

MATERIAL SAFETY DATA SHEET

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Section 1: Product Information		
PRODUCT IDENTITY: <h2 style="text-align: center;">HC-12a[®]</h2>	SUPPLIER NAME & ADDRESS: HC-Tech Inc. 50 Biggar Ave Hamilton, Ontario, L8H 3Z4	MANUFACTURER NAME & ADDRESS: OZ Technology Inc. 10900 N. Howell Rd. Rathdrum, ID 83858, U.S.A.
PRODUCT USE: Refrigerant	PHONE NO: (905) 547-5693 FAX NO: (905) 547-3155	PHONE NO: (208) 687-7000 FAX NO: (208) 687-5146
WHMIS CLASS: A, B1	CANUTECH EMERGENCY PHONE NO: 1 (613) 996-6666	EMERGENCY PHONE NO: 1 (208) 640-3091
SHIPPING NAME: Compressed Gas – Flammable NOS Liquefied Petroleum	PRODUCT IDENTIFICATION NO: UN 1075	TDG CLASSIFICATION: 2.1

Section 2: Hazardous Ingredients					
Compressed Hydrocarbon Mixture containing propane (R290) Isobutane (R600a) and ethane (R170), contains no other impurities which will influence the classification of the product.					
Hazardous Ingridients	%	CAS Number	LD ₅₀ (Species & Routes)	LC ₅₀ (Rat, 4 hrs.)	TLV-TWA (ACGIH)
Propane C ₃ H ₈	40-70 %	(0074-98-6)	Not Applicable	Not Available	Asphyxiant
Isobutane C ₄ H ₁₀	20-50 %	(0075-28-5)	Not Applicable	Not Applicable	
Ethane C ₂ H ₆	10-30 %	(0074-84-0)	Not Applicable	Not Available	

Section 3: Physical / Chemical Characteristics		
PHYSICAL STATE: Gas(x) Liquid () Solid ()	FREEZING POINT: Not available	pH: Not applicable
BOILING POINT: -33.9° C (-29° F)	VAPOR PRESSURE: 142.5 mmHg @ 21.1° C (72 psig @ 70° F)	MOLECULAR WEIGHT: Not available
SPECIFIC GRAVITY LIQUID (water = 1): 0.552	SOLUBILITY IN WATER (% by weight): Soluble Negligible	COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available
EVAPORATION RATE (butyl acetate = 1): High	% VOLATILES BY VOLUME: 100	ODOUR THRESHOLD: Not available
VAPOR DENSITY (air = 1): 1.770	APPEARANCE AND ODOUR: Colorless gas with natural gas odour	

Section 4: Fire and Explosion Hazard Data		
FLAMMABLE GAS Forms flammable or explosive mixtures with air and oxidizing agents		
FLAMMABLE LIMITS IN AIR, (% by volume) % Upper 8.5 ; % Lower 1.9	IGNITION TEMPERATURE (heated metal surface) 810° C (1490° F)	AUTO-IGNITION TEMPERATURE: 886.1° C (1627°F)
MEANS OF EXTINGUISHING: Water spray of fog Dry chemical CO2		

SPECIAL FIRE FIGHTING PROCEDURES:

All personnel to be evacuated from the danger area. Shut off source of flow and remove ignition sources if it can be done without risk. Cool exposed containers with water spray from maximum safe distance taking care not to extinguish flames if source of flow cannot be shut off. If flame is accidentally extinguished, explosive re-ignition may occur. Re-approach with extreme caution. Use self-contained breathing apparatus. Stop the flow of gas if it can be done without risk while continuing use of water spray to cool fire-exposed containers, structures and to protect personnel. Remove all containers from the danger area if it can be done without risk. Allow the fire to burn out.

Section 4: Continued Fire and Explosion Hazard Data

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Heavy concentrations of vapor may form flammable mixtures with air. Heavy concentrations of vapor or gas may spread to distant ignition sources and flash back. Explosive atmosphere may linger if not ventilated. Before entering danger area, especially confined spaces, check the atmosphere with an approved device. Vapor or gas may accumulate in low or confined areas. Dangerous when exposed to flame or high temperature sparks. Container may rupture when heated above the rated pressure values.

HAZARDOUS COMBUSTION PRODUCTS:
CO & CO₂SENSITIVITY TO IMPACT:
Avoid impact against containersSENSITIVITY TO STATIC DISCHARGE:
Possible, ground container**Section 5: Reactive Data**CHEMICAL
STABILITY

Un-stable

Stable

CONDITIONS TO AVOID:

Heat, Strong oxidizers, Peroxides, Plastics, and Chlorine dioxide

INCOMPATIBILITY (MATERIALS TO AVOID)

Strong oxidizers, Peroxides, Plastics, and Chlorine dioxide

HAZARDOUS
POLYMERIZATION

May occur

Will not occur

HAZARDOUS PRODUCTS OR BY-PRODUCTS:

When burned in a deficiency of oxygen, CO can form

Section 6: Toxicological Properties

ROUTE (S) OF ENTRY:

Skin Contact?
YESSkin Absorption?
NOInhalation?
YESSwallowing?
NOEye contact?
YES

EFFECTS OF A SINGLE (ACUTE) EXPOSURE:

Skin Contact: No harmful effect from vapor. Liquid may cause frostbite.

Skin Absorption: No evidence of adverse effects from available information.

Inhalation: Central nervous system depressant. Asphyxiant, heavy concentrations may cause anemia, difficulty in breathing, dizziness, euphoria, irritation of nose and throat, irregular heart rhythm and respiratory arrest. Lack of oxygen can cause death.

Swallowing: This product is a gas at normal temperature and pressure.

Eye contact: No harmful effect from vapor. Liquid may cause frostbite.

EFFECTS OF REPEATED (CHRONIC) EXPOSURE:

No evidence of adverse effects from available information.

OTHER EFFECTS OF EXPOSURE:

Contact with liquid material may cause frostbite.

SENSITIZATION TO PRODUCT:

Hydrocarbons may sensitize the heart to epinephrine and other circulating catecholamines.

CARCINOGENICITY OF PRODUCT:

Presently not on any lists

EXPOSURE LIMITS:

Not available

IRRITANCY:

Not available

REPRODUCTIVE TOXICITY:

Not available

TERATOGENICITY:

Not available

MUTAGENICITY:

Not available

SYNERGISTIC PRODUCTS:

Not available

Section 7: Precautions for Safe Handling and Use

PERSONAL PROTECTIVE EQUIPMENT:

RESPIRATORY PROTECTION:

Select in accordance with provincial regulations or guidelines. Selection should be based on the current CSA standards Z94.4 "Selection, care and use of respirators." Respirators should be approved by NIOSH and MSHA.

PROTECTIVE GLOVES:

Use for cylinder handling and to prevent exposure to liquid which may cause frostbite.

EYE PROTECTION:

Select in accordance with the current CSA Standard Z94.3, "Industrial eye and face protection" and any provincial regulations or guidelines.

Section 7: Continued Precautions for Safe Handling and Use**OTHERS:**

Protective clothing where needed, long sleeves and long pants. Metatarsal shoes for handling cylinders. Select in accordance with the current CSA Standard Z195, "Protective foot wear" and any provincial regulations or guidelines.

SPECIFIC ENGINEERING CONTROLS:**VENTILATION:**

Explosion-proof system must be used. See "SPECIAL"

MECHANICAL:

May be inadequate. See "SPECIAL"

SPECIAL:

Use in closed systems.

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

DANGER: Forms explosive mixtures with air (See Section 4). Immediately evacuate all personnel from the danger area. Do not touch or walk through the spilled material. Use self-contained breathing apparatus where needed. Shut off leak if it can be done without risk. Remove all sources of ignition if it can be done without risk. Isolate and ventilate area until gas has dispersed or remove leaking containers to well ventilated area if without risk. Use water spray or fog to reduce vapors. Flammable vapors may spread to distant ignition source and flash back to leak site. Before entering hazard area, especially confined spaces, check atmosphere with appropriate device.

WASTE DISPOSAL METHODS:

No special procedures are required for clean up. Avoid methods resulting in contamination of surrounding environment. This material is not specifically listed as hazardous waste, but can be classified as hazardous waste when contaminated or if seen as ignitable under (40 CFR261). Discard any product or containers in an environmentally acceptable manner, in full compliance with Federal, Provincial and local regulations.

HANDLING AND STORAGE REQUIERMENTS:

DANGER: Flammable, liquified gas under pressure. Use piping and equipment adequately designed to withstand pressures to be encountered under normal conditions. May form explosive mixtures with air. Ground all equipment. Keep away from heat, sparks and open flames. Store and use in well ventilated areas at all times. Use only in a closed system. Store containers tightly closed in a cool, dry, isolated, well-ventilated area away from heat and sources of ignition. Keep away from oxidizing agents. Read and understand the manufacturer's instructions and the precautionary information on this product before use.

OTHER HANDLING AND STORAGE REQUIERMENTS:

Empty containers may contain flammable or combustible residue vapors. Do not cut, grind, drill, weld, or reuse containers without adequate precautions.

Section 8: First Aid Measures**SKIN CONTACT:**

If exposed to liquid, immediately warm frostbite area with cool-warm water. In case of a massive exposure, remove all clothing while showering with cool-warm water. Contact a physician.

INHALATION:

Remove from place of exposure to fresh air. Insure breathing and give artificial respiration if not breathing. Give oxygen if breathing is difficult. Contact a physician.

EYE CONTACT:

In case of splash contamination, immediately flush eyes with warm water for at least 15 minutes. See a physician, preferably an ophthalmologist immediately.

SWALLOWING:

This product is a gas at normal temperature and pressure.

NOTE TO PHYSICIAN:

Do not give epinephrine. There is no specific antidote. Treatment of an overexposure should be directed at the control of symptoms and the clinical conditions.

Section 9: Preparation Information

Prepared by HC-Tech Inc. (905) 547-5693 All of the information contained in this MSDS sheet is offered in good faith and believed to be accurate to the best knowledge of the preparation analyst. Since the use of this information and the opinions and conditions of use of this product are not within the control of HC-Tech Inc., it is the user's obligation to determine the conditions for safe use of the product.

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