

SAFETY DATA SHEET

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

1.1. Product identifier 3-Cyanopyridine
Synonyms: Nicotinonitrile, 3-Pyridinecarbonitrile
Chemical Abstracts Registry No: 100-54-9
REACH Registration Number: 01-2119542182-48-0000

1.2. Relevant identified uses of the substance or mixture and uses advised against

chemical intermediate

1.3. Details of the supplier of the safety data sheet

Vertellus Integrated Pyridines LLC
 201 North Illinois Street, Suite 1800,
 Indianapolis, IN 46204
 317-247-8141

Only Representative for EU REACH Registration:

Vertellus Specialties Belgium NV
 Haven 611, Tijsmanstunnel West 3
 Antwerp 2040 Belgium
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e-mail Address: sds@vertellus.com

1.4. Emergency telephone number Vertellus: 1-317-247-8141
CHEMTREC (USA): 1-800-424-9300 (collect calls accepted)
CHEMTREC (International): 1-703-527-3887 (collect calls accepted)
NRCC (China): +86 25 85477110

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

(According to Regulation (EC) No 1272/2008)

Serious Eye Damage Category 1
 Acute Toxicity Oral Category 4

(According to Directive 67/548/EEC)

Symbol: Xn, Xi
Risk Phrases: R41: Risk of serious damage to eyes.
 R22: Harmful if swallowed.
Safety Phrases: S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 S39: Wear eye/face protection.

2.2. Label elements

Hazard Symbols
 (Pictogram):



Signal Word: Danger
Hazard Precautions: H302 - Harmful if swallowed.
 H318 - Causes serious eye damage.

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Prevention Precautionary Statements:

P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

First Aid Precautionary Statements:

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 or doctor/physician.

2.3. Other hazards

Other Hazards: May present a dust explosion hazard in some circumstances.

SECTION 3: Composition/information on ingredients

3.1. Substances or 3.2. Mixtures

Ingredient	CAS Number	Concentration (weight %)	EC Number	CLP Inventory/ Annex VI	EU DSD Classification (67/548/EEC)	EU CLP Classification (1272/2008)
3-Cyanopyridine	100-54-9	~ 100	202-863-0	Not applicable.	Xi, Xn R41, R22	Acute Tox. 4; H302 Eye Dam. 1; H318

NOTE: See Section 8 for exposure limit data for these ingredients. See Section 15 for trade secret information (where applicable). See Section 16 for the full text of the R-phrases above.

SECTION 4: First aid measures

4.1. Description of first aid measures

Skin Contact: Wash exposed area twice with soap and water. The exposed area should be examined by medical personnel if irritation or pain persists after the area has been washed.

Eye Contact: Immediately flush eyes with plenty of water. Get medical attention, if irritation persists.

Inhalation: If exposed to excessive levels remove to fresh air and get medical attention if cough or other symptoms develop.

Ingestion: If swallowed, contact physician or poison control center immediately.

4.2 Most important symptoms and effects, both acute and delayed

Acute: Cyanopyridines in general are expected to be moderately irritating to skin, eyes and mucous membranes. While this material does not appear to exhibit significant dermal toxicity, extended contact (i.e. from wearing saturated clothing) should be avoided. Oral toxicity results show slight toxicity in laboratory animals, but ingestion is not likely to be a primary route of exposure. No information is available regarding inhalation toxicity of this material.

Delayed Effects: None known.

4.3. Indication of any immediate medical attention and special treatment needed

Note to Physician: No specific indications. Treatment should be based on the judgment of the physician in response to the reactions of the patient.

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SECTION 5: Firefighting measures

5.1. Extinguishing media

Appropriate Extinguishing Media: Use water fog, alcohol resistant foam, carbon dioxide, or dry chemical.

5.2. Special hazards arising from the substance or mixture

Hazardous Products of Combustion: Toxic vapors may be released upon thermal decomposition (cyanides, nitrogen oxides, carbon monoxide).

Potential for Dust Explosion: No data available -- handle in a manner that prevents generation of potentially explosive dust.

Special Flammability Hazards: This product is an organic solid. As such, in its finely divided form, this product has the potential to present a dust explosion hazard under certain conditions, although no dust explosion data is currently available. Handle this product in a manner that prevents dust generation and accumulation, and refer to National Fire Protection Association (NFPA) Standard 654 for further information on prevention of dust explosions.

5.3. Advice for firefighters

Basic Fire Fighting Guidance: Wear self-contained breathing apparatus and full protective clothing (i.e., Bunker gear). Skin and eye contact should be avoided. Normal fire fighting procedures may be used.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuation Procedures: Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Special Instructions: See Section 8 for personal protective equipment recommendations. Remove all contaminated clothing to prevent further absorption. Decontaminate affected personnel using the first aid procedures in Section 4. Leather shoes that have been saturated must be discarded.

6.2. Environmental precautions

Prevent releases to soils, drains, sewers and waterways.

6.3. Methods and material for containment and cleaning up

Remove all ignition sources. Ventilate the area of spill or leak. Wear protective equipment during clean-up. Material can then be collected for later disposal. After collection of material, flush area with water. Dispose of the material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable federal, state or local laws.

6.4. Reference to other sections

Refer to section 8 for information on selecting personal protective equipment. Refer to section 13 for information on spilled product, absorbent and clean up material disposal instructions.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for Unique Hazards: Not applicable.

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Practices to Minimize Risk: Wear appropriate protective equipment when performing maintenance on contaminated equipment. Wash hands thoroughly before eating or smoking after handling this material. Do not eat, drink or smoke in work areas. Prevent contact with incompatible materials. Avoid spills and keep away from drains. Handle in a manner to prevent generation of aerosols, vapors or dust clouds.

Special Handling Equipment: Not applicable.

7.2. Conditions for safe storage, including any incompatibilities

Storage Precautions & Recommendations: Maintain dry, ventilated conditions for storage. Protect containers against physical damage. Keep away from strong acids, strong bases and oxidizing agents.

Dangerous Incompatibility Reactions: Avoid strong acids, strong bases, and oxidizing agents.

Incompatibilities with Materials of Construction: None known

7.3. Specific end use(s)

If a chemical safety assessment has been completed an exposure scenario is attached as an annex to this Safety Data Sheet. Refer to this annex for the specific exposure scenario control parameters for uses identified in subsection 1.2.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limit: Not applicable.

Air Monitoring Method: Not applicable.

8.2. Exposure controls

Also see the annex to this SDS (if applicable) for specific exposure scenario controls.

Intermediate Status: Where the substance has been registered as an isolated intermediate (on-site or transported), this safety data sheet is consistent with the specific conditions relied on to justify the registration in accordance with Article 17 or 18 of regulation (EC) No 1907/2006.

Other Engineering Controls: All operations should be conducted in well-ventilated conditions. Local exhaust ventilation should be provided.

Personal Protective Equipment: Where overexposures are a concern, use NIOSH-approved dust/mist respirator as necessary. Chemical goggles; face shields if necessary. Neoprene, nitrile, or PVC-coated gloves.

Respirator Caution: Observe OSHA regulations for respirator use (29 CFR 1910.134). Air-purifying respirators must not be used in oxygen-deficient atmospheres.

Thermal Hazards: Not applicable.

Environmental Exposure Controls: The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance, State & Odor (ambient temperature):	White to amber solid with a sharp odor		
Molecular Formula:	C ₆ H ₄ N ₂	Molecular Weight:	104.11
Vapor Pressure:	0.296 mm Hg @ 25°C	Evaporation Rate:	No data available.
Specific Gravity or Density:	1.159 g/mL	Vapor Density (air = 1):	No data available.
Boiling Point:	207 °C	Freezing / Melting Point:	48 - 51 °C
Solubility in Water:	135 g/L @ 20°C	Octanol / Water Coefficient:	log Kow = 0.36
pH:	approx. 6 @ 10 g/L and 22°C	Odor Threshold:	No data available.
Viscosity:	No data available.	Autoignition Temperature:	> 600°C
Flash Point and Method:	191°F (88°C) Tag Closed Cup	Flammable Limits:	No data available.
Flammability (solid, gas):	Not flammable.	Decomposition Temperature:	No data available.
Explosive Properties:	Not explosive.	Oxidizing Properties:	Not an oxidizer.

SECTION 10: Stability and reactivity

<u>10.1. Reactivity</u>	Not classified as dangerously reactive.
<u>10.2. Chemical stability</u>	Stable
<u>10.3. Possibility of hazardous reactions</u>	Will not occur.
<u>10.4. Conditions to avoid</u>	Avoid static discharge and generation of dust. Avoid ignition sources, and sources of heat.
<u>10.5. Incompatible materials</u>	Avoid strong acids, strong bases, and oxidizing agents.
<u>10.6. Hazardous decomposition products</u>	Toxic vapors may be released upon thermal decomposition (cyanides, nitrogen oxides, carbon monoxide).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute Oral LD ₅₀ :	1100 mg/kg (rat) 1455 - 1475 mg/kg (rat)	Karnatz 1973 Katoku (undated)
Acute Dermal LD ₅₀ :	2000 - 4000 mg/kg (rabbit)	Gabriel 1978
Acute Inhalation LC ₅₀ :	No data available.	
Skin Irritation:	Non-irritating to skin.	

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Eye Irritation:	Severely irritating to eyes.
Skin Sensitization:	Not a sensitizer
Mutagenicity:	Negative in Ames Assay, both with and without metabolic activation. Negative in chromosomal aberration assay.
Reproductive / Developmental Toxicity:	No data available.
Carcinogenicity:	This material is not listed by IARC, NTP or OSHA as a carcinogen. No test data is available that indicates this material is a carcinogen.
Target Organs:	No data available.
Aspiration Hazard:	Not applicable.
Primary Route(s) of Exposure:	Skin contact and absorption, eye contact, and inhalation. Ingestion is not likely to be a primary route of exposure.
Most important symptoms and effects, both acute and delayed	Cyanopyridines in general are expected to be moderately irritating to skin, eyes and mucous membranes. While this material does not appear to exhibit significant dermal toxicity, extended contact (i.e. from wearing saturated clothing) should be avoided. Oral toxicity results show slight toxicity in laboratory animals, but ingestion is not likely to be a primary route of exposure. No information is available regarding inhalation toxicity of this material. Delayed Effects: None known.
Additive or Synergistic effects:	None known.

SECTION 12: Ecological information

<u>12.1. Toxicity</u>	EC ₅₀ Tetrahymena sp. = 582 mg/L Schultz 1987
<u>12.2. Persistence and degradability</u>	3-Cyanopyridine was not biodegradable in an OECD 301C protocol, but did show rapid biodegradation under anaerobic conditions in sediment slurries, with a half-life of less than 1 day, and full degradation within 19 days. (NITE 1994)
<u>12.3. Bioaccumulative potential</u>	Bioconcentration is not expected to occur.
<u>12.4. Mobility in soil</u>	This material is expected to have moderate mobility in soil. It absorbs to most soil types.
<u>12.5. Results of PBT and vPvB assessment</u>	This substance is not a PBT or vPvB.

SECTION 13: Disposal considerations

<u>13.1. Waste treatment methods</u>	
US EPA Waste Number:	Non-Hazardous
Waste Classification: (per US regulations)	The waste may be classified as "special" or hazardous per State regulations.
Waste Disposal:	NOTE: Generator is responsible for proper waste characterization. State hazardous waste regulations may differ substantially from federal regulations. Dispose of this material responsibly, and in accordance with standard practice for disposal of potentially hazardous materials as required by applicable international, national, regional, state or local laws, and environmental protection duty of care principles. Do NOT dump into any sewers, on the ground, or into any body of water. For disposal within the EC, the appropriate classification code according to the European Community List of Wastes should be used. Note that disposal regulations may also apply to empty containers and equipment rinsates.

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SECTION 14: Transport information

The following information applies to all shipping modes (DOT/IATA/ICAO/IMDG/ADR/RID/ADN), unless otherwise indicated:

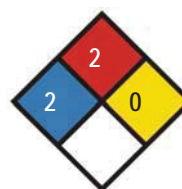
14.1. UN number	Not applicable.	14.2. UN proper shipping name	Chemicals, n.o.s. (3-Cyanopyridine)
14.3. Transport hazard class(es)	Not applicable.	14.4. Packing group	Not applicable.
14.5. Environmental hazards	Not applicable.		
14.6. Special precautions for user	Not applicable.		
NA Emergency Guidebook Numbers:	Not applicable.	IMDG EMS:	Not applicable.
14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code			Not applicable.

SECTION 15: Regulatory information

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

Chemical Inventory Lists:	Status:		
USA TSCA:	Listed	EINECS:	Listed (202-863-0)
Canada(DSL/NDSL):	Listed (NDSL)	Japan:	Listed ((5)-742)
Korea:	Listed (KE-29932)	Australia:	Listed
China:	Listed	Philippines:	Listed
Taiwan:	Listed	New Zealand:	Listed
WHMIS Classification:	Class D, Division 2, Subdivision B: Irritant.		
German Water Hazard Classification:	WGK = 1 (self-classification)		
SARA 313:	Not applicable.		
Reportable Quantities:	Not applicable.		
State Regulations:	Not applicable.		
HMIS:		NFPA:	

HEALTH	2
FLAMMABILITY	2
REACTIVITY	0



15.2. Chemical safety assessment

A chemical safety assessment is not required as this substance is transported isolated intermediate under strictly controlled conditions.

SECTION 16: Other information

Full text of R phrases in Section 3:	R41: Risk of serious damage to eyes. R36: Irritating to the eyes.
Classification Method:	On basis of test data; Expert judgment
Key Data Sources:	<ul style="list-style-type: none"> Berthold K. (1997). Nicotinonitril: Testing the cutaneous sensitizing properties in the guinea pig (Buehler test), unpublished report sponsored by Vertellus Specialties Inc. Gabriel KL. (1978) 3-Cyanopyridine: Acute Dermal Toxicity — Rabbits, Biosearch, Inc. unpublished report

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sponsored by Reilly Tar & Chemical Corporation.

- Ichiki T, Ogata H, Furukawa H, Yuki K, Saito T, Kamiya K, Hamamura M. (2001) Twenty-Eight-Day Repeat Dose Oral Toxicity Test of 3-Cyanopyridine in Rats, Safety Assessment Laboratory, Panapharm Laboratories Co., Ltd. Kumamoto, 869-04 Japan, 2001-12-31.
- Karnatz, R. A., R. A. Kattau and P. Mackell. (1973) Biodegradation, Hydrolysis, Toxicity and BOD of 2-, 3- and 4-pyridinecarbonitrile with Cover Letter Dated 072987, unpublished report sponsored by Reilly Tar & Chemical Corporation.
- Katoku, K., K. Ichimura, E. Murata, T. Saitoh, H. Wada, K. Yuki, T. Ichiki. Single Dose Oral Toxicity Test of 3-Cyanopyridine in Rats. Panapharm Laboratories Co., Ltd., Kumamaoto, Japan.
- Majka K, Knobloch K, Szendsikowski S. (1979) Evaluation of acute toxic effect of 3-Cyanopyridine, Med Pr 30(2):109 (in Polish).
- Mayr, W (1985). 3-Cyanopyridin: Toxicological Test on Irritation of the Rabbit eye after a Single Application, unpublished report sponsored by Vertellus Specialties Inc.
- Mizuno, F, Enomoto Y, Ishige Y. (2001) Reverse Mutation Test of 3-CyanoPyridine on Bacteria, Mitsubishi Chemical Safety Institute Ltd., Kashima Laboratory 14 Sunayama, Hasaki-machi, Kashima-gun, Ibaraki, 314-02 Japan, 2001-12-31.
- National Institute of Technology and Evaluation (NITE), Japan. (1994) 3-Cyanopyridine. Official Bulletin of Economy, Trade and Industry 1994/12/28, Class Reference 5-742, 1994-12-28.
- Nishitomi T, Mizuno F, Ohta E, Nakagawa M, Anazawa Y (2001). In Vitro Chromosomal Aberration Test of 3-Cyanopyridine on Cultured Chinese Hamster Cells, Mitsubishi Chemical Safety Institute Ltd., Kashima Laboratory 14 Sunayama, Hasaki-machi, Kashima-gun, Ibaraki, 314-02 Japan.
- Schultz T et.al. (1987) Structure-activity relationships of selected pyridines. III Log Kow analysis, Ecotoxicol Environ Safety 13:76.

Legend of Abbreviations:

ACGIH = American Conference on Governmental Industrial Hygienists.

CAS = Chemical Abstracts Service.

CFR = Code of Federal Regulations.

DSL/NDSL = Domestic Substances List/Non-Domestic Substances List.

EC = European Community.

EINECS = European Inventory of Existing Commercial Chemical Substances.

ELINCS = European List of Notified Chemical Substances.

EU = European Union.

GHS = Globally Harmonized System.

LC = Lethal Concentration.

LD = Lethal Dose.

NFPA = National Fire Protection Association.

NIOSH = National Institute of Occupational Safety and Health.

NTP = National Toxicology Program.

OSHA = Occupational Safety and Health Administration

PEL = Permissible Exposure Limit.

RQ = Reportable Quantity.

SARA = Superfund Amendments and Reauthorization Act of 1986.

TLV = Threshold Limit Value.

WHMIS = Workplace Hazardous Materials Information System.

Important Note: Please note that the information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. The information contained herein may change without prior notice. THIS SAFETY DATA SHEET SUPERSEDES ALL PREVIOUS EDITIONS.

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