

MATERIAL SAFETY DATA SHEET(MSDS)

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

·CHEMICAL PRODUCT NAME : Depol CFC-2000

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

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

·TEL No. : 82-55-382-7576

·FAX No. : 82-55-382-7584

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2. HAZARD IDENTIFICATION

2.1 Hazard Classification:

Flammable liquid: Category 3

Acute toxicity (inhalation: vapor): Category 4

Skin corrosion/skin irritation: Category 2

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

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

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

Specific target organ toxicity (repeated exposure): Category 1

Aspiration hazard: Category 1

2.2 Label Elements Including Precautionary Statements:

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· CAUTION MARK IN KOREA



Symbol:

Signal Word: danger

Hazard Risk Statement: H226 flammable liquid

H304 May be fatal if swallowed and enters airways.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.

H372 Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements

prevention

- P210 Keep away from heat, sparks, open flames and high temperatures. - No smoking.
- P233 Keep container tightly closed.
- P240 Ground/bond container/receiving equipment.
- P241 Use explosion-proof electrical, ventilation, lighting and equipment.
- P242 Use non-sparking tools.
- P243 Take precautions against static electricity.
- P260 Do not breathe dust, fume, gas, mist, vapor or spray.
- P261 Avoid breathing dust, fume, gas, mist, vapor or spray.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Handle only outdoors or in a well-ventilated area.
- P280 Wear protective gloves, protective clothing, safety glasses, and face protection.

Response

- P301+P310 If swallowed, seek medical attention immediately.
- P302+P352 If on skin: Wash with plenty of water.
- P303+P361+P353 If on skin (or hair): Take off immediately or remove all contaminated clothing. Wash skin with water. Or take a shower.
- P304+P340 If inhaled: Move 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 possible. Keep washing.
- P308+P313 If exposed or concerned: Get medical advice/attention.
- P312 If you feel unwell, consult a medical institution (doctor).
- P331 Do not make someone vomit.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P362+P364 Take off contaminated clothing and wash before reuse.
- P370+P378 In case of fire, use a fire extinguisher to put out the fire.

Storage

- P403+P233 Store containers tightly closed in a well-ventilated place.
- P403+P235 Store in a well-ventilated place and keep at low temperature.
- P405 Store in a locked storage location.

Disposal

- P501 Dispose of container contents (in accordance with relevant laws and regulations).

· Harmful , dangerous and other hazardous that are not included in the classification criteria , hazard: No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS REGISTRY NUMBER	COMPOSITION (%)
Vinylether copolymer	65436-49-9	33 ~ 37
Xylene	1330-20-7	63 ~ 67

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 : If swallowed, do not induce vomiting. Give victim a glass of water. Call a physician immediately. Never give anything by mouth to an unconscious person.
- First aid measures and caution to doctors :
Symptoms caused by contact or inhalation may be delayed.
Make sure medical personnel are aware of the substance and take protective measures.

5. FIRE-FIGHTING MEASURES

- EXTINGUISHING MEDIA: Use dry sand or soil for alcohol foam, carbon dioxide, water spray, or asphyxiation
(Inappropriate extinguishing agent: No data available)
- Specific hazards with regard to fire-fighting measures:
Flammable liquids and vapors
May polymerize violently, causing fire and explosion.
During burning, irritating and highly toxic gases may be produced by thermal decomposition or combustion.
Irritates or burns skin and eyes if inhaled or on contact.

· Protective equipment and precautions to be worn when fighting fire:

Rescuers must wear appropriate protective equipment.

Leave the area and extinguish the fire while maintaining a safe distance.

Move containers from fire area if you can do it without risk.

Be careful because most things are lighter than water.

Because most vapors are heavier than air, they can spread along the ground and accumulate in low-lying areas or confined spaces.

6. ACCIDENTAL RELEASE MEASURES

· Personal precaution:

Eliminate all ignition sources.

When handling materials, be sure to ground all equipment.

Stop leak if you can do it without risk.

Avoid inhalation of dust, fume, gas, mist, vapor or spray.

· Environmental precaution :

Collect spilled product, place in appropriate container for disposal, and purify the air.

Prevent entry into waterways, drains, basements and confined spaces.

· Procedure for clean up of spills and leaks:

In case of small spill, absorb with sand or non-combustible material and place in container.

In case of large spill, create a ditch away from the liquid spill.

Inactive and absorbent substances such as sand and silica gel are used.

7. HANDLING & STORAGE

· Handling :

Store in airtight container, keep away from fire.

When handling materials, be sure to ground all equipment.

Use only non-sparking tools.

Wash handled area thoroughly after handling.

Handle only outdoors or in a well-ventilated area.

· Storage:

Store in a safe and cool place at room temperature.

Keep away from heat, sparks, open flames and high temperatures. - No smoking.

Empty drums should be completely drained, properly plugged, and immediately returned to the drum regulator or placed appropriately.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

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

Domestic regulations : xylene : TWA - 100ppm STEL - 150ppm

ACGIH regulations : Xylene : STEL 150 ppm, TWA 100 ppm

Biological exposure limit : No data available

Other exposure standards : No data available

·Appropriate engineering controls: Use process isolation, local exhaust, or other engineering controls to keep air levels below exposure limits.

·Personal protective equipment

Respiratory protection : Wear protective respiratory equipment.

Eye protection : Wear safety glasses that can be used over protective glasses that protect against flying particles or harmful liquids. Install eyewash equipment and emergency washing equipment (shower type) near the workplace.

Hand protection : Wear gloves with appropriate chemical resistance.

Body protection : Wear chemical-resistant work clothing to protect your body from contact.

9. PHYSICAL & CHEMICAL PROPERTIES

·APPEARANCE : clear liquid

·PH : No data available

·MELTING POINT : No data available

·BOILING POINT : 138°C

·FLASH POINT : Approx 25°C

·DENSITY : 0.88±0.02 (25°C)

·VAPOUR PRESSURE : No data available

10. PHYSICAL HAZARD(STABILITY & REACTIVITY)

·Chemical stability and Possibility of hazardous decomposition products

Flammable liquids and vapors

Violent polymerization may cause fire and explosion.

May form explosive mixtures at or above flash point

Containers may explode when heated.

Leakage may present a fire/explosion hazard.

·Conditions to avoid : Keep away from heat, sparks, open flames and high temperatures - No smoking

·Incompatible materials : No data available

·Hazardous substances produced during decomposition :

Irritating, corrosive, toxic gas

During burning, irritating and highly toxic gases may be produced by thermal decomposition or combustion.

11. TOXICOLOGICAL INFORMATION

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

· Health Hazard Information

Acute toxicity

Oral: Xylene : LD50, 3523mg/kg Rat

Dermal : Xylene : LD50 1100 mg/kg Rabbit

Inhalation: Xylene : vapor LC50 5922 ppm 4 hr Rat

Skin corrosion or irritation :

Xylene: Skin irritation test using rabbits EU Method B.4 Results: Moderate irritation with a primary skin

irritation index of 3

Serious eye damage or irritation :

Xylene: Short-term exposure standard STEL 100 ppm of mixed xylene causes eye and respiratory irritant effects in humans. When o-xylene is injected into rabbits, conjunctival redness (blood vessels become more diffuse and crimson than normal, individual blood vessels are not easily identified). observed, . Conjunctival chemosis (swelling above normal) and conjunctival discharge (amount above normal) were observed in 5 rabbits 1 hour after instillation. Ministry of Environment Regulations on Classification and Labeling of Chemical Substances: Category 2

Respiratory sensitization : No data available

Skin sensitization : No data available

Carcinogenicity

Occupational Safety and Health Act : No data available

Ministry of Employment and Labor Notification : No data available

IARC : Xylene : 3

OSHA : No data available

ACGIH : Xylene : A4

NTP : No data available

EU CLP : No data available

Germ cell mutagenicity :

Xylene: In vitro bacterial reverse mutation test OECD TG471 result was negative, in vivo mouse Micronucleus test using bone marrow cells OEF 474, GLP result was negative.

Reproductive toxicity :

Xylene: As a result of the rat 2nd generation reproductive toxicity (repeated inhalation exposure, EPA

OPPTS870.3800) test, no toxic effects related to reproduction and development were observed up to the highest concentration tested (500ppm). NOAEC (reproduction/development/parental toxicity) >=500 ppm As a result of the developmental inhalation toxicity test using rats (OECD TG414), BMCL10 (development) = 5761 mg/m³ due to decreased neonatal weight, BMCL10 (maternal toxicity) due to decreased maternal weight. =2675mg/m³

○ Specific target organ toxicity (single exposure) :

Xylene: Dizziness has been reported in humans, and significant arousal, tremors, and anesthetic effects have been reported in experimental animals. When exposed to 100ppm 442 mg/m³ in humans, mild irritation to the eyes and upper respiratory tract and slight central nervous system effects.

○ Specific target organ toxicity (repeated exposure) :

Xylene: Central nervous system disorders (loss of appetite, vomiting, nightmares, forgetfulness, anxiety, dizziness after changing position, etc.) have been reported in humans and animals upon chronic exposure. It has been reported that chronic exposure to the substance may cause hearing loss due to noise. National Institute of Environmental Research Toxic Substance Hazard Classification Notice: Category 1

○ Inhalation hazard :

Xylene: Kinematic viscosity: 0.86 mm²/s @ 20degC (extrapolated calculation)

○ Other adverse effects : No data available

12. ECOLOGICAL INFORMATION

·Ecotoxicity

- Fish : Xylene : LC50 2.6 mg/ℓ 96 hr (OECD Guideline 203)
- Crustaceans : Xylene : LC50 3.6 mg/ℓ 24 hr (OECD TG202)
- Algae : Xylene : EC50 1.3 mg/ℓ 48 hr (OECD TG201, GLP)

·Persistence and degradability

- Persistence : Xylene : log Kow 3.15
- Degradability : No data available

·Bioaccumulative

- Concentration : Xylene : BCF 25.9 (Oncorhynchus mykiss)
- Biodegradability : Xylene : 90 % 28 day

·Soil mobility : No data available

·Other adverse effects :

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

Daphnia chronic toxicity test US EPA 600/4-91-003 result NOEC=1.17 mg/L

13. DISPOSAL CONSIDERATION

·Disposal method : If specified in the Waste Management Act, dispose of contents and containers in accordance with regulations.

·Disposal precautions : Dispose of container contents (according to 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) : III

·Marine pollutant (applicable/not available) : No data available

·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

·Regulation by the Industrial Safety and Health Act :

Xylene: Substance subject to submission of process safety report (PSM),

hazardous substance subject to management.

Materials subject to work environment measurement (measurement cycle: 6 months).

Substances subject to special health examination (diagnosis cycle: 12 months),

substances for which exposure standards are set

·Regulation by Chemical Substance Control Act: Not applicable

·Regulations under the Dangerous Goods Safety Management Act:

Class 4 Class 2 Petroleum(Non-soluble) 1000L

·Regulations under the Waste Management Act: Designated waste

·Regulations by other domestic and foreign laws

Domestic regulation

Other domestic regulations: Not applicable

Overseas regulation

US management information (OSHA regulation): Not applicable

US management information (CERCLA regulations) : applicable

Xylene : 45.3599kg 100lb

U.S. management information (EPCRA 302 regulation): Not applicable

US management information (EPCRA 304 regulation): Not applicable

US management information (EPCRA 313 regulation): applicable

Xylene : applicable

US management information (Rotterdam Convention Substance): Not applicable

US management information (Stockholm Convention substance): Not applicable

US management information (Montreal Protocol): Not applicable

EU classification information (confirmed classification result) : applicable

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

EU classification information (danger phrases) : applicable

Xylene : H226,H332,H312,H315

EU classification information (safety statement): Not applicable

16. REFERENCE MATERIALS

·Material source : product handbook issued by manufacturing company

MSDS from Korea occupational safety & health agency

·The framing date : 2008.1.30

·The final revision date : 2024.01.31