



**SAFETY DATA SHEET  
QUICSEAL 161  
EXPO-FLEX PU**

**1. INFORMATION OF THE SUBSTANCE/COMPOUND AND THE SUPPLIER**

Product Name: QUICSEAL 161 – Expo-Flex PU  
Product Use: One component liquid polyurethane waterproofing membrane

Details of the supplier:

*QUICSEAL CONSTRUCTION CHEMICALS PTE LTD  
No. 7 Eunos Avenue 8A  
Eunos Industrial Estate  
Singapore 409460*

Emergency Contact No.: (65) 6742 4466

**2. HAZARDS IDENTIFICATION**

**GHS Classification:**

Flammable liquid – Category 3  
Reproductive toxicity – Category 1B  
Specific target organ toxicity, single exposure – Category 1 (respiratory, liver, central nervous system, kidney)  
Specific target organ toxicity, repeated exposure – Category 1 (respiratory, nervous system)  
Aspiration hazard – Category 2

**GHS LABEL ELEMENTS**

**Symbol(s):**



**Signal Word**

Danger

**Hazard statements:**

H226: Flammable liquid and vapour  
H332: Harmful if inhaled  
H360: May damage fertility or the unborn child  
H370: Causes damage to respiratory, liver, central nervous system, kidney  
H372: Causes damage to the respiratory & central nervous system through repeated exposure

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**Precautionary Statements:**Prevention

- P201: Obtain special instructions before use.  
 P202: Do not handle until all safety precautions have been read and understood.  
 P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking  
 P233: Keep container tightly closed.  
 P240: Ground/bond container and receiving equipment.  
 P241: Use explosion-proof electrical/ventilating/lighting equipment.  
 P242: Use only non-sparking tools.  
 P243: Take precautionary measures against static discharge.  
 P260: Do not breathe mist/vapours/spray.  
 P264: Wash hands and forearms thoroughly after handling.  
 P270: Do not eat, drink or smoke when using this product.  
 P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response

- P303+P361+P353: IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 P308+P313: If exposed or concerned: Get medical attention/advice.  
 P370+P378: In case of fire: Use appropriate extinction (see Section 5).

Storage

- P403+P235: Store in a well ventilated place. Keep cool.  
 P405: Store locked up.

Disposal

- P501: Dispose of contents/container in accordance with national & international regulations.

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

This product contains the following components classified as hazardous:

COMPONENTS	CAS No.	EINECS No.	Index No.	Percentage
Xylene (1,4-Dimethylbenzene, p-Xylene, para-Xylene, p-Xylol)	1330-20-7	202-422-2	601-022-00-9	75 – 95%
Tolylene diisocyanate (mixture of isomers)	26471-62-5 (584-84-9/91-08-7)	--	615-006-00-4	0.1 – 0.5%
n-Butyl acetate	123-8-4	--	607-025-00-1	0.5 – 2.5%

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#### 4. FIRST-AID MEASURES

##### General information

Take person to a safe place. Observe self-protection for first aid. Always seek medical advice in the event of contact with this substance.

##### Inhalation

Keep the patient calm. If unconscious place in stable sideways position. Protect against loss of body heat. If breathing stops, administer artificial respiration. Seek medical advice immediately and clearly identify substance.

##### Skin contact

Remove contaminated clothes at once. Wash off with plenty of water or water and soap immediately for 10-15 minutes. In serious cases, use emergency shower immediately. Seek medical advice immediately and clearly identify substance.

##### Eye contact

Rinse immediately with plenty of water for 10-15 minutes. Keep eyelids well open to rinse the whole eye surface and eyelids with water. Seek medical advice immediately and clearly identify substance. Continue to bathe eyes during transport to medical practitioner.

##### Ingestion

If conscious, give several small portions of water to drink. Do not induce vomiting. Seek medical advice immediately and clearly identify substance.

##### Notes to physician

Treat patient symptomatically (decontamination, vital functions).

#### 5. FIRE-FIGHTING MEASURES

##### General Fire Hazards

This product is classified as a FLAMMABLE LIQUID. See Section 9 for Flammability Properties.

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

##### Suitable Fire-extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO<sub>2</sub>, water spray, fire fighting foam, and other gaseous agents.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

##### Fire-fighting Equipment / Instructions

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment. Fire-fighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned

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hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

#### **Hazardous Combustion Products**

In case of fire, formation of carbon monoxide, nitrogen oxide, amines, isocyanate vapour, and traces of hydrogen cyanide is possible.

#### **Further information**

Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

## **6. ACCIDENTAL RELEASE MEASURES**

#### **Emergency Measures**

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

#### **Personal Precautions and Protective equipment**

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

#### **Environmental Precautions**

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

#### **Methods and materials for containment and cleaning up**

Carefully contain and stop the source of the spill, if safe to do so.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Caution, flammable vapors may accumulate in closed containers.

## **7. HANDLING AND STORAGE**

#### **Precautions for Safe Handling**

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame! No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

#### **Conditions for safe storage, including any incompatibilities**

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labelled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition. Store in a well-ventilated area. Avoid storage near incompatible materials. Keep away from strong oxidizers.

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## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

### Control Parameters / Occupational Exposure Limits

Singapore Permissible Exposure Level (PEL)

COMPONENTS	CAS No.	Long-term PEL		Short-term PEL	
Xylene (1,4-Dimethylbenzene, p-Xylene, para-Xylene, p-Xylol)	1330-20-7	100 ppm	434 mg/m <sup>3</sup>	150 ppm	651 mg/m <sup>3</sup>
2,4/2,6-di-isocyanatotoluene	26471-62-5 (584-84-9/91-08-7)	0.005 ppm	0.035 mg/m <sup>3</sup>	--	--
n-Butyl acetate	123-8-4	150 ppm	713 mg/m <sup>3</sup>	200 ppm	950 mg/m <sup>3</sup>

### Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

### Personal Protective Equipment:

#### Hand Protection

Gloves constructed of fluorinated or butyl rubber are recommended.

#### Eye Protection

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

#### Skin Protection

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure.

#### Respiratory Protection

Respiratory protection is required in insufficiently ventilated working areas and during spraying. An air-fed mask, or for short periods of work a charcoal or A2-P2 filter is recommended

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Viscous Liquid
Color:	White, terracotta-red, green, grey, black, etc
Odour:	Smell of solvent
Flash Point:	>25°C
Initial boiling point and boiling range:	144°C (o-), 139°C (m-), 138°C (p-)
Freezing / Melting point:	-25°C (o-), -48°C (m-), 13°C (p-)
Autoignition temperature:	463°C (o-), 527°C (m-), 527°C (p-)
Flammability Limits:	0.9-6.7 vol% (o-), 1.1-7.0 vol% (m-), 1.1-7.0 vol% (p-)
Vapor pressure (20°C):	0.7 kPa (o-), 0.8 kPa (m-), 0.9 kPa (p-)
Vapor density:	3.66 (o-, m-, p-) (calculated value)
Water Solubility (25°C):	178mg/L (o-), 162mg/L (m-), 198mg/L (p-),
Partition coefficient:	n-octanol/water: log P <sub>ow</sub> = 3.12 (o-), 3.2 (m-), 3.15 (p-)
Specific Gravity:	Approx. 1.35 – 1.45 (depending on colour)

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## 10. STABILITY AND REACTIVITY

### Chemical stability

The product is flammable. The liquid and vapour is readily combustible.

### Possibility of hazardous reactions

Exothermic reaction with amines and alcohols; reacts with water forming CO<sub>2</sub>, in closed containers risk of bursting owing to increase of pressure..

### Conditions to avoid

Avoid high temperatures and pressures, open flames, sparks, welding, smoking and other ignition sources.

### Incompatible materials

Keep away from amines, alcohols, and other strong oxidizers.

### Hazardous decomposition products

Carbon monoxide, nitrogen oxide, amines, isocyanate vapour, and traces of hydrogen cyanide may be liberated when product is involved in fire.

## 11. TOXICOLOGICAL INFORMATION

This product has not been tested and all the toxicological statements have been derived from the respective components' available toxicity information.

### Acute toxicity

Experimental/calculated data:

LD50 (rat), oral: > 5,000 mg/kg (the product is not harmful if swallowed.)

LD50 (rabbit), dermal: 4,350 mg/kg (the product is not harmful in contact with skin)

LC50 (4 hr exposure): ~ 11 mg/L (the product is harmful if inhaled)

### Skin and Eye Irritation

The product contains the following components with their respective skin and eye corrosion/irritation classification:

COMPONENTS	CAS No.	Animal skin test result	Animal eye test result
Xylene	1330-20-7	Moderate Irritant (Skin Irritant Category 2)	Moderate Irritant (Eye Irritant Category 2)
Tolylene diisocyanate	26471-62-5	Corrosive (Skin Corrosive Category 1)	Moderate Irritant (Eye Irritant Category 2)

The product causes skin irritation and serious eye irritation.

### Respiratory / Skin sensitization

The product is not expected to cause respiratory or skin sensitization.

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**Germ cell mutagenicity**

Based on the negative data on human multi-generation epidemiological studies and somatic cell mutagenicity tests in vivo (micronucleus/chromosome tests) and the absence of data on heritable mutagenicity tests, germ cell mutagenicity tests in vivo and germ cell genotoxicity tests in vivo, described in CERI-NITE Hazard Assessment No.62 (2004), CaPSAR (1993), IARC (1999) and NTP DB (Access on December 2005).

**Carcinogenicity / Developmental toxicity**

The product has no known carcinogenic effect and is not expected to cause developmental toxicity.

**Reproductive toxicity**

Based on the evidence of weight reduction and hydrocephalus in foetuses at dosing levels not toxic to parent animals in mouse developmental toxicity tests, described in CERI-NITE Hazard Assessment (No. 62, 2004), EHC 190 (1997) and IRIS (2003), this product may damage fertility or the unborn child (Reproductive toxicity Category 1B)

**Specific target organ toxicity - single exposure**

Based on the human evidence including "throat irritation, severe pulmonary congestion, alveolar hemorrhage, pulmonary edema, congestion accompanying hepatomegaly, centrilobular vacuolation of hepatocytes, nerve cell damage associated with dot hemorrhage, swelling and disappearance of Nissl bodies, limb cyanosis, a transient increase in serum transaminase activity, an increase in the blood level of urea, a decrease in endogenous creatinine clearance in the urine, liver damage, severe kidney damage, amnesia, coma" (CERI-NITE Hazard Assessment No.62, 2004) and "pulmonary congestion, pulmonary edema, focal alveolar hemorrhage" (MOE Risk Assessment Vol.1, 2002) and the evidence from animal studies including "strong narcotic effect (EHC 190, 1997). The basis for the classification includes data on xylene with unknown composition or containing other substances (ethyl benzene, toluene, etc.).

The product causes damage to respiratory, liver, central nervous system, kidney and may cause drowsiness or dizziness (Specific target organ toxicity - Single exposure Category 1(respiratory, liver, central nervous system, kidney), 3 (drowsiness and dizziness))

**Specific target organ toxicity - repeated exposure**

Based on the human evidence including "eye/nose irritation, thirst" (DFGOT Vol. 15, 2001) and "chronic headache, chest pain, abnormal electroencephalogram, dyspnea, cyanosis of the hands, fever, a decrease in WBC count, discomfort, impairment of pulmonary function, a decrease in working capacity, physical/mental disorders" (CERI-NITE Hazard Assessment No.62, 2004). The basis for the classification includes data on xylene with unknown composition or containing other substances (ethyl benzene, toluene, etc.).

The product causes damage to respiratory, nervous system through prolonged or repeated exposure (Specific target organ toxicity - Repeated exposure Category 1 (respiratory, nervous system).

**Aspiration hazard**

Based on the description in ICSC(J) (2002) regarding o-xylene, m-xylene and p-xylene: "May cause aspiration and chemical pneumonia if swallowed".

This product may be harmful if swallowed and enters airways (Aspiration hazard Category 2)

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**12. ECOLOGICAL INFORMATION**

The following ecological assessment is based on the available ecotoxicity information of the product's components.

**Toxicity to aquatic life**

<b>COMPONENTS</b>	<b>TOXICITY TO AQUATIC ORGANISMS</b>		
	<b>Fish</b>	<b>Aquatic invertebrates</b>	<b>Algae</b>
Xylene (1,4-Dimethylbenzene, p-Xylene, para-Xylene, p-Xylol)	LC50 = 2.00 mg/l (96 h) <i>Morone saxatilis</i>	EC50 = 75.49 mg/l (24h) <i>Daphnia magna</i> (Water flea)	EC50 = 72 mg/l (14d) <i>Pseudokirchneriella subcapitata</i>
2,4/2,6-di-isocyanatotoluene	LC50 = 7.63 mg/l (96 h) <i>Oncorhynchus mykiss</i> (rainbow trout)	EC50 = 9.00 mg/l (24h) <i>Daphnia magna</i> (Water flea)	EC50 = 245 mg/l (24h) <i>Chlorella vulgaris</i> (Fresh water algae)
n-Butyl acetate	LC50 = 100 mg/l (96 h) <i>Lepomis macrochirus</i> (Bluegill)	EC50 = 72.8-205 mg/l <i>Daphnia magna</i> (Water flea)	EC50 = 674.7 mg/l (72h) <i>Desmodesmus subspicatus</i>

This product is toxic to aquatic life (Acute toxicity to the aquatic environment Category 2) due to the Xylene and toluene components (this declaration is not required in Singapore).

**Persistence and degradability**

Biodegradability Result: Readily biodegradable.

**13. DISPOSAL CONSIDERATIONS**

**Description of waste residues and information on their safe handling & methods of disposal**

Dispose of the product through licensed hazardous waste collectors under Singapore regulations. Provide the hazardous waste collector the sufficient information on the various hazards of this product.

**Disposal of any contaminated packaging**

Dried material can be disposed off in authorized landfill site in accordance to national regulations. Container should be recycled after cleaning or dispose of the container through licensed hazardous waste collectors under Singapore regulations. Provide the hazardous waste collector the sufficient information on the various hazards of this product in this container.

**14. TRANSPORT INFORMATION**

**Land Transport (ADR/RID):**

Shipping Name: RESIN SOLUTION, FLAMMABLE LIQUID  
 UN #: 1866  
 Hazard Class: 3  
 (If capacity of receptacles is more than 450L, then declared Class 3, 31C)  
 Packing Group: III

Label:



**Air Transport (IATA/ICAO):**

Shipping Name: RESIN SOLUTION, FLAMMABLE LIQUID  
 UN #: 1866  
 Hazard Class: 3 No. 31C  
 Packing Group: III

Label:



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**Sea transport (IMDG):**

Shipping Name: RESIN SOLUTION, FLAMMABLE LIQUID

UN #: 1866

Hazard Class: 3 No. 31C

Packing Group: III

EmS Number: F-E S-D

Marine pollutant: No

Label:

**15. REGULATORY INFORMATION****Applicable National Regulations**

This product is subject to the requirements in the following acts/regulations:

Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations  
Environmental Protection and Management Act and Environmental Protection and Management  
Maritime and Port Authority of Singapore (Dangerous Goods, Petroleum and Explosives)

**International Regulations**

This product is classified as hazardous pursuant to the provision set forth in Directives 67/548/EEC and 1999/45/EC and/or EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of EC Regulation 1907/2006 and subsequent amendments.

**16. OTHER INFORMATION**

The information and data contained herein are believed to be accurate and reliable; however, it is the user's responsibility to determine suitability of use. Since QUICSEAL Construction Chemicals Pte. Ltd. cannot know all of the uses to which its products may be put or the conditions of use; it makes no warranties concerning the fitness or suitability of its products for a particular use of purpose.

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