

# MATERIAL SAFETY DATA SHEET(MSDS)

## 1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

·CHEMICAL PRODUCT NAME : CIMA CFC 240-20

·NAME OF MANUFACTURER : CHEONGWOO CFC CO., LTD.

·ADDRESS : #14-1, Eogokgongdan3-gil, Yangsan-si, Gyeongnam. Korea

·TEL No. : 82-55-382-7576

·FAX No. : 82-55-382-7584

·EMERGENCY TEL No. : 82-55-338-7576 FAX No. : 82-55-338-7856

## 2. HAZARD IDENTIFICATION

·Hazard Classification

Flammable Substances: Category 2

Acute toxicity (dermal) : Category 4

Skin corrosion/irritation : Category 2

Serious eye damage/eye irritation : Category 2 (2A/2B)

Carcinogenicity: Category 1A

Specific target organ toxicity (single exposure): Category 3 (anesthesia effect)

Specific target organ toxicity (single exposure): Category 3 (respiratory irritation)

Specific target organ toxicity (repeated exposure) : Category 2

·Caution mark in Korea



Symbol:



Signal Word: Warning

Hazard Risk Statement H228 Flammable solid

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness

H350 May cause cancer

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

Precautionary Statements :

Prevention

P210 Keep away from ignition sources such as heat, sparks and open flames.

P233 Keep container tightly closed.

P240 Ground and bond containers and storage containers.

P243 Take measures to prevent static electricity.

P260 Do not breathe particles, fumes, gases, mists, vapors or sprays.

P264 Wash thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves, protective clothing, eye protection, and face protection.

#### Response

P301+P310 If swallowed, seek medical attention immediately.

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

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. If possible, remove contact lenses. Keep washing.

P312 Get medical attention if you feel unwell.

#### Storage

P403+P235 Store in a well-ventilated place and keep at low temperature.

P405 Store in locked storage area.

#### Disposal

P501 Dispose of contents and container according to the contents specified in relevant laws and regulations.

· Harmful, dangerous and other hazardous that are not included in the classification criteria, hazard : Not available

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS REGISTRY NUMBER	COMPOSITION (%)
N,N-1,6Hexanediylobis [12-hydroxyoctadecanamide]	55349-01-4	18~22
Xylene	1330-20-7	63~67
Ethyl alcohol	64-17-5	10~17

### 4. FIRST-AID MEASURES

·Eye contact : First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.

·Skin contact : Wash with soap and water. Get medical attention if irritation develops or persists.

·Inhalation : Remove to fresh air. If not breathing, give artificial respiration. If breathing difficult, give oxygen. Get immediate medical attention.

·Ingestion : Lower head to prevent vomit from obstructing the airways while inducing vomiting, immediately get medical attention.

·First aid and doctor's notice: Make sure medical personnel are aware of the substance and take protective measures.

Symptoms caused by contact or inhalation may be delayed.

## 5. FIRE-FIGHTING MEASURES

· Extinguishing Media : alcohol foam, carbon dioxide, water spray, dry sand or soil for asphyxiation.

(Inappropriate extinguishing agent: High pressure water)

·Specific hazards with regard to fire-fighting measures:

May be ignited by heat, sparks or flames.

Container may explode when heated

May cause fire and explosion due to vigorous polymerization reaction.

During burning, irritating and very toxic gases may be produced by pyrolysis or combustion.

Irritating to skin and eyes or causing burns by inhalation and contact

·Protective equipment and precautions to be worn when fighting fire

Rescuer wear appropriate protective equipment

Extinguish from the area and keep a safe distance.

Move container from fire area if it is not dangerous

## 6. ACCIDENTAL RELEASE MEASURES

·Personal precaution : Wear protective equipment

·Environmental precaution

Remove with absorbent material to prevent leakage to the outside.

Transfer to a suitable container for disposal and clean the contaminated area.

·Procedure for clean up of spills and leaks: Use of non-active and adsorbent materials such as sand silica gel.

## 7. HANDLING & STORAGE

·Handling : Put in a closed container, keep away from fire.

Do not damage the container.

·Storage: Avoid contact with heat, fire ignition and other sources of ignition.

Store indoors in a safe and cool place at room temperature.

## 8. EXPOSURE CONTROL/PERSONAL PROTECTION

·Exposure standards for chemical substances, biological exposure standards, etc.

#### Domestic regulations

Xylene: TWA-100ppm STEL-150ppm

Ethyl alcohol : TWA-1000ppm

#### ACGIH regulations

Xylene : STEL 150 ppm, TWA 100 ppm

Ethyl alcohol : STEL 1000ppm

Biological exposure limit : No data available

Other exposure standards : No data available

·Appropriate engineering controls: Install local exhaust ventilation system. If the material is at risk of explosive concentration, the ventilation system should be explosion-proof. Make sure it meets the applicable exposure standards.

#### ·Personal protective equipment

○ Respiratory protection : Wear protective respiratory equipment.

○ Eye protection : Wear protective glasses. Install cleansing equipment and emergency washing equipment(shower type) near the workplace.

○ Hand protection : Wear gloves with appropriate chemical resistance.

○ Body protection : Wear work clothes to protect the body from contact

## 9. PHYSICAL & CHEMICAL PROPERTIES

- APPEARANCE : milky white paste
- PH : : No data available
- MELTING POINT : No data available
- BOILING POINT : No data available
- FLASH POINT : Approx 25°C
- DENSITY : 0.86±0.02 (25°C)
- VAPOUR PRESSURE : Xylene: 11mmHg (25°C)

## 10. PHYSICAL HAZARD(STABILITY & REACTIVITY)

- Chemical stability and Possibility of hazardous decomposition products
  - Stable under normal use conditions
  - Container may explode when heated
  - May form explosive mixtures at or above the flash point
  - Irritating to skin and eyes or causing burns by inhalation and contact
- Conditions to avoid : Isolation from sources of ignition such as heat or flame
- Incompatible materials : flammable, irritating, toxic gases
- Hazardous substances produced during decomposition

During burning, irritating and very toxic gases may be produced by pyrolysis or combustion.

## 11. TOXICOLOGICAL INFORMATION

·Information on the likely routes of exposure : No data available

·Health Hazard Information

Acute toxicity

Oral : Xylene: LD50 3523 mg/kg Rat

Ethyl alcohol : LD50 7060 mg/kg Rat

Dermal : Xylene: LD50 1100 mg/kg

Inhalation : Xylene : Vapor LC50 5922 ppm 4 hr Rat

Ethyl alcohol : Vapor LC50 116.9 mg/ℓ 4 hr Rat

Skin corrosive or irritating substance

Ethyl alcohol: No irritation as a result of skin corrosion/irritation test using rabbit

Xylene : Skin irritation test using rabbits EU Method B.4 results 1st skin irritation index  
3, moderate irritation

Serious eye damage or irritant substance

Ethyl alcohol : Conjunctivitis, conjunctival edema, iris damage, and corneal damage  
occurred as a result of severe eye damage/irritation test using

rabbit (conjunctival index: 2.1, iris index: 0.44 conjunctival edema index: 1.3 corneal index: 1.1

Xylene : Eye and respiratory irritation effects on humans exposed to mixed xylene of 100 ppm of STEL based on short-term exposure . Conjunctival redness (blood vessels more diffuse above normal and scarlet, individual vessels not easily identified) was observed when o-xylene was injected into rabbits,. One hour after instillation, conjunctival chemopathy (over-normal swelling) and conjunctival discharge (over-normal volume) were observed in 5 rabbits . Ministry of Environment Regulations on Classification and Labeling of Chemical Substances: Category 2

Respiratory Sensitization: No data available

Skin sensitizing substances

Ethyl alcohol: Skin sensitization did not occur as a result of skin sensitization test using mice (male/male).

Xylene : Mouse local lymph node test OECD TG 429 Non-sensitizing

Carcinogenic substances

Occupational Safety and Health Act : No data available

Ministry of Employment and Labor Notification : Ethyl alcohol : 1A

IARC : Xylene : 3

Ethyl alcohol : 1

OSHA : No data available

ACGIH : Xylene : A4

Ethyl alcohol : A4

NTP : No data available

EU CLP : No data available

Germ cell mutagenic substance

Ethyl alcohol : Positive result of dominant lethal test using rodents in vivo

Negative spot test result using in vivo mouse

Negative micronucleus test results using mammalian red blood cells in vivo

Negative chromosomal abnormality test results using mammalian bone marrow cells in vivo

Xylene : Reverse mutation test using in vitro bacteria OECD TG471 result negative, micronucleus test using mouse bone marrow cells in vivo, Oef 474, GLP result negative

Reproductive toxicity

Ethyl alcohol : No significant effect as a result of developmental toxicity/teratogenicity/maternal toxicity test using rats (male) (developmental toxicity NOAEL = 4000mg/kg, teratogenic NOAEL = 5200mg/kg, teratogenic LOAEL = 8200mg/kg) (OECD Guideline 415)

Xylene : 2nd generation rat reproductive toxicity (repeated inhalation exposure, EPA OPPTS 870.3800) test results, no toxic effects related to reproduction and development were observed up to the highest concentration tested (500 ppm). NOAEC (reproductive/development/parental toxicity)  $\geq$  500 ppm As a result of developmental inhalation toxicity test using rats (OECD TG414), BMCL10 (development) = 5761 mg/m<sup>3</sup> due to a decrease in newborn weight, BMCL10 (maternal toxicity) due to a decrease in maternal weight. = 2675 mg/m<sup>3</sup>

○ Specific target organ toxicity (single exposure)

Ethyl alcohol : As a result of oral toxicity test using rabbits, eye tremors and vestibular function were suppressed, which may affect the central nervous system . Symptoms of central nervous system suppression have been shown in experimental animals

Xylene : Dizziness has been reported in humans, remarkable arousal, tremors, and anesthetic effects have been reported in experimental animals. Slight irritation to eyes and upper respiratory tract and slight central nervous system effect when exposed to 100 ppm 442 mg/m<sup>3</sup> in humans

○ Specific target organ toxicity (repeated exposure)

Ethyl alcohol : In a 4-month inhalation exposure experiment in test mice, it was reported that it had an effect on blood vessels, liver, and spleen, and

the effect on the kidneys and anesthetic effect were recognized. Results of 90-day subchronic inhalation toxicity test using rats and mice OECD TG 413 , GLP, ataxia, acute reflex defects, and central nervous system toxicity including decreased activity. Weight gain, various changes in blood and serum clinical chemistry indices were observed, and absolute liver weight increased.

Xylene : In humans and animals, during chronic exposure, central nervous disorders (loss of appetite, vomiting, nightmares, forgetfulness, anxiety, dizziness after posture change, etc.) have been observed and reported. It has been reported that chronic exposure to the substance may cause hearing loss due to noise. National Institute of Environmental Sciences, Toxic Substance Classification Notification: Category 1

Aspiration hazard

Xylene: Kinematic viscosity: 0.86 mm<sup>2</sup>/s @ 20degC (expolated calculation)

Other hazardous substances: No data available

## 12. ECOLOGICAL INFORMATION

·Ecotoxicity

Fish : N,N-1,6Hexanediybis: LC50 0.000000137 mg/ℓ 96 hr

Xylene: LC50 2.6 mg/ℓ 96 hr (OECD Guideline 203)

Ethyl alcohol : LC50 > 100 mg/ℓ 96 hr Pimephales promelas

Crustacean: N,N-1,6Hexanediybis: LC50 0.0000000294 mg/ℓ 48 hr

Ethyl alcohol : LC50 5012 mg/ℓ 48 hr Ceriodaphnia dubia

Xylene: LC50 3.6 mg/ℓ 24 hr (OECD TG202)

Algae: N,N-1,6Hexanediybis: EC50 0.0000000352 mg/ℓ 96 hr

Xylene: EC50 1.3 mg/ℓ 48 hr (OECD TG201, GLP)

Ethyl alcohol : ErC50 275 mg/ℓ 72 hr Chlorella vulgaris

#### ·Persistence and degradability

Persistence: N,N-1,6Hexanediybis: log Kow 2.23

Xylene: log Kow 3.15

Ethyl alcohol : log Kow -0.32

Degradability: No data available

#### ·Bioaccumulation

Concentration: Xylene : BCF 25.9 (Oncorhynchus mykiss)

N,N-1,6Hexanediybis: BCF 3.162 (QSAR predicted value for substances with low  
water solubility is not applicable)

Ethyl alcohol : BCF 1

Biodegradability: Methanol: 97% 20 day (O<sub>2</sub> consumption)

Ethyl alcohol : 71% (easy decomposition)

Xylene: 90% 28 day (Easy degradability, OECD TG301F, GLP)

·Mobility in soil: Xylene: A4

·Other adverse effects:

Xylene : Fish chronic toxicity test NOEC56d>1.3mg/L ,

Daphnia chronic toxicity test US EPA 600/4-91-0 03 Result NOEC=1.17 mg/L

Ethyl alcohol : Crustacean: Daphnia magna: NOEC, 9d, = 9.6 mg/L

Algae: Skeletonema costatum: NOEC, 120h, = 3240mg/L

\* According to the product composition, this product does not contain heavy metals or Halogen compounds.

### 13. DISPOSAL CONSIDERATION

·Disposal method : Dispose of the contents container (according to the contents specified in the relevant laws and regulations).

·Disposal precautions : Dispose of the contents container (according to the contents specified in the relevant laws and regulations).

### 14. TRANSPORT INFORMATION

·UN number: 1263

·UN proper shipping name : Paint related material

·Transport hazard class : 3

·Packing group (if applicable) : 3

·Marine pollutant (applicable/not available) : II

·Special safety measures that the user needs or needs to know about the transport or means of transport

Emergency measures in case of fire: F-E

Emergency measures in case of spill: S-D

## 15. LEGAL REGULATION

·Regulations under the Occupational Safety and Health Act

Ethyl alcohol : Substances subject to process safety report (PSM) submission, substances with exposure standards

Xylene: Substance subject to process safety report (PSM) submission, Hazardous substances subject to management, Substances subject to work environment measurement (Measurement cycle: 6 months), Substances subject to special health examination (diagnosis cycle: 12 months), Substances for setting exposure limits

·Regulation by Chemical Substance Management Act: Not available

·Regulations under the Dangerous Goods Safety Management Act:

Class 4 - 2 Oil class (non-water soluble compounds) 1000L

·Regulation by Waste Management Act: Designated waste.

·Regulations by other domestic and foreign laws

Domestic regulation

Other domestic regulations: Not available

Overseas regulation

US management information (OSHA regulation): Not available

US management information (CERCLA regulations)

Xylene: 45.3599kg 100lb

US management information (EPCRA 302 regulation): Not available

US management information (EPCRA 304 regulation): Not available

US management information (EPCRA 313 regulation)

Xylene: Applicable

US management information (Rotterdam Convention Substance): Not available

US management information (Stockholm Convention substance): Not available

US management information (Montreal Protocol): Not available

EU classification information (confirmed classification result)

Ethyl alcohol : Flam. Liq. 2

Xylene: Flam. Liq. 3, Acute Tox. 4\*, Acute Tox. 4\*, Skin Irrit. 2

EU classification information (danger phrases)

Ethyl alcohol : H225

Xylene: H226 , H332 , H312 , H315

EU classification information (safety statements) : Not available

## 16. REFERENCE MATERIALS

·Material source : product handbook issued by manufacturing company

MSDS from Korea occupational safety & health agency

·The framing date : 2007. 04. 30

·The final revision date : 2023.06.02