



## 2,4,6-Collidine

### Safety Data Sheet

According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

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# 2,4,6-Collidine

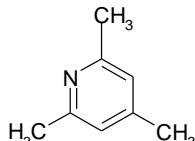
## Safety Data Sheet

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### SECTION 1: Identification

#### 1.1. Identification

PRODUCT NAME	: 2,4,6-Collidine
CAS RN	: 108-75-8
EC#	: 203-613-3
SYNONYMS	: 2,4,6-Trimethylpyridine, Pyridine, 2,4,6-trimethyl -,alpha, gamma, alpha'-Collidine
SYSTEMATIC NAME	: 2,4,6-Trimethylpyridine, Pyridine, 2,4,6-trimethyl -
MOLECULAR FORMULA	: C <sub>8</sub> H <sub>11</sub> N
STRUCTURAL FORMULA	



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

- 2,4,6-Collidine is used as a catalyst in the synthesis of vitamin D. It is also used as a chemical for oil drilling and for making certain polymers used for hi-tech applications.

#### 1.3. Details of the supplier of the safety data sheet

Jubilant Ingrevia Limited

**FACTORY & REGISTERED OFFICE:** Jubilant Ingrevia Limited., Bhartiagram, Gajraula, District: Amroha, Uttar Pradesh-244223, India T +91-5924-267437 & +91-5924-267438

**HEAD OFFICE:** Jubilant Ingrevia Limited., Plot 1-A, Sector 16-A, Institutional Area, Noida, Uttar Pradesh, 201301 - India T +91-120-4361000 - F +91-120-4234881 / 84 / 85 / 87 / 95 / 96 [support@jubl.com](mailto:support@jubl.com) - [www.jubilantingrevia.com](http://www.jubilantingrevia.com)

#### 1.4. Emergency telephone number

**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: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Flammable Liquid: Category 3	H226
Acute toxicity Oral: Category 4	H302
Acute Toxicity Dermal: Category 3	H311
Acute Toxicity Inhalation: Category 4	H332
Skin corrosion / irritant: Category 2	H315
Serious eye damage/eye irritant: Category 2	H319
STOT Single Exposure: Category 3	H335

#### 2.2. Label Elements

Hazard Pictogram:



GHS 02



GHS 06

**Signal Word:** *Danger!*

#### **HAZARD AND PRECAUTIONARY STATEMENTS:**

##### **HAZARD STATEMENTS**

- H226: Flammable liquid and Vapour.



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- H302: Harmful if swallowed.
- H311: Toxic in contact with skin.
- H332: Harmful if inhaled.
- H315: Causes skin irritation.
- H319: Causes serious eye irritation.
- H335: May cause respiratory irritation.

### PRECAUTIONARY STATEMENTS

- P210: Keep away from heat/sparks/open flames/.../hot surfaces. ... No smoking.
- P233: Keep container tightly closed.
- P240: Ground/bond container and receiving equipment.
- P241: Use explosion-proof electrical/ventilating/lighting/.../ equipment.
- P242: Use only non-sparking tools.
- P243: Take precautionary measures against static discharge.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- P270: Do not eat, drink or smoke when using this product.
- P264: Wash hands thoroughly after handling.
- P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
- P271: Use only outdoors or in a well-ventilated area.
- P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P370+P378: In case of fire: Use water for extinction.
- P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P302+P352: IF ON SKIN: Wash with plenty of soap and water.
- P363: Wash contaminated clothing before reuse.
- P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P311: Call a POISON CENTER or doctor/physician.
- P332+P313: If skin irritation occurs: Get medical advice/attention.
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337+P313: If eye irritation persists: Get medical advice/attention.
- P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P403+P235: Store in a well ventilated place. Keep cool.
- P501: Dispose of contents/container to local/regional/national/international regulations.

### SECTION 3 : Composition/information on ingredients

Substance	CAS No.	Purity	GHS-US Classification
2,4,6-Collidine	108-75-8	100%	<b>GHS-US classification</b> Flammable Liquid: Category 3 H226 Acute toxicity Oral: Category 4 H302 Acute Toxicity Dermal: Category 3 H311 Acute Toxicity Inhalation: Category 4 H332 Skin corrosion / irritant: Category 2 H315 Serious eye damage/eye irritant: Category 2 H319 STOT Single Exposure: Category 3 H335

### SECTION 4: FIRST AID MEASURES

#### 4.1. Description of first aid measures.

4.1.1 Route of exposure: Inhalation, skin, eye and ingestion.

#### 4.1.2 Advice

- Rinse eyes cautiously with water for at least 15 minutes. Remove contact lenses if easy to do so. Continue rinsing. Seek medical attention.
- Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- Call a POISON CENTER or doctor/physician if you feel unwell.

#### 4.2. Most important symptoms and effects, both acute and delayed.

- **Acute effects:**

**Eyes:** Serious irritating to eyes.

**Skin:** Toxic in contact with the skin and also causes skin irritation.

**Ingestion:** Harmful if swallowed. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver and kidney damage. May cause central nervous system effects and/or neurological effects.

**Inhalation:** May cause burns to the respiratory and gastrointestinal tract on inhalation or respiration. May cause liver and kidney damage. May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. May be harmful if inhaled.



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- **Chronic effects:**  
Overexposure may cause delayed kidney injury. Chronic ingestion may cause liver damage. Prolonged or repeated eye contact may cause conjunctivitis. Chronic ingestion may cause neurological symptoms.

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

- **Eyes:** If in eyes rinse cautiously with water for at least 15 minutes. Remove contact lenses if easy to do so. Continue rinsing. Seek medical attention.
- **Skin:** Immediately take off all contaminated clothing. Wash thoroughly with water for at least 15 minutes. Wash contaminated clothes before reuse. Seek immediate medical attention.
- **Inhalation:** Remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if you feel unwell. Monitor for respiratory distress. Apply artificial respiration if not breathing. Do not use mouth-to-mouth methods if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- **Ingestion:** If swallowed call a poison center if you feel unwell. Rinse mouth. Do NOT induce vomiting by use of emetics. Seek medical attention.

#### SECTION 5: FIRE-FIGHTING MEASURES

##### 5.1. Extinguishing media.

- *Appropriate extinguishing media:* Dry chemical powder, carbon dioxide, and alcohol resistant foam. Do not use water jet or fog (spray) to extinguish. Water can be effective in cooling down the fire-exposed containers and knocking down the vapours. Water jets may be used to flush spills away and dilute the same to non-flammable mixtures fog or alcohol-resistant foam by directing streams to the periphery of the fires to prevent spread.

##### 5.2. Special hazards arising from the substance or mixture.

- Toxic vapors may be released on thermal decomposition including nitrogen oxides, carbon monoxide and carbon dioxide.
- High vapor concentration may result in an explosion hazard.
- Vapors are heavier than air. May travel considerable distance from source and flashback.

##### 5.3. Advice for firefighters

- Evacuate the area and fight fires from a safe distance.
- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions or as per locally valid procedures.
- Fire-fighters must wear Self Contained Breathing Apparatus (SCBA).
- Chemical is water-soluble. Report any run-off of firewater's contaminated with this chemical as per local and federal procedures applicable.

#### SECTION 6: ACCIDENTAL RELEASE MEASURES

##### 6.1. Personal precautions, protective equipment and emergency procedures.

- Wear protective clothing, full boots, impervious gloves, safety glasses and Self Contained Breathing Apparatus (SCBA), as may be deemed appropriate.
- Avoid breathing vapors and contact with skin and eyes.
- Shut off leak source if possible.
- Shut off all possible sources of ignition.
- Wipe up.
- Decontaminate all equipment.
- Wear protective clothing, full boots, impervious gloves, safety glasses and Self Contained Breathing Apparatus (SCBA), as may be deemed appropriate.
- Alert Emergency Responders and tell them location and nature of hazard.
- Shut off all possible sources of ignition and increase ventilation.
- Stop leaks if possible.
- Clean up all spills immediately following relevant Standard Operating Procedures.
- Avoid breathing vapors and contact with skin and eyes.

##### 6.2. Environmental precautions.

- Clean up all spills immediately following relevant Standard Operating Procedures.
- Inform authorities in event of contamination of any public sewers, drains or water bodies.
- Wipe up.
- 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.

##### 6.3. Methods and material for containment and cleaning up.

- Clean up all tools and equipment.
- Decontaminate all equipment.



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#### 6.4. Reference to other sections.

- For more information please refer to section 8 and 13.

### SECTION 7: HANDLING AND STORAGE

#### 7.1. 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.
- Laundry 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.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Store at ambient temperature in a dry and ventilated place.
- Keep dry & protected from direct sunlight.
- Store away from incompatible materials.
- Keep only in original container.
- Keep securely closed when not in use.

#### 7.3. Specific end use(s)

- 2,4,6-Collidine is used as a catalyst in the synthesis of vitamin D. It is also used as a chemical for oil drilling and for making certain polymers used for hi-tech applications.

### SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

#### 8.1. Control parameters

##### 8.1.1 Exposure Limits Values

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
2,4,6-Collidine	None listed	None listed	None listed

##### 8.1.2 Exposure Limits (International):

- Not available.

##### 8.1.3 Derived No-Effect-Levels (DNEL) / Predicted No-effect-concentration (PNEC)

- DNEL and PNEC data not available.

#### 8.2. Exposure controls

##### 8.2.1 Appropriate Engineering Controls:

- 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.

##### 8.2.2. 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.

- 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.
- Hands:** Wear appropriate protective gloves and clothing to prevent skin exposure.

The protective gloves to be used must comply with the specifications of EC directives 89/686/EEC and the resultant standard EN374.

##### In full Contact:

Glove material: Viton  
Layer thickness: 0.70 mm  
Breakthrough Time: >480 Min

##### In Splash Contact:

Glove material: Nitrile Rubber



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Layer thickness: 0.40 mm  
Breakthrough Time: >10 Min

#### General Industrial hygiene:

- Immediately change contaminated clothing.
- Apply skin protective barrier cream.
- Wash hands and face after working with the substance.
- Under no circumstances eat or drink at the workplace.
- Do not inhale substances, work underhood.

#### SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

##### 9.1. Information on basic physical and chemical properties.

Sr.No.	Parameter	Typical value
1.	Appearance	Clear, colorless liquid
2.	Odor	Aromatic odor.
3.	Odor Threshold	Not Available
4.	pH	Strongly alkaline
5.	Melting point/Freezing point	-43°C
6.	Boiling Point	170.6 °C
7.	Flash point	54-59°C
8.	Evaporation rate (n-BuAc=1)	Not available
9.	Flammability	Flammable
10.	Upper/lower flammability or Explosive limits	1% – 8.9%
11.	Vapor pressure	265 Pa at 25°C
12.	Vapor density (air=1)	3.2
13.	Relative density	0.917
14.	Solubility	20.8 g @ 6 deg C, (In water) 3.5 g @ 20 deg C, (In water) 1.8 g @ 100 deg C, (In water)
15.	Partition coefficient : n-(Octonol / water)	1.88(Estimated)
16.	Auto-ignition temperature	Not available
17.	Decomposition temperature	Not available
18.	Viscosity	Not available
19.	Explosive property	No
20.	Oxidizing property	No

#### SECTION 10: STABILITY AND REACTIVITY

##### Reactivity

- 2,4,6-Collidine is clear colourless liquid like aromatic odor. It is partially soluble in water. It is strongly Alkaline material.

##### Chemical stability

- Stable under normal temperature and pressures.

##### Possibility of hazardous reactions

- Hazardous Polymerization: Not reported.

##### Conditions to avoid

- Keep away from High temperature, sparks, moist condition, mechanical shock, incompatible materials, ignition sources, excess heat.

##### Incompatible materials

- Strong oxidizing agents and strong acids.

##### Hazardous decomposition products



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- Thermal decomposition may produce carbon monoxide and oxides of nitrogen, carbon dioxide & nitrogen and irritating & toxic fumes.

#### SECTION 11: TOXICOLOGICAL INFORMATION

##### a) **Acute toxicity**

- 2,4,6-Collidine is toxic in contact with skin, harmful if swallowed and if inhaled. It causes irritation to eyes, skin and respiratory system. May cause burns to the respiratory and gastrointestinal tract on inhalation or respiration.

RTECS#: UU0970000

ACUTE ORAL LD50 = 400 mg/kg

ACUTE DERMAL LD50:(GUINEA PIG) = 1000 mg/kg

ACUTE INHALATION (LCLo) Rat = 2500 ppm Duration: 2 hr

##### b) **Skin corrosion/irritation**

- Causes skin irritation.

##### c) **Serious eye damage/irritation**

- Causes serious eye irritation.

##### d) **Respiratory or skin sensitization**

- It causes respiratory tract irritation. It may cause gastrointestinal irritation with nausea, vomiting and diarrhea.

##### e) **Germ cell Mutagenicity**

- No data is available.

##### f) **Carcinogenicity**

- Not listed by NTP, IARC and OSHA.
- Not present on the EU CMR list.
- According to information presently available 2,4,6-Collidine is not found to be carcinogenic.

##### g) **Neurotoxicity:**

- Studies have shown that 2,4,6-Collidine, when applied briefly to fresh tissues, causes the release of stored neurotransmitters, specifically monoamines. The significance of this laboratory finding on the toxicity of 2,4,6-Collidine in vivo is not clear.

##### h) **Reproductive toxicity**

- No data is available.

##### i) **STOT-single exposure**

- Causes irritation to respiratory system.

##### j) **STOT-repeated exposure**

- No data available.

##### k) **Aspiration Hazards**

- No data available.

#### SECTION 12: ECOLOGICAL INFORMATION

##### 12.1. Toxicity

###### 12.1.1 Ecotoxicity:

It may be chronically toxic to fish and other aquatic organisms.

- Fish 96-hr LC50 = 116.478 mg/l (Predicted)
- Fish 14-day LC50 = 206.997 mg/l (Predicted)
- Daphnia 48-hr LC50 = 123.778 mg/l (Predicted)

##### 12.2. Persistence and degradability

- It is expected to be persistent in the environment and is expected to be found predominantly in soil and It has low potential to bioaccumulate and does not biodegrade readily

##### 12.3. Bioaccumulative potential

- BCF = 5.592
- Log Kow = 1.88

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.

##### 12.4. Mobility in soil (Estimated)

- Koc=250. Moderate absorption in soil.
- Henry's Law constant: 4.929E-006 atm-m<sup>3</sup>/mole.
- Log Pow=1.88. Low potential to bio accumulate.

##### 12.6. Other adverse effects.

###### • **Environment Fate:**

Based on environmental modeling, it is estimated to be persistent in the environment and is expected to be found predominantly in soil. It is also expected to be found in water but not in sediment. It has low potential to bio accumulate and does not biodegrade readily. 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.

#### SECTION 13: DISPOSAL CONSIDERATIONS

##### 13.1. Waste treatment methods

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- Burn in a chemical incinerator equipped with an afterburner and scrubber.
- 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/ TDG/ IMO/ IMDG.

S.No	Agency	UN Number	Proper Shipping name	Hazard Class	Packing Group
Land Transport	US DOT	UN 1992	Flammable liquid, toxic, n.o.s. (2,4,6-trimethylpyridine)	3, 6(6.1)	III
Maritime Transport	IMDG	UN 1992	FLAMMABLE LIQUID, TOXIC, N.O.S. (2,4,6-trimethylpyridine)	3, 6(6.1)	III
Air Transport	IATA	UN 1992	Flammable liquid, toxic, n.o.s. (2,4,6-trimethylpyridine)	3, 6(6.1)	III
Hazard Label		FlammableLiquid, Toxic		 	

#### Environmental hazards:

- Marine pollutant: No

#### SECTION 15: REGULATORY INFORMATION

##### Classification (as per Regulation (EC) No 1272/2008):

- **Hazards Class and Category:** Flammable liq. Cat3; Acute Tox.oral Cat3, Acute Tox. Dermal Cat3, Acute Tox. inh. Cat4, Eye irrit. Cat2, Skin Irrit. Cat2,STOT SE Cat.3
- **Hazard Statements:** H226, H302, H311, H332, H319, H315, H335

##### Status in Global Chemical Inventories-

Chemical Inventory Lists:	Status
<u>TSCA:</u>	<u>Listed</u>
<u>EC Inventory</u>	<u>Listed</u>
<u>Canada(DSL/NDSL):</u>	<u>Listed (DSL)</u>
<u>Taiwan Chemical Substance Inventory (TCSI)</u>	<u>Listed</u>
<u>New Zealand Inventory of Chemicals (NZIoC)</u>	<u>Listed</u>
<u>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</u>	<u>Listed</u>
<u>Inventory of Existing and New Chemical Substances (ENCS)</u>	<u>Listed</u>
<u>Japan ISHL Existing Substances List (ISHL)</u>	<u>Listed</u>
<u>China: IECSC</u>	<u>Listed</u>
<u>China: Inventory of Hazardous Chemicals (2015)</u>	<u>Not Listed</u>
<u>Existing Chemicals List (KECI)</u>	<u>Not Listed</u>
<u>Australian Inventory of Chemical Substances (AICS)</u>	<u>Listed</u>





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**CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):** 2,4,6-Collidine not listed

**SARA 302/304 :** 2,4,6-Collidine not listed

**SARA 311/312 :** See section 2 for more information

**California Prop. 65:** 2,4,6-Collidine not listed

**CAA (Clean Air Act):** 2,4,6-Collidine not listed

**CWA (Clean Water Act):** 2,4,6-Collidine not listed

#### EU Information

**Water hazard class (WGK):** Not available

**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006:** 2,4,6-Collidine not listed

#### SECTION 16: OTHER INFORMATION

##### Compilation information of safety data sheet

Date of Compilation : January 30, 2012  
Chemical : 2,4,6-Collidine  
CAS # : 108-75-8  
File Name : 0010Gj Ghs12 Div.3 sds 2,4,6-Collidine  
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##### A key or legend to aberrations and acronyms used in the safety data sheet;

- PBT =Persistent Bioaccumulative and Toxic.
- vPvB= Very Persistent and Very Bioaccumulative.
- 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.
- IDLH= Immediately Dangerous to Life or Health.
- UEL= Upper Explosive Limit.
- LEL= Lower Explosive Limit.
- RTECS= Registry of Toxic Effects of Chemical Substances.
- NTP=National Toxicology Program.
- IARC= International Agency for Research on Cancer.
- NFPA= National Fire Protection Association.
- 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.
- CLP = Classification, Labelling and Packaging.
- LD / LC = Lethal Doses / Lethal Concentration.
- GHS = Globally Harmonized System.
- IMDG-Code = International Maritime Code for Dangerous Goods.
- EmS = Emergency measures on Sea.
- 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

- Globally Harmonized System of Classification and Labelling of Chemicals.
- CLP REG (regulation) (EC) no. 1272/2008, last modification by regulation (EC) no. 790/2009
- REG (EC) no. 1907/2006, last modification by REG (EC) Nr. 830/2015

##### 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)