IDENTIFICATION

Product Name: **COLD® 1270 / R1270**

Other name: Hydrocarbon C-45, Propylene
Use: Refrigerant gas
Manufacturer: Colder Solution Co.,Ltd
123/515 Moo3 Theparak Road
Soi Thanasit Bangpla Bangphli
Samut Prakan 10540
Tel: 098-623-8787

Emergency Overview: Flammable Gas, Liquid under pressure.

COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient name	CAS No.	%(w/w)
PROPYLENE	115-07-1	99.50 %

COLD® 1270 contains odourant ethyl mercaptan unless otherwise authorised. (recommended 25 mg/kg) This is detectable to 20 % of its lower flammability limit.

HAZARDS IDENTIFICATION

Classification: FLAMMABLE GAS, GAS Under Pressure, COMPRESSED GAS

SIGNAL WORD: DANGER

HAZARD STATEMENTS: Extremely flammable gas, Contains gas under pressure, may exploded if heated.

GHS Pictograms: FLAMES, GAS CYLINDER

Principle routes of exposure Eye contact, skin contact, and inhalation.

PRECAUTIONARY STATEMENTS:
Prevention: Keep away from heat, sparks, open flame and hot surfaces. No smoking.
Response: Leaking gas fire: Do not extinguish unless leak can be stopped immediately. Eliminate all ignition sources if safe to proceed.
Storage: Protect from sunlight, store in a well-ventilated place.

EMERGENCY OVERVIEW: Flammable gas. Liquid under high pressure.

POTENTIAL HEALTH EFFECTS
Effects of overexposure:
Eye Contact: Irritating if the liquid gets into the eyes, with a possible hazard from freezing due to rapid evaporation. Vapours in high concentration may also be irritating.
Skin Contact: Excessive prolonged contact to the liquid can cause skin irritation and frostbite due to rapid evaporation.
Inhalation: May cause irritation of the respiratory tract. May also cause headaches or dizziness at moderate exposures. Asphyxiant. Causes unconsciousness and respiratory arrest at elevated exposures.
Ingestion: Unlikely to be a problem, owing to high evaporation rate.
Chronic: No effects reported from long term industrial exposure to this product.

FIRST AID MEASURES

Inhalation	Avoid breathing vapours and fumes as much as possible. If someone is overcome by fumes, remove them to fresh air immediately. However, rescuers should avoid becoming a casualty by wearing suitable respiratory protection. If the affected individual is not breathing, administer artificial respiration. Seek medical advice promptly in serious cases of over-exposure.
Skin	Avoid skin contact with the liquid. Remove contaminated clothing and wash the exposed areas with plenty of soap and water. Seek medical advice if irritation or frostbite (see below) occurs.
Eyes	Avoid eye contact with the product. Remove any contact lenses carefully. Hold eyelids open and flush eyes with fresh tepid water for 15 minutes. Seek medical advice immediately for all eye contact. Where significant splashing of *COLD® 1270* liquid may occur, eyewash Facilities stations Should be installed.
Ingestion	Unlikely to be a problem, owing to high evaporation rate.
Frostbite	Obtain medical assistance. If medical advice is not available immediately, place casualty in a warm area as soon as possible and allow the injured area to warm gradually (further damage may occur if the area of injury warms too rapidly). DO NOT EXPOSE THE INJURED AREA TO EXCESS HEAT OR COLD (such as heat lamps, hot water, snow or ice). Gently cover or drape the injured area with clean material, such as a dressing or sheet. To relieve pain, immerse the injured area in water which is near or at body temperature (35-40 deg C). If possible, get the casualty to exercise the injured area gradually. Give them something warm to drink, BUT NO ALCOHOL. Seek medical advice as soon as possible.
Advice to physician:	*No specific treatment recommended. Treat symptomatically. Show a copy of this material safety data sheet to medical personnel dealing with cases of over-exposure.*

FIRE – FIGHTING MEASURES

Flammable Properties
Flashpoint: -108°C
Auto ignition temperature: 455°C (851°F)
Flammable Limits
Lower Explosive Limit: 2.4%
Upper Explosive Limit: 11.0%

Suitable Extinguishing Media: Carbon dioxide, dry chemicals, water spray or fog.

Fire-Fighting Instructions: Stop the release of materials if possible. Cool the vapor space of the storage container with water spray. Avoid accumulation of unburned materials. Remove personnel in general area. Observe maximum isolation when extinguishing fire. Expansion of liquid and change of state from liquid to vapor will allow combustible mixture to encompass a large area. Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face piece operated in positive pressure mode.

Unusual Fire Hazards: Vapors are heavier than air and may travel along the ground or may be moved by ventilation systems and ignited by pilot lights, other flames, sparks, heaters, smoking, electric motors, static discharge, or other ignition sources at locations distant from material handling point.

ACCIDENTAL RELEASE MEASURES

Spill and Leak Procedures:

Avoid sources of ignition-Ventilate area. Use water fog to evaporate or ventilate. Protect body against contact with liquid. If confined space – Use self-contained breathing apparatus. Consult local fire authorities.

HANDLING AND STORAGE

Normal Handling: Keep container closed. Use only with adequate ventilation. Keep away from heat, sparks and flame. To avoid fire, minimize ignition sources. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Do not puncture or incinerate container. High pressure gas. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Storage Recommendation: *COLD® 1270* should be stored in approved areas only. Minimum conditions of storage include dry, cool, secure storage away from heat, sources of ignition and oxidising substances. Keep containers closed and upright when not in use.

EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Ensure there is good ventilation of the area in which the product is used to keep concentrations below the exposure standard or lower explosive limit. While dilution by air

may be sufficient in most cases, mechanical exhaust ventilation may be required. In such cases, use spark proof equipment if possible. A ventilation velocity of at least 0.3 m/s is recommended.

Respiratory protection: If ventilation of the area is not sufficient, respiratory protection may be required. This should be at least approved air supplied or self-contained breathing apparatus where the exposure standard is likely to be exceeded or if work is required close to large gas leaks.

Eye protection: Eye protection is required (face shield, chemical safety glasses or side shield glasses) where splashing is likely.

Skin protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Impervious oil and cold resistant gloves should be worn when using this product. Gloves made of PVC are preferred, though gloves made of nitrite and chloroprene should also be satisfactory.

Exposure Guidelines:
Data not available

PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Rapidly evaporating liquid or gas
Molecular Formula:	C_3H_6
Physical State:	Gas at ambient temperatures.
Odor:	rotten cabbage-like odour
Initial Boiling Point:	-47.7 ^{O}C (-53.9 ^{O}F)
Melting Point:	-185 ^{O}C (-301 ^{O}F)
Solubility in Water:	Very Slight
Vapor Pressure	10.2 bar @ 20 ^{O}C
Flash Point:	-108 ^{O}C
Evaporation Rate:	Rapid
LEL/UEL:	2.4-11.0
Auto ignition temperature:	455 ^{O}C / 851 ^{O}F
Vapour density (air = 1.0):	1.5
Density:	Not applicable
pH:	Not applicable
Molecular weight:	42.0
Flammability:	Highly Flammable

STABILITY AND REACTIVITY

Reactivity	Not reactive under normal storage conditions.
Stability	The product is stable.
Conditions to Avoid	Avoid all possible sources of ignition (spark or flame). Do not cut, weld, braze, solder, drill, or grind container.
Materials to Avoid	Extremely reactive or incompatible with oxidizing agents.

TOXICOLOGICAL INFORMATION

Toxicity values: No data available.

POTENTIAL HEALTH EFFECTS
Effects of Overexposure:
Skin contact: There may be redness or whiteness of the skin in the area of exposure. Frost-bite may occur causing the affected area to become white and numb.
Eye contact: There may be pain and redness. Corneal burns may occur. May cause permanent damage.
Ingestion: Not applicable.
Inhalation: Causes asphyxiation in high concentrations. Gas reduces oxygen available for breathing.

ECOLOGICAL INFORMATION

Toxicity
Ecotoxicity values: No data available.

Persistence and degradability
Persistence and degradability: Biodegradable.

Bioaccumulative potential
Bioaccumulative potential: No bioaccumulation potential.

Mobility in soil
Mobility: Readily absorbed into soil.

Results of PBT and vPvB assessment
PBT identification: This product is not identified as a PBT/vPvB substance.

Other adverse effects
Other adverse effects: R1270: Global Warming Potential (GWP): 2 (CO_2=1)

DISPOSAL CONSIDERATIONS

Waste Treatment Methods
Disposal operations: Product evaporates.
Recovery operations: Consult manufacturer or supplier for information regarding recovery and recycling of the product. If recovery is not possible, incinerate at a licensed installation.
Disposal of packaging: Return to supplier.
NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

TRANSPORT INFORMATION

Proper Shipping Name :	PROPYLENE
Hazard Class :	2.1
UN-No :	UN 1077
PG :	NA
Description :	PROPYLENE, 2.1, UN 1077

REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
Specific regulations: Not applicable.
Chemical Safety Assessment
Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

OTHER INFORMATION

Disclaimer
The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The Information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text of this MSDS.

END OF SAFETY DATA SHEET