



Safety Data Sheet

As per Globally Harmonized System (GHS)

Product Identification: Pyridine-2-aldehyde 0432Gj Ghs13 Div.3 sds Pyridine-2-aldehyde

Date of issue: February 06, 2024

Date of Compilation : March 21, 2014

Date of Revision : February 06, 2024

Due Date of Revision : January, 2027

Revision Number : 14

Version Number : 0432Gj Ghs14 Div.3 sds Pyridine-2-aldehyde

Supersedes date : November 09, 2023

Supersedes version : 0432Gj Ghs13 Div.3 sds Pyridine-2-aldehyde

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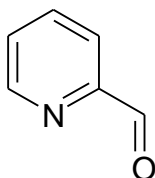
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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/ MIXTURE AND OF THE COMPANY/ UNDERTAKING

PRODUCT NAME : Pyridine- 2-aldehyde
 CAS RN : 1121-60-4
 EC# : 214-333-6
 SYNONYM : Pyridine-2-carbaldehyde; 2-Formylpyridine;2-Picolinaldehyde;2-Picolinaldehyde;
 2-Pyridaldehyde;2-Pyridinecarboxaldehyde;2- Pyridylaldehyde;
 2-Pyridylcarboxaldehyde; Picolinic aldehyde;Pyridine-2- aldehyde;o-Nicotinaldehyde.
 SYSTEMATIC NAME : Pyridine-2-carbaldehyde
 MOLECULAR FORMULA : C₆H₅NO
 STRUCTURAL FORMULA



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

- Pyridine-2-aldehyde is used as an intermediate in the manufacturing of pharmaceutical drugs like biscacodyl, carbinoxamine maleate and mefloquine.

Details of the supplier of the safety data sheet

FACTORY & REGISTERED OFFICE: Jubilant Ingrevia Limited, Bhartiagram, Gajraula, District: Amroha, Uttar Pradesh - 244223, India. **PHONE NO:** +91-5924-267437, +91-5924-267438

HEAD OFFICE: Jubilant Ingrevia Limited, Plot 1-A, Sector 16-A, Institutional Area, Noida, Uttar Pradesh - 201301 India.

PHONE NO: +91-120-4361000

FAX NO : +91-120- 4234881 / 84 / 85 / 87 / 95 / 96

Email: support@jubl.com , Website: www.jubilantingrevia.com

Emergency telephone:

For Chemical Emergency ONLY (in the case of fire, leak, spill, exposure or accident) Call

Chemtrec: 1-800-424-9300 (US), 1-703-527-3887 (Outside U.S.)

Chemtrec (India) : 000-800-100-7141

For ALL other emergencies call Emergency Control Room Gajraula at 99970 22412

SECTION 2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION

Flammable Liquid: Category 4	H227	Combustible liquid
Acute Toxicity Oral: Category 4	H302	Harmful if swallowed.
Acute Toxicity –Inhalation: Category 2	H330	Fatal if inhaled.
Skin corrosion / irritant: Category 2	H315	Causes skin irritation
Sensitization (Skin): Category 1	H317	May cause an allergic skin reaction.

Jubilant Ingrevia Limited

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Eye damage/eye irritant: Category 1

H318

Causes serious eye damage.

Specific Target Organ Toxicity (SE): Category 3

H335

May cause respiratory irritation

Aquatic Environment (Acute): Category 2

H401

Toxic to aquatic life

Label Elements

Hazard Pictogram: GHS05, GHS 06

Signal Word: Danger!



HAZARD AND PRECAUTIONARY STATEMENTS:

HAZARD STATEMENTS

- H227: Combustible liquid
- H302: Harmful if swallowed.
- H330: Fatal if inhaled.
- H315: Causes skin irritation.
- H317: May cause an allergic skin reaction.
- H318: Causes serious eye damage.
- H335: May cause respiratory irritation.
- H401: Toxic to aquatic life.

PRECAUTIONARY STATEMENTS

- P264: Wash hands thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P260: Do not breathe dust/fume/gas/mist/vapors/spray.
- P271: Use only outdoors or in a well-ventilated area.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- P272: Contaminated work clothing should not be allowed out of the workplace.
- P273: Avoid release to the environment.
- P210: Keep away from heat/sparks/open flames/hot surfaces.
- P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P330: Rinse mouth.
- P332+313: If skin irritation occurs: Get medical advice/attention.
- P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
- P362+P364: Take off contaminated clothing and wash it before reuse.
- P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
- P333+313: If skin irritation or a rash occurs: Get medical advice/attention.
- P370+P378: In case of fire: Use water to extinguish.
- P391: Collect spillage.
- P403+P233: Store in a well ventilated place. Keep container tightly closed.
- P405: Store locked up
- P501: Dispose of contents/container to local/regional/national/international regulations.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS



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Chemical	CAS #	EC#	Purity w/w	GHS Classification
Pyridine- 2-aldehyde	1121-60-4	214-333-6	>98 %	Flammable liquid: Category 4 Skin corrosion / irritant: Category 2 Eye damage/eye irritant: Category 1 Skin Sensitization: Category 1 Acute Toxicity Oral: Category 4 Acute Toxicity –Inhalation: Category 2 Specific Target Organ Toxicity: Category 3 (Single Exposure) Aquatic Environment: Category 2 (Acute Hazard)

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Eyes:

- If eye exposure has occurred, eyes must be flushed with lukewarm water for at least 15 minutes.
- Wash exposed skin areas THOROUGHLY with soap and water.
- Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.
- RUSH to a health care facility.

Skin:

- Remove victims from exposure. Emergency personnel should avoid self- exposure to Pyridine-2-aldehyde.
- Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer oxygen or other respiratory support.
- Remove contaminated clothing as soon as possible.
- RUSH to a health care facility.

Inhalation:

- Move victims to fresh air. Emergency personnel should avoid self-exposure to Pyridine-2-aldehyde.
- Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer oxygen or other respiratory support.
- Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.
- RUSH to a health care facility.

Ingestion:

- Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer oxygen or other respiratory support.
- Rinse mouth with large amounts of water. Instruct victims not to swallow this water.
- DO NOT induce vomiting or attempt to neutralize!



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- Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.

Most important symptoms and effects, both acute and delayed.

Key symptoms

Acute effects:

- **Eyes:** If the eyes have come in contact with Pyridine-2-aldehyde, then serious eye irritation, pain, swelling, corneal erosion, and blindness may result.
- **Skin:** Dermal exposure may result in dermatitis (red, inflamed skin), may cause an allergic skin reaction.
- **Ingestion:** Signs and symptoms of acute ingestion of Pyridine-2-aldehyde may be harmful.
- **Inhalation:** Acute inhalation exposure may result in, respiratory tract irritation and toxic effect.

Chronic effects:

- Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Indication of any immediate medical attention and special treatment needed.

- Treat symptomatically.

SECTION 5 : FIRE-FIGHTING MEASURES

Flash Point: 66°C

Flammability: Combustible material

Extinguishing media:

- *Appropriate extinguishing media:* Dry chemical powder, chemical foam, and alcohol resistant foam. Do not use water jet or fog (spray) to extinguish. Water sprays can be effective in cooling down the fire-exposed containers and knocking down the vapors. Water jets may be used to flush spills away and dilute the same to non-flammable mixtures.

Special Protective Equipment and Precautions for Fire Fighter:

- Toxic vapors may be released on thermal decomposition including nitrogen oxides, carbon monoxide and cyanide.
- High vapor concentration may result in an explosion hazard.
- When heated to decomposition, it emits highly toxic fumes of phosgene and chlorides.
- Vapors are heavier than air. May travel considerable distance from source and flashback.
- Water may cause frothing if it gets below surface of the liquid and turns to steam. Contact with metals may evolve flammable hydrogen gas.

Unusual fire and explosion hazard:

- Toxic vapors may be released on thermal decomposition including nitrogen oxides, carbon monoxide and cyanide.
- High vapor concentration may result in an explosion hazard.
- When heated to decomposition, it emits highly toxic fumes of phosgene and chlorides.
- Vapors are heavier than air. May travel considerable distance from source and flashback.
- Water may cause frothing if it gets below surface of the liquid and turns to steam. Contact with metals may evolve flammable hydrogen gas.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

Minor Spills

- Clean up all spills immediately following relevant Standard Operating Procedures.
- Avoid breathing vapors and contact with skin and eyes.
- Shut off leak source if possible.
- Shut off all possible sources of ignition.
- Wear protective clothing, boots, impervious gloves and safety glasses.



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- Wipe up.
- Decontaminate all equipment.
- Collect spillage.

Major Spill

- Alert Emergency Responders and tell them location and nature of hazard.
- Shut off all possible sources of ignition and increase ventilation.
- Wear protective clothing, full boots, impervious gloves, safety glasses and Self Contained Breathing Apparatus (SCBA), as may be deemed appropriate.
- Clear area of personnel and move upwind.
- Stop leaks if possible.
- Prevent, by any means available, spillage from entering drains or water and watercourses.
- Collect recoverable product into labeled containers for recycling, recovery or disposal.
- Contain spill with sand, earth or vermiculite.
- Spread area with lime or absorbent material, and leave for at least 1 hour before washing.
- Collect spillage.
- Clean up all tools and equipment.
- Inform authorities in event of contamination of any public sewers, drains or water bodies.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

- Do not breathe vapor or mist.
- Wear protective gloves/clothing and eye/face protection.
- Wash thoroughly after handling.
- Ground and secure containers when dispensing or pouring product.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Launder contaminated clothing before re-use.
- If on skin or hair, IMMEDIATELY remove all contaminated clothing and rinse/shower with plenty of water.
- Use in a well ventilated place/Use protective clothing commensurate with exposure levels.

Conditions for safe storage, including any incompatibilities

- Store at 2-8 deg C
- Store away from incompatible materials.
- Store in a flame proof area.
- Keep securely closed when not in use.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure Limits Values

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Pyridine 2-aldehyde	Not available	Not available	Not available

Exposure Limits (International):

- Not available.

Exposure controls

Appropriate Engineering Controls:



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- Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. Local ventilation is usually preferred. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protection:

- Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.
- **Hands:** Wear appropriate protective gloves to prevent skin exposure.
- **Eyes:** Safety goggles/ Chemical Safety glasses and Face shield.
- **Clothing:** Boots and clothing to prevent contact.
- **Respirator:** Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.
- For emergency situations, wear a positive pressure, pressure-demand, full face piece self-contained breathing apparatus (SCBA) or pressure-demand supplied air respirator with escape SCBA and a fully-encapsulating, chemical resistant suit. (EPA-1998).

General Hygiene and general comments:

- Wash hands and face after working with substance.
- Immediately change contaminated clothing.
- Apply skin protective barrier cream.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties.

Sr.No.	Parameter	Typical value
1	Appearance	Clear yellow to yellow-brown liquid.
2	Odor	Not available
3	Odor Threshold	Not available
4	Melting point	-21°C
5	Boiling point	181 deg C @ 760 mm Hg
6	Flash point	66°C
7	Evaporation rate (n-BuAc=1)	Not available
8	Explosive limits	Not available
9	Vapor pressure	1.2hPa @20 deg C
10	Vapor density (air=1) at 20°C	Not available
11	Specific gravity (water=1)/Density	1.126 g/cm ³
12	Solubility	Miscible in water, soluble in most common organic solvents.
13	pH	6.0 - 7.0 (20 °C Concentration:111g/l)
14	Log Kow (octanol/water)	0.714
15	Auto-ignition temperature	Ignition temperature : 235°C
16	Decomposition temperature	Not available
17	Viscosity	Not available
21	Flammability	Combustible material



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22	Oxidizer	No
24	Explosive material	No

9.2. Other information

9.2.1. Information with regard to physical hazard classes

- No additional information available

9.2.2. Other safety characteristics

DSC Result: The thermogram shows first exothermic decomposition onset at 140°C with heat evolution of 20 J/g of sample (Severity: Low) and second exothermic decomposition onset at 176°C with heat evolution of 374 J/g of sample (Severity: Medium).

SECTION 10: STABILITY AND REACTIVITY

- Stability:** The product is Air sensitive. Light sensitive. It is stable at +2°C to +8°C and recommended storage and handling under specified conditions.
- Conditions to avoid:** Incompatible materials, light, exposure to air, excess heat. Incompatibilities with Other Materials Strong oxidizing agents, oxidizing agents, acids, bases, cyanides.
- Incompatible chemicals:** Strong oxidizing agents, oxidizing agents, acids, bases and, cyanides.
- Hazardous decomposition products:** Thermal decomposition may produce carbon monoxide, carbon dioxides, oxides of nitrogen and Hydrogen cyanide.
- Hazardous Polymerization:** Has not been reported.

SECTION 11: TOXICOLOGICAL INFORMATION

a) Acute toxicity

- Eyes:** If the eyes have come in contact with Pyridine-2-aldehyde, then serious eye irritation, pain, swelling, corneal erosion, and blindness may result.
- Skin:** Dermal exposure may result in dermatitis (red, inflamed skin), may cause an allergic skin reaction.
- Ingestion:** Signs and symptoms of acute ingestion of Pyridine-2-aldehyde may be harmful.
- Inhalation:** Acute inhalation exposure may result in, respiratory tract irritation and toxic effect.

RTECS # Not available

- LD50/LC50:**
- Oral, rat: LD50 = 585 mg/kg (OECD 401)
- Dermal, rat: LD50 > 2000 mg/kg (OECD 402)
- Inhalation, rat: LC50 = 0.8 mg/L/4H (OECD 403)

b) Skin corrosion/irritation

- Causes skin irritation.

c) Serious eye damage/irritation

- Causes eye damage.

d) Respiratory or skin sensitization

- May cause an allergic skin reaction.

e) Germ cell Mutagenicity

- Experiments showed mutagenic effects in cultured bacterial cells.
- Genotoxicity in vitro - Ames test - *S. typhimurium* – positive.



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f) Carcinogenicity

- Not listed by NTP, IARC and OSHA.
- Not present on the EU CMR list.
- According to information presently available Pyridine-2-aldehyde is not found to be carcinogenic.

g) Reproductive toxicity

- No data is available.

h) STOT-single exposure

- May cause respiratory irritation.

i) STOT-repeated exposure

- No data available.

j) Aspiration Hazards

- No data available.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity :

Ecotoxicity:

Toxic to aquatic organisms like fish and daphnia.

BCF = 3.2

Log Kow = 0.714 at 20.5°C

Based on the Log Kow and Bioconcentration factor value it is expected to have low potential to concentrate in fatty tissue of fish and aquatic organisms relative to its surroundings.

Toxic to aquatic organisms like fish and daphnia. It may cause long term effects in the environment. (As per New Zealand Hazardous Substances and New Organisms Act - Classification of Chemicals - Classification Data.)

Pyridine-2-aldehyde(1121-60-4)	
Daphnia Magna: EC50	6.9 mg/l/48 hr
Fish 32-day ChV	7.349 mg/L (estm. ECOSAR v0.99h).

Test Type	Species Observed	Reported Dose	Remark
Oral LD50	European starling (Bird)	>1000 mg/kg	E. Schafer & W.Bowles, USDA, National Wildlife Research Center 2004.
Dermal LD50	Japanese quail (Bird)	750 mg/Kg	E. Schafer & W.Bowles, USDA, National Wildlife Research Center 2004

Persistence and degradability

- Readily biodegradable

Bio accumulative potential

- BCF = 3.2
- Log Kow = 0.714

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Based on the Log Kow and Bioconcentration factor value it is expected to have low potential to concentrate in fatty tissue of fish and aquatic organisms relative to its surroundings.

Mobility in soil

- Log Koc = 0.7368 (estimated). Low sorption.
- Henry's Law Constant: 1.76×10^{-08} atm-m³/mole. It is expected to be non-volatile from aqueous phase.
- Log Kow= 0.714. Negligible potential to bioaccumulation.

Other adverse effects.

• Environment Fate:


Based on the environmental modeling, this material has a negligible potential to get absorbed in the organic matter of soil and is expected to be non-volatile from aqueous bodies. Since this is an estimated result it is recommended that the material should not be disposed into the environment. The material should never be disposed into the sewage. It is estimated that pyridine-2-aldehyde has negligible potential to bioaccumulate. It may harm aquatic organism, so do not empty it into drains and water bodies.

SECTION 13: DISPOSAL CONSIDERATIONS

- Burn in a chemical incinerator equipped with an afterburner and scrubber.
- Exert extra care in igniting, as this material is Combustible liquid.
- Dispose of this material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable federal, state or local laws. Note that disposal regulations may also apply to empty containers and equipment rinsates.

SECTION 14: TRANSPORT INFORMATION

- This substance is considered to be Hazardous for transport by Air/Rail/Road and Sea and thus regulated by IATA/ICAO/US DOT/IMO/IMDG.

S. No	Agency	UN Number	Proper Shipping Name	Hazard Class	Packing Group
Land Transport	US DOT	UN 2810	Toxic liquid, organic, n.o.s. (Pyridine-2-aldehyde)	6.1	II
Maritime Transport	IMDG	UN 2810	TOXIC LIQUID, ORGANIC, N.O.S (Pyridine-2-aldehyde)	6.1	II
Air Transport	IATA	UN 2810	Toxic liquid, organic, n.o.s. (Pyridine-2-aldehyde)	6.1	II
Hazard Label		Toxic			

Environmental hazards:

- Marine pollutant: No



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SECTION 15: REGULATORY INFORMATION

European Union Information

Classification as per CLP Regulation 1272/2008:

- **Hazards Class and Category:** Skin Irrit.Cat 2; Eye Irrit.Cat 1; Skin Sens. Cat 1; Acute tox. Oral Cat 4; Acute tox inhalation Cat. 2; Aquatic Acute Cat 2; STOT SE Cat 3
- **Hazard Statements:** H315;H318;H317; H302;H330;H401; H335

Chemical Inventory Lists:	Status
TSCA:	Present
EINECS:	214-333-6
Canada(DSL/NDSL):	Listed/DSL
Japan:	5-6697
Korea:	KE-29934
Australia:	Not Listed
China: IECSC	Present

US information

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

Pyridine-2-aldehyde is not listed

SARA 302/304 : Pyridine-2-aldehyde is not listed

SARA 311/312 : See section 2 for more information

California Prop. 65: Pyridine-2-aldehyde is not listed

CAA (Clean Air Act): Pyridine-2-aldehyde is not listed

CWA (Clean Water Act): Pyridine-2-aldehyde is not listed

EU Information

Water hazard class WGK 2 - distinct hazard to waters

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006: Pyridine-2-aldehyde is not listed

SECTION 16: OTHER INFORMATION

Compilation information of safety data sheet

Chemical: Pyridine-2-aldehyde

CAS #: 1121-60-4

File Name: 0432Gj Ghs14 Div.3 sds Pyridine-2-aldehyde

Revision Number: 14

Date of revision of SDS: February 06, 2024

Revision Due Date: January, 2027

- **A key or legend to aberrations and acronyms used in the safety data sheet;**
- PBT =Persistent Bio accumulative and Toxic.
- vPvB= Very Persistent and Very Bio accumulative.
- SCBA= Self Contained Breathing Apparatus.
- NIOSH REL= National Institute for Occupational Safety and Health Recommended Exposure Limit.
- OSHA PEL=Occupational Safety and Health Administration Permissible Exposure Limit.
- OELTWA= Occupational Exposure Limit Time Weighted Averages.
- UEL= Upper Explosive Limit.



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- LEL= Lower Explosive Limit.
- RTECS= Registry of Toxic Effects of Chemical Substances.
- NTP=National Toxicology Program.
- IARC= International Agency for Research on Cancer.
- EPA=Environmental Protection Agency.
- TSCA= Toxic Substances Control Act.
- CERCLA= Comprehensive Environmental Response, Compensation, and Liability Act.
- SARA= Superfund Amendments and Reauthorization Act.
- WHIMS= Workplace Hazardous Materials Information System.
- DSL/NDSL= Domestic/Non-Domestic Substances List.
- BCF = Bio Concentration Factor.
- DNEL = Derived No Effect Level.
- PNEC = Predicted No Effect Concentration.
- TLV = Threshold Limit Value.
- ACGIH = American Conference of Governmental Industrial Hygienists.
- REACH = Registration, Evaluation .Authorization and Restriction of Chemicals.
- CLP = Classification, Labeling and Packaging.
- LD / LC = Lethal Doses / Lethal Concentration.
- GHS = Globally Harmonized System.
- IMDG-Code = International Maritime Code for Dangerous Goods.
- ICAO = International Civil Aviation Organization.
- IATA/DGR= International Air Transport Association/Dangerous Goods Regulation.

- **Key Literature reference and sources for data**

Biographical reference and data sources

- CLP REG (regulation) (EC) no. 1272/2008, last modification by regulation (EC) no. 790/2009.
- Globally Harmonized System of Classification and Labelling of Chemicals.
- APCISS

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

(End of Safety Data Sheet)