# Smart Heavy Duty
# 2K Polyureathane Exterior Clear 88 Hardener (Part B)
## Hardener for 2 Component Solvent based Polyurethane
## 0.5L & 2.5L


Version No. : **2.1.24**
Issue Date: **05/06/2024**
Safety Data Sheet according to CLASS requirement

## SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

**Product Identifier**

| | |
|---|---|
| **Product Name** | ***Smart Heavy Duty 2K Polyureathane Exterior Clear 88 Hardener (Part B)*** |
| **Product Code** | SP2KPE-CLEARHD88 |
| **Chemical Name** | Not Applicable |
| **Chemical Formula** | Not Applicable |
| **Other means of Identification** | Hardener for 2 Component Solvent based Polyurethane |
| **CAS Number** | Not Applicable |

**Relevant use of the chemical and restriction**

| | |
|---|---|
| **Relevant identified uses** | Use according to manufacturer's directions |

**Details of manufacturer / importer**

| | |
|---|---|
| **Registered Company Name** | **SMART PAINT MANUFACTURING SDN BHD** (1031014-A) |
| **Address** | No. 9 & 11, Jalan Indah Gemilang 5, Taman Perindustrian Gemilang, 81800 Ulu Tiram, Johor, Malaysia. |
| **Telephone** | +607-863 9855 |
| **Fax** | +607-861 5055 |
| **Email** | info@smart-paints.com |
| **Web** | http://www.smart-paints.com |

**Emergency telephone number**

| | |
|---|---|
| **Association / Organisation** | Not Applicable |
| **Emergency telephone number** | Not Applicable |
| **Other emergency telephone number** | Not Applicable |

## SECTION 2 HAZARDS IDENTIFICATION

**Classification of the substances or mixture**

| | |
|---|---|
| **GHS Classification** | **Physical Hazard**<br>Flammable liquids - Category 3<br><br>**Health Hazard**<br>Acute toxicity (Oral) - Category 4<br>Skin Sensitization - Category 1<br>Specific target organ toxicity -Single exposure (irritating to respiratory system) - Category 3<br>Respiratory sensitization - Category 1<br><br>**Environment Hazard**<br>Hazardous to the aquatic environment -acute - Category 3<br>Hazardous to the aquatic environment -chronic - Category 3 |

**Label elements**

| | |
|---|---|
| **GHS label elements** |  |
| **Signal word** | Warning |

**Hazard statement(s)**

| | |
|---|---|
| **H226** | Flammable liquid and vapour. |
| **H332** | Harmful if swallowed. |
| **H334** | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| **H317** | May cause an allergic skin reaction. |
| **H335** | May cause respiratory irritation. |
| **H402** | Harmful to aquatic life. |
| **H412** | Harmful to aquatic life with long lasting effects. |

| Precautionary statement(s) | |
|---|---|
| **P210** | Keep away from heat/sparks/open flames/hot surfaces. No smoking. |
| **P233** | Wear protective gloves/protective clothing/eye protection/face protection. |
| **P241** | Use explosion-proof electrical/ ventilating/lighting equipment. |
| **P242** | Obtain special instructions before use. |
| **P243** | Do not handle until all safety precautionary have been read and understood. |
| **P261** | Avoid breathing dust/fume/gas/mist/vapours/spray. |
| **P280** | Use personal protective equipment as required. |
| **P271** | Use only outdoors or in a well-ventilated area. |
| **P272** | Contaminated work clothing shall not be allowed out of the workplace. |

## SECTION 2 HAZARDS IDENTIFICATION

| Precautionary statement(s) Response | |
|---|---|
| **P302+P352** | IF ON SKIN : Wash with plenty of water and soap. |
| **P332+P313** | If skin irritation occurs : Get medical advice / attention |
| **P303+P361+P353** | IF ON SKIN (or hair) : Remove /take off immediately all contaminated clothing. Rinse skin with water/ shower. |
| **P370+P378** | Take off contaminated clothing and was before reuse. |
| **P391** | Collect spillage. |
| **Precautionary statement(s) Storage** | |
| **P405** | Store in locked up. |
| **Precautionary statement(s) Disposal** | |
| **P501** | Dispose of content/ container to appropriate waste site or reclaimer in accordance with local or national regulations. |

## SECTION 3 COMPOSITION / INFORMATION OF INGREDIENTS

| CAS number | % [weight] | Name |
|---|---|---|
| 28182-81-2 | 75 -90 | Hexamethylene diisocyanate isocyanurate-type oligomers |
| 64742-95-6 | 5 - 7 | Solvent naphtha (petroleum), light arom. |
| 123-86-4 | 3 - 5 | n-Butyl acetate |
| 822-06-0 | 0.2 - 0.3 | 1,6-hexamethylene diisocyanate |

## SECTION 4 FIRST AID MEASURES

**Description of first aid measure**

| | |
|---|---|
| **Eye contact** | ▪ Check or and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelid open. Do not use an eye ointment. Seek for medical attention. |
| **Skin contact** | ▪ Frequent or prolonged contact may irritate and cause dermatitis. Skin contact may aggravate an exiting dermatitis condition. Remove contaminated clothing – launder before reuse. Wash gently and thoroughly the contaminated skin with running water and non-abbrasive soap. Get medical attention if redness or irritation occurs. |
| **Inhalation** | ▪ High vapour (>1000 ppm) are irritating to the eyes and respiratory tract, may cause headaches, dizziness, anaesthesia. Drowsine unconsciousness and other central nervous system effects. Evacuate the victim to a safe area as soon as possible. If the victim is not breathing, perform mouth to mouth resuscitation. Administer oxygen if available. Allow the victim to rest in a well ventilated area. Seek medical attention. |

## SECTION 5 FIREFIGHTING MEASURES

**Suitable Fire Extinguishing Media :**
Small fire : Use dry powder, Foam.
Large fire : Use water spray. Fog or foam. Water or foam may cause frothing.

**Special Protective Actions For Fire Fighters:**
Protective equipment for fire-fighting:
Wear a self-contained breathing apparatus.

**Specific Hazards Arising From The Chemical :**
Hazards during fire-fighting: harmful vapours
Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire.

## SECTION 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment And Emergency Procedure**
Use personal protective clothing. Breathing protection required.
Can release flammable vapours. Wind direction should be noted.
Avoid all sources of ignition: heat, sparks, open flame. Use antistatic tools.

**Environment Precaution**
Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

**Methods And Materials For Containments And Clean Up**
For large amounts: Pump off product.
For residues: Pick up with suitable absorbent material.
Dispose of absorbed material in accordance with regulations

## SECTION 7 HANDLING AND STORAGE

**Precautions For Safe Handling**
Avoid smoking and use of open ire. Avoid inhalation of vapours and contact with skin and eyes. Observe good industrial practices.

**Condition For Safe Storage ,including Any Incompatibilities**
Store in tightly closed original container in well-ventilated area. Avoid expose to direct sunlight.
Storage stability:
If moisture enters isocyanate containers, CO2 forms and pressure builds up.

## SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

**Control Parameters/ Occupational Limits**

| | ACGIH TLV-TWA | | OSHA PEL-TWA | |
|---|---|---|---|---|
| **Ingredient/Bahan** | **ppm** | **mg/m3** | **ppm** | **mg/m3** |
| n-Butyl acetate | 150 | 50 | 150 | 710 |
| 1,6-hexamethylene | 0.005 | - | - | - |

**APPROPRIATE ENGINEERING CONTROL MEASURES**
If user operations generate dust, fumes, gas, vapours or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Emission from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**PERSONAL PROTECTION**
Respiratory protection
Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Recommended : Full mask with type Cartridge filter.
Hand protection
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products I a risk assessment indicates this is necessary. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations.
Eye protection
Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
Recommended : Safety glasses with side-shields.

Skin/ Body Protection
Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Recommended : Wear protective clothing.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Appearance / colour** | Liquid/Colourless |
| **Odour** | Faint odour |
| **Solid** | Not applicable |
| **Specific Gravity (@ 25°C)** | 1.13 |
| **Viscosity (Ku)** | Not applicable |
| ***Boiling Point** | 160 °C |
| ***Flash Point** | 51.5 °C |
| ***Melting Point** | -25 °C |
| ***Vapour Pressure (@ 20°C)** | < 50 mbar |
| **Vapour Density (101.3 kPA / air=1)** | Not determined |
| **Evaporation Rate (n - Butyl Ether=1)** | Not determined |
| **Lower Flammable Limit LEL / Explosion limit (%)** | 1.0% (V) |
| **Upper Flammable Limit UEL / Explosion limit (%)** | 7.5% (V) |
| **Solubility** | React with water |

## SECTION 10 STABILITY AND REACTIVITY

**REACTIVITY**
No dangerous reaction known under condition of normal use.

**CHEMICAL STABILITY**
Stable under normal temperature conditions and recommended use.

**POSSIBILTY OF HAZARDOUS REACTION**
Reacts with alcohols. Reacts with amines. Reacts with substances which contain active hydrogen.
Reacts with water, with formation of carbon dioxide. The formation of gaseous decomposition
products builds up pressure in tightly closed containers. Vapours may form ignitable mixture with air.

**CONDITIONS TO AVOID**
Avoid moisture. See SDS section 7 - Handling and storage.

**HAZARDOUS DECOMPOSITION PRODUCTS**
Decomposition products:
No applicable information available.
Thermal decomposition:
No decomposition if used correctly

## SECTION 11 TOXICOLOGY INFORMATION

**Primary routes of exposure**
Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

**Acute Toxicity/Effects**
**Oral**
Type of value: LD50
Species: rat
Value: > 5,000 mg/kg
The product has not been tested. The statement has been derived from the properties of the individual components.
Inhalation
Type of value: LC50
Species: rat
Value: > 1 - 5 mg/l
Exposure time: 4 h

Determined for mist The substance from the isocyanate substance class has been tested in a form (respirable aerosol) that is different from the forms in which the product is placed on the market and used. Therefore, the test result is not adequate for the purpose of classification and labelling of the product. Based on expert judgement and available data, a modified classification and labeling for acute inhalation toxicity is justified. The generation of a respirable aerosol must be prevented! The product has not been tested. The statement has been derived from the properties of the individual components.
*Information on: (OLIGOMER) Hexamethylene diisocyanate isocyanurate-type oligomers*
*Type of value: LC50*
*Species: rat (male/female)*
*Value: 0.467 mg/l (OECD Guideline 403)*
*Exposure time: 4 h*
*An aerosol was tested.*
*The test result applies only to the substance transferred into respirable aerosol (particles < 20 µm).*

**Dermal**
Type of value: ATE
Value: > 5,000 mg/kg
The product has not been tested. The statement has been derived from the properties of the individual components.

**Assessment other acute effects**
Assessment of STOT single:
Causes temporary irritation of the respiratory tract.
The product has not been tested. The statement has been derived from the properties of the individual components.

**Skin**
Species: rabbit
Result: non-irritant
Method: OECD Guideline 404
The product has not been tested. The statement has been derived from the properties of the individual components.

**Eye**
Species: rabbit
Result: non-irritant
Method: OECD Guideline 405
The product has not been tested. The statement has been derived from the properties of the individual components.

**Sensitization**
Assessment of sensitization: May cause allergic respiratory reaction. May cause allergic skin
reaction. The product has not been tested. The statement has been derived from the properties of the individual components.
Guinea pig maximization test
Species: guinea pig
Result: sensitizing
sensitizing effect in animal tests

**Aspiration Hazard**
No aspiration hazard expected.

**Chronic Toxicity/Effects**
Repeated dose toxicity
Assessment of repeated dose toxicity: The information available on the product provides no
indication of toxicity on target organs after repeated exposure.

## SECTION 11 TOXICOLOGY INFORMATION

**Genetic toxicity**
Assessment of mutagenicity: Based on the ingredients, there is no suspicion of a mutagenic effect.

**Carcinogenicity**
Assessment of carcinogenicity: No data available concerning carcinogenic effects.

**Reproductive toxicity**
Assessment of reproduction toxicity: Based on the ingredients, there is no suspicion of a toxic effect on reproduction.

**Teratogenicity**
Assessment of teratogenicity: Based on the ingredients, there is no suspicion of a teratogenic effect

## SECTION 12 ECOLOGICAL INFORMATION

**Toxicity**
Aquatic toxicity
Assessment of aquatic toxicity:
Acutely harmful for aquatic organisms. May cause long-term adverse effects in the aquatic environment.
The product has not been tested. The statement has been derived from the properties of the individual components.

Toxicity to fish
LC50 (96 h) 10 - 100 mg/l, Brachydanio rerio
The product has not been tested. The statement has been derived from the properties of the individual components.

Aquatic invertebrates
EC50 10 - 100 mg/l, Daphnia magna
The product has not been tested. The statement has been derived from the properties of the individual components.

Aquatic plants
EC50 (72 h) 10 - 100 mg/l, algae
The product has not been tested. The statement has been derived from the properties of the individual components.

Chronic toxicity to fish
No data available.
Chronic toxicity to aquatic invertebrates
No data available

**Microorganisms/Effect on activated sludge**
Toxicity to microorganisms
bacteria/EC50 (3 h): > 1,000 mg/l
The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations. The product has not been tested. The statement has been derived from the properties of the individual components.

**Persistence and degradability**
Assessment biodegradation and elimination (H2O)
The substance can be virtually eliminated from water in suitable effluent treatment plants by biodegradation, stripping and mechanical separation.
Elimination information
Not readily biodegradable (by OECD criteria).

**Additional information**
Other ecotoxicological advice:
Do not release untreated into natural waters. The local regulations on waste-water treatment must be followed.

## SECTION 13 DISPOSAL INFORMATION

**Waste Disposal :**
Recover or recycle if possible. Otherwise dispose in accordance with all applicable with all applicable national environment laws and regulations.

**Product Disposal:**
This product when dispose of in its unused and uncontaminated state should be treated as a hazardous waste.

**Container Disposal :**
Drain container thoroughly. Rinse three times with suitable solvent. Treat rinsing as for product disposal. After draining, vent in a safe place away from sparks and fire. Send drum recoverer or metal reclaimer. Residue may cause an explosion hazard. Do not pincture, cut or weld uncleaned drums. Keep container labelled until cleaned and then remove or deface labels.

## SECTION 14 TRANSPORT INFORMATION

Transport to be in accordance with ADR/RID for road/rail, IMDG for sea and IATA for air.

**LAND TRANSPORT**
Classified as Dangerous Goods by the criteria of the European Agreement concerning the international carriage of Dangerous Goods (ADR) by Road & Regulations concerning the international carriage of Dangerous Goods (RID) by Rail.

**UN Number:** 1263
Proper shipping name : Paint ( including paint, lacquer,enamel, stain, shellac, varnish, liquid filler and liquid lacquer base ) or paint related material (including paint thinning or reducing compound.
**Class:** 3
**Packaging Group:** III

**SEA TRANSPORT**
Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG) for the transport of Sea.

**UN Number:** 1263
Proper shipping name : Paint ( including paint, lacquer,enamel, stain, shellac, varnish, liquid filler and liquid lacquer base ) or paint related material (including paint thinning or reducing compound.
**Class :** 3
**Packaging Group:** III
**Marine Pollutant:** No
**SEA (Annex II of MARPOL 73/78 and the IBC Code)/ LAUT (Annex II of MARPOL 73/78 dan the IBC Code) :** Not Applicable

**AIR TRANSPORT**
Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for the transport by Air.

**UN Number:** 1263
**Proper shipping name :** Paint ( including paint, lacquer,enamel, stain, shellac, varnish, liquid filler and liquid lacquer base ) or paint related material (including paint thinning or reducing compound.
**Class:** 3
**Packaging Group:** III

## SECTION 15 REGULATORY INFORMATION

Applicable national regulations :

a) OHSA 1994 and relevant regulation
b) Factories and Machinery Act 1967 and relevant regulations
c) Environment Quality Act 1967 and regulations.
d) Pesticide Act 1974 and regulations
e) Occupational Safety and Health (Classification, Labelling And Safety Data Sheet of Hazardous Chemicals) Reg 2013
f) Industry Code Of Practice (On Chemicals Classification And Hazard Communication

## SECTION 16 OTHER INFORMATION

Date of preparation: 05-06-2024
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ABBREVIATION/SINGKATAN
ACGIH American Conference of Governmental Industrial Hygienists
TLV Threshold limit value
TWA Time-Weighted Average
OSHA Occupational Safety and Health Administration
PEL Permissible Exposure Limit
LD50 Lethal Dose
LC50 Median Lethal concentration
IACR International Agency for Research in Cancer
CAS Registry Numbers Chemical Abstracts Service Registry Numbers
ICOP Industry Code Of Practice on Chemical Classification and Health approved by Minister under section 37 of the Act
C Ceiling Limit
CEIL Ceiling Limit airborne concentration
STEL Short Term Exposure Limit
DNA Data Not Available
N/R Not Regulated

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