

SECTION 1 Identification of the substance / mixture and of the company / undertaking

Product Name	3-CHLOROBENZOTRIFLUORIDE
Chemical Name	Not Available
Synonyms	C7-H4-Cl-F3; ClC6H4CF3; toluene, m-chloro-alpha,alpha,alpha-trifluoro-; benzene, 1-chloro-3-(trifluoromethyl)-; m- chlorobenzotrifluoride; (m-chlorophenyl)trifluoromethane; m-chlorotrifluoromethylbenzene; 1-chloro-3-(trifluoromethyl)benzene; m-(trifluoromethyl)chlorobenzene; alpha,alpha,alpha,trifluoro-3-chlorotoluene; m-trifluoromethylphenyl chloride
Proper shipping name	CHLOROBENZOTRIFLUORIDES
Chemical Formula	C7H4ClF3
Other means of identification	Not available
CAS Number	98-15-7

Relevant identified uses of the substance or mixture and uses advised against:

Relevant identified uses	<ul style="list-style-type: none"> Intermediate in the manufacture of dyes and herbicides (dinitroanilines), pharmaceuticals, dielectrics and insecticides
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Details of the manufacturer or supplier of the safety data sheet:

Registered company name	Cohizon Life Sciences Limited
Address	Plot No. 6102/3, 6117-19, 5809-10, GIDC, Ankleshwar Gujarat 393002 India
Telephone	Not Available
Fax	Not Available
Website	Not Available
Email	Not Available

Emergency telephone number:

Association / Organisation	Cohizon Life Sciences Limited
Emergency telephone number(s)	(+91) 7046611150/51
Other emergency telephone number(s)	(+91) 6357684904

SECTION 2 Hazards identification

Classification of the substance or mixture			
Hazard Ratings			
	Min	Max	
Flammability	2		0 = Minimum
Toxicity	2		1 = Low
Body Contact	2		2 = Moderate
Reactivity	1		3 = High
Chronic	0		4 = Extreme

NFPA 704 diamond



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances).

Classification	Flammable Liquids Category 3, Acute Toxicity (Oral) Category 4, Acute Toxicity (Dermal) Category 5, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2A, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Hazardous to the Aquatic Environment Long-Term Hazard Category 2
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MATERIAL SAFETY DATA SHEET

3-Chlorobenzotrifluoride

Revision Date: 01-03-23

Revision Number: 6.1

Label elements

Hazard pictogram(s)	
Signal word	Warning

Hazard statement(s)

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H313	May be harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s) Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P271	Use only outdoors or in a well-ventilated area.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P261	Avoid breathing mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves, protective clothing, eye protection and face protection.

Precautionary statement(s) Response

P302+P312	IF ON SKIN: Call a POISON CENTER/doctor/physician/first aider if you feel unwell.
P370+P378	In case of fire: Use alcohol resistant foam or fine spray/water fog to extinguish.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P391	Collect spillage.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physician/first aider if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of water and soap.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P330	Rinse mouth.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation
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SECTION 3 Composition / information on ingredients

Substances

Cas No.	%[weight]	Name
98-15-7	>98	3-Chlorobenzotrifluoride

Mixtures

See Section above for composition of substances

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> Wash out immediately with fresh running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Seek medical attention without delay; if pain persists or recurs seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> Immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available) Seek medical attention in event of irritation
Inhalation	<ul style="list-style-type: none"> If fumes or combustion products are inhaled remove from contaminated area. Lay patient down. Keep warm and rested. Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. Transport to hospital, or doctor, without delay.
Ingestion	<ul style="list-style-type: none"> IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. For advice, contact a Poisons Information Centre or a doctor. Urgent hospital treatment is likely to be needed In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition. If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist. If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS. Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise: INDUCE vomiting with fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. NOTE: Wear a protective glove when inducing vomiting by mechanical means

Indication of any immediate medical attention and special treatment needed

As in all cases of suspected poisoning, follow the ABCDEs of emergency medicine (airway, breathing, circulation, disability, exposure), then the ABCDEs of toxicology (antidotes, basics, change absorption, change distribution, change elimination).

For poisons (where specific treatment regime is absent):

Basic Treatment:

- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary
- Administer oxygen by non-rebreather mask at 10 to 15 L/min
- Monitor and treat, where necessary, for pulmonary oedema
- Monitor and treat, where necessary, for shock
- Anticipate seizures
- **DO NOT** use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.

Advanced Treatment:

- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred. ▶ Positive-pressure ventilation using a bag-valve mask might be of use.
- Monitor and treat, where necessary, for arrhythmias.
- Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications. ▶ Drug therapy should be considered for pulmonary oedema.
- Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications. ▶ Treat seizures with diazepam.
- Proparacaine hydrochloride should be used to assist eye irrigation.

BRONSTEIN, A.C. and CURRANCE, P.L

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Treat symptomatically.

SECTION 5 Firefighting measures

Extinguishing media

- Water Spray or fog
- Foam
- Dry Chemical Powder
- BCF (where regulations permit).
- Carbon dioxide

Special hazards arising from the substrate or mixture

Fire Incompatibility

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Advice for firefighters

Fire Fighting

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves
- Prevent, by any means available, spillage from entering drains or water courses
- Fight fire from a safe distance, with adequate cover.
- If safe, switch off electrical equipment until vapour fire hazard removed
- Use water delivered as a fine spray to control fire and cool adjacent area
- Avoid spraying water onto liquid pools
- **DO NOT approach containers suspected to be hot**
- Cool fire exposed containers with water spray from a protected location
- If safe to do so, remove containers from path of fire

Fire/Explosion Hazard

- Liquid and vapour are flammable wetted with water.
- Moderate fire hazard when exposed to heat or flame.
- Vapour forms an explosive mixture with air.
- Moderate explosion hazard when exposed to heat or flame

	<ul style="list-style-type: none"> • Vapour may travel a considerable distance to source of ignition • Heating may cause expansion or decomposition leading to violent rupture of containers. • On combustion, may emit toxic fumes of carbon monoxide (CO) <p>Combustion products include.</p> <ul style="list-style-type: none"> • carbon monoxide (CO) • carbon dioxide (CO₂) • Hydrogen Chloride • Phosgene • Hydrogen Fluoride • Other pyrolysis products typical of burning organic material.
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SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	<ul style="list-style-type: none"> • Remove all ignition sources. • DO NOT touch or walk through spilled material • Clean up all spills immediately. • Avoid breathing vapours and contact with skin and eyes. • Control personal contact with the substance, by using protective equipment. • Contain and absorb small quantities with vermiculite or other absorbent material. • Wipe up. • Collect residues in a flammable waste container.
Major Spills	<ul style="list-style-type: none"> • Clear area of personnel and move upwind. • Alert fire Brigade and tell them location and nature of hazard. • DO NOT touch or walk through spilled material • Wear full protective clothing and breathing apparatus • Prevent, by any means available, spillage from entering drains or water courses. • No smoking, naked lights or ignition sources • Increase ventilation • Stop leak if safe to do so. • Contain spill with sand, earth or vermiculite. • Contain or cover with sand, earth or vermiculite. • Use only spark-free shovels and explosion proof equipment. • Collect recoverable products into labelled containers for recycling. • Collect solid residues and seal in labelled drums for disposal • Wash area with water and dike for later disposal; prevent runoff into drains. • After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using. • If contamination of drains or waterways occurs, advise emergency services.

Personal Protective Equipment advice is contained in Section 8 of the SDS

SECTION 7 Handling and storage

Precautions for safe handling

Safe Handling	<ul style="list-style-type: none"> • Containers, even those that have been emptied, may contain explosive vapours • Do NOT cut, drill, grind, weld or perform similar operations on or near containers • DO NOT allow clothing wet with material to stay in contact with skin
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MATERIAL SAFETY DATA SHEET

3-Chlorobenzotrifluoride

Revision Date: 01-03-23

Revision Number: 6.1

	<ul style="list-style-type: none"> • Avoid all personal contact, including inhalation • Wear protective clothing when risk of overexposure occurs • Use in a well-ventilated area • Prevent concentration in hollows and sumps • DO NOT enter confined spaces until atmosphere has been checked. • Avoid smoking, naked lights or ignition sources • Avoid generation of static electricity • DO NOT use plastic buckets • Earth all lines and equipment • Use spark-free tools when handling • Avoid contact with incompatible materials • When handling, DO NOT eat, drink or smoke • Keep containers securely sealed when not in use • Avoid physical damage to containers • Always wash hands with soap and water after handling • Work clothes should be laundered separately • Use good occupational work practice • Observe manufacturer's storage and handling recommendations contained within this SDS. • Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.
Other information	<ul style="list-style-type: none"> • Store in original containers in approved flammable liquid storage area. • Store away from incompatible materials in a cool, dry, well-ventilated area. • DO NOT store in pits, depressions, basements or areas where vapours may be trapped • No smoking, naked lights, heat or ignition sources. • Storage areas should be clearly identified, well illuminated, clear of obstruction and accessible only to trained and authorized personnel - adequate security must be provided so that unauthorized personnel do not have access. • Store according to applicable regulations for flammable materials for storage tanks, containers, piping, buildings, rooms, cabinets, allowable quantities and minimum storage distances. • Use non-sparking ventilation systems, approved explosion proof equipment and intrinsically safe electrical systems. • Have appropriate extinguishing capability in storage area (e.g. portable fire extinguishers - dry chemical, foam or carbon dioxide) and flammable gas detectors. • Keep adsorbents for leaks and spills readily available. • Protect containers against physical damage and check regularly for leaks. • Observe manufacturer's storage and handling recommendations contained within this SDS. In addition, for tank storages (where appropriate): • Store in grounded, properly designed and approved vessels and away from incompatible materials. • For bulk storages, consider use of floating roof or nitrogen blanketed vessels; where venting to atmosphere is possible, equip storage tank vents with flame arrestors; inspect tank vents during winter conditions for vapour/ ice build-up. • Storage tanks should be above ground and diked to hold entire contents.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> • Packing as supplied by manufacturer: • Plastic containers may only be used if approved for flammable liquid. • Check that containers are clearly labelled and free from leaks.
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MATERIAL SAFETY DATA SHEET

3-Chlorobenzotrifluoride

Revision Date: 01-03-23

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	<ul style="list-style-type: none"> For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure. For materials with a viscosity of at least 2680 cSt. (23 deg. C) For manufactured product having a viscosity of at least 250 cSt. (23 deg. C) Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C): (i) Removable head packaging; (ii) Cans with friction closures and (iii) low pressure tubes and cartridges may be used Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages. In addition, where inner packaging's are glass and contain liquids of packing group I there must be sufficient inert absorbent to absorb any spillage, unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.
Storage incompatibility	<ul style="list-style-type: none"> Avoid strong bases. Avoid reactions with oxidising agents.

Control Parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Not Available

Ingredient	Original IDLH	Revised IDLH
3-chlorobenzotrifluoride	Not Available	Not Available

Exposure controls






Appropriate engineering controls	<ul style="list-style-type: none"> Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure. For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant. 	
	Type of Contaminant	Air Speed
	solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)
	aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)

MATERIAL SAFETY DATA SHEET

3-Chlorobenzotrifluoride

Revision Date: 01-03-23

Revision Number: 6.1

	direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
	Which each range the appropriate value depends on	
	Lower end of the range	Upper end of the range
	1. Room air currents minimal or favourable to capture	1. Disturbing room air currents
	2. Contaminants of low toxicity or of nuisance value only	2: Contaminants of high toxicity
	3. Intermittent, low production	3: High production, heavy use
	4. Large hood or large air mass in motion	4: Small hood-local control only
	<ul style="list-style-type: none"> Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore, the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 ft/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used. Adequate ventilation is typically taken to be that which limits the average concentration to no more than 25% of the LEL within the building, room or enclosure containing the dangerous substance. Ventilation for plant and machinery is normally considered adequate if it limits the average concentration of any dangerous substance that might potentially be present to no more than 25% of the LEL. However, an increase up to a maximum 50% LEL can be acceptable where additional safeguards are provided to prevent the formation of a hazardous explosive atmosphere. For example, gas detectors linked to emergency shutdown of the process might be used together with maintaining or increasing the exhaust ventilation on solvent evaporating ovens and gas turbine enclosures. Temporary exhaust ventilation systems may be provided for non-routine higher-risk activities, such as cleaning, repair or maintenance in tanks or other confined spaces or in an emergency after a release. The work procedures for such activities should be carefully considered. The atmosphere should be continuously monitored to ensure that ventilation is adequate, and the area remains safe. Where workers will enter space, the ventilation should ensure that the concentration of the dangerous substance does not exceed 10% of the LEL (irrespective of the provision of suitable breathing apparatus) 	
	Individual protection measures, such as personal protective equipment     	
	Eye and face protection <ul style="list-style-type: none"> Safety glasses with side shields. Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent] Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of 	

	<p>chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers</p> <ul style="list-style-type: none"> have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].
Skin protection	See Hand protection below
Hands/feet protection	<p>Wear chemical protective gloves, e.g. PVC.</p> <p>Wear safety footwear or safety gumboots, e.g. Rubber</p> <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> frequency and duration of contact, chemical resistance of glove material, glove thickness and dexterity <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p> <ul style="list-style-type: none"> When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. Contaminated gloves should be replaced. <p>As defined in ASTM F-739-96 in any application, gloves are rated as:</p> <ul style="list-style-type: none"> Excellent when breakthrough time > 480 min Good when breakthrough time > 20 min Fair when breakthrough time < 20 min Poor when glove material degrades <p>For general applications, gloves with thickness typically greater than 0.35 mm, are recommended.</p> <p>It should be emphasized that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.</p> <p>Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.</p> <p>Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:</p> <ul style="list-style-type: none"> Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only

	<p>likely to give short duration protection and would normally be just for single use applications, then disposed of.</p> <ul style="list-style-type: none"> Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential <p>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> Overalls Eye wash unit Barrier Cream Skin Cleansing cream Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity. For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets). Non sparking safety or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot and shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds. Electrical resistance must range between 0 to 500,000 ohms. Conductive shoes should be stored in lockers close to the room in which they are worn. Personnel who have been issued conductive footwear should not wear them from their place of work to their homes and return.

Respiratory protection

Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor	Maximum gas/vapour concentration present in air p.p.m. (by volume)	Half-face Respirator	Full-Face Respirator
up to 10	1000	A-AUS / Class1	-
up to 50	1000	-	A-AUS / Class 1
up to 50	5000	Airline *	-
up to 100	5000	-	A-2
up to 100	10000	-	A-3
100+			Airline**

Continuous Flow ** - Continuous-flow or positive pressure demand

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.

The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.

Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used.

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Colourless, volatile, aromatic liquid; does not mix with water.		
Physical state	Liquid	Relative density (Water = 1)	1.336
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Applicable	Decomposition temperature (°C)	Not Available
Melting point / freezing point (°C)	- 55.4°C	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	137-138°C	Molecular weight (g/mol)	180.56
Flash point (°C)	36	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Flammable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Negligible	Gas group	Not Available
Solubility in water	Immiscible	pH as a solution (1%)	Not Applicable
Vapour density (Air = 1)	>1	VOC g/L	Not Applicable
Heat of Combustion (kJ/g)	Not Available	Ignition Distance (cm)	Not Available
Flame Height (cm)	Not Available	Flame Duration (s)	Not Available
Enclosed Space Ignition Time Equivalent (s/m3)	Not Available	Enclosed Space Ignition Deflagration	Not Available
		Density (g/m3)	

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> Unstable in the presence of incompatible materials Product is considered stable Hazardous polymerisation will not occur
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

a) Acute Toxicity	There is sufficient evidence to classify this material as acutely toxic.
b) Skin Irritation/Corrosion	There is sufficient evidence to classify this material as skin corrosive or irritating.
c) Serious Eye Damage/Irritation	There is sufficient evidence to classify this material as eye damaging or irritating
d) Respiratory or Skin sensitisation	Based on available data, the classification criteria are not met.
e) Mutagenicity	Based on available data, the classification criteria are not met.

MATERIAL SAFETY DATA SHEET

3-Chlorobenzotrifluoride

Revision Date: 01-03-23

Revision Number: 6.1

f) Carcinogenicity	Based on available data, the classification criteria are not met.
g) Reproductivity	Based on available data, the classification criteria are not met.
h) STOT - Single Exposure	There is sufficient evidence to classify this material as toxic to specific organs through single exposure
i) STOT - Repeated Exposure	There is sufficient evidence to classify this material as toxic to specific organs through repeated exposure
j) Aspiration Hazard	Based on available data, the classification criteria are not met.

Inhaled	<ul style="list-style-type: none"> The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Inhalation hazard is increased at higher temperatures. Inhalation of quantities of liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary oedema. Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination
Ingestion	<ul style="list-style-type: none"> Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual
Skin Contact	<ul style="list-style-type: none"> This material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatitis condition Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	<ul style="list-style-type: none"> This material can cause eye irritation and damage in some persons
Chronic	<ul style="list-style-type: none"> Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure

3-CHLOROBENZOTRIFLUORIDE	TOXICITY	IRRITATION
	Inhalation (Rat) LC50: >0.024 mg/L4h ^[1]	Not Available
	Oral (Rat) LD50: >5000 mg/kg ^[1]	
Legend:	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

3- CHLOROBENZOTRIFLUORIDE	<p>Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non- allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial</p>
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MATERIAL SAFETY DATA SHEET

3-Chlorobenzotrifluoride

Revision Date: 01-03-23

Revision Number: 6.1

	<p>bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.</p> <p>No significant acute toxicological data identified in literature search</p>
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Acute Toxicity	✓	Carcinogenicity	✗
Skin Irritation/Corrosion	✓	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	✗	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗
<p>Legend: ✗ – Data either not available or does not fill the criteria for classification ✓ – Data available to make classification</p>			

SECTION 12 Ecological information

Toxicity

	End Point	Test Duration (hr.)	Species	Value	Source
3- CHLOROBENZOTRIFLUORIDE	BCF	1344h	Fish	90-214	7
	LC50	96h	Fish	70.7mg/l	2
	EC100(ECx)	96h	Fish	100mg/l	2
Legend:	<p>Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data</p>				

Toxic to aquatic organisms.

Do NOT allow products to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites

May cause long-term adverse effects in the aquatic environment

DO NOT discharge into sewer or waterways

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
3-chlorobenzotrifluoride	High	High

Bio accumulative potential

Ingredient	Bioaccumulation
3-chlorobenzotrifluoride	Low (BCF = 260)

Mobility in soil

Ingredient	Mobility
3-chlorobenzotrifluoride	LOW (Log KOC = 1912)

SECTION 13 Disposal considerations



Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> Containers may still present a chemical hazard/ danger when empty Return to supplier for reuse/ recycling if possible.
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	<p>Otherwise:</p> <ul style="list-style-type: none"> If container cannot be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill Where possible retain label warnings and SDS and observe all notices pertaining to the product <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> Reduction Reuse Recycling Disposal (if all else fails) <p>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. In most instances the supplier of the material should be consulted.</p> <ul style="list-style-type: none"> DO NOT allow wash water from cleaning or process equipment to enter drains It may be necessary to collect all wash water for treatment before disposal In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in doubt contact the responsible authority Recycle wherever possible. Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material). Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed
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SECTION 14 Transport information

Labels Required

	
Marine Pollutant	

Land transport (UN)

14.1. UN number or ID number	2234	
14.2. UN proper shipping name	CHLOROBENZOTRIFLUORIDES	
14.3. Transport hazard class(es)	Class	3
	Subsidiary Hazard	Not Applicable
14.4. Packing group	III	
14.5. Environmental hazard	Environmentally hazardous	
14.6. Special precautions for user	Special Provisions	Not Applicable
	Limited Quality	5 L

Air transport (ICAO-IATA / DGR)

14.1. UN number	2234	
14.2. UN proper shipping name	Chlorobenzotrifluorides	
14.3. Transport hazard class(es)	ICAO/IATA Class	3
	ICAO / IATA Subsidiary Hazard	Not Applicable
	ERG Code	3L
14.4. Packing group	III	
14.5. Environmental hazard	Environmentally hazardous	
14.6. Special precautions for user	Special provisions	Not Applicable
	Cargo Only Packing Instructions	366
	Cargo Only Maximum Qty / Pack	220 L
	Passenger and Cargo Packing Instructions	355
	Passenger and Cargo Maximum Qty / Pack	60 L
	Passenger and Cargo Limited Quantity Packing Instructions	Y344
	Passenger and Cargo Limited Maximum Qty / Pack	10 L

Sea transport (IMDG-Code/ GGVSee)

14.1. UN number	2234	
14.2. UN proper shipping name	CHLOROBENZOTRIFLUORIDES	
14.3. Transport hazard class(es)	IMDG Class	3
	IMDG Subsidiary Hazard	Not Applicable
14.4. Packing group	III	
14.5. Environmental hazard	Marine Pollutant	
14.6. Special precautions for user	EMS Number	F-E , S-D
	Special provisions	Not Applicable
	Limited Quantities	5 L

14.7 Maritime transport in bulk according to IMO instruments

14.7.1 Transport in bulk in accordance to Annex II of MARPOL and the IBC Code

Not Applicable

14.7.2 Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product Name	Ship Type
3-chlorobenzotrifluoride	Not Available

14.7.3 Transport in bulk in accordance with the IGC Code

Product Name	Ship Type
3-chlorobenzotrifluoride	Not Available

SECTION 15 Regulatory information

Safety, health and environmental regulations / legislation specific for the substance or mixture

3-chlorobenzotrifluoride is found on the following lists

Not Applicable

Additional Regulatory Information

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AIIIC / Australia Non-Industrial Use	No (3-chlorobenzotrifluoride)
Canada - DSL	No (3-chlorobenzotrifluoride)
Canada - NDSL	Yes
China - IECSC	Yes

MATERIAL SAFETY DATA SHEET

3-Chlorobenzotrifluoride

Revision Date: 01-03-23

Revision Number: 6.1

Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	No (3-chlorobenzotrifluoride)
New Zealand - NZIoC	Yes
Philippines - PICCS	No (3-chlorobenzotrifluoride)
USA - TSCA	All chemical substances in this product have been designated as TSCA Inventory 'Active'
Taiwan - TCSI	Yes
Mexico - INSQ	No (3-chlorobenzotrifluoride)
Vietnam - NCI	Yes
Russia - FBEPH	Yes
Legend:	<p>Yes = All CAS declared ingredients are on the inventory</p> <p>No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.</p>

SECTION 16 Other information

Revision Date	01/03/2023
Initial Date	12/05/2005

SDS Version Summary:

Version	Date of Update	Sections Updated
4.1	11/11/2008	<p>Toxicological information - Acute Health (eye), Toxicological information - Acute Health (inhaled), Toxicological information - Acute Health (skin), Toxicological information - Acute Health (swallowed), Toxicological information - Chronic Health, Hazards identification - Classification, Disposal considerations - Disposal, Exposure controls / personal protection - Engineering Control, Ecological Information - Environmental, Exposure controls / personal protection - Exposure Standard, Firefighting measures - Fire Fighter (extinguishing media), Firefighting measures - Fire Fighter (fire/explosion hazard), Firefighting measures - Fire Fighter (firefighting), First Aid measures - First Aid (eye), First Aid measures - First Aid (inhaled), First Aid measures - First Aid (swallowed), Handling and storage - Handling Procedure, Exposure controls / personal protection - Personal Protection (other), Exposure controls / personal protection - Personal Protection (Respirator), Exposure controls / personal protection - Personal Protection (eye), Exposure controls / personal protection - Personal Protection (hands/feet), Accidental release measures - Spills (major), Handling and storage - Storage (storage incompatibility), Handling and storage - Storage (storage requirement), Handling and storage - Storage (suitable container), Toxicological information - Toxicity and Irritation (Other), Transport Information</p>
6.1	01/03/2023	Expiration. Review and update

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC - TWA: Permissible Concentration-Time Weighted Average

PC - STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit
IDLH: Immediately Dangerous to Life or Health Concentrations.
ES: Exposure Standard
OSF: Odour Safety Factor
NOAEL: No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: Bio Concentration Factors
BEI: Biological Exposure Index
DNEL: Derived No-Effect Level
PNEC: Predicted no-effect concentration
MARPOL: International Convention for the Prevention of Pollution from Ships
IMSBC: International Maritime Solid Bulk Cargoes Code
IGC: International Gas Carrier Code
IBC: International Bulk Chemical Code

AIIC: Australian Inventory of Industrial Chemicals
DSL: Domestic Substances List
NDSL: Non-Domestic Substances List
IECSC: Inventory of Existing Chemical Substance in China
EINECS: European INventory of Existing Commercial chemical Substances
ELINCS: European List of Notified Chemical Substances
NLP: No-Longer Polymers
ENCS: Existing and New Chemical Substances Inventory
KECI: Korea Existing Chemicals Inventory
NZIoC: New Zealand Inventory of Chemicals
PICCS: Philippine Inventory of Chemicals and Chemical Substances
TSCA: Toxic Substances Control Act
TCSI: Taiwan Chemical Substance Inventory
INSQ: Inventario Nacional de Sustancias Químicas
NCI: National Chemical Inventory
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

This Material Safety Data Sheet (MSDS) has been prepared in accordance with our company standards and is intended solely for the use of trained personnel. The information provided herein is believed to be accurate as of the date of issue, but no warranty, express or implied, is made regarding its accuracy, completeness, or suitability for any particular purpose. The user is responsible for ensuring safe conditions and compliance with applicable laws and regulations.