

CFS-F FX / CP 660

Safety information for 2-Component-products

Issue date: 14/02/2025

Revision date: 14/02/2025

Supersedes: 22/11/2024

Version: 7.0

SECTION 1: Kit identification

1.1 Product identifier

Trade name

CFS-F FX / CP 660



Product code

BU Fire Protection

1.2 Details of the supplier of the Safety information for 2-Component-products

Hilti Far East Private Ltd.
80 Pasir Panjang Road,
#16-83/84 Mapletree Business City
117372 Singapore - Singapur
T +65 6777 7887 - F +65 6777 3057
sg-customerservice@hilti.com

SECTION 2: General information

A SDS for each of these components is included. Please do not separate any component SDS from this cover page

SECTION 3: Kit contents

Classification of the Product

GHS SG classification

Health hazards

Acute toxicity (Inhalation), Category 4
Skin corrosion/irritation, Category 2
Serious eye damage/eye irritation, Category 2
Respiratory sensitisation, Category 1
Skin sensitisation, Category 1
Carcinogenicity, Category 2
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation
Specific target organ toxicity – Repeated exposure, Category 2

Label elements

GHS SG labelling

Hazard pictograms (GHS SG)



GHS07



GHS08

Signal word (GHS SG)

Danger

Hazardous ingredients

4,4'-diphenylmethanediisocyanate, isomeres and homologues; Ethylenediamine, ethoxylated and propoxylated

CFS-F FX / CP 660

Safety information for 2-Component-products

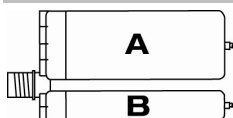
Hazard statements (GHS SG)

H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H332 - Harmful if inhaled.
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 - May cause respiratory irritation.
H351 - Suspected of causing cancer.
H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary statements (GHS SG)

P260 - Do not breathe vapours.
P280 - Wear eye protection, protective clothing, protective gloves.
P284 - In case of inadequate ventilation wear respiratory protection.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P342+P311 - If experiencing respiratory symptoms: Call a doctor, a POISON CENTER.

Additional information



Name	General description	Quantity	Unit	GHS SG classification
CFS-F FX, A / CP 660, A		1	pcs (pieces)	Skin Sens. 1, H317
CFS-F FX, B / CP 660, B		1	pcs (pieces)	Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373

SECTION 4: General advice

General advice

For professional users only

SECTION 5: Safe handling advice

Environmental precautions

Avoid release to the environment

Storage conditions

Store in a well-ventilated place.
Keep cool.

Precautions for safe handling

Do not handle until all safety precautions have been read and understood.
Wear personal protective equipment
Do not breathe vapours.
Use only outdoors or in a well-ventilated area.
Avoid contact with skin and eyes
In case of inadequate ventilation wear respiratory protection.

Methods for cleaning up

Take up liquid spill into absorbent material
Notify authorities if product enters sewers or public waters

SECTION 6: First aid measures

First-aid measures after eye contact

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.

First-aid measures after ingestion

Call a poison center or a doctor if you feel unwell

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First-aid measures after inhalation	Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell
First-aid measures after skin contact	Wash with plenty of water/... If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing.
First-aid measures general	If you feel unwell, seek medical advice (show the label where possible)
Symptoms/effects after eye contact	Eye irritation
Symptoms/effects after inhalation	May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Symptoms/effects after skin contact	Irritation May cause an allergic skin reaction.
Other medical advice or treatment	Treat symptomatically

SECTION 7: Fire fighting measures

Protection during firefighting	Self-contained breathing apparatus Complete protective clothing
Hazardous decomposition products in case of fire	Toxic fumes may be released Carbon dioxide Carbon monoxide

SECTION 8: Other information

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Safety Data Sheet

According to SS 586 Part 3 (2022)

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SECTION 1: Identification

1.1. Product identifier

Name CFS-F FX, A / CP 660, A
Product code BU Fire Protection

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

No additional information available

1.4. Supplier's details

Supplier

Hilti Far East Private Ltd.
80 Pasir Panjang Road, #16-83/84 Mapletree Business City Singapore
Singapur 117372
T +65 6777 7887 - F +65 6777 3057
sg-customerservice@hilti.com

Department issuing data specification sheet

Hilti AG
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1.5. Emergency phone number

Emergency number GBK GmbH Global Regulatory Compliance
+49 (0)6132-84463

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Health hazards Skin sensitisation, Category 1

2.2. GHS label elements, including precautionary statements

Hazard pictograms (GHS SG)



Signal word (GHS SG)

Warning

Hazard statements (GHS SG)

H317 : May cause an allergic skin reaction

Precautionary statements

Prevention

P280 : Wear eye protection, protective clothing, protective gloves.

Response

P302+P352 : IF ON SKIN: Wash with plenty of water.

2.3. Other hazards which do not result in classification

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

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3.2. Mixtures

Name	Concentration (%)	Formula	Product identifier
Ethylenediamine, propoxylated	2,5 - <5	-	CAS-No.: 25214-63-5 EC-No.: 500-035-6
Ethylenediamine, ethoxylated and propoxylated	2,5 - <5	-	CAS-No.: 26316-40-5 EC-No.: 500-047-1

SECTION 4: First-aid measures

4.1. Description of necessary first aid measures

Inhalation	Remove person to fresh air and keep comfortable for breathing.
Skin contact	Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.
Eye contact	Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms/effects, acute and delayed

Symptoms/effects after skin contact	May cause an allergic skin reaction.
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4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment	Treat symptomatically.
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SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media	Water spray. Dry powder. Foam. Carbon dioxide.
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5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire	Toxic fumes may be released. Carbon monoxide. Carbon dioxide.
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5.3. Special protective actions for fire fighters

Protection during firefighting	Self-contained breathing apparatus. Complete protective clothing.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No additional information available

6.1.1. For non-emergency personnel

Emergency procedures	Ventilate spillage area. Avoid contact with skin and eyes.
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6.1.2. For emergency responders

Protective equipment	For further information refer to section 8: "Exposure controls/personal protection". Use personal protective equipment as required.
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6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	Take up liquid spill into absorbent material.
Other information	Dispose of materials or solid residues at an authorized site.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling

Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment.

Hygiene measures

Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

Store in a well-ventilated place. Keep cool.

Storage temperature

5 – 25 °C

SECTION 8: Exposure controls/personal protection

8.1. Control parameters/Occupational exposure limits

No additional information available

8.2. Appropriate engineering control measures

Appropriate engineering controls

Ensure good ventilation of the work station.

8.3. Personal protection – individual protection measures, such as personal protective equipment (PPE)

Hand protection

Wear suitable gloves tested to EN374. Suitable for short-term work or as a splash guard: Nitrile rubber gloves (> 0.1 mm). In case of permanent product contact:

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	>0,35mm		
Disposable gloves	Butyl rubber	6 (> 480 minutes)	>0,35mm		

Eye protection

Chemical goggles or safety glasses

Skin and body protection

Wear suitable protective clothing

Respiratory protection

Not necessary with sufficient ventilation. Ensure good ventilation of the work station. Open windows during application to ensure natural ventilation. If the occupational exposure limit is exceeded: Wear appropriate mask. (e.g. gas filter type A1-P2 according to EN 14387)

Personal protective equipment symbol(s)



Environmental exposure controls

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

Liquid

Colour

red

Odour

No data available

Odour threshold

No data available

pH

Not determined

Relative evaporation rate (butylacetate=1)

No data available

Evaporation rate

No data available

Melting point

Not applicable

Freezing point

No data available

Boiling point

No data available

Flash point

Not applicable.

Auto-ignition temperature

No data available

Decomposition temperature

No data available

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Flammability	Not applicable
Vapour pressure	No data available
Relative vapour density at 20°C	No data available
Relative density	No data available
Density	≈ 1.17 g/cm ³
Solubility	No data available
Partition coefficient n-octanol/water (Log Pow)	No data available
Partition coefficient n-octanol/water (Log Kow)	No data available
Viscosity, dynamic	No data available
Explosive properties	No data available
Oxidising properties	No data available
Explosive limits	No data available
Particle size	No data available
Particle size distribution	No data available
Particle shape	No data available
Particle aspect ratio	No data available
Particle specific surface area	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Acute toxicity

Acute toxicity (oral)	Not classified
Acute toxicity (dermal)	Not classified
Acute toxicity (inhalation)	Not classified

Ethylenediamine, ethoxylated and propoxylated (26316-40-5)	
LD50 oral rat	> 5000 mg/kg bodyweight
LD50 dermal rabbit	> 5000 mg/kg bodyweight
Skin corrosion/irritation	Not classified pH: Not determined
Serious eye damage/irritation	Not classified
Respiratory or skin sensitisation	May cause an allergic skin reaction.
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified

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Reproductive toxicity	Not classified
STOT-single exposure	Not classified
STOT-repeated exposure	Not classified
Aspiration hazard	Not classified

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Density	≈ 1.17 g/cm ³

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	Not classified
Hazardous to the aquatic environment, long-term (chronic)	Not classified

Ethylenediamine, propoxylated (25214-63-5)	
LC50 - Fish [1]	4500 mg/l <i>Leuciscus idus</i> (golden orfe)
EC50 72h - Algae [1]	35 mg/l
NOEC chronic crustacea	> 1 mg/l

Ethylenediamine, ethoxylated and propoxylated (26316-40-5)	

12.2. Persistence and degradability

CFS-F FX, A / CP 660, A	
Persistence and degradability	No additional information available

12.3. Bioaccumulative potential

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Bioaccumulative potential	No additional information available

12.4. Mobility in soil

CFS-F FX, A / CP 660, A	
Mobility in soil	No additional information available

12.5. Other adverse effects

Ozone	Not classified
Other adverse effects	No additional information available

SECTION 13: Disposal considerations

Waste treatment methods	Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations	Dispose in a safe manner in accordance with local/national regulations.
Additional information	packaging containing residues of or contaminated by dangerous substances. Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / RID /

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ADR	IMDG	IATA	RID
14.1. UN number or ID number			
Not applicable	Not applicable	Not applicable	Not applicable
14.2. UN proper shipping name			
Not applicable	Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)			
Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group			
Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards			
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available			

14.6. Special precautions for user

Overland transport

No data available

Transport by sea

No data available

Air transport

No data available

Rail transport

No data available

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations specific for the product in question

Regulation	Component / Mixture
Arms and Explosives Act	Not applicable
Chemical Weapons Prohibition Act	
Environmental Protection and Management (Air Impurities) Regulations	
Environmental Protection and Management Act (Hazardous Substances)	
Environmental Public Health (Quality of Piped Drinking Water) Regulations	
Fire Safety Act/Fire Safety (Petroleum and Flammable Materials) Regulations	

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Regulation	Component / Mixture
Maritime and Port Authority of Singapore (Dangerous, Petroleum and Explosives) Regulations	
Misuse of Drugs Act	
Poisons Act	
Poisons Rules	
Hazardous waste (Control of export, import and transit) Act	
Strategic goods (Control) Act	

15.2. International regulations

No additional information available

15.3 Chemical inventory status

No additional information available

SECTION 16: Other information

Issue date	13/02/2025
Revision date	13/02/2025
Abbreviations and acronyms	<p>CAS-No. - Chemical Abstract Service number</p> <p>ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways</p> <p>ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road</p> <p>ATE - Acute Toxicity Estimate</p> <p>BCF - Bioconcentration factor</p> <p>BLV - Biological limit value</p> <p>BOD - Biochemical oxygen demand (BOD)</p> <p>CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008</p> <p>DMEL - Derived Minimal Effect level</p> <p>DNEL - Derived-No Effect Level</p> <p>EC-No. - European Community number</p> <p>EC50 - Median effective concentration</p> <p>ED - Endocrine disrupting properties</p> <p>EN - European Standard</p> <p>IARC - International Agency for Research on Cancer</p> <p>IATA - International Air Transport Association</p> <p>IMDG - International Maritime Dangerous Goods</p> <p>IOELV - Indicative Occupational Exposure Limit Value</p> <p>LC50 - Median lethal concentration</p> <p>LD50 - Median lethal dose</p> <p>LOAEL - Lowest Observed Adverse Effect Level</p> <p>N.O.S. - Not Otherwise Specified</p> <p>NOAEC - No-Observed Adverse Effect Concentration</p> <p>NOAEL - No-Observed Adverse Effect Level</p> <p>NOEC - No-Observed Effect Concentration</p> <p>vPvB - Very Persistent and Very Bioaccumulative</p> <p>WGK - Water Hazard Class</p> <p>VOC - Volatile Organic Compounds</p> <p>SDS - Safety Data Sheet</p> <p>RID - Regulations concerning the International Carriage of Dangerous Goods by Rail</p> <p>REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006</p>

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PNEC - Predicted No-Effect Concentration
PBT - Persistent Bioaccumulative Toxic
OEL - Occupational Exposure Limit
OECD - Organisation for Economic Co-operation and Development
COD - Chemical oxygen demand (COD)
ThOD - Theoretical oxygen demand (ThOD)
TRGS - Technical Rules for Hazardous Substances
TLM - Median Tolerance Limit
STP - Sewage treatment plant

Indication of changes			
Section	Changed item	Change	Comments
			general update
	Regulations Singapore	Modified	

SDS_SG_Hilti

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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According to SS 586 Part 3 (2022)
Issue date: 13.02.2025

Revision date: 13.02.2025

Supersedes: 22.11.2024

Version: 7.0

SECTION 1: Identification

1.1. Product identifier

Name CFS-F FX, B / CP 660, B
Product code BU Fire Protection

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

No additional information available

1.4. Supplier's details

Supplier

Hilti Far East Private Ltd.
80 Pasir Panjang Road, #16-83/84 Mapletree Business City Singapore
Singapur 117372
T +65 6777 7887 - F +65 6777 3057
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Department issuing data specification sheet

Hilti AG
Feldkircherstraße 100 Schaan Liechtenstein 9494
T +423 234 2111
product.compliance-fire.protection@hilti.com

1.5. Emergency phone number

Emergency number GBK GmbH Global Regulatory Compliance
+49 (0)6132-84463

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Health hazards Acute toxicity (Inhalation:dust,mist), Category 4
Skin corrosion/irritation, Category 2
Serious eye damage/eye irritation, Category 2
Respiratory sensitisation, Category 1
Skin sensitisation, Category 1
Carcinogenicity, Category 2
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation
Specific target organ toxicity – Repeated exposure, Category 2

2.2. GHS label elements, including precautionary statements

Hazard pictograms (GHS SG)



Signal word (GHS SG)

Danger

Hazard statements (GHS SG)

H315 : Causes skin irritation
H317 : May cause an allergic skin reaction
H319 : Causes serious eye irritation
H332 : Harmful if inhaled
H334 : May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 : May cause respiratory irritation
H351 : Suspected of causing cancer.
H373 : May cause damage to organs through prolonged or repeated exposure

Precautionary statements

Prevention

P260 : Do not breathe vapours.
P280 : Wear eye protection, protective clothing, protective gloves.
P284 : [In case of inadequate ventilation] wear respiratory protection.

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Safety Data Sheet

According to SS 586 Part 3 (2022)

Response

P302+P352 : IF ON SKIN: Wash with plenty of water.

P305+P351+P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P342+P311 : If experiencing respiratory symptoms: Call a POISON CENTER or doctor.

2.3. Other hazards which do not result in classification

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Concentration (%)	Formula	Product identifier
4,4'-diphenylmethanediisocyanate, isomeres and homologues	50 – 100	C15H10N2O2-(C8H5NO)x	CAS-No.: 9016-87-9 EC-No.: 618-498-9
4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate	20 – 40	C15H10N2O2	CAS-No.: 101-68-8 EC-No.: 202-966-0 EC Index-No.: 615-005-00-9

SECTION 4: First-aid measures

4.1. Description of necessary first aid measures

Inhalation	Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell. Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
Skin contact	Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention. Wash with plenty of water/.... Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention. Specific treatment (see supplemental first aid instruction on this label). If skin irritation or rash occurs:
Eye contact	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. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a poison center or a doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms/effects, acute and delayed

Symptoms/effects after inhalation	May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Danger of serious damage to health by prolonged exposure through inhalation. May cause an allergic skin reaction.
Symptoms/effects after skin contact	Irritation. May cause an allergic skin reaction. Causes skin irritation.
Symptoms/effects after eye contact	Eye irritation. Causes serious eye irritation.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment	Treat symptomatically.
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According to SS 586 Part 3 (2022)

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media	Water spray. Dry powder. Foam. Carbon dioxide. Sand.
Unsuitable extinguishing media	Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire	Toxic fumes may be released. Carbon dioxide. Carbon monoxide.
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5.3. Special protective actions for fire fighters

Firefighting instructions	Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
Protection during firefighting	Self-contained breathing apparatus. Complete protective clothing. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No additional information available

6.1.1. For non-emergency personnel

Emergency procedures	Ventilate spillage area. Do not breathe vapours. Avoid contact with skin and eyes. Evacuate unnecessary personnel.
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6.1.2. For emergency responders

Protective equipment	Use personal protective equipment as required. For further information refer to section 8: "Exposure controls/personal protection". Equip cleanup crew with proper protection.
Emergency procedures	Ventilate area.

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.
Other information	Dispose of materials or solid residues at an authorized site.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Do not eat, drink or smoke when using this product. Avoid contact with skin and eyes. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Use only outdoors or in a well-ventilated area. Avoid breathing dust/fume/gas/mist/vapours/spray. Obtain special instructions before use.
Hygiene measures	Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Wash hands, forearms and face thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	Store in a well-ventilated place. Keep cool. Keep only in the original container in a cool, well ventilated place away from : Keep container tightly closed.
Incompatible products	Strong bases. Strong acids.
Incompatible materials	Sources of ignition. Direct sunlight.
Storage temperature	5 – 25 °C

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According to SS 586 Part 3 (2022)

SECTION 8: Exposure controls/personal protection

8.1. Control parameters/Occupational exposure limits

4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate (101-68-8)	
Singapore - Occupational Exposure Limits	
Local name	Methylene bisphenyl isocyanate (MDI, Diphenyl methane diisocyanate)
PEL (OEL TWA)	0.051 mg/m ³
	0.005 ppm
Regulatory reference	WSH (General Provision) Regulation 2014

8.2. Appropriate engineering control measures

Appropriate engineering controls Ensure good ventilation of the work station.

8.3. Personal protection – individual protection measures, such as personal protective equipment (PPE)

Hand protection Wear suitable gloves tested to EN374. Suitable for short-term work or as a splash guard: Nitrile rubber gloves (> 0.1 mm). In case of permanent product contact:

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	>0,35mm		
Disposable gloves	Butyl rubber	6 (> 480 minutes)	>0,35mm		

Eye protection Chemical goggles or safety glasses. ISO 16321-1. EN 170

Type	Field of application	Characteristics	Standard
Safety glasses	Droplet		EN 166, EN 170

Skin and body protection Wear suitable protective clothing

Respiratory protection Not necessary with sufficient ventilation. Ensure good ventilation of the work station. Open windows during application to ensure natural ventilation. If the occupational exposure limit is exceeded: Wear appropriate mask. (e.g. gas filter type A1-P2 according to EN 14387)

Personal protective equipment symbol(s)



Environmental exposure controls

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Colour	amber
Odour	characteristic
Odour threshold	No data available
pH	No data available
Relative evaporation rate (butylacetate=1)	No data available
Evaporation rate	No data available
Melting point	Not applicable
Freezing point	No data available
Boiling point	No data available
Flash point	> 200 °C
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability	Not applicable, Non flammable.

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Vapour pressure	0.1 mbar
Relative vapour density at 20°C	No data available
Relative density	No data available
Density	1.155 kg/l
Solubility	No data available
Partition coefficient n-octanol/water (Log Pow)	No data available
Partition coefficient n-octanol/water (Log Kow)	No data available
Viscosity, kinematic	299.766 mm²/s
Viscosity, dynamic	346.23 mPa·s
Explosive properties	No data available
Oxidising properties	No data available
Explosive limits	No data available
Particle size	No data available
Particle size distribution	No data available
Particle shape	No data available
Particle aspect ratio	No data available
Particle specific surface area	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions. Not established.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Acute toxicity

Acute toxicity (oral)	Not classified
Acute toxicity (dermal)	Not classified
Acute toxicity (inhalation)	Inhalation:dust,mist: Harmful if inhaled.

ATE SG (dust,mist)	1.5 mg/l/4h
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4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)

LD50 oral rat	> 10000 mg/kg (Rat, Literature study, Oral)
LD50 dermal rabbit	> 5000 mg/kg (Rabbit, Literature study, Dermal)
LD50 dermal	9400 mg/kg
LC50 Inhalation - Rat	0.49 mg/l

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4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate (101-68-8)	
LD50 oral rat	> 2000 mg/kg
LD50 oral	31600 mg/kg
LD50 dermal rabbit	> 9400 mg/kg
LC50 Inhalation - Rat (Dust/Mist)	> 0.368 mg/l/4h
Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/irritation	Causes serious eye irritation.
Respiratory or skin sensitisation	May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ cell mutagenicity	Not classified
Carcinogenicity	Suspected of causing cancer.
Reproductive toxicity	Not classified
STOT-single exposure	May cause respiratory irritation.
4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
STOT-single exposure	May cause respiratory irritation.
4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate (101-68-8)	
STOT-single exposure	May cause respiratory irritation.
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate (101-68-8)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	Not classified
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Viscosity, kinematic	299.766 mm²/s
Density	1.155 kg/l
Potential adverse human health effects and symptoms	Harmful if inhaled.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	Not classified
Hazardous to the aquatic environment, long-term (chronic)	Not classified
Other information	Avoid release to the environment.

4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
LC50 - Other aquatic organisms [1]	> 1000 mg/l (96 h, Literature study)
BCF - Fish [1]	268.1 l/kg (BCFBAF v3.01, Estimated value, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	10.46 (Calculated, KOWWIN)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	9.078 – 10.597 (log Koc, SRC PCKOCWIN v2.0, Calculated value)

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4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate (101-68-8)	

12.2. Persistence and degradability

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Persistence and degradability	Not established.

4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
Not rapidly degradable	
Persistence and degradability	Not readily biodegradable in water.

4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate (101-68-8)	
Not rapidly degradable	

12.3. Bioaccumulative potential

CFS-F FX, B / CP 660, B	
Bioaccumulative potential	Not established.

4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
BCF - Fish [1]	268.1 l/kg (BCFBAF v3.01, Estimated value, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	10.46 (Calculated, KOWWIN)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	9.078 – 10.597 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

CFS-F FX, B / CP 660, B	
Mobility in soil	No additional information available

4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
Surface tension	No data available in the literature
Partition coefficient n-octanol/water (Log Pow)	10.46 (Calculated, KOWWIN)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	9.078 – 10.597 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Adsorbs into the soil.

12.5. Other adverse effects

Ozone	Not classified
Other adverse effects	No additional information available

SECTION 13: Disposal considerations

Waste treatment methods	Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations	Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
Additional information	packaging containing residues of or contaminated by dangerous substances. Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

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In accordance with ADR / IMDG / IATA / RID /

ADR	IMDG	IATA	RID
14.1. UN number or ID number			
Not regulated	Not regulated	Not regulated	Not regulated
14.2. UN proper shipping name			
Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)			
Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group			
Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards			
Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available			

14.6. Special precautions for user

Overland transport

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

Rail transport

Not regulated

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations specific for the product in question

Regulation	Component / Mixture
Arms and Explosives Act	Not applicable
Chemical Weapons Prohibition Act	
Environmental Protection and Management (Air Impurities) Regulations	
Environmental Protection and Management Act (Hazardous Substances)	
Environmental Public Health (Quality of Piped Drinking Water) Regulations	
Fire Safety Act/Fire Safety (Petroleum and Flammable Materials) Regulations	
Maritime and Port Authority of Singapore (Dangerous, Petroleum and Explosives) Regulations	

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Regulation	Component / Mixture
Misuse of Drugs Act	
Poisons Act	
Poisons Rules	
Hazardous waste (Control of export, import and transit) Act	
Strategic goods (Control) Act	

15.2. International regulations

No additional information available

15.3 Chemical inventory status

No additional information available

SECTION 16: Other information

Issue date	13/02/2025
Revision date	13/02/2025
Data sources	REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.
Abbreviations and acronyms	<p>CAS-No. - Chemical Abstract Service number</p> <p>ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways</p> <p>ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road</p> <p>ATE - Acute Toxicity Estimate</p> <p>BCF - Bioconcentration factor</p> <p>BLV - Biological limit value</p> <p>BOD - Biochemical oxygen demand (BOD)</p> <p>CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008</p> <p>DMEL - Derived Minimal Effect level</p> <p>DNEL - Derived-No Effect Level</p> <p>EC-No. - European Community number</p> <p>EC50 - Median effective concentration</p> <p>ED - Endocrine disrupting properties</p> <p>EN - European Standard</p> <p>IARC - International Agency for Research on Cancer</p> <p>IATA - International Air Transport Association</p> <p>IMDG - International Maritime Dangerous Goods</p> <p>IOELV - Indicative Occupational Exposure Limit Value</p> <p>LC50 - Median lethal concentration</p> <p>LD50 - Median lethal dose</p> <p>LOAEL - Lowest Observed Adverse Effect Level</p> <p>N.O.S. - Not Otherwise Specified</p> <p>NOAEC - No-Observed Adverse Effect Concentration</p> <p>NOAEL - No-Observed Adverse Effect Level</p> <p>NOEC - No-Observed Effect Concentration</p> <p>vPvB - Very Persistent and Very Bioaccumulative</p> <p>WGK - Water Hazard Class</p> <p>VOC - Volatile Organic Compounds</p> <p>SDS - Safety Data Sheet</p> <p>RID - Regulations concerning the International Carriage of Dangerous Goods by Rail</p>

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REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation
(EC) No 1907/2006

PNEC - Predicted No-Effect Concentration

PBT - Persistent Bioaccumulative Toxic

OEL - Occupational Exposure Limit

OECD - Organisation for Economic Co-operation and Development

COD - Chemical oxygen demand (COD)

ThOD - Theoretical oxygen demand (ThOD)

TRGS - Technical Rules for Hazardous Substances

TLM - Median Tolerance Limit

STP - Sewage treatment plant

Other information

None.

Indication of changes			
Section	Changed item	Change	Comments
			general update
	Regulations Singapore	Modified	

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.