

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

<b>Product Name</b>	2,3-DICHLORO-5-(TRIFLUOROMETHYL)PYRIDINE
<b>Chemical Name</b>	Not Available
<b>Synonyms</b>	C6-H2-Cl2-F3-N; 2,3,5-DCTF
<b>Proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains 2,3-dichloro-5-(trifluoromethyl)pyridine)
<b>Chemical Formula</b>	C6H2Cl2F3N
<b>Other means of identification</b>	Not available
<b>CAS Number</b>	69045-84-7

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

<b>Relevant identified uses</b>	<ul style="list-style-type: none"> <li>Pyridines are heterocyclic six-membered aromatic compounds containing a single nitrogen atom. Pyridines are a class of important heterocycles and appear in many naturally occurring bioactive compounds, pharmaceutical molecules, and chiral ligands in polysubstituted forms. The pyridine moiety is present in countless molecules with applications as varied as catalysis, drug design, molecular recognition, and natural product synthesis. Pyridine derivatives have also been implicated as small molecule alpha-helical mimetics in the inhibition of protein-protein interactions, and functionally selective GABAA ligands.</li> <li>Halogenated pyridines in particular are attractive building blocks for various cross-coupling methodologies, including Suzuki- Miyaura cross-coupling reactions</li> <li>Intermediate</li> </ul>
---------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------






#### Details of the manufacturer or supplier of the safety data sheet:

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

#### Emergency telephone number:

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

### SECTION 2 Hazards identification

<b>Classification of the substance or mixture</b>			
<b>Hazard Ratings</b>			
	<b>Min</b>	<b>Max</b>	
<b>Flammability</b>	1 		0 = Minimum
<b>Toxicity</b>	2 		1 = Low
<b>Body Contact</b>	3 		2 = Moderate
<b>Reactivity</b>	1 		3 = High
<b>Chronic</b>	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).

# MATERIAL SAFETY DATA SHEET


2,3-Dichloro-5-trifluoromethyl-pyridine

Revision Date: 27-10-23

Revision Number: 6.1

<b>Classification</b>	Flammable Liquids Category 4, Acute Toxicity (Oral and Inhalation) Category 4, Skin Corrosion/Irritation Category 3, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 1, Hazardous to the Aquatic Environment Long- Term Hazard Category 2
-----------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

## Label elements

Hazard pictogram(s)	
---------------------	-----------------------------------------------------------------------------------

Signal word	<b>Danger</b>
-------------	---------------

## Hazard statement(s)

H227	Combustible liquid.
H302+H332	Harmful if swallowed or if inhaled.
H316	Causes mild skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
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.
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.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P273	Avoid release to the environment.
P272	Contaminated work clothing should not be allowed out of the workplace.

## Precautionary statement(s) Response

P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physician/first aider if you feel unwell.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor/physician/first aider.
P330	Rinse mouth.
P370+P378	In case of fire: Use alcohol resistant foam or normal protein foam to extinguish.
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.

## Precautionary statement(s) Storage

P403	Store in a well-ventilated place.
------	-----------------------------------

## 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
69045-84-7	>98	2,3-dichloro-5-(trifluoromethyl)pyridine

#### 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"> <li>Wash out immediately with fresh running water.</li> <li>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.</li> <li>Seek medical attention without delay; if pain persists or recurs seek medical attention.</li> <li>Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
Skin Contact	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> <li>Immediately remove all contaminated clothing, including footwear.</li> <li>Flush skin and hair with running water (and soap if available)</li> <li>Seek medical attention in event of irritation</li> </ul>
Inhalation	<ul style="list-style-type: none"> <li>If fumes or combustion products are inhaled remove from contaminated area.</li> <li>Lay patient down. Keep warm and rested.</li> <li>Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>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.</li> <li>Transport to hospital, or doctor.</li> </ul>
Ingestion	<ul style="list-style-type: none"> <li><b>IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.</b></li> <li>For advice, contact a Poisons Information Centre or a doctor.</li> <li>Urgent hospital treatment is likely to be needed</li> <li>In the meantime, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.</li> <li>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.</li> <li>If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS.</li> <li><b>Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:</b></li> <li><b>INDUCE</b> vomiting with fingers down the back of the throat, <b>ONLY IF CONSCIOUS</b>. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li><b>NOTE:</b> Wear a protective glove when inducing vomiting by mechanical means</li> </ul>

#### 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

Treat symptomatically

## SECTION 5 Firefighting measures

### Extinguishing media

- Foam
- Dry Chemical Powder
- BCF (where regulations permit).
- Carbon dioxide
- Water Spray or Fog – Larges files only

### 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

<b>Fire Fighting</b>	<ul style="list-style-type: none"> <li>• Alert Fire Brigade and tell them location and nature of hazard.</li> <li>• Wear breathing apparatus plus protective gloves</li> <li>• Prevent, by any means available, spillage from entering drains or water courses</li> <li>• Fight fire from a safe distance, with adequate cover.</li> <li>• Use water delivered as a fine spray to control fire and cool adjacent area</li> <li>• <b>DO NOT approach containers suspected to be hot</b></li> <li>• Cool fire exposed containers with water spray from a protected location</li> <li>• If safe to do so, remove containers from path of fire.</li> </ul>
<b>Fire/Explosion Hazard</b>	<ul style="list-style-type: none"> <li>• Combustible.</li> <li>• Slight fire hazard when exposed to heat or flame.</li> <li>• Heating may cause expansion or decomposition leading to violent rupture of containers.</li> <li>• On combustion, may emit toxic fumes of</li> </ul>

# MATERIAL SAFETY DATA SHEET

2,3-Dichloro-5-trifluoromethyl-pyridine

Revision Date: 27-10-23

Revision Number: 6.1

	<p>carbon monoxide (CO).</p> <ul style="list-style-type: none"> <li>• May emit acrid smoke.</li> <li>• Mists containing combustible materials may be explosive.</li> </ul> <p><b>Combustion products include:</b></p> <ul style="list-style-type: none"> <li>• carbon dioxide (CO<sub>2</sub>)</li> <li>• Hydrogen Chloride</li> <li>• Phosgene</li> <li>• Hydrogen Fluoride</li> <li>• nitrogen oxides (NO<sub>x</sub>)</li> <li>• other pyrolysis products typical of burning organic material.</li> </ul>
--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

## 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

<b>Minor Spills</b>	<ul style="list-style-type: none"> <li>• Remove all ignition sources.</li> <li>• Clean up all spills immediately.</li> <li>• Avoid contact with skin and eyes.</li> <li>• Control personal contact with the substance, by using protective equipment.</li> <li>• Use dry clean up procedures and avoid generating dust.</li> <li>• Place in a suitable, labelled container for waste disposal</li> </ul>
<b>Major Spills</b>	<ul style="list-style-type: none"> <li>• Moderate hazard.</li> <li>• <b>CAUTION:</b> Advise personnel in area.</li> <li>• Alert Emergency Services and tell them the location and nature of hazard.</li> <li>• Control personal contact by wearing protective clothing.</li> <li>• Prevent, by any means available, spillage from entering drains or water courses.</li> <li>• Recover products wherever possible.</li> <li>• <b>IF DRY:</b> Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal.</li> <li>• <b>IF WET:</b> Vacuum/shovel up and place in labelled containers for disposal.</li> <li>• <b>ALWAYS:</b> Wash area down with large amounts of water and prevent runoff into drains.</li> <li>• If contamination of drains or waterways occurs, advise Emergency Services</li> </ul>

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

## SECTION 7 Handling and storage

### Precautions for safe handling

<b>Safe Handling</b>	<ul style="list-style-type: none"> <li>• Avoid all personal contact, including inhalation.</li> <li>• Wear protective clothing when risk of exposure occurs.</li> <li>• Use in a well-ventilated area.</li> <li>• Prevent concentration in hollows and sumps.</li> <li>• <b>DO NOT</b> enter confined spaces until the atmosphere has been checked.</li> <li>• <b>DO NOT</b> allow material to contact humans, exposed food or food utensils</li> <li>• Avoid contact with incompatible materials.</li> <li>• <b>When handling, DO NOT</b> eat, drink or smoke.</li> <li>• Keep containers securely sealed when not in use.</li> <li>• Avoid physical damage to containers</li> <li>• Always wash hands with soap and water after handling</li> </ul>
----------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

# MATERIAL SAFETY DATA SHEET

2,3-Dichloro-5-trifluoromethyl-pyridine

Revision Date: 27-10-23

Revision Number: 6.1

	<ul style="list-style-type: none"> <li>• Work clothes should be laundered separately</li> <li>• Use good occupational work practice</li> <li>• Observe manufacturer's storage and handling recommendations contained within this SDS.</li> <li>• Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.</li> </ul>
<b>Other information</b>	<ul style="list-style-type: none"> <li>• Store in original containers.</li> <li>• Keep containers securely sealed.</li> <li>• Store in a cool, dry area protected from environmental extremes.</li> <li>• Store away from incompatible materials and foodstuff containers.</li> <li>• Protect containers against physical damage and check regularly for leaks.</li> <li>• Observe manufacturer's storage and handling recommendations contained within this SDS</li> </ul>

## Conditions for safe storage, including any incompatibilities

<b>Suitable container</b>	<ul style="list-style-type: none"> <li>• Metal can or drum</li> <li>• Packaging as recommended by manufacturer.</li> <li>• Check all containers are clearly labelled and free from leaks</li> </ul>
<b>Storage incompatibility</b>	<ul style="list-style-type: none"> <li>• Contains a six-membered heterocyclic ring.</li> <li>• Six-membered heterocycles can be described as pi--deficient. Substitution by electronegative groups or additional nitrogen atoms in the ring significantly increase the pi-deficiency. These effects also decrease the basicity.</li> <li>• Electrophilic aromatic substitution is more difficult while nucleophilic aromatic substitution is facilitated. for pyridines:</li> <li>• Because of the electronegative nitrogen in the pyridine ring, the molecule is relatively electron deficient. It, therefore, enters less readily electrophilic aromatic substitution reactions, which are characteristic of benzene derivatives; even more so if the reaction mix doesn't scavenge protons released by the reaction (protonated pyridine is even more electron-deficient). However, unlike benzene and its derivatives, pyridine is more prone to nucleophilic substitution and metalation of the ring by strong organometallic bases.</li> <li>• The nitrogen center of pyridine features a basic lone pair of electrons. Because this lone pair is not part of the aromatic ring, pyridine is a base, having chemical properties similar to those of tertiary amines. Pyridine can act as Lewis base, donating its pair of electrons to a Lewis acid.</li> <li>• Pyridine is protonated by reaction with acids and forms a positively charged aromatic polyatomic ion called pyridinium</li> <li>• The reactivity of pyridine can be distinguished for three chemical groups.</li> <li>• With electrophiles, electrophilic substitution takes place where pyridine expresses aromatic properties.</li> <li>• With nucleophiles, pyridine reacts at positions 2 and 4 and thus behaves similar to imines and carbonyls.</li> <li>• The reaction with many Lewis acids results in the addition to the nitrogen atom of pyridine, which is similar to the reactivity of tertiary amines. The ability of pyridine and its derivatives to oxidize, forming amine oxides (N-oxides), is also a feature of tertiary amines</li> <li>• Secondary amines form salts with strong acids and can be oxidized to the corresponding nitron using hydrogen peroxide, catalyzed by selenium dioxide.</li> <li>• Avoid strong acids, bases.</li> <li>• Avoid reaction with oxidising agents</li> </ul>

### SECTION 8 Exposure controls / personal protection

#### Control Parameters

Occupational Exposure Limits (OEL)

#### INGREDIENT DATA

Not Available

Ingredient	Original IDLH	Revised IDLH
2,3-dichloro-5-(trifluoromethyl)pyridine	Not Available	Not Available

#### Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
2,3-dichloro-5-(trifluoromethyl)pyridine	E	≤0.1 ppm
Notes:	Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.	

#### Exposure controls







Appropriate engineering controls	<ul style="list-style-type: none"> <li>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.</li> <li>The basic types of engineering controls are:</li> <li>Process controls which involve changing the way a job activity or process is done to reduce the risk.</li> <li>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.</li> <li>Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.</li> <li>An approved self contained breathing apparatus (SCBA) may be required in some situations.</li> <li>Provide adequate ventilation in warehouse or closed storage area. 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</li> </ul>	
	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.)
	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.)

# MATERIAL SAFETY DATA SHEET

2,3-Dichloro-5-trifluoromethyl-pyridine

Revision Date: 27-10-23

Revision Number: 6.1

	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.)
	<b>Which each range the appropriate value depends on</b>	
	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"> <li>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.</li> </ul>	
<b>Individual protection measures, such as personal protective equipment</b>	     	
<b>Eye and face protection</b>	<ul style="list-style-type: none"> <li>Safety glasses with side shields.</li> <li>Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]</li> <li>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.</li> <li>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].</li> </ul>	
<b>Skin protection</b>	See Hand protection below	
<b>Hands/feet protection</b>	<p>Wear chemical protective gloves, e.g. PVC.</p> <p>Wear safety footwear or safety gumboots, e.g. Rubber</p> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.</li> <li>Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed</li> </ul> <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</p>	



# MATERIAL SAFETY DATA SHEET

2,3-Dichloro-5-trifluoromethyl-pyridine

Revision Date: 27-10-23

Revision Number: 6.1

	<p>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"> <li>• frequency and duration of contact,</li> <li>• chemical resistance of glove material,</li> <li>• glove thickness and</li> <li>• dexterity</li> </ul> <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"> <li>• 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.</li> <li>• 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.</li> <li>• Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.</li> <li>• Contaminated gloves should be replaced.</li> </ul> <p>As defined in ASTM F-739-96 in any application, gloves are rated as:</p> <ul style="list-style-type: none"> <li>• Excellent when breakthrough time &gt; 480 min</li> <li>• Good when breakthrough time &gt; 20 min</li> <li>• Fair when breakthrough time &lt; 20 min</li> <li>• Poor when glove material degrades</li> </ul> <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"> <li>• 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.</li> <li>• 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</li> </ul> <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> <ul style="list-style-type: none"> <li>• Neoprene gloves</li> </ul>
<b>Body protection</b>	See Other protection below
<b>Other protection</b>	<ul style="list-style-type: none"> <li>• Overalls.</li> </ul>

	<ul style="list-style-type: none"> <li>P.V.C apron</li> <li>Barrier cream.</li> <li>Skin cleansing cream.</li> <li>Eye wash unit</li> </ul>
--	---------------------------------------------------------------------------------------------------------------------------------------------

### 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(SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia(NH<sub>3</sub>), 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

<b>Appearance</b>	Colourless liquid with pungent pyridine-like odour; does not mix well with water (380 mg/l, 24 C). vapour density 0.015 g/l. Hydrolyses at low pH to form water soluble compound		
<b>Physical state</b>	<b>Liquid</b>	<b>Relative density (Water = 1)</b>	1.549
<b>Odour</b>	Not Available	<b>Partition coefficient n-octanol / water</b>	3.45
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Available
<b>pH (as supplied)</b>	Not Applicable	<b>Decomposition temperature (°C)</b>	>300
<b>Melting point / freezing point (°C)</b>	8-9°C	<b>Viscosity (cSt)</b>	Not Available
<b>Initial boiling point and boiling range (°C)</b>	169°C	<b>Molecular weight (g/mol)</b>	215.99
<b>Flash point (°C)</b>	79.44°C	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	Not Available	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	Combustible	<b>Oxidising properties</b>	Not Available

# MATERIAL SAFETY DATA SHEET

2,3-Dichloro-5-trifluoromethyl-pyridine

Revision Date: 27-10-23

Revision Number: 6.1

<b>Upper Explosive Limit (%)</b>	Not Available	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Available
<b>Lower Explosive Limit (%)</b>	Not Available	<b>Volatile Component (%vol)</b>	Not Available
<b>Vapour pressure (kPa)</b>	1.13 mm Hg (25 C)	<b>Gas group</b>	Not Available
<b>Solubility in water</b>	Partially miscible	<b>pH as a solution (1%)</b>	Not Applicable
<b>Vapour density (Air = 1)</b>	>1	<b>VOC g/L</b>	1519.57
<b>Heat of Combustion (kJ/g)</b>	Not Available	<b>Ignition Distance (cm)</b>	Not Available
<b>Flame Height (cm)</b>	Not Available	<b>Flame Duration (s)</b>	Not Available
<b>Enclosed Space Ignition Time Equivalent (s/m3)</b>	Not Available	<b>Enclosed Space Ignition Deflagration Density (g/m3)</b>	Not Available

## SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> <li>Unstable in the presence of incompatible materials</li> <li>Product is considered stable</li> <li>Hazardous polymerisation will not occur</li> </ul>
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

<b>Inhaled</b>	<ul style="list-style-type: none"> <li>There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.</li> <li>Inhalation hazard is increased at higher temperatures.</li> <li>Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>
<b>Skin Contact</b>	<ul style="list-style-type: none"> <li>There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. Open cuts, abraded or irritated skin should not be exposed to this material.</li> <li>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.</li> <li>Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</li> </ul>
<b>Eye</b>	<ul style="list-style-type: none"> <li>If applied to the eyes, this material causes severe eye damage.</li> </ul>
<b>Chronic</b>	<ul style="list-style-type: none"> <li>Skin contact with the material is more likely to cause a sensitization reaction in some persons compared to the general population.</li> <li>There has been some concern that this material can cause cancer or mutation but there is not enough data to make an assessment.</li> <li>Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.</li> <li>Data from experimental studies indicate that pyridines represent a potential cause of cancer in man. They have also been shown to cross the placental barrier in rats and cause premature delivery, miscarriages and stillbirths.</li> </ul>

# MATERIAL SAFETY DATA SHEET

2,3-Dichloro-5-trifluoromethyl-pyridine

Revision Date: 27-10-23

Revision Number: 6.1

2,3-Dichloro-5-trifluoromethyl-pyridine	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >1000<=2000 mg/kg <sup>[1]</sup>	Not Available
	Oral (Rat) LD50: >500<1000 mg/kg <sup>[1]</sup>	
<b>Legend:</b>	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	

2,3-Dichloro-5-trifluoromethyl-pyridine	<p>The following information refers to contact allergens as a group and may not be specific to this product.</p> <p>Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.</p> <p>No significant acute toxicological data identified in literature search.</p>
-----------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Acute Toxicity	✓	Carcinogenicity	✗
Skin Irritation/Corrosion	✓	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✗
Respiratory or Skin sensitisation	✓	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗
<b>Legend:</b> ✗ – 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
2,3-Dichloro-5-trifluoromethyl-pyridine	EC50	72h	Algae or other aquatic plants	2.9mg/l	2
	NOEC(ECx)	72h	Algae or other aquatic plants	0.28mg/l	2
	LC50	96h	Fish	3.9mg/l	2
	EC50	48h	Crustacea	4.9mg/l	2
<b>Legend:</b>	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				

Bioconcentration potential is moderate (BCF between 100-3000 or Log Pow between 3-5). Log octanol/water partition coefficient (Log Pow) is estimated to be 3.45. Potential for mobility in soil is low (Koc between 500-2000). Log soil organic carbon partition coefficient (Log Koc) is estimated to be 2.87. Log air/water partition coefficient (Log Kaw) is -1.33. Degradation and Persistence Biodegradation under aerobic laboratory conditions is below detectable limits

(<2.5%). Theoretical oxygen demand (ThOD) is calculated to be 0.954 . Ecotoxicity: Material is moderately toxic to aquatic organisms on an acute basis (LC50 or EC50 is between 1-10 mg/L in most sensitive species). Fish LC50: fathead minnow (Pimephales promelas) 13.4 mg/l, rainbow trout (Oncorhynchus mykiss) 3.9 mg/l Daphnia magna LC50: 31.9 mg/l

Toxic 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. For Pyridine and its

Derivatives:

Environmental Fate: As molecular weight/substitution increase in the pyridine category, greater distribution to water and soil, and less to air, is predicted. Atmospheric Fate: The lower weight pyridine, piperidine, is expected to be rapidly degraded by UV light in the atmosphere, with an estimated half-life of < 1 day. Higher molecular weight pyridines are expected to be broken down by sunlight, (photodegrades), more slowly, (half-lives ranging from 10-30 days). Lutidines and collidines are expected to photodegrade even more slowly. The nitrile derivatives of pyridine are also predicted to photodegrade slowly, with half-lives of 164 days; however, the nitrile derivatives of pyridine are predicted to partition to air much less favorably than to soil and water.

Terrestrial Fate: Depending upon the environmental conditions, different types of bacteria, fungi, and enzymes are involved in the breakdown of these substances. Aquatic Fate: Pyridines are not expected to be broken down by water; however, breakdown by microbes is expected, if sufficient oxygen is available. These substances are expected to be stable in low oxygen/sterile conditions.

Ecotoxicity: Pyridine and its derivatives range from slightly to moderately toxic to fish, invertebrates and algae.

**DO NOT** discharge into sewer or waterways

Ingredient	Persistence: Water/Soil	Persistence: Air
2,3-Dichloro-5-trifluoromethyl-pyridine	High	High

### Bio accumulative potential

Ingredient	Bioaccumulation
2,3-Dichloro-5-trifluoromethyl-pyridine	Low (BCF = 3.06)

### Mobility in soil

Ingredient	Mobility
2,3-Dichloro-5-trifluoromethyl-pyridine	LOW (Log KOC = 3162)

## SECTION 13 Disposal considerations

### Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> <li>Containers may still present a chemical hazard/ danger when empty</li> <li>Return to supplier for reuse/ recycling if possible.</li> <li><b>Otherwise:</b></li> <li>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</li> <li>Where possible retain label warnings and SDS and observe all notices pertaining to the product</li> <li>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.</li> <li>A Hierarchy of Controls seems to be common - the user should investigate:</li> <li>Reduction</li> <li>Reuse</li> </ul>
------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

# MATERIAL SAFETY DATA SHEET

2,3-Dichloro-5-trifluoromethyl-pyridine



Revision Date: 27-10-23

Revision Number: 6.1

	<ul style="list-style-type: none"> <li>Recycling</li> <li>Disposal (if all else fails)</li> <li>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. 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.</li> <li><b>DO NOT allow wash water from cleaning or process equipment to enter drains</b></li> <li>It may be necessary to collect all wash water for treatment before disposal.</li> <li>In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.</li> <li>Where in doubt contact the responsible authority.</li> <li>Recycle wherever possible or consult manufacturer for recycling options.</li> <li>Consult State Land Waste Authority for disposal.</li> <li>Bury or incinerate residue at an approved site.</li> <li>Recycle containers if possible, or dispose of in an authorised landfill</li> </ul>
--	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

## SECTION 14 Transport information

### Labels Required

	
Marine Pollutant	

### Land transport (UN) :

14.1. UN number or ID number	3082
14.2. UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains 2,3-dichloro-5-(trifluoromethyl)pyridine)
14.3. Transport hazard class(es)	Class 9
	Subsidiary Hazard Not Applicable
14.4. Packing group	III
14.5. Environmental hazard	Environmentally hazardous
14.6. Special precautions for user	Special provisions 274; 331; 335; 375
	Limited quantity 5 L

### Air transport (ICAO-IATA / DGR) :

14.1. UN number	3082
14.2. UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains 2,3-dichloro-5-(trifluoromethyl)pyridine)
14.3. Transport hazard class(es)	ICAO/IATA Class 9
	ICAO / IATA Subsidiary Hazard Not Applicable
	ERG Code 9L
14.4. Packing group	III
14.5. Environmental hazard	Environmentally hazardous
14.6. Special precautions for user	Special provisions A97 A158 A197 A215
	Cargo Only Packing Instructions 964
	Cargo Only Maximum Qty / Pack 450 L
	Passenger and Cargo Packing Instructions 964
	Passenger and Cargo Maximum Qty / Pack 450 L

# MATERIAL SAFETY DATA SHEET

2,3-Dichloro-5-trifluoromethyl-pyridine

Revision Date: 27-10-23

Revision Number: 6.1

	Passenger and Cargo Limited Quantity Packing Instructions	Y964
	Passenger and Cargo Limited Maximum Qty / Pack	30 kg G

## Sea transport (IMDG-Code/ GGVSee) :

14.1. UN number	3082	
14.2. UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains 2,3-dichloro-5-(trifluoromethyl)pyridine)	
14.3. Transport hazard class(es)	IMDG Class	9
	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-A, S-F
	Special provisions	274 335 969
	Limited Quantities	5 L

## 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
2,3-dichloro-5-(trifluoromethyl)pyridine	Not Available

## 14.7.3 Transport in bulk in accordance with the IGC Code

Product Name	Ship Type
2,3-dichloro-5-(trifluoromethyl)pyridine	Not Available

## SECTION 15 Regulatory information

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

2,3-dichloro-5-(trifluoromethyl)pyridine is found on the following regulatory lists

Not Applicable

## Additional Regulatory Information

Not Applicable

## National Inventory Status

National Inventory	Status
Australia - AIC / Australia Non-Industrial Use	No (2,3-dichloro-5-(trifluoromethyl)pyridine)
Canada - DSL	No (2,3-dichloro-5-(trifluoromethyl)pyridine)
Canada - NDSL	No (2,3-dichloro-5-(trifluoromethyl)pyridine)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	No (2,3-dichloro-5-(trifluoromethyl)pyridine)
Philippines - PICCS	No (2,3-dichloro-5-(trifluoromethyl)pyridine)
USA - TSCA	All chemical substances in this product have been designated as TSCA Inventory 'Active'
Taiwan - TCSI	Yes
Mexico - INSQ	No (2,3-dichloro-5-(trifluoromethyl)pyridine)
Vietnam - NCI	Yes
Russia - FBEPH	No (2,3-dichloro-5-(trifluoromethyl)pyridine)
<b>Legend:</b>	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	27/10/2023
Initial Date	12/05/2005



### SDS Version Summary:

Version	Date of Update	Sections Updated
5.1	15/09/2019	Handling and storage - Storage (storage incompatibility), Identification of the substance / mixture and of the company / undertaking - Use
6.1	27/10/2023	UN Number 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.**