

Endurathane HW30M

PRODUCT DESCRIPTION

Endurathane HW30M is a fully formulated polyol blend designed to react with Endurathane Part A / Suprasec 5005 to make high performance polyurethane foam used for insulating hot water appliances.

Endurathane HW30M is formulated with hydrofluorocarbon (HFC) as the blowing agent which has zero ozone depleting potential and low global warming potential.

TYPICAL LABORATORY REACTION & PROPERTIES DATA

Mixing ratio :

	Volume	Weight
Endurathane HW30M:	100	100
Isocyanate:	100	113

Laboratory reaction profile at 21°C :

Cream Time (sec) :	22-27
Gel Time (sec) :	100-115
Rise Time (sec) :	165-195
Free Rise Core Density (kg/m ³) :	30-31

Typical liquid properties at 21°C :

Appearance :	Clear liquid
Viscosity (Brookfield) :	460-500 mPa s
Specific Gravity :	1.11 – 1.13

Typical properties as seen in laboratory samples.



STORAGE AND HANDLING PRECAUTIONS

This product contains HFC which has an initial boiling point of 15°C. Storage at elevated temperature will result in pressure build up within the drums, and for this reason product should be stored away from direct sunlight.

When opening a container, care must be taken to release any internal pressure slowly. Mix well before use.

To prevent loss of HFC by evaporation, and to prevent ingress of moisture, drums must be kept tightly sealed when not in use.

Storage Stability

Recommended storage temp: 10 - 25°C
Under these conditions this product has a storage stability of at least 6 months.



PACKAGING

Nett 1100 kg per IBC (by request).
Nett 225 kg per 200 litre drum.



HEALTH AND SAFETY ADVICE

Refer to Polymer Group Safety Data Sheets for individual products. Also refer to the *Approved Code of Practice for the Safe Use of Isocyanates*.

Typical Lab Test Results:	Method	Lab test
Compressive strength – parallel (34kg/m ³)	AS2498.3	220 kPa
Compressive strength – perpendicular (34kg/m ³)	AS2498.3	160 kPa
Fire test	D1692/ ISO3582	Self-extinguishing after 0-30 secs
Dimensional stability 14 days @ -30°C 14 days @ 70°C with 100% humidity 14 days @ 100°C	D2126-66	% change -0.05 1.15 0.25
Thermal conductivity AGED (k-factor) @22.5°C	EKO machine	0.0218 W/mK
Thermal conductivity AGED (k-factor) @62.5°C	EKO machine	0.0282W/mK
Closed cell content	Pycnometer	>95%



APPLICATION DATA

ENDURATHANE HW30M must be machine-applied through 2-component polyurethane application equipment such as **Graco Reactor, Ariel, SAIP, Canon** or similar.

Please consult your representative for advice regarding any equipment application questions you may have.

Equipment: **Graco Reactor with Fusion / Probler**

Pre-heat: Part A [isocyanate] 30-40°C
Part B [polyol] 30-40°C
Hose Temperature: 35-45°C

Optimum temperatures will vary with equipment, substrate temperature and ambient conditions generally. Check and maintain correct output ratio to $\pm 2\%$.

Ensure metering is accurate by regular ratio checks and monitoring of line pressures to gun. Operator must have adequate product knowledge to recognise faulty foam so remedial action can be taken.

Substrates:

Substrates must be clean and dry.

Ambient and surface temperatures should be above 18°C. **Low temperatures will decrease yield markedly.** Maintain at a minimum 20°C for 4 hours to prevent distortion in casings (dwell times dependant on ambient temperature).

Theoretical Coverage:

Always check yield and application rates at start of job and then regularly to ensure product usage is as expected. Adequate allowance must be made for over-packing, especially when cavities are narrow or foam has a long flow path.

1 kg of foam occupies 0.0294 m³ @ 34kg/m³.



STORAGE AND HANDLING PRECAUTIONS

ALL CHEMICALS MUST BE USED BY TRAINED PERSONNEL.

Component B contains HFC which has a boiling point of 15°C. Storage at elevated temperatures will result in build up within the drums, and for this reason the product should be stored away from direct sunlight.

When opening a container, care must be taken to release any internal pressure slowly.

To prevent loss of HFC by evaporation, and to prevent ingress of moisture, drums must be kept tightly sealed when not in use.

Always wear **eye protection** and suitable **protective clothing**.

Flush splashes to the skin or eyes with copious quantities of water.

Clean up:

Owing to the chemical resistance of polyurethane products it is important to clean up any overspray as quickly as possible. Methyl Proxitol is suitable for general cleaning and methylene chloride can be used as a line flush.

Wear suitable protective clothing, goggles and gloves at all times when cleaning.

Greasing components beforehand assists with contamination removal.

Storage Stability

Recommended storage temperature is 10-25°C in tightly closed containers to prevent moisture and other contamination. Under these conditions this product has a storage stability of at least 6 months.

Store out of direct sunlight and sources of heat. If exposed to moisture Component A will crystallise resulting in line blockages.

POLYMER GROUP LTD

PO Box 204 106 Highbrook, Auckland 2161, New Zealand

Telephone: 64-9-274 1400 Fax: 64-9-274 1405

Email: sales@polymer.co.nz www.polymer.co.nz

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PROPERTIES AND SUSTAINABILITY OF POLYURETHANE FOAM

Polyurethane rigid foams have a closed cell structure and high cross-linking density give them the characteristics of good heat stability, high compressive strength and excellent insulation properties.

PU insulation has a very low thermal conductivity, starting from as low as 0.020 W/m.K, making it one of the most effective insulants available today for a wide range of applications.

All types of insulation can also play a role in improving the energy efficiency of buildings and reducing CO₂ emissions.

The environmental impact Polyurethane offers is as follows:

- Excellent thermal efficiency – leading to optimum energy savings and reduced CO₂ emissions.
- Relatively low environmental impact at the building level – the product saves more than 100 times the energy than is used in its manufacture.
- Durability – leading to long term performance and reducing the need for replacement, therefore saving energy.

The economic impact from polyurethane is:

- Increased energy efficiency – leading to immediate savings for the end user.

Ref: PU Europe Sustainability and polyurethane insulation.

Λ INFORMATION ON THERMAL CONDUCTIVITY (K-FACTORY OR Λ) TESTING

To test the insulation properties of foam we test the thermal conductivity or K-factor, which is a measure of a materials ability to transfer heat through conduction and therefore is the principle property of an insulation material.

Typical values of insulating materials are:

Material	Density (kg/m ³)	k-factor (W/mK)
Polyurethane foam closed cell	32	0.022
Polyurethane foam open cell	10-12	0.035
Polystyrene foam	16	0.035
Rockwool	100	0.037
Glasswool	65-160	0.041
Timber – white pine	350-500	0.112

Insulation materials are then normally reported in terms of their R-value, which is a measure of the thermal resistance.

Endurathane HW30M with the above k-factor result would give an estimated R-value of 2.29 m² K/W @50mm thickness.