MATERIAL SAFETY DATA SHEET

2-Chloro-3-(trifluoromethyl)pyridine

Revision Date: 07-01-25 Revision Number: 2.1

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

Product Name	2-CHLORO-3-(TRIFLUOROMETHYL)PYRIDINE
Chemical Name	Not Available
Synonyms	C6H3Cl-F3-N
Proper Shipping Name	FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S
Chemical Formula	$C_6H_3ClF_3N$
Other means of identification	Not available
CAS Number	65753-47-1

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

Relevant identified uses	• It is an important chemical intermediate, which is widely used in herbicide, pesticides, medicines, and so forth [1. Especially in the field of herbicide, 2-chloro-3-(trifluoromethyl) pyridine is a key intermediate of efficient and low toxicity herbicide, such as fluazifop- butyl, poppenate-methyl, and flazasulfuron which are low residue pesticides, so 2-chloro-3-(trifluoromethyl)pyridine has a wide application prospects. • 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. • Intermediate

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	**3**			**0 =**	**Minimum**
Toxicity	**3**			**1 =**	**Low**
Body Contact	**3**			**2 =**	**Moderate**
Reactivity	**1**			**3 =**	**High**
Chronic	**2**			**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 Solids Category 1, Acute Toxicity (Oral and Dermal) Category 3, Skin Corrosion/Irritation Category 1B, Serious Eye Damage/Eye Irritation Category 1, Specific Target Organ Toxicity - Repeated Exposure Category 1, Hazardous to the Aquatic Environment Long-Term Hazard Category 3

Label elements

Hazard pictogram(s)	

Signal word	Danger

Hazard statement(s)

H228	Flammable solid.
H301+H311	Toxic if swallowed or in contact with skin.
H314	Causes severe skin burns and eye damage.
H372	Causes damage to organs through prolonged or repeated exposure.
H412	Harmful 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.
P260	Do not breathe dust/fume.
P264	Wash all exposed external body areas thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.
P273	Avoid release to the environment.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. If more than 15 mins from Doctor, INDUCE VOMITING (if conscious).
P302+P352	IF ON SKIN: Wash with plenty of water.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P361+P364	Take off immediately all contaminated clothing and wash it before reuse.
P370+P378	In case of fire: Use water jets to extinguish.
P363	Wash contaminated clothing before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Precautionary statement(s) Storage

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

SECTION 3 Composition / information on ingredients

Substances

Cas No.	%[weight]	Name
65753-47-1	>98	2-Chloro-3-(trifluoromethyl)pyridine

Mixtures

See Section above for composition of substances

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes:

	• Immediately hold eyelids apart and flush the eye continuously with 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. • Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. • Transport to hospital or doctor without delay. • Removal of contact lenses after an eye injury should only be undertaken by skilled personnel
Skin Contact	If skin or hair contact occurs: • Quickly but gently, wipe material off skin with a dry, clean cloth. • Immediately remove all contaminated clothing, including footwear. • Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. • Transport to hospital, or doctor.
Inhalation	• 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	• Give a slurry of activated charcoal in water to drink. **NEVER** GIVE AN UNCONSCIOUS PATIENT WATER TO DRINK. ‣ At least 3 tablespoons in a glass of water should be given. • Although induction of vomiting may be recommended (**IN CONSCIOUS PERSONS ONLY**), such a first aid measure is dissuaded due to the risk of aspiration of stomach contents. (i) It is better to take the patient to a doctor who can decide on the necessity and method of emptying the stomach. (ii) Special circumstances may however exist; these include non- availability of charcoal and the ready availability of the doctor. • **NOTE:** If vomiting is induced, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. • **NOTE:** Wear protective gloves when inducing vomiting. • REFER FOR MEDICAL ATTENTION WITHOUT DELAY. • 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. (ICSC20305/20307) • If poisoning occurs, contact a doctor or Poisons Information Centre

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
- EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994

SECTION 5 Firefighting measures

Extinguishing media
For **SMALL FIRES**: Dry chemical, CO2, water spray or foam.
For **LARGE FIRES:** Water-spray, fog or foam.

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	• Flammable solid which burns and propagates flame easily, even when partly wetted with water. • Any source of ignition, i.e. friction, heat, sparks or flame, may cause fire or explosion. • May burn fiercely. • May form explosive mixtures with air. • May **REIGNITE** after fire is extinguished • Containers may explode on heating. • Solids may melt and flow when heated or involved in a fire. • Runoff may pollute waterways • Avoid generating dust, particularly clouds of dust in a confined or unventilated

	space as dusts may form an explosive mixture with air. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited. • Dry dust can be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport, thereby providing a source of ignition. • Decomposition products may be irritating, poisonous or corrosive. **Combustion products include.** • carbon monoxide (CO) • carbon dioxide (CO2) • Hydrogen Chloride • Phosgene • Hydrogen Fluoride • nitrogen oxides (NOx) • other pyrolysis products typical of burning organic material.

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	• Remove all ignition sources. • **DO NOT** touch or walk through spilled material • Clean up all spills immediately. • Avoid contact with skin and eyes. • Prevent dust cloud. • With clean shovel (preferably non-sparking) place material into clean, dry container and cover loosely. • Move containers from spill area. • Control personal contact with the substance, by using protective equipment
Major Spills	• 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	• Avoid all personal contact, including inhalation. • Wear protective clothing when risk of exposure occurs • Use in a well-ventilated area • Prevent concentration in hollows and sumps. • DO NOT enter confined spaces until the atmosphere has been checked. • DO NOT allow material to contact humans, exposed food or food utensils • 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. Launder contaminated clothing before re-use • 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 are maintained. • Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions) • Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame. • Establish good housekeeping practices. • Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. • Use continuous suction at points of dust generation to capture and minimize the accumulation of dusts. Particular attention should be given to overhead and hidden horizontal surfaces to minimize the probability of a "secondary" explosion. According to NFPA Standard 654, dust layers 1/32 in.(0.8 mm) thick can be sufficient to warrant immediate cleaning of the area. • Do not use air hoses for cleaning. • Minimize dry sweeping to avoid generation of dust clouds. Vacuum dust-accumulating surfaces and remove to a chemical disposal area. Vacuums with explosion-proof motors should be used. • Control sources of static electricity. Dusts or their packages may accumulate static charges, and static discharge can be a source of ignition. • Solids handling systems must be designed in accordance with applicable standards (e.g. NFPA including 654 and 77) and other national guidance. • Do not empty directly into flammable solvents or in the presence of flammable vapors. • The operator, the packaging container and all equipment must be grounded with electrical bonding and grounding systems. Plastic bags and plastics cannot be grounded, and antistatic bags do not completely protect against development of static charges. • Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source. • Do NOT cut, drill, grind or weld such containers. • In addition, ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit
Other information	• **FOR MINOR QUANTITIES:** • Store in an indoor fireproof cabinet or in a room of noncombustible construction. • Provide adequate portable fire-extinguishers in or near the storage area.

	• **FOR PACKAGE STORAGE:** • Store in original containers in approved flame-proof area. • No smoking, naked lights, heat or ignition sources. • **DO NOT** store in pits, depressions, basements or areas where vapours may be trapped. • Keep containers securely sealed. • Store away from incompatible materials in a cool, dry, well ventilated area • Protect containers against physical damage and check regularly for leaks. • Protect containers from exposure to weather and from direct sunlight unless: (a) the packages are of metal or plastic construction; (b) the packages are securely closed are not opened for any purpose while in the area where they are stored and (c) adequate precautions are taken to ensure that rain water, which might become contaminated by the dangerous goods, is collected and disposed of safely. • Ensure proper stock-control measures are maintained to prevent prolonged storage of dangerous goods. • Observe manufacturer's storage and handling recommendations contained within this SDS.

Conditions for safe storage, including any incompatibilities

Suitable container	• For low viscosity materials and solids: • Drums and jerricans must be of the non-removable head type. • 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): • Removable head packaging and • cans with friction closures may be used. • Where combination packages are used, there must be sufficient inert absorbent material to absorb completely any leakage that may occur, unless the outer packaging is a close-fitting moulded plastic box and the substances are not incompatible with the plastic. • All combination packages for Packing group I and II must contain cushioning material.
Storage incompatibility	• Avoid reactions with oxidising agents.

Control Parameters
Occupational Exposure Limits (OEL)

INGREDIENT DATA
Not Available

Ingredient	Original IDLH	Revised IDLH
2-Chloro-3-(trifluoromethyl)pyridine	Not Available	Not Available

Exposure controls

Appropriate engineering controls	For large scale or continuous use: • Spark-free, earthed ventilation system, venting directly to the outside and separate from usual ventilation systems. • Provide dust collectors with explosion vents 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.

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:

(a) particle dust respirators, if necessary, combined with an absorption cartridge;

(b) filter respirators with absorption cartridge or canister of the right type;

(c) fresh-air hoods or masks

- Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.

Type of Contaminant	**Air Speed**
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 ft/min)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 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

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

Individual protection measures, such as personal protective equipment	
Eye and face protection	• Chemical goggles.

	• Full face shield may be required for supplementary but never for primary protection of eyes. • 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 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 have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]
Skin protection	See Hand protection below
Hands/feet protection	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. 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. 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. Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: • frequency and duration of contact, • chemical resistance of glove material, • glove thickness and • dexterity Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent). • 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. As defined in ASTM F-739-96 in any application, gloves are rated as: • Excellent when breakthrough time > 480 min • Good when breakthrough time > 20 min • Fair when breakthrough time < 20 min • Poor when glove material degrades For general applications, gloves with thickness typically greater than 0.35 mm, are recommended. 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.

	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. Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example: • 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 likely to give short duration protection and would normally be just for single use applications, then disposed of. • 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 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. • Wear physical protective gloves, e.g. leather. • Wear safety footwear
Body protection	See Other protection below
Other protection	• 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 an 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

Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures. The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).

Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.

Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.

Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN143) dust masks.

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

Use approved positive flow mask if significant quantities of dust becomes airborne.

Try to avoid creating dust conditions.

Class P2 particulate filters are used for protection against mechanically and thermally generated particulates or both. P2 is a respiratory filter rating under various international standards, Filters at least 94% of airborne particles Suitable for:

Relatively small particles generated by mechanical processes eg. grinding, cutting, sanding, drilling, sawing.

Sub-micron thermally generated particles e.g. welding fumes, fertilizer and bushfire smoke.

Biologically active airborne particles under specified infection control applications e.g. viruses, bacteria, COVID-19, SARS.

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	low melting white solid.		
Physical state	Divided Solid	**Relative density (Water = 1)**	1.69
Odour	Not Available	**Partition coefficient n-octanol / water**	2.2
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)	**36 – 40°C**	**Viscosity (cSt)**	Not Applicable
Initial boiling point and boiling range (°C)	**167°C**	**Molecular weight (g/mol)**	181.54
Flash point (°C)	> 160	**Taste**	Not Available
Evaporation rate	Not Applicable	**Explosive properties**	Not Available
Flammability	Highly Flammable	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Applicable
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Negligible
Vapour pressure (kPa)	Negligible	**Gas group**	Not Available
Solubility in water	Partly miscible	**pH as a solution (1%)**	Not Applicable
Vapour density (Air = 1)	Not Applicable	**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 Density (g/m3)**	Not Available

SECTION 10 Stability and reactivity

Reactivity Chemical stability	See section 7 • 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.
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	• Inhalation of vapours, aerosols (mists, fumes) or dusts, generated by the material during the course of normal handling, may produce serious damage to the health of the individual. • Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled. • If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.
Ingestion	• **Toxic effects** may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual. • The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion
Skin Contact	• Skin contact with the material may produce toxic effects; systemic effects may result following absorption • The material can produce chemical burns following direct contact with the skin • 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	• The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating. If applied to the eyes, this material causes severe eye damage
Chronic	• Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. • This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. • Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. • Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis, caused by particles • less than 0.5 micron penetrating and remaining in the lung.

2-Chloro-3-(trifluoromethyl)pyridine	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: 366 mg/kg[1]	Not Available

	Oral (Rat) LD50: 251 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*	

2-Chloro-3-(trifluoromethyl)pyridine	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 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.

Acute Toxicity	✔	**Carcinogenicity**	✘
Skin Irritation/Corrosion	✔	**Reproductivity**	✘
Serious Eye Damage/Irritation	✔	**STOT - Single Exposure**	✘
Respiratory or Skin sensitisation	✘	**STOT - Repeated Exposure**	✔
Mutagenicity	✘	**Aspiration Hazard**	✘

Legand: ✘ *– Data either not available or does not fill the criteria for classification*
✔ *– Data available to make classification*

SECTION 12 Ecological information

Toxicity

	End Point	Test Duration (hr.)	Species	Value	Source
2-Chloro-3-(trifluoromethyl)pyridine	EC50	72h	Algae or other aquatic plants	41mg/l	2
	NOEC(ECx)	96h	Fish	4.21mg/l	2
	LC50	96h	Fish	21.1mg/l	2
	EC50	48h	Crustacea	32.3mg/l	2
Legand:	*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*				

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do NOT allow product 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.
DO NOT discharge into sewer or waterways

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
2-Chloro-3-(trifluoromethyl)pyridine	High	High

Bio accumulative potential

Ingredient	Bioaccumulation
2-Chloro-3-(trifluoromethyl)pyridine	Low (Log KOW = 3.3065)

Mobility in soil

Ingredient	Mobility
2-Chloro-3-(trifluoromethyl)pyridine	LOW (Log KOC = 1952)

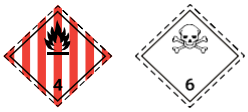
SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal	• Containers may still present a chemical hazard/ danger when empty • Return to supplier for reuse/ recycling if possible. **Otherwise:** • 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 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. A Hierarchy of Controls seems to be common - the user should investigate: • Reduction • Reuse • Recycling • Disposal (if all else fails) 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. • **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

SECTION 14 Transport information

Labels Required

	
Marine Pollutant	**No**

Land transport (UN)

14.1. **UN number or ID number**	2926	
14.2. **UN proper shipping name**	FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S	
	Class	4.1

14.3. **Transport hazard class(es)**	Subsidiary Hazard	6.1
14.4. **Packing group**	II	
14.5. **Environmental hazard**	Not Applicable	
14.6. **Special precautions for user**	Special Provisions	274
	Limited Quality	1 kg

Air transport (ICAO-IATA / DGR)

14.1. **UN number**	2926	
14.2. UN proper shipping name	Flammable solid, toxic, organic, n.o.s. *	
14.3. **Transport hazard class(es)**	ICAO/IATA Class	4.1
	ICAO / IATA Subsidiary Hazard	6.1
	ERG Code	3P
14.4. **Packing group**	**II**	
14.5. **Environmental hazard**	Not Applicable	
14.6. **Special precautions for user**	Special provisions	A3 A803
	Cargo Only Packing Instructions	448
	Cargo Only Maximum Qty / Pack	50 kg
	Passenger and Cargo Packing Instructions	445
	Passenger and Cargo Maximum Qty / Pack	15 kg
	Passenger and Cargo Limited Quantity Packing Instructions	Y440
	Passenger and Cargo Limited Maximum Qty / Pack	1 kg

Sea transport (IMDG-Code/ GGVSee)

14.1. **UN number**	2926	
14.2. **UN proper shipping name**	FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S	
14.3. **Transport hazard class(es)**	IMDG Class	4.1
	IMDG Subsidiary Hazard	6.1
14.4. **Packing group**	**II**	
14.5 **Environmental hazard**	Not Applicable	
14.6. **Special precautions for user**	EMS Number	F-A , S-G
	Special provisions	274
	Limited Quantities	1 Kg

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
2-Chloro-3-(trifluoromethyl)pyridine	Not Available

2-Chloro-3-(trifluoromethyl)pyridine k in accordance with the IGC Code

Product Name	Ship Type
2-Chloro-3-(trifluoromethyl)pyridine	Not Available

SECTION 15 Regulatory information

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

2-Chloro-3-(trifluoromethyl)pyridine is found on the following lists

Not Applicable

Additional Regulatory Information
Not Applicable

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	No (2-Chloro-3-(trifluoromethyl)pyridine)
Canada - DSL	No (2-Chloro-3-(trifluoromethyl)pyridine)
Canada - NDSL	No (2-Chloro-3-(trifluoromethyl)pyridine)
China - IECSC	No (2-Chloro-3-(trifluoromethyl)pyridine)
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	No (2-Chloro-3-(trifluoromethyl)pyridine)
New Zealand - NZIoC	No (2-Chloro-3-(trifluoromethyl)pyridine)
Philippines - PICCS	No (2-Chloro-3-(trifluoromethyl)pyridine)
USA - TSCA	No (2-Chloro-3-(trifluoromethyl)pyridine)
Taiwan - TCSI	Yes
Mexico - INSQ	No (2-Chloro-3-(trifluoromethyl)pyridine)
Vietnam - NCI	No (2-Chloro-3-(trifluoromethyl)pyridine)
Russia - FBEPH	No (2-Chloro-3-(trifluoromethyl)pyridine)
Legend:	*Yes = All CAS declared ingredients are on the inventory* *No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.*

SECTION 16 Other information

Revision Date	07/01/2025
Initial Date	07/01/2025

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.