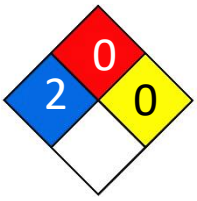
Material Safety Data Sheets



Revision 2

1. IDENTIFICATION

Product Name	**Chloroform**
Other Names	Trichloromethane
Code No	100-CF-2
Uses	Solvent Detection of aniline Fluorocarbon plastics Fluorocarbon refrigerants.
Chemical Family	No Data Available
Chemical Formula	$CHCl_3$
Chemical Name	Chloroform
Company	Arman sina.co
Contact Information	info@armansina.com www.armansina.com

2. HAZARD IDENTIFICATION

Hazard Categories	Harmful
Risk Phrases	Harmful if swallowed. Irritating to skin. Limited evidence of a carcinogenic effect. Harmful : danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
Safety Phrases	Wear suitable protective clothing and gloves.

Symbol

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Trichloromethane	$CHCl_3$	67-66-3	> 99.4 %
Water	H_2O	7732-18-5	< 0.1 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	**Avoid vomiting and normal rinse of stomach because of risk of aspiration. Get medical attention immediately! Give activated charcoal in slurry .**
Eye	**Make sure to remove any contact lenses from the eyes before rinsing. Consult a physician for specific advice.**
Skin	**Remove contaminated clothes and rinse skin thoroughly with water. Get medical attention if any discomfort continues.**
Inhaled	**Move the exposed person to fresh air at once. If breathing stops, provide artificial respiration. Get medical attention immediately!**
Advice to Doctor	**Treat symptomatically based on judgement of doctor and individual reactions of patient.**
Medical Conditions Aggravated by Exposure	**No information available on medical conditions aggravated by exposure to this product.**

5. FIRE FIGHTING MEASURES

General Measures	**If safe to do so, move undamaged containers from fire area. Do NOT move cargo if cargo has been exposed to heat. Dam fire control water for later disposal.**
Flammability Conditions	**Product is a non-flammable liquid.**
Extinguishing Media	**Use fire-extinguishing media appropriate for surrounding materials. Use water spray to reduce vapours. Dike and collect extinguishing water.**
Fire and Explosion Hazard	**The product is non-combustible.**
Hazardous Products of Combustion	**If heated, toxic vapours may be formed. Phosgene (COCl2). Hydrogen chloride (HCl).**
Special Fire Fighting Instructions	**Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk. Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.**
Personal Protective Equipment	**Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves) or chemical splash suit.**
Flash Point	**No Data Available**
Lower Explosion Limit	**No Data Available**
Upper Explosion Limit	**No Data Available**
Auto Ignition Temperature	**No Data Available**
Hazchem Code	**2Z**

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	**Avoid accidents, clean up immediately. Slippery when spilt. Personnel involved in the clean up should wear full protective clothing as listed in section 8. Eliminate all sources of ignition. Increase ventilation. Use clean, non-sparking tools and equipment. Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation. In case of inadequate ventilation, use respiratory protection.**
Clean Up Procedures	**Collect with absorbent, non-combustible material into suitable containers. Collect in containers and seal securely. Use sealed containers for reclamation or dispose of at a licenced hazardous waste collection point. Avoid contact with water.**
Containment	**Stop leak if safe to do so.**
Environmental Precautionary Measures	**Do not allow ANY environmental contamination. Avoid discharge into drains. The product should not be dumped in nature but collected and delivered according to agreement with the local authorities. Do not allow product to reach drains, sewers or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Authority.**
Evacuation Criteria	**Evacuate all unnecessary personnel.**

7. HANDLING AND STORAGE

Handling	Read and follow manufacturer's recommendations. Avoid spilling, skin and eye contact. Do not eat, drink or smoke when using the product. Ensure an eye bath and safety shower are available and ready for use Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Avoid contact with eyes, skin and clothing. Do not inhale product vapours. Avoid prolonged or repeated exposure. Pay strict attention to hygiene precautions when working with a carcinogen. Remove contaminated clothing and wash before reuse. Chemicals should be used only by those trained in handling potentially hazardous materials.
Storage	Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Protect from light, including direct sunrays. This product has a UN classification of 1888 and a Dangerous Goods Class 6.1 Toxic according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.
Container	Container type/packaging must comply with all applicable local legislation. Store in original packaging as approved by manufacturer.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	The following exposure standard has been established by The Australian Safety and Compensation Council (ASCC); Trichlormethane [Chloroform] CAS 67-66-3: TWA: 2ppm (10mg/m3) Carcinogen Category 3, Sk NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. Carcinogen Category 3 - substances suspected of having carcinogenic potential. The available information is not adequate for making a satisfactory assessment. `Sk' Notice - absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur. These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals.
Exposure Limits	No Data Available
Biological Limits	No information available on biological limit values for this product.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Adequate ventilation should be provided so that exposure limits are not exceeded. Provide eyewash station.
Personal Protection Equipment	RESPIRATOR: Use respiratory equipment with gas filter, type AX (AS1715/1716). EYES: Wear approved safety goggles (AS1336/1337). HANDS: Use suitable protective gloves if risk of skin contact. Viton rubber (fluor rubber). Butyl rubber (AS2161). CLOTHING: Chemical-resistant coveralls, splash apron and safety footwear (AS3765/2210).
Special Hazards Precaustions	OTHER PROTECTION: Provide eyewash, quick drench. AVOID ALL SKIN AND RESPIRATORY CONTACT!
Work Hygienic Practices	Wash contaminated clothing before reuse. Wash promptly if skin becomes wet or contaminated. Eating, smoking and water fountains prohibited in immediate work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Liquid
Odour	Sweetish
Colour	Colourless
pH	No Data Available
Vapour Pressure	211 hpa
Relative Vapour Density	No Data Available
Boiling Point	61ºC
Melting Point	-63ºC
Freezing Point	No Data Available

Solubility	**No Data Available**
Specific Gravity	**1.48**
Flash Point	**No Data Available**
Auto Ignition Temp	**No Data Available**
Evaporation Rate	**No Data Available**
Bulk Density	**No Data Available**
Corrosion Rate	**No Data Available**
Decomposition Temperature	**No Data Available**
Density	**No Data Available**
Specific Heat	**No Data Available**
Molecular Weight	**No Data Available**
Net Propellant Weight	**No Data Available**
Octanol Water Coefficient	**1.97**
Particle Size	**No Data Available**
Partition Coefficient	**2 @ 25 deg C (N-Octanol/Water)**
Saturated Vapour Concentration	**No Data Available**
Vapour Temperature	**No Data Available**
Viscosity	**No Data Available**
Volatile Percent	**100%**
VOC Volume	**No Data Available**
Additional Characteristics	**No Data Available**
Potential for Dust Explosion	**Product is a liquid**
Fast or Intensely Burning Characteristics	**No Data Available**
Flame Propagation or Burning Rate of Solid Materials	**No Data Available**
Non-Flammables That Could Contribute Unusual Hazards to a Fire	**No Data Available**
Properties That May Initiate or Contribute to Fire Intensity	**No Data Available**
Reactions That Release Gases or Vapours	**No Data Available**
Release of Invisible Flammable Vapours and Gases	**No Data Available**

10. STABILITY AND REACTIVITY

Chemical Stability	**Product is stable under normal conditions of use, storage and temperature.**
Conditions to Avoid	**Avoid exposure to high temperatures or direct sunlight. Convulsions, shock.**
Materials to Avoid	**Chemically active metals. Rubber or plastic. Alkali metals. Alkali earth metals. Other metals or alloys. Amines. Bases, alkalis (inorganic). Bases, alkalis (organic). Inorganic peroxides. Organic peroxides/hydroperoxides. Alcohols, glycols. Organic nitro compounds.**
Hazardous Decomposition Products	**Hydrogen chloride (HCl). Phosgene ($COCl_2$).**
Hazardous Polymerisation	**Will not polymerise.**

11. TOXICOLOGICAL INFORMATION

General Information	**TOXIC DOSE 1 - LD50 695 mg/kg (oral rat)** **TOXIC CONC. - LC50 47.7 ppm/4h (inh-rat)** **TOXICOLOGICAL INFORMATION:** **This material is toxic.**

	GENERAL INFORMATION: Known or suspected carcinogen for humans. **HEALTH WARNINGS:** Irritating to skin. Irritating to eyes. Known or suspected carcinogen for humans. **ROUTE OF ENTRY:** Inhalation. Skin and/or eye contact. Ingestion. **TARGET ORGANS:** No specific target organs noted **MEDICAL SYMPTOMS:** Difficulty in breathing. Coughing, chest tightness, feeling of chest pressure. Dizziness. Confusion, agitation and/or excitation. Nausea, vomiting. Headache.
EyeIrritant	May cause temporary eye irritation.
Ingestion	Toxic if swallowed.
Inhalation	Vapour may irritate respiratory system or lungs.
SkinIrritant	Irritating to skin.
Carcinogen Category	3

12. ECOLOGICAL INFORMATION

Ecotoxicity	LC 50, 96 Hrs, FISH mg/l 18 EC 50, 48 Hrs, DAPHNIA, mg/l 79
Persistence/Degradability	The product is not readily biodegradable.
Mobility	No information available.
Environmental Fate	Do NOT let product reach waterways, drains and sewers.
Bioaccumulation Potential	Bioaccumulation is unlikely to be significant because of the low water solubility of this product.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of in accordance with all local regulations. All empty packaging should be disposed of in accordance with Local Regulations or recycled/reconditioned at an approved facility.
Special Precautions for Land Fill	Contact a specialist disposal company or the local waste regulator for advice. Dilute with organic solvent and incinerate using effluent gas cleaner.

14. TRANSPORT INFORMATION

Land Transport

Proper Shipping Name	CHLOROFORM
Class	6.1 Toxic and Infectious Substances - Toxic Substances
Subsidiary Risk(s)	No Data Available
ERG	151 Substances - Toxic (Non-Combustible)
UN Number	1888
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available

Sea Transport
IMDG

Proper Shipping Name	CHLOROFORM
Class	6.1 Toxic and Infectious Substances - Toxic Substances
Subsidiary Risk(s)	No Data Available
UN Number	1888
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available
EMS	FA,SA
Marine Pollutant	No

Air Transport
IATA

Proper Shipping Name	CHLOROFORM
Class	6.1 Toxic and Infectious Substances - Toxic Substances
Subsidiary Risk(s)	No Data Available
UN Number	1888
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available

16. OTHER INFORMATION

Revision 2

Key/Legend

< Less Than
> Greater Than
atm Atmosphere
CAS Chemical Abstracts Service (Registry Number)
cm Square Centimetres
CO2 Carbon Dioxide
COD Chemical Oxygen Demand
Degrees Celcius
Degrees Farenheit
g Grams
g/cm Grams per Cubic Centimetre
g/l Grams per Litre
HSNO Hazardous Substance and New Organism
IDLH Immediately Dangerous to Life and Health
immiscible Liquids are insoluable in each other.
inHg Inch of Mercury
inH2O Inch of Water
K Kelvin
kg Kilogram
kg/m Kilograms per Cubic Metre
lb Pound
LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.
LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.
ltr or L Litre
m Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m Milligrams per Cubic Metre
Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm Millimetre
mmH2O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Heath and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million

ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight