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MATERIAL SAFETY DATA SHEET

SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

- PRODUCT NAME	SKY DMCD
- CHEMICAL NAME	Dimethyl 1,4-cyclohexane-dicarboxylate
- NAME OF MANUFACTURER/SUPPLIER	SK Chemicals Co., Ltd
- ADDRESS	#600 Hwang Sung Dong, Nam-Ku Ulsan 680-160 , Korea
- TELEPHONE NUMBER	82-52-279-2741
- FAX NUMBER	82-52-256-7865
- CHEMICAL FAMILY	Esters
- CREATION DATE	Jun. 10. 2003
- REVISION DATE	Jan.01. 2011

SECTION 2 HAZARD-RISK IDENTIFICATION

A) Hazard-Risk Classification

- | | |
|--------------------------------------|------------------------------|
| - NFPA RATINGS (SCALE 0-4,estimated) | Health=2 Fire=1 Reactivity=0 |
| - EC CLASSIFICATION (CALCULATED) | No classification assigned. |

- PHYSICAL FORM	Liquid
- MAJOR HEALTH HAZARDS	Causes eye irritation
- INHALATION	
SHORT TERM EXPOSURE	No information on significant adverse effects
LONG TERM EXPOSURE	No information is available
- SKIN CONTACT:	
SHORT TERM EXPOSURE	May causes skin irritation
LONG TERM EXPOSURE	No information is available
- EYE CONTACT	
	Causes eye irritation
	Any material into the eye may be irritating.
- INGESTION:	
SHORT TERM EXPOSURE	Kidney damage
LONG TERM EXPOSURE	No information is available

B) Label elements including precautionary statements

- o Symbol



- o Signal Word: Warning
- o Hazard-Risk Statement

H311 Toxic in contact with skin

- o Precautionary Statement

*Prevention

P280 Wear protective gloves/protective clothing.

Manufacturer/supplier or the competent authority to specify parts of the body to be washed after handling

* Response

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

P312 Call a POSION CENTER or doctor/physician if you feel unwell.

- P322 Specific measures (see first aid measures)
P363 Wash contaminated clothing before use.

* Disposal

- P501 Dispose of contents/container.

SECTION 3 COMPOSITION, INFORMATION ON INGREDIENTS

- | | |
|--------------------------------|--|
| - SUBSTANCE/MIXTURE | Substance |
| - CHEMICAL NAME (GENERAL NAME) | Dimethyl 1,4-cyclohexane-dicarboxylate |
| - SYNONYM(S) | 1,4-Cyclohexane dicarboxylic acid dimethyl ester |
| - CAS NUMBER | 94-60-0 |
| - INGREDIENTS AND COMPOSITION | More than 96% |
| - CHEMICAL FORMULA | $C_{10}H_{16}O_4$ |
| - MOLECULAR FORMULA | $CH_3-CO_2-C_6H_{10}-CO_2-CH_3$ |
| - MOLECULAR WEIGHT | 200.23 |

SECTION 4 FIRST AID MEASURES

- INHALATION
Remove from exposure immediately. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Get medical attention.
- SKIN CONTACT
Remove contaminated clothing, jewelry, and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains. Get medical attention immediately.
- EYE CONTACT
Wash eyes immediately with large amounts of water, until no evidence of chemical remains. Get medical attention immediately.
- INGESTION

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

- NOTE TO PHYSICIAN
For ingestion, consider gastric lavage and catharsis.

SECTION 5 FIRE FIGHTING MEASURES

- FIRE AND EXPLOSION HAZARDS Slight fire hazard.
- EXTINGUISHING MEDIA Water spray ,Regular dry chemical, CO₂ ,
Regular "alcohol" foam
Large fires: Use regular foam or flood with fine water spray.
- FIRE FIGHTING
Move container from fire area if it can be done without risk. Do not scatter spilled material with high-pressure water streams. Dike for later disposal. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.
- SPECIAL FIRE-FIGHTING PROCEDURES
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Use water spray to keep fire-exposed containers cool.
- UNUSUAL FIRE AND EXPLOSION HAZARDS
None known to SK Chemicals
- AUTOIGNITION TEMPERATURE : 393°C
- FLASH POINT (TAG OPEN CUP) : 135°C

SECTION 6 ACCIDENTAL RELEASE MEASURES

- OCCUPATIONAL RELEASE

Stop leak if possible without personal risk. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Keep unnecessary people away, isolate hazard area and deny entry.

SECTION 7 HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

Keep container closed. Store away from heat and light.

Avoid contact with eyes, skin and clothing.

SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

- | | |
|-------------------|--|
| - EXPOSURE LIMITS | No occupational exposure limits established. |
| - VENTILATION | |
| GENERAL | Recommend at least ten air changes per hour for good general room ventilation. |
| LOCAL EXHAUST | None should be needed. |
| - EYE PROTECTION | |
| | Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. |
| - CLOTHING | |
| | Wear appropriate chemical resistant clothing. |
| - GLOVES | |
| | Wear appropriate chemical resistant gloves. |
| - RESPIRATOR | |

None should be needed

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

- PHYSICAL STATE	Liquid
- COLOR	Colorless
- ODOR	Sweet
- BOILING POINT	265°C
- MELTING POINT	17~25°C
- VAPOR PRESSURE	8.8 mmHg(at 140°C)
- SPECIFIC GRAVITY (water=1)	1.1(at 35 °C)

SECTION 10 STABILITY AND REACTIVITY

- REACTIVITY
Stable at normal temperatures and pressure.
- CONDITIONS TO AVOID
Avoid heat, flames, sparks and other sources of ignition.
Avoid contact with incompatible materials.
- INCOMPATIBILITIES
oxidizing materials can cause a reaction
- HAZARDOUS DECOMPOSITION:
As with any other organic material, combustion will produce carbon dioxide and probably carbon monoxide
- POLYMERIZATION
Will not polymerize.

SECTION 11 TOXICOLOGICAL INFORMATION

- ANIMAL TOXICITY DATA

TEST	SPECIES	RESULT	TOXICITY
Acute Oral LD ₅₀	Rat	>2000 mg/kg	Slightly Toxic
Skin Irritation	Guinea pig	Slight	

SECTION 12 ECOLOGICAL INFORMATION

- OXYGEN DEMAND DATA
 - COD 2,000mg/g
 - BOD5 50mg/g

SECTION 13 DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

SECTION 14 TRANSPORT INFORMATION

Follow all applicable regulations in your country.

SECTION 15 REGULATORY INFORMATION

- U.S. REGULATIONS
 - TSCA INVENTORY STATUS : Y
- EUROPEAN REGULATIONS (EINECS) : Y
- CANADIAN REGULATIONS (DSL/CEPA) : Y
- AUSTRALIAN REGULATIONS (AICS/NICNAS) : Y
- JAPAN REGULATIONS (MITI) : Y
- KOREA REGULATIONS : Y

SECTION 16 OTHER INFORMATION

The information relates to this specific material. It may not be valid for this material, if used in combination with any other material or in any process or in any unexpected way. It is the user's responsibility to safety himself as to the suitability and completeness of this information for his own particular use.

Users Responsibility

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. It is intended for use only by persons having the necessary technical skills and at their own discretion and risk.