This product safety summary is intended to provide a general overview of the chemical substance in the context of ICCA global product strategy. It is not intended to provide emergency response, medical or treatment information, nor to provide an overview of all safety and health information. This summary is not intended to replace the Safety Data Sheet. For detailed guidance on the use or regulatory status of this substance, please consult the Safety Data Sheet.

A. CHEMICAL PRODUCT IDENTIFICATION:

Product Name	CHLOROFORM
Synonyms	Trichloromethane
IUPAC Name	Chloroform
CAS NO	67-66-3
E C No	200-663-8
Molecular Formula	$CHCl_3$

B. USES AND APPLICATIONS:

- ✓ Chloroform's main uses are in the production of liquid refrigerant and PTFE plastics. It is used as a solvent, chemical intermediate, dry cleaning agent, fumigant ingredient and in synthetic rubber production. In the past, chloroform was used as an anesthetic.

C. PHYSICAL / CHEMICAL PROPERTIES:

Properties	Value
Physical state and appearance	Colorless Liquid
Odor	Aromatic sweet
Molecular Weigh	119.38 g/mol
Color:	Clear, colorless.
Boiling Point	61°C /~ 141.8 °F
Melting Point / Range	- 63.2 °C / -81.76°F
Flash Point	No information available
Specific Gravity	1.49g/cm^3 at 20°C

Critical Temperature	No information available
Relative Density	1.49 g/cm^3 at 20°C
Vapor Pressure	20.9 KPa at 20°C
Vapor Density	No information available
Volatility	No information available
Odor Threshold	No information available
Partition Coefficient	1.97 at 20 °C
Water Solubility	8.7 g/L
Explosive/oxidising properties	No information available

D. HEALTH EFFECTS:

Effect	**Value**
Acute Toxicity Oral / inhalation / dermal	ORAL LD50: 908 mg/kg DERMAL LD50: >3980 mg/kg INHALATION LC50: LOAEL = 50 mg/M^3 Based on available information, According to GHS product is classified as Acutely Toxic.
Irritation / corrosion Skin / eye/ respiratory tract	Causes skin irritation and causes serious eye irritation. May cause respiratory irritation.
Sensitisation	Not classified.
Toxicity after repeated exposure Oral / inhalation / dermal	Causes damage to organs through prolonged or repeated exposure. – Liver, Kidney.
Genotoxicity / Mutagenicity	Not classified.
Carcinogenicity	Suspected of causing cancer.
Toxicity for reproduction	Suspected of damaging the unborn child.

E. ENVIRONMENTAL EFFECTS:

Chloroform can be dangerous without being absorbed. Ultraviolet radiation from sunlight causes chloroform and oxygen in the environment to slowly react, forming a gas called phosgene. This gas is more toxic than chloroform and is especially dangerous if it collects in an enclosed space and becomes concentrated.
Chloroform in water and soil is expected to evaporate rapidly to the atmosphere due to its high vapor pressure. Biodegradation can occur when proper microbial populations exist. Chloroform in the atmosphere will degrade by reaction with hydroxyl radicals with a half-life of 80 days.

Effect Assessment	Value
Aquatic Toxicity	Toxicity to Fish LC50: 28 mg/L Toxicity to aquatic Invertebrate EC50: 152 mg/L Toxicity to Algae EC10: 13.3 mg/L Based on available information, According to GHS product is not classified for Aquatic Toxicity.

Fate and behaviour	Value
Degradation/Persistence	Persistence is unlikely to based on available information.
Bio-accumulation	Bio-concentration factor (BCF): 13 Chloroform does not have significant bio-accumulation potential.
PBT/vPvB conclusion	This substance/ mixture contains no components considered to be either persistent, bio-accumulative and toxic (PBT) or very persistent and very bio-accumulative (vPvB) at levels of 0.1% or higher.

*: Persistent, Bio accumulative and Toxic (PBT)
**: very Persistent and very Bio accumulative (vPvB)

F. EXPOSURE :

Human health	
Consumers	Monitoring data indicate that the general population may be exposed to chloroform via inhalation of ambient air, ingestion of food and drinking water, and dermal contact with chlorinated pool and other

	consumer products containing chloroform (SRC).
Workers	Workers who produce or use chloroform may breathe in vapors or have direct skin contact. The general population may be exposed to vapors of chloroform around chemically treated swimming pools, or taking baths or showers in water that has been chlorinated. Exposure to chloroform can be from consumption of food and chlorinated drinking water.

Environment
If chloroform is released to the environment, it may be broken down slowly in air by reaction with hydroxyl radicals. It is not broken down in the air by sunlight. It will volatilize into air from soil and water surfaces. It is expected to move easily to moderately through soil. It is not expected to be broken down by microorganisms.

G. RISK MANAGEMENT MEASURES

Effect	Value
Eyes	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Skin protection	Wash off immediately with soap and plenty of water for at least for 15 minutes. Take off contaminated clothing and wash before reuse. If irritation develops and persists, get medical attention.
Ingestion	Do NOT induce vomiting. Call a physician or poison control centre immediately.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Does not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

H. PERSONAL PROTECTIVE EQUIPMENT AND EMERGENCY MEASURES

Effect		Value
Engineering controls		Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.
Special risks , Specific hazards		Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
Personnel Protective equipment	Eye/Face protection	Use tightly sealed safety glasses. (European standard – EN 166).
	Skin protection	Impervious long-sleeved clothing. Preventive skin protection is recommended.
	Hand protection	Inspect gloves before use. Observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitization effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. Gloves with care avoiding skin contamination.
	Respiratory protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

I. ACCIDENTAL RELEASE MEASURES

- ✓ Use proper personal protective equipment (pl refer MSDS)
- ✓ Person Precautions: Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8. Avoid contact with skin and eyes and inhalation of vapors. Use personal protective equipment. In case of insufficient ventilation, wear suitable respiratory equipment. In case of leak, wear a self-contained breathing apparatus.
- ✓ Spill cleanup measures: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

J. FIRE FIGHTING MEASURES

Suitable Extinguishing Media	Use extinguishing media appropriate for local surroundings

K. CLASSIFICATION AND LABELLING

Under GHS, substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the eSDS. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers and emergency responders) can better understand the hazards of the chemicals in use. Substances registered for REACH are classified according to CLP (EC) 1272/2008, implementation of the GHS in the European Union.

Classification H302 H331 H315 H319 H361d H351 H372	 Acute oral toxicity: Category 4 Acute inhalation toxicity: Category 3 Skin corrosion/ irritation: Category 2 Serious eye damage/ irritation: Category 2 Reproductive toxicity: Category 1 Carcinogenicity: Category 2 specific
Pictogram	
Signal Word	Danger
Hazard statements H302 H331 H315	 Harmful if swallowed. Toxic if inhaled. Causes skin irritation.

H319 H361d H351 H372	Causes serious eye irritation. Suspected of damaging the unborn child Suspected of causing cancer. Causes damage to organs (Liver, Kidney) through prolonged or repeated exposure(inhalation, oral).
Precautionary statements P201 P202 P260 P264 P271 P280 P301+P312 P302+P352 P304+P340 P305+P351+338 P308+P313 P311 P330 P332+P313 P337+P313 P362+P364 P402+P233 P405 P501	 Obtain special instruction before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapors. Wash exposed skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/ protective clothing/ eye protection/ face protection. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing IF EXPOSED OR CONCERNED: Get medical advice/attention. Call a POISON CENTER or doctor/physician. If swallowed, rinse mouth. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Dispose of contents/container to comply with local, state and federal regulation.

L. BASIC TRANSPORT INFORMATION

DOT / TDG/ IATA/ IMDG/IMO	
UN No.	UN 1888
Proper shipping Name	Chloroform
Technical name	Trichloromethane
Hazard Class	6.1
Packaging Group	III

M. REGULATORY INFORMATION

✓ **International Inventories**

TSCA	Complies
EINECS/ ELINCS	Complies
DSL/NDSL	Complies
PICCS	Complies
ENCS	Complies
IECSC	Complies
AICS	Complies
KECL	Complies

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
AICS - Australian Inventory of Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances

N. CONCLUSIONS

✓ Chloroform's main uses are in the production of liquid refrigerant and PTFE plastics

- ✓ Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
- ✓ By applying the appropriate Risk Management measures the concentrations to be expected at workplaces and to the general public are below recommended exposure limits

O. CONTACT INFORMATION

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