



## **JLSNV-2 (ALKYL PYRIDINE DERIVATIVES)**

### **Safety Data Sheet**

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

Date of Compilation : September 6, 2018  
Date of Revision : February 05, 2024  
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## JLSNV-2 (ALKYL PYRIDINE DERIVATIVES)

### Safety Data Sheet

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

##### 1.1 Product Identifier

Product name	: JLSNV-2(Alkyl pyridine derivatives)
CAS RN	: 68391-11-7
EC#	: 269-929-9
Synonyms	: Pyridine alkyl derivatives
Systematic name	: Pyridine alkyl derivatives
Other Languages	: De : Pyridin Alkylderivate Es : piridina, alquil-derivados Fr : Pyridine, dérivés alkyles
Molecular formula	: Mixture
Structural formula	: Mixture

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

**Relevant identified uses:** The use of pyridine alkyl derivatives., in manufacture of textiles, rubber, plastic, pulp and paper products (SPIN 2010), as a corrosion inhibitor in the integrated iron and steel manufacturing industry (Scorecard 2010) and as an active ingredient in eight pest control products registered for unrestricted use in repelling cats, dogs, rabbits and other wildlife (Scorecard 2010). Individual alkyl pyridines may be isolated by distillation from pyridine, alkyl derivatives. for use as intermediates in the production of bioactive agents such as agricultural herbicides and insecticides, vitamin B3, anti-ulcer and anti-arteriosclerotic drugs, flavoring agents, veterinary products, surfactants, catalysts and adhesives for textiles (Shinkichi et al. 1998; Peppard and Halsey 1980; Fetzner 1998; Tsukioka and Murakami 1987; Shimizu et al. 1993) in addition to functioning as solvents, due to their relative lack of reactivity, in organic chemistry (Scriven et al. 1996).

Pyridine alkyl derivatives is not listed as an approved food additive under Division 16 of the Food and Drug Regulations (Canada 1978).

**Uses advised against:** None

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

###### 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.)

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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 4

Acute Toxicity(Oral): Category 4

Acute Toxicity (Dermal): Category 3

Acute Toxicity (Inhalation): Category 3

Skin corrosion/irritation: Category 2

Eye Damage/Irritation: Category 2A

Sensitization-Skin: Category 1

Hazardous to aquatic environment (Chronic): Category 2

**Note:** The classification as a carcinogen or mutagen does not apply, as the substance contains less than 0.1 % w/w Benzene (EC number: 200-753-7; CAS number: 71-43-2) and non alkylated derivatives.

### 2.2 Label Elements

**Hazard Pictogram:** GHS06-Toxic, GHS-09-Environment Hazard



**Signal word: Danger!**

### 2.3 Hazard and Precautionary Statements:

#### **Hazard and precautionary statements:**

##### **Hazard Statements**

H227: Combustible liquid.

H302: Harmful if swallowed.

H311: Toxic in contact with skin.

H331: Toxic if inhaled.

H315: Causes skin irritation.

H319: Causes serious eye irritation.

H317: May cause an allergic skin reaction.

H411: Toxic to aquatic life with long lasting effects.

##### **PRECAUTIONARY STATEMENTS**

P210: Keep away from flames and hot surfaces, No smoking.

P261: Avoid breathing dust/fume/gas/mist/vapors/spray.

P264: Wash hands thoroughly after handling.

P270: Do not eat, drink, or smoke when using this product.

P271: Use only outdoors or in well ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

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P302+352: IF ON SKIN: Wash with plenty of soap and water.

P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305+351+338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.

P311: Call a POISON CENTER or doctor/physician.

P330: Rinse mouth.

P333+P313: If skin irritation or rash occurs: Get medical advice/attention.

P337+P313: If eye irritation persists: Get medical advice/attention.

P362: Take off contaminated clothing and wash before reuse.

P370+P378: In case of fire: Use water for extinction.

P372: Contaminated work clothing should not be allowed out of the workplace.

P391: Collect spillage.

P405: Store locked up.



P403+233: Store in a well-ventilated place. Keep container tightly closed.

P501: Dispose of contents/container to local/regional/national/international regulations.

### 2.3 Other Hazards

Toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance	CAS No.	EINECS No.	Purity	GHS US Classification		
				Hazard Classes and categories	Pictograms Signal Words	Hazard Statements
Pyridine, alkyl derivatives	68391-11-7	269-929-9	>99%	Flammable Liquid: Category 4 Acute Toxicity(Oral): Category 4 Acute Toxicity (Dermal): Category 3 Acute Toxicity (Inhalation): Category 3 Skin corrosion/irritation: Category 2 Eye Damage/Irritation: Category 2A Sensitization-Skin: Category 1 Hazardous to aquatic environment (Chronic): Category 2	 	H227 H302 H311 H331 H315 H319 H317 H411

**Note:** The classification as a carcinogen or mutagen does not apply, as the substance contains less than 0.1 % w/w Benzene (EC number: 200-753-7; CAS number: 71-43-2) and non alkylated derivatives.

## 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.



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- 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:**

It is harmful if swallowed and toxic on inhalation and dermal contact. Continuous exposure may effect liver and central nervous system. Low vapor concentration may cause irritation to the nose and respiratory tract. This material considered a mild skin irritant. It is also irritant to eyes.

**Eyes:** Redness and pain.

**Skin:** May be absorbed. Redness and burning sensation.

**Ingestion:** Abdominal pain, Diarrhea Weakness. Effects on CNS may be delayed

##### **Chronic effects:**

Effects on liver and kidney

#### 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 method 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. Toxic vapours may be released on thermal decomposition including nitrogen oxides, carbon monoxide and cyanide.

**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. Water may also be used. Water sprays 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 nonflammable 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

- This material is extremely hazardous to health, but fire fighters may enter areas with extreme care. Full Protective clothing including a self-contained breathing apparatus, coat, pants, gloves, boots and bands around legs, arms and waist should be provided. No skin surface should be exposed.
- Evacuate the area and fight fires from a safe distance.



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- 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 slightly soluble in water. 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

#### 6.1.1 For non-emergency personnel

- 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. Use non-sparking tools.

#### 6.1.2 For emergency personnel

- 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 materials for containment and cleaning up

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

### 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.
- Combustible liquid. Bond containers when transferring material at or above flash point. Keep away from source of ignition.
- Avoid contact with incompatible materials.



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- 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.

#### 7.2 : Storage

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

#### 7.3 Specific end use(s)

- Uses of pyridine alkyl derivatives. include manufacture of textiles, rubber, plastic, pulp and paper products (SPIN 2010), as a corrosion inhibitor in the integrated iron and steel manufacturing industry (Scorecard 2010) and as an active ingredient in eight pest control products registered for unrestricted use in repelling cats, dogs, rabbits and other wildlife (Scorecard 2010). Individual alkyl pyridines may be isolated by distillation from pyridine alkyl derivatives. for use as intermediates in the production of bioactive agents such as agricultural herbicides and insecticides, vitamin B3, anti-ulcer and anti-arteriosclerotic drugs, flavoring agents, veterinary products, surfactants, catalysts and adhesives for textiles (Shinkichi et al. 1998; Peppard and Halsey 1980; Fetzner 1998; Tsukioka and Murakami 1987; Shimizu et al. 1993) in addition to functioning as solvents, due to their relative lack of reactivity, in organic chemistry (Scriven et al. 1996).

## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

#### 8.1 : Control parameters

#### 8.2 : Exposure Limits Values

Chemical name	STEL (ppm)	NIOSH	ACGIH	OSHA
JLSNV-2	No data available	No data available	No data available	No data available

#### 8.3 : Exposure Limits (International)

- No Information available

#### 8.4 : Derived No-Effect-Levels (DNEL) Predicted No-Effect-concentration (PNEC)

- No Information available

#### 8.5 : Exposure controls

##### 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.

#### 8.6 : Personal Protection



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- 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:** Wear impact resistance eye protection with side shields or goggles. Wear a face shield along with goggles when working with corrosive, highly irritating or toxic substances. Safety goggles/ Chemical Safety glasses and Face shield.
- **Clothing:** Boots and Impervious 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.

#### 8.7 : Occupational hygiene

- Take heed of usual occupational hygiene measures when handling chemical substances, especially wash the skin with soap and water before breaks and at the end of work and apply fatty skin-care products after washing. Avoid contact with eyes. In case of contact rinse the affected eye(s). Change clothing that has become wet and do not reuse until completely dry. Increased risk of combustion from wicking.

#### 8.8 : Additional Information

- Only use protective equipment in accordance with national/international regulations. Follow the national regulation about wearing personal protective equipment and the warranty given.
- Do not inhale substances, handle in fume hood.

#### 8.9 : Control of environmental exposure

- Do not let product enter drains.

### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

- Information on basic physical and chemical properties.

Sr. No.	Parameter	Typical value
1.	Appearance	Dark brown colour liquid
2.	Odor	Distinctive disagreeable odour
3.	Odor Threshold	Not available
4.	pH	11 (As such)
5.	Melting point/Freezing point	-70.9 °C
6.	Boiling Point	160-220°C (178.3 °C at 1013 hPa.)
7.	Flash point	64 °C
8.	Evaporation rate (n-BuAc=1)	Not available
9.	Flammability (Liquid)	Combustible liquid
10.	Upper/lower flammability or Explosive limits	Not available
11.	Vapor pressure	1.853 hPa at 20 °C
12.	Vapor density (air=1)	Not available
13.	Relative density/density	0.98 to 1.10g/cc, at 20 °C
14.	Solubility	12 000 mg/L at 20°C in water
15.	Partition coefficient : n-(Octonol / water)	2.1 at 20 °C





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Sr. No.	Parameter	Typical value
16.	Auto-ignition temperature	155 °C
17.	Decomposition temperature	Not available
18.	Viscosity	0.556 mPa · s (dynamic) at 20°C
19.	Explosive property	No
20.	Oxidizing property	No

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

- JLSNV-2 is dark brown liquid distinctive disagreeable odor. It is slightly soluble in water.

### 10.2. Chemical stability

- Stable under specified temperature and pressure.

### 10.3. Possibility of hazardous reactions

- Hazardous Polymerization: Not expected to occur.

### 10.4. Conditions to avoid

- Static discharges, high temperatures, incompatible chemicals, direct light, keep away from strong acid and oxidizing agent.

### 10.5. Incompatible materials

- Strong oxidizing agents and strong acids.

### 10.6. Hazardous decomposition products

- When heated it gives fumes of nitrogen oxides, carbon monoxide, Carbon dioxide and toxic, irritating fumes on decomposition.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 : Information on toxicological effects

#### 11.1.1. Information on toxicological effects

- The full toxicity profile of this compound has yet to be investigated.

#### a) Acute toxicity

- It is toxic in dermal contact and inhalation. It is harmful if swallowed. Continuous exposure may effects liver and central nervous system. Low vapor concentration may cause irritation to the nose and respiratory tract. This material considered a mild skin irritant. It is also irritant to eyes. Eyes: Redness and pain. Skin: May be absorbed. Redness and burning sensation. Ingestion: Abdominal pain, Diarrhea Weakness. Effects on CNS may be delayed.

RTECS#: Not available

ACUTE ORAL LD50 (Mouse) = 1400 mg/Kg

ACUTE INHALATION LC50 (Rat) = 2.67 mg/L

ACUTE DERMAL LD50 (Rabbit) = 1000 mg/kg

#### a) Skin corrosion/irritation

Moderately irritating.

#### b) Serious eye damage/irritation

Causes serious eye irritation.

#### c) Respiratory or skin sensitization

May cause an allergic skin reaction

#### d) Germ cell mutagenicity

No data is available.

#### e) Carcinogenicity

No data is available.

#### f) Reproductive toxicity

No data is available.



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**g) STOT-single exposure**

No data is available.

**h) STOT-repeated exposure:**

No data is available.

**i) Aspiration Hazards:**

No data is available.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

#### 12.1.1 Ecotoxicity:

##### Acute toxicity LC50

- Species: *Oncorhynchus mykiss* (rainbow trout)
- NOEC (96 hours): 0.95 mg/L
- LOEC (96 hours): 1.71 mg/L
- LC50 (96 hours): 2.96 mg/L
- Exposure time: 96 h
- Method: OECD Test Guideline 203

##### Acute toxicity LC50

- Species: *Danio rerio* (zebra fish)
- 96 h NOEC = 3.2 mg/L (condition)
- 96h NOEC = 3.2 mg/L (mortality)
- 96 h LC50 = 6.1 (5.2-7.2) mg/L
- 96h LC100 = 10 mg/L.
- Exposure time: 96 h
- Analytical monitoring: no
- Method: OECD Test Guideline 203
- Toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment.

### 12.2. Persistence and degradability

- Pyridine alkyl derivative is found to be inherently biodegradable.

### 12.3. Bio accumulative potential

- The substance does not have the potential to bioaccumulate. The substance has a low logPow i.e <3 and is inherently biodegradable.

### 12.4. Mobility in soil

- Koc : 352.2
- Log Koc: 2.55
- Henry's Law Constant = 8.614E-006 atm-m<sup>3</sup>/mole: It is volatile from aqueous bodies.
- Log Kow = 2.39 (estimated). Low potential to bio accumulate.

### 12.4. Results of PBT and vPvB assessment

- The substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII

### 12.5. Other adverse effects

#### Environment Fate:

- Based on the environmental modeling, this material has a low potential to get absorbed in the organic matter of soil and is volatile from water 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.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

- Dissolve in a combustible solvent and burn in a chemical incinerator equipped with an after burner and scrubber.
- Must not be disposed with house hold garbage .Do not permit the product to enter the sewer system.

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- 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 IMO/IMDG/ IATA/ ICAO.

ADR/ RID/ DOT	IMDG	IATA
<b>14.1 UN number</b>		
UN 2810	UN 2810	UN 2810
<b>14.2 UN proper shipping name</b>		
TOXIC LIQUID, ORGANIC, N.O.S. (Pyridines alkyl derivatives).	TOXIC LIQUID, ORGANIC, N.O.S. (Pyridines alkyl derivatives).	Toxic liquid, organic, n.o.s (Pyridines alkyl derivatives).
<b>14.3 Transport hazard class(es)</b>		
6.1	6.1	6.1
<b>14.4 Packing group</b>		
III	III	III
<b>14.5 Environmental hazards</b>		
Environmentally hazardous: Yes	Environmentally hazardous: Yes Marine pollutant: Yes	Environmentally hazardous: Yes

#### SECTION 15: REGULATORY INFORMATION

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

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

**Hazards Class and Category:** Acute Toxicity (Oral): Category 4, Acute Toxicity (Dermal): Category 3

Acute Toxicity (Inhalation): Category 3, Skin corrosion/irritation: Category 2, Eye Damage/Irritation: Category 2A

Sensitization-Skin: Category 1, Hazardous to aquatic environment (Chronic): Category 2

**Hazard Statements:** H302, H311, H331, H315, H319, H317, H411

##### US information

- Not listed in EPA TSCA chemical inventory.
- None of the chemicals in this product are listed under TSCA under 12b.
- None of the chemicals in this product have an RQ under SARA section 304 RQ.
- None of the chemicals in this product have an TPQ under SARA section 302 TPQ.
- None of the chemicals in this product are reported under SARA section 313.
- None of the chemicals in this product contain any class 1 and class 2 Ozone depletors, neither contains any hazardous air pollutant under "Clean Air Act".



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#### SECTION 16: OTHER INFORMATION

##### a) : Compilation information of safety data sheet

Date of Compilation	: September 6, 2018
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##### b) 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
- 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
- EPA=Environmental Protection Agency
- TSCA= Toxic Substances Control Act
- CERCLA= Comprehensive Environmental Response, Compensation, and Liability Act
- SARA= Superfund Amendments and Reauthorization Act
- NFPA= National Fire Protection Association
- WHIMS= Workplace Hazardous Materials Information System
- DSL/NDL= Domestic/Non-Domestic Substances List
- CSR=Chemical Safety Report
- BCF = Bio Concentration Factor
- DNEL = Derived No Effect Level
- PNEC = Predicted No Effect Concentration
- TLV = Threshold Limit Value



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- ACGIH = American Conference of Governmental Industrial Hygienists
- REACH = Registration, Evaluation, Authorizations and Restriction of Chemicals
- CLP = Classification, Labeling and Packaging
- LD / LC = Lethal Doses / Lethal Concentration
- GHS = Globally Harmonized System
- ADR = Accord européen relative au transport international de marchandises
- 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.

#### c) 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)

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