

SAFETY DATA SHEET

According to Regulation (EC) No 453/2010

SDS-CHL-0001

Version 1.2

Revision Date: 01.10.2018

Printing Date: 01.10.2018

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

1.1 Product identifier

Product name : **Chloroform (Stabilized with Amylene/Ehtanol)**
Included product code : CHL012-2.5, CHL012-4.0, CHL012-25M

1.2 Relevant identified uses of the substance or mixture

Identified uses : Laboratory chemicals. Not for pharmaceutical, household or other uses.
Uses advised against : Not applicable

1.3 Details of the supplier of the safety data sheet

Company : Elite Advanced Materials Sdn Bhd
No 1, Jalan KPK 1/2, Kawasan Perindustrian Kundang, 48020 Rawang, Selangor, Malaysia
E-mail address : enquiry@eamaterials.com

1.4 Emergency telephone number

Emergency phone : +60 3-60343766 (Local business hours only)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Carcinogenicity	Category 2
Eye irritation	Category 2
Skin corrosion/irritation	Category 2
Acute oral toxicity	Category 4
Acute inhalation toxicity	Category 3
Reproductive toxicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 2

2.2 Label elements

Labeling in compliance to Regulation (EC) No. 1272/2008 [CLP/GHS]

Hazard pictograms



GHS08



GHS06



GHS07

Signal word

Danger

Hazard statements

H302 - Harmful if swallowed

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H331 - Toxic if inhaled

H336 - May cause drowsiness or dizziness

H351 - Suspected of causing cancer

H361d - Suspected of damaging the unborn child

H372 - Causes damage to organs through prolonged or repeated exposure

H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary statements

P201 - Obtain special instructions before use.

P260 - Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P280 - Wear protective gloves.

P281 - Use personal protective equipment as required.

Response

P302 + P352

IF ON SKIN: Wash with plenty of soap and water.

P304 + P340

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338

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

P308 + P313

IF exposed or concerned: Get medical advice/attention.

Disposal

P501

Dispose of contents/container to an approved waste disposal plant.

2.3 Other hazards

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Synonyms: Trichloromethane, Methylidyne trichloride

Formula: CHCl_3

Molecular Weight: 119.38 g/mol

Component	Identity	Classification Code	H-Code	Concentration (by volume)
Chloroform	CAS-No. :67-66-3 EC-No. : 200-663-8	Carc. 2;Reproductive Tox. 2; Acute Tox. 3; Acute Tox. 4; STOT RE 1; Eye irrit. 2; Skin irrit. 2	H351, H361d, H331, H302, H372, H319, H315	$\geq 60 - \leq 100\%$
Ethanol	CAS-No. :64-17-5 EC-No. : 200-578-6	Flam. Liq. 2 Eye irrit. 2	H225 H319	$\geq 1 - < 3\%$

3.2 Mixture

Not applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid measures

General advice

First aider needs to protect himself. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathe in, move the person into fresh air. Loosen clothing as necessary and position individual in a comfortable position. If not breathing, give artificial respiration. Consult a physician. Do not use mouth-to-mouth resuscitation.

In case of skin contact

Take off immediately all contaminated clothing. Wash off with soap and plenty of water for at least 15 minutes. Take victim to a hospital immediately. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Remove contact lenses if able to do so during rinsing.

If swallowed

Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Caution if victims vomits. Risk of aspiration! Keep respiratory tract clear. Consult a physician.

4.2 Most important symptoms and delayed symptoms and effects

Irritant effects, Cough, Shortness of breath, Respiratory arrest, Dizziness, Narcosis, Agitation, Spasms, Inebriation, Nausea, Vomiting, Stomach/intestinal disorders, Cardiovascular disorders, Headache, Ataxia (impaired locomotor coordination), Drying-out effect resulting in rough and chapped skin.

4.3 Indication of any immediate medical attention and special treatment

Laxative: Sodium sulfate (1 tablespoon/1/4 l water).

SECTION 5: FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide (CO₂) to extinguish flames.

Unsuitable extinguishing media

No information available.

5.2 Special hazards arising from the substance or mixture

Not combustible. Ambient fire may liberate hazardous vapours.
Fire may cause evolution of: Hydrogen chloride gas, Phosgene

5.3 Advice for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapors, mist or gas. Avoid substance contact procedures. Ensure adequate ventilation. Evacuate personnel to safe areas. Observe emergency procedures, consult an expert.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Avoid discharging into the environment.

6.3 Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see Section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precaution for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use only under a chemical fume hood. Observe label precautions.

7.2 Conditions for safe storage, including any incompatibilities

Protect from light. Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep locked up or in area accessible only to qualified or authorised persons.

7.3 Specific end use

No data available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Component	Value	Control Parameters	Basis
Chloroform	TWA	10 ppm	MY OEL
		49 mg/m ³	
Ethanol	TWA	1.000 ppm	MY OEL
		1.880 mg/m ³	

8.2 Exposure control

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Personal protection measures, such as personal protective equipment

Do not eat, drink or smoke during chemical handling. Remove and wash contaminated clothing before re-using. Ventilation must working properly, especially in confined areas. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/ face protection

Face shield or safety glasses is required during handling. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact*

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Material: Fluorinated rubber
 Minimum layer thickness: 0.7 mm
 Break through time: 480 min
 Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact*

Material: Fluorinated rubber
 Minimum layer thickness: 0.7 mm
 Break through time: 480 min
 Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

*Source – Sigma Aldrich, 2018

Body protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Required when vapours/aerosols are generated. Recommended Filter type: Filter AX (EN 371). The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	Colorless
Ordor	:	Aromatic
Ordor threshold	:	84.9 - 201.5 ppm
pH - value	:	No data available
Melting point / Range	:	-63 °C – lit.
Initial boiling point / Range	:	60.5 – 61.5 °C – lit.
Flash point	:	Does not flash
Evaporation rate	:	11.6 (Butyl Acetate = 1.0)
Flammability limit - LEL	:	Not applicable

Flammability limit - UEL	:	Not applicable
Vapour pressure	:	213.3 hPa at 20.0 °C
Vapor density (air = 1)	:	4.25
Density	:	1.492 g/mL at 25 °C
Water solubility	:	Slightly soluble in water
Partition coefficient: n-octanol/water:		log Pow: 1.97
Auto-ignition temperature	:	No data available
Decomposition temperature	:	Distillable in an undecomposed state at normal pressure
Viscosity	:	0.57 mPa.s at 20.0 °C
Explosive properties	:	Not classified as explosive
Oxidising properties	:	None
Surface Tension	:	No data available

9.2 Other information

Not applicable

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Light and heat sensitive.

Contain the following stabilizer(s):

Ethanol (>=0.5, - <= 1%)

10.3 Possibility of hazardous reactions

Risk of explosion with:

Ammonia, Amines, nitrogen oxides, bases, Oxygen, alkali amides, organic nitro compounds, strong alkalis, Fluorine, peroxi compounds, Alkaline earth metals, Alkali metals, Powdered metals, Methanol with alcoholates or strong alkalis, Powdered iron, Powdered magnesium, Powdered Aluminium, Various alloys (sensitive to shock), Oxygen with alkali compounds, Acetone with alkali compounds, Potassium (sensitive to shock), sodium (sensitive to shock)

Violent reactions possible with:

phosphines, bis(dimethylamino)dimethyl tin, nonmetallic hydrogen compounds, Powdered metals, Light metals, Ketones, mineral acids, Strong oxidizing agents, semimetallic hydrogen compounds

10.4 Conditions to avoid

Incompatible products. Exposure to light. Excess heat.

10.5 Incompatible materials

Strong oxidizing agents, Strong bases, Magnesium, Sodium/Sodium oxides, Lithium, Powdered metals

10.6 Hazardous decomposition products

Phosgene, Hydrogen chloride gas, Chlorine

SECTION 11: TOXICOLOGY INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Component	LD50 Oral	LD50 Dermal	LOEC Inhalation
Chloroform	908 mg/kg (rat)	> 20 mg/kg (rabbit)	500 ppm (rat) 6 h
Ethanol	7060 mg/kg (rat)	Not listed	Not listed

Skin corrosion/irritation

Skin - Rabbit

Result: Irritating to skin. - 24 h

Serious eye damage/eye irritation

Serious eye irritation

Respiratory or skin sensitisation

Did not cause sensitisation on laboratory animals

Germ cell mutagenicity

Genotoxicity in vitro (Ames test): Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

Carcinogenicity

Carcinogenicity - Rat - Oral

Tumorigenic: Carcinogenic by RTECS criteria. Leukaemia

The National Cancer Institute (NCI) has found clear evidence for carcinogenicity. Limited evidence of a carcinogenic effect.

IARC: 2B – Group B: Possible carcinogenic to humans (Chloroform)

Reproductive toxicity

Suspected of damaging the unborn child. Suspected human reproductive toxicant.

Specific target organ toxicity - single exposure

May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Target Organs: Liver, Kidney.

Aspiration hazard

No data available

Additional Information

RTECS: FS9100000

Vomiting, Gastrointestinal disturbance, Exposure to and/or consumption of alcohol may increase toxic effects., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Ecotoxicity

Component	Freshwater Algae	Freshwater Fish	Bacteria	Daphnia and other aquatic invertebrates
Chloroform	IC5 = 1,100 mg/L/8 d Green algae (Scenedesmus quadricauda)	LC50 = 18 mg/L/96h Bluegill sunfish (Lepomis macrochirus) LC50 = 162 mg/L/48 h Golden orfe (Leuciscus idus) LC100 = 220 mg/L/48 h Golden orfe (Leuciscus idus) LC50 = 97 mg/L/96 h other fish LC50 = 121 mg/L/96 h zebra fish (Danio rerio) NOEC = 122	EC5 = 125 mg/L/16 h (Pseudomonas putida) EC50 = 1,010 mg/L/3 h activated sludge	EC50 = 79 mg/L/48 h Water flea (Daphnia magna) Immobilization EC50 = 51,6 mg/L/48 h Water flea (Daphnia magna) EC5 = > 6,560 mg/L/72 h (E. sulcatum) NOEC = 120 mg/L/11 d Water flea (Daphnia magna)

		mg/L/10 d (Oryzias latipes) NOEC = 24 mg/L/ 96 h Rainbow trout (Oncorhynchus mykiss)		
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12.2 Persistence and degradability

Not readily biodegradable

12.3 Bioaccumulative potential

Bioaccumulation is not expected

12.4 Mobility in soil

Mobile in soil

12.5 Results of PBT and vPvB assessment

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

12.6 Other adverse effects

Discharge into the environment must be avoided. Harmful to aquatic life.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment method

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Contaminated packaging

Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

ADR/RID: 1888

IMDG: 1888

IATA-DGR: 1888

14.2 UN proper shipping name

ADR/RID: CHLOROFORM

IMDG: CHLOROFORM

IATA-DGR: Chloroform

14.3 Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA-DGR: 6.1

14.4 Packaging group

ADR/RID: III

IMDG: III

IATA-DGR: III

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA-DGR: no

14.6 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No data available

14.7 Special precautions for user

No data available

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety datasheet complies with the requirements of Regulation (EC) No. 453/2010.

SECTION 16: OTHER INFORMATION

This information is based on present level of our knowledge, however, this shall not constitute a guarantee product features and shall not establish a legally valid contractual relationship.

Relevant phrases:

H302 - Harmful if swallowed

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H331 - Toxic if inhaled

H336 - May cause drowsiness or dizziness

H351 - Suspected of causing cancer

H361d - Suspected of damaging the unborn child

H372 - Causes damage to organs through prolonged or repeated exposure

H373 - May cause damage to organs through prolonged or repeated exposure

Abbreviations:

ADR : European agreement concerning the international carriage of dangerous goods by road.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association

RID : Regulations concerning the International Carriage of Dangerous goods by rail.

Notice to reader

The information contained in this Safety Data Sheet is based on the present state of knowledge and current national legislation. It provides guidance on health, safety and environmental aspects of the products and should not be construed as any guarantee of technical performance or suitability for particular application.

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