

SAFETY DATA SHEET

1: IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY UNDERTAKING

Product Name: **ESTOFLEX SOLAR 690 – Part B**
Application: Spray applied quick curable polyurea waterproofing
Company: **Denka Construction Solutions Malaysia Sdn Bhd**
Address: No. 18, Jalan Utas 15/7, Seksyen 15, 40200 Shah Alam, Selangor
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2: HAZARDS IDENTIFICATION

A. Hazard Risk Classification

- Health Hazard
Acute Toxicity (Inhalation : dust/mist) : Category 4
Skin Corrosion/Irritation : Category 2
Serious eye damage/eye irritation : Category 2
Respiratory Sensitization : Category 1
Skin Sensitization : Category 1
Specific Target Organ Toxicity - Repeated Exposure : Category 2

B. Label elements including precaution statements.

- Symbol:



- Signal word: Danger
- Hazard Risk Statement

H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H373 - May cause damage to organs through prolonged or repeated exposure if swallowed.
H410 - Very toxic to aquatic life with long lasting effects.

- Precautionary Statement

(Prevention)

P260 Do not breathe vapours/spray

P280 Wear protective gloves/protective clothing/eye protection/face protection (Response)

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 IF ON SKIN (or hair): Remove/ Take Off immediately all contaminated clothing. Rinse skin with water/shower

P305+P351+ IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if

P338 present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER or doctor/physician

(Disposal)

P501 Dispose of contents/container (in accordance with applicable law)

3: COMPOSITION/INFORMATION ON INGREDIENTS

A. Single product or Mixture: Mixture

B. Common chemical name of the product: Polyurethane resin (Liquid)

Chemical Name	CAS No.	Content (%)
Polyoxypropylenediamine	9046-10-0	60 – 80
Diethylmethylbenzenediamine	68479-98-1	15-25

4: FIRST AID MEASURES

A. Eye contact

IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

B. Skin contact

If skin irritation or rash occurs: Get medical advice/attention.

Take off contaminated clothing and wash before reuse.

Remove contaminated clothing. Wash thoroughly with soap and water

Flush with plenty of water for at least 20 minutes

If you have minor skin contact, Prevent the spread of contaminated place.

C. Inhalation

IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF exposed or concerned: Get medical advice/attention.

If experiencing respiratory symptoms : Call a POISON CENTER or doctor/physician.

- D. Ingestion
IF exposed or concerned : Get medical advice/attention.
IF necessary, Don't administer artificial respiration by mouth-to-mouth. Use proper respiratory medical apparatus.
If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs.
Never give anything by mouth to an unconscious person.
- E. Indication of immediate medical attention and notes for physician
IF exposed : Call a POISON CENTER or doctor/physician and take emergency measures

5: FIRE FIGHTING MEASURES

- A. (Suitable and unsuitable) extinguishing media
Suitable extinguishing media : Foam, dry powder, water spray jet, carbon dioxide.
Unsuitable extinguishing media : Full water jet
- B. Specific hazards arising from the chemical Unknown risk of formation of toxic pyrolysis products
Carbon monoxide (CO)
Carbon Dioxide (CO₂)
Nitrogen Oxide (NO_x)
- C. Special protective equipment and precautions for fire-fighters
In the event of fire, wear self-contained breathing apparatus.
Stay against the wind so as not to inhale chemicals or material from pyrolysis.
Move container from fire area if you can do so without risk, use suitable extinguishing agent.

6: ACCIDENTAL RELEASE MEASURES

- A. Personal precautions, protective equipment and emergency procedures
- Avoid breathing dust/fume/gas/mist/vapours/spray.
 - Immediately clean leaked material and allow prevention of item 8.
 - Eliminate all sources of ignition.
 - Stop leak if you can do so without risk.
 - Make prevent the spread covered with plastic sheets.
 - Avoid prohibited condition & materials.
- B. Environmental precautions and protective procedures
- Prevent spilled material from entering the ground, water and/or air by using appropriate containment methods.
- C. Methods and materials for containment and cleaning up
- Stop leak. Dike and contain spill.
 - Absorb with suitable material (e.g. dry sand or soil) and clean with water and cleaner.

7: HANDLING AND STORAGE

A. Precaution for safe handling

- Do not handle until all safety precautions have been read and understood.
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Contaminated work clothing should not be allowed out of the workplace.
- Keep container closed when not in use.
- Avoid contact with skin and eyes.
- Wash your handling region thoroughly after handling.
- Avoid prohibited condition & materials.

B. Conditions for safe storage

- Keep away from heat.
- Store in a well-ventilated place. Keep container tightly closed.

8: EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Control parameters

Diethylmethylbenzidine

Range – 15 – 25%

Industrial, dermal, Long term – systemic effects: 1mg/kg bw/day

Industrial, inhalation, long term – systemic effects: 0.13mg/m²

General Population, oral, long term - systemic effects: 0.1mg/kg bw/day

General Population, dermal, long term - systemic effects: 1mg/kg bw/day

General Population, inhalative, long term - systemic effects: 0.1mg/kg bw/day

Diethylmethylbenzidine

Range 15 – 25%

Oral (food) : 2mg/kg

Soil: 5.6µg/kg

Sediment (marine water): 0.0029 mg/kg

Sediment (fresh water): 0.0029 mg/kg

Marine water: 0.00005mg/L

Fresh Water: 0.00005mg/L

Sewage treatment plants (STP) : 17mg/L

B. Appropriate engineering controls

Use local ventilation or engineering controls as needed to maintain personnel exposure below the exposure limits.

C. Personal protective equipment

- | | |
|------------------------|--|
| Respiratory protection | : Wear respiratory protection tested and approved under appropriate government standards such as KOSHA |
| Eye protection | : Wear approved chemical safety glasses or goggles |
| Hand protection | : Wear approved chemical resistant gloves that may protect hands from direct contact with chemical |
| Body protection | : Wear approved chemical resistant cloths |

9: PHYSICAL AND CHEMICAL PROPERTIES

A. Form	Viscous liquid
B. Color	Various
C. Odor	Amine-like
D. Odor Threshold	No data available
E. pH	No data available
F. Melting point/Freezing point	No data available
G. Initial boiling point/boiling range	No data available
H. Flash point (°C)	210
I. Evaporation rate	No data available
J. Flammability (solid, gas)	No data available
K. Upper/lower flammability or explosive limits	No data available
L. Vapor pressure	No data available
M. Solubility	Soluble in toluene, xylene, acetic acid
N. Vapor density	No data available
O. Specific gravity	0.98 - 1.02
P. Partition coefficient : n-octanol/water	No data available
Q. Auto-ignition temperature	No data available
R. Decomposition temperature	No data available
S. Viscosity[25°C,mPa.s(cps)]	400 ~ 800
T. Molecular weight	No data available

10: STABILITY AND REACTIVITY

Chemical stability & Possibility of hazardous reaction	Stable at normal temperature and pressure conditions. Containers may explode when heated. May produce toxic fumes if burning
Conditions to avoid	Avoid all sources (e.g. Heat, flame, spark) of ignition. Avoid contact with materials prohibited to mix.
Incompatible materials	No data available
Hazardous decomposition products	May produce irritative, toxic and corrosive gas if burning.

11: TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure	
Diethyl Toliene Diamine	No data available
Poly(oxypropylene)diamine	No data available

B. Health hazards information

- Acute toxic

<p>Polyoxypropylenediamine Range – 60 – 80% LD50, oral, Rat 475 mg/kg LD50, dermal, Rabbit: 2090 mg/kg NOAEL, dermal :1000mg/kg/d(subacute) NOAEL, inhalative, 790 ppm (subacute)</p>
<p>Diethylmethylbenzendiamine Range 15 – 25% LD50, dermal, Rat > 2000 mg/kg LD50, oral , Rat 738 mg/kg/90d NOAEL, oral, Rat :8mg/kg/90d NOAEL, dermal, rabbit :10mg/kg/90d LOAEL, oral, rat : 21mg/kg/90d NOEL, oral, Rat: 50 ppm/28d NOEL, dermal, Rabbit: 1.0mg/kg/21d</p>

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|--|--------------------|
| ○ Skin corrosion/irritation | Product is caustic |
| ○ Serious eye damage/eye irritation | not determined |
| ○ Respiratory sensitization | not determined |
| ○ Skin sensitization | not determined |
| ○ Carcinogenicity | not determined |
| ○ Germ Cell Mutagenicity | not determined |
| ○ Reproductive toxicity | not determined |
| ○ Specific target organ toxicity (single exposure) | not determined |
| ○ Specific target organ toxicity (repeated exposure) | not determined |
| ○ Aspiration hazard | not determined |

12: ECOLOGICAL INFORMATION

A. Aquatic and terrestrial ecotoxicity

<p>Polyoxypropylenediamine Range – 60 – 80% LC50 (96h) fish: >100mg/L EC50 (48h) Daphnia magna; 15mg/l LC50 (72h) Algae: 135 mg/l</p>
<p>Diethylmethylbenzendiamine Range 15 – 25% LC50 (96h) Pimephales Promelas: > 106 mg/l EC50 (24h) Pseudomonas putida: > 170mg/l EC50 (48h) Daphnia magna: 5.8mg/l ErC50 (72hr) Desmodemus Subspicatus: 104 mg/l</p>

B. Persistence and degradability	This product is not readily biodegradable
C. Bio accumulative potential	BCF: 2.75 logPow : 1.38
D. Mobility in soil	No information available
E. Other adverse effects	No information available

13: DISPOSAL CONSIDERATIONS

- A. Disposal methods
Dispose of contents and containers in accordance with prescribed manners in the Wastes Management Act
- B. Disposal precaution (including the disposal method of contaminated container and packaging)
Dispose of contents and containers in accordance with prescribed manners in the Wastes Management Act

14: TRANSPORT INFORMATION

A. UN number	UN 2735 Amines, liquid corrosive (ENVIRONMENTALLY HAZARDOUS)
B. ADR/RID	UN 2735
C. IMDG	UN 2735 – MARINE POLLUTANT
D. IATA	UN 2735

15: REGULATORY INFORMATION

A. Industrial Safety & Health Act : Regulated hazardous substance(Article39, Enforcement Decree: article81)	
B. Toxic Chemicals Control Act : Not applicable	
C. Dangerous Material Safety Control Act : Not applicable	
D. Wastes Management Act : Designated waste	
E. Other requirements in domestic and other countries	
o Domestic Regulation	
Persistent Organic Pollutant Control Act	Not applicable
o Other Countries Regulation	
EU Classification Code	No data available
EU Risk Phrases	No data available
EU Safety Phrases	No data available
OSHA regulation	No data available
CERCLA 103 regulation	No data available
EPCRA 302,304,313 regulation	No data available
Rotterdam Convention	No data available
Stockholm Convention	No data available
Montreal Protocol	No data available

16: OTHER INFORMATION

The data and advice given apply when the product is used for the stated application or applications. The product is not sold as suitable for any other application. Use of the product for applications other than as stated in this sheet may give rise to risks not mentioned in this sheet. The product should not be used than for the stated application or applications without seeking advice from Denka Construction Solutions Malaysia Sdn Bhd.

If this product has been purchased to a third party for use at work, it is the purchaser's duty to take all necessary steps to secure that any person handling or using the product is provided with information in this sheet.

It is the responsibility and duty of the employer to inform employees and others who may be affected of any hazards described to this sheet and of any precautions which should be taken. This sheet does not constitute or substitute for the users own assessment of workplace risk, as required by other health and safety legislation.

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