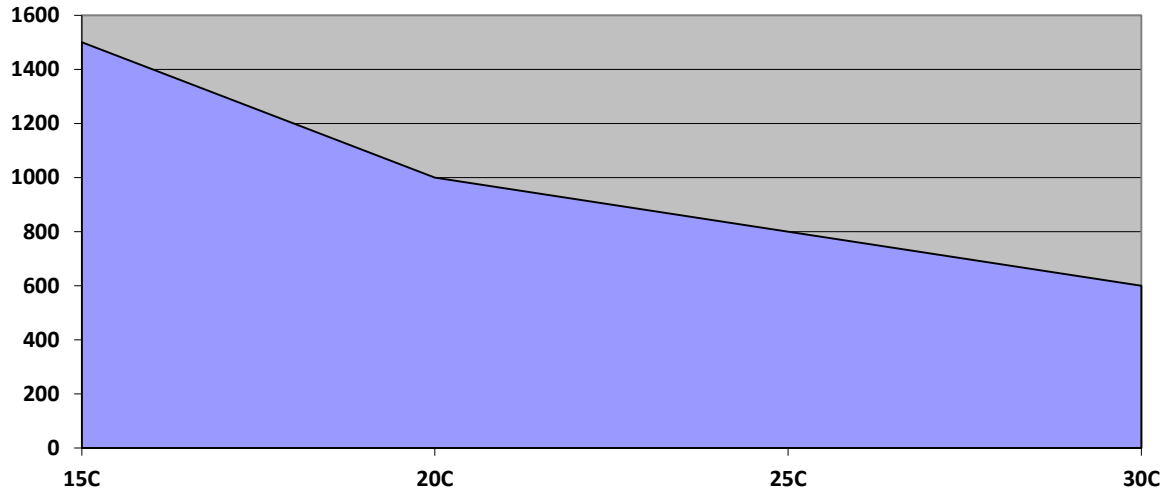
Time from when mixing commences till the foam finishes expanding.

Free Rise Density (22°C): 30+-2 Kg/m^3

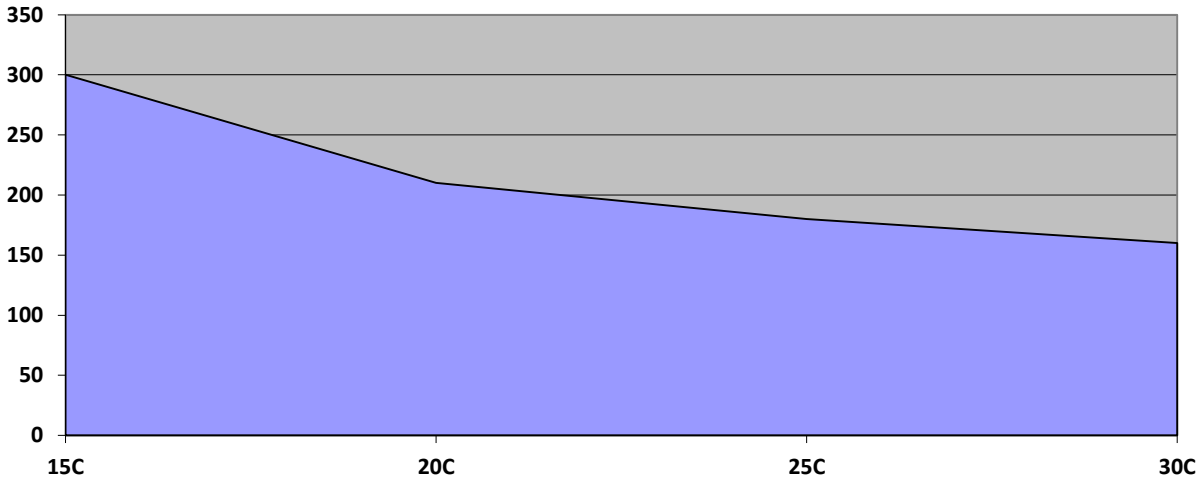
(Obtained from Laboratory 50g cup test, results will vary depending on mix quantities)

Viscosity vs. Temperature

Polyol



Isocyanate



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	28+-1 Kg/m^3
Dimensional Stability (70°C)	+-5% (@ 24 hours)	Pass
Closed Cell Content:	ASTM D6226	90-95%
K Value:	ASTM C518	0.0200 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		2.5

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

Compressive Strength:	ASTM D1621	170+-10 KPa
Tensile Strength:	ASTM D1623	20+-5 MPa
Water Absorption	ASTM D8242	5%
Horizontal Burn	ISO 3582	
Burn Time:		0 sec
Burn Length:		24 mm
Burn Rate:		0.4 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.

Typical Chemical Resistance Chart

3 Suitable for long term use

2 Suitable for Short to Medium term exposure

1 Very short term exposure (i.e. will withstand spills that are cleaned off within an hour)

0 Not suitable to any exposure

Chemical	Result @ 22°C	Chemical	Result @ 22°C
Acetic Acid	**1**	**Acetone**	**1**
Ammonium Hydroxide (50%)	**1**	**Benzene**	**1**
Brine Saturated H_2O	**3**	**Chlorinated Water**	**3**
Diesel Fuel	**3**	**Petroleum**	**3**
Petroleum/10% Ethanol	**3**	**Hydrochloric Acid (37%)**	**2**
Hydrofluoric Acid (10%)	**2**	**Hydraulic Oil**	**3**
Isopropyl alcohol	**3**	**Lactic Acid**	**2**
MEK	**1**	**Methanol**	**3**
Methylene Chloride	**1**	**Mineral Spirits**	**2**
Motor Oil	**3**	**Nitric Acid (50%)**	**0**
Phosphoric Acid (10%)	**3**	**Phosphoric Acid (50%)**	**2**
Potassium Hydroxide (10%)	**3**	**Potassium Hydroxide (20%)**	**3 (Discolouration)**
Propylene Carbonate	**2**	**Sodium Hydroxide (25%)**	**1**
Sodium Hydroxide (50%)	**0**	**Sodium Hypochlorite (10%)**	**3**
Sodium Bicarbonate	**3**	**Stearic Acid**	**1**
Sugar/H_2O	**3**	**Sulphuric Acid (10%)**	**1**
Sulphuric Acid (50%)	**0**	**Toluene**	**3**
1,1,1 Trichloroethane	**1**	**Trisodium Phosphate**	**3**
H_2O	**3**	**Vinegar/H_2O (5%)**	**3**
Xylene	**2**	**H_2O (14 Days @70°C)**	**3**

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.

Surface Preparation

The substrate to be sprayed should have a clean dry surface and should be no less that 10°C to ensure sufficient adhesion to the substrate and full cure of the foam. Spraying of the foam will also produce a large amount of overspray so care needs to be taken to ensure that the surrounding site is well protected from airborne particulate which will still be reacting.

Required Weight Calculation

The amount of foam required to spray an area is dependent on the free rise density of the system, and also the required thickness of insulation. 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: 32kg/m^3

Surface Area to spray: 100 m^2

Thickness of insulation required: 50 mm (0.05m)

Overspray factor: approx. 20% (This is important to ensure that the cavity is filled)

Weight (kg) = Volume (m) x Density (kg/m^3)

Volume (m^3) = 100 (surface area) x 0.05 (Thickness) = 5m^3

Weight (Kg) = 5 (Volume m^3) x 32 (Density of Foam kg/m^3)

Required Weight of material = 160 kg

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 a bag shot of foam is shot before each job is started to check for stable foam. The dispense pressures also must be balanced prior to starting work and monitored/maintained throughout the job.

Temperature

The temperature of both components should be set at the primary heaters to 40-50°C and the line heaters should be set at 40°C to ensure sufficient mix and spray pattern is obtained. If the polyol component is boiling excessively then turn the temperatures down.

Pressures

The pressures should be set to at least 1500psi to ensure a sufficient mix and spray pattern is obtained at the gun.

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

As the isocyanates are a respiratory sensitiser and are dispensed as an aerosol during the spray operation it is imperative that the use of a full air fed hood, latex or nitrile gloves and impervious overalls are used when processing any polyurethane spray materials. It is also essential to ensure that other personnel are not exposed to isocyanate vapours/aerosol during the spray operation so maintain an exclusion zone of at least 20m while spraying and be mindful of prevailing winds or draughts that may carry the vapours. Isocyanates can cause temporary staining of the skin, and some individuals can become sensitized to isocyanates with skin contact.

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.