Safety Data Sheet
As per Globally Harmonized System (GHS)

Product Identification: 4-Aminopyridine

Date of issue: April 17, 2013

SDS Code : 0078A04 Div.03 sds 4-Aminopyridine
Date of Compilation : April 17, 2013
Date of Revision : April 17, 2013
Due Date of Revision: March, 2015
Revision Number : 04
Version Number : 0078A04 Div.03 sds 4-Aminopyridine
Supersedes date : March 15, 2012
Supersedes version : 0078C01 Div.03 sds 4-Aminopyridine
Safety Data Sheet
As per Globally Harmonized System (GHS)

Product Identification: 4-Aminopyridine  0078A04  Div.03 sds 4-Aminopyridine
Date of issue: April 17, 2013

SECTION 1.:  IDENTIFICATION

PRODUCT NAME  4-Aminopyridine
CAS RN  504-24-5
EC#  207-987-9
SYNONYMS  γ-pyridylamine; Gamma-aminopyridine; m-aminopyridine; amino-4-pyridine;
SYSTEMATIC NAME  4-Aminopyridine, 4-Pyridinamine, 4-Pyridylamine; Pyridine,4-Amino
MOLECULAR FORMULA  C₅H₆N₂
STRUCTURAL FORMULA

FACTORY & REGISTERED OFFICE:
Jubilant Life Sciences Limited
Bhartiagram, Gajraula
District: Amroha
Uttar Pradesh-244223, India
PHONE NO: +91-5924-252353 to 252360
Contact Department-Safety: Ext. 7424
FAX NO : 91-5924-252352

HEAD OFFICE:
Jubilant Life Sciences Ltd.
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.jubl.com
Product Identification: 4-Aminopyridine 0078A04 Div.03 sds 4-Aminopyridine

Date of issue: April 17, 2013

Emergency telephone: Medical and Transport Emergencies: +91-9997022412 (India)
Logistics Emergencies: +91-120-4365441 (India)

Product Uses:
- The primary use of 4-Aminopyridine is as an Intermediate, Bird Repellant avicide and in Medication.

SECTION 2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION
Acute Toxicity Oral: Category 1
Acute Toxicity Dermal: Category 3
Eye irritation: Category 2
Skin Corrosion/irritation: Category 2

Hazard Pictogram: GHS 06, GHS 07
Signal Word: Danger!

HAZARD AND PRECAUTIONARY STATEMENTS:

HAZARD STATEMENTS
- H300: Fatal if Swallowed.
- H311: Toxic in contact with Skin.
- H319: Causes serious eye Irritation.
- H315: Causes skin Irritation.

PRECAUTIONARY STATEMENTS
Prevention
- P270: Do not eat, drink or smoke when using this product.
- P264: Wash hands thoroughly after handling.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response
- P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P330: Rinse mouth.
- P302+352: IF ON SKIN: Wash with plenty of soap and water.
- P312: Call a POISON CENTER or doctor/physician if you feel unwell.
- P361: Remove/Take off immediately all contaminated clothing.
- P363: Wash contaminated clothing before reuse.
- P332+313: If skin irritation occurs: Get medical advice/attention.
- P362: Take off contaminated clothing and wash before reuse.
SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Chemical</th>
<th>CAS #</th>
<th>EC#</th>
<th>Purity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>4-Aminopyridine</td>
<td>504-24-5</td>
<td>207-987-9</td>
<td>&gt;99 %</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

Key symptoms

Acute effects:
- 4-Aminopyridine can affect when breathed in and by passing through your skin. Contact can irritate the eyes, nose and throat. Exposure can cause headache, dizziness, heaviness and weakness of the arms and legs. Continued exposure may progress to convulsions and death.

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

FIRST AID:
- **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. Move patient to fresh air. Monitor for respiratory distress. If cough or difficulty breathing develops, evaluate for respiratory tract irritation.
- **bronchitis, or pneumonitis. Administer oxygen and assist ventilation as required. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids.**
- **Ingestion**: If swallowed call a poison center if you feel unwell. Rinse mouth. Do NOT induce vomiting by use of emetics. Seek medical attention.
Antidote:- Activated Charcoal: Administer charcoal as a slurry (240 mL water/30 g charcoal). Usual dose: 25 to 100 g in adults/adolescents, 25 to 50 g in children (1 to 12 years), and 1 g/kg in infants less than 1 year old.

SECTION 5: FIRE-FIGHTING MEASURES

Flash Point: 158 °C closed cup Flammability: Non Flammable

Extinguishing media:
- Appropriate extinguishing media: Dry chemical powder, chemical foam, 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 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:
- 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) and full protective clothing. The chemical is harmful in contact with skin.
- Report any run-off of fire waters contaminated with this chemical as per local and federal procedures applicable.

Unusual fire and explosion hazard:
- Toxic vapors may be released on thermal decomposition including nitrogen oxides, carbon monoxide, carbon di-oxide and cyanide.
- High vapor concentration may result in an explosion hazard.
- When heated to decomposition, it emits highly toxic fumes.
- Vapors are heavier than air. May travel considerable distance from source and flashback.

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.
- Wipe up.
- Decontaminate all equipment.
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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.
- 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

Handling
- Do not breathe dust, 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.

Storage
- Store in a cool, well ventilated place
- Store away from incompatible materials.
- Keep securely closed when not in use.
SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure Limits Values

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>WEL 8hr TWA (ppm)</th>
<th>STEL (ppm)</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Aminopyridine</td>
<td>0.5</td>
<td>2.0</td>
<td>0.5 ppm TWA; 2 mg/m3 TWA</td>
<td>0.5 ppm TWA</td>
<td>0.5 ppm TWA; 2 mg/m3 TWA</td>
</tr>
</tbody>
</table>

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.

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: Rubber or neoprene gloves and additional protection including impervious boots, apron. or coveralls as needed in areas of unusual exposure to prevent skin contact.
  - In full contact:
    - Glove Material: nitrile rubber
    - Layer Thickness: 0.11 mm
    - Breakthrough time: > 480 Min
  - In splash contact:
    - Glove Material: nitrile rubber
    - Layer Thickness: 0.11 mm
    - Breakthrough time: > 480 Min
- 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

- Information on basic physical and chemical properties.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Parameter</th>
<th>Typical value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Appearance</td>
<td>White leaflets or large colorless crystals</td>
</tr>
<tr>
<td>2.</td>
<td>Odor</td>
<td>No Characteristic odor</td>
</tr>
<tr>
<td>3.</td>
<td>Odor Threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>4.</td>
<td>Melting point</td>
<td>158.5 °C</td>
</tr>
<tr>
<td>5.</td>
<td>Boiling point</td>
<td>273°C</td>
</tr>
<tr>
<td>6.</td>
<td>Flash point</td>
<td>158°C</td>
</tr>
<tr>
<td>7.</td>
<td>Evaporation rate (n-BuAc=1)</td>
<td>Not available</td>
</tr>
<tr>
<td>8.</td>
<td>Explosive limits</td>
<td>Not available</td>
</tr>
<tr>
<td>9.</td>
<td>Vapor pressure</td>
<td>0.80 mm Hg at 25 °C</td>
</tr>
<tr>
<td>10.</td>
<td>Relative density (air=1)</td>
<td>Not available</td>
</tr>
<tr>
<td>11.</td>
<td>Specific gravity (water=1)</td>
<td>1.065 @20°C</td>
</tr>
<tr>
<td>12.</td>
<td>Solubility</td>
<td>Soluble in water, ethyl ether, benzene; very soluble in ethanol.</td>
</tr>
<tr>
<td>13.</td>
<td>pH</td>
<td>13 (1% Solution)</td>
</tr>
<tr>
<td>14.</td>
<td>Log Kow (Octonol/water)</td>
<td>0.32</td>
</tr>
</tbody>
</table>
## 15. Auto-ignition temperature | 640°C
## 16. Decomposition temperature | Not available
## 17. Viscosity | Not available
## 18. Molecular Weight | 94.12
## 19. Flammability | Non Flammable
## 20. Oxidizer | No
## 21. Corrosivity | No
## 22. Explosive material | No

### SECTION 10: STABILITY AND REACTIVITY

- **Stability**: Stable at normal condition of temperature and Pressure. Oxidizes and darkens with time. Heat and light accelerate this process.
- **Conditions to avoid**: Keep away from heat, light, dust generation, sparks, flame, high temperature and incompatible chemicals, water/moisture. The product is light sensitive.
- **Incompatible materials**: Strong oxidizing agents.
- **Hazardous decomposition products**: Toxic vapors may be released on thermal decomposition including nitrogen oxides, carbon monoxide, carbon di-oxide, cyanide and irritating & toxic fumes.
- **Possibility of hazardous reactions**: Hazardous Polymerization: Will not occur.
SECTION 11: TOXICOLOGICAL INFORMATION

a) Acute Toxicity:
4-Aminopyridine causes skin irritation and serious eye irritation. It is fatal if swallowed and toxic in contact with skin. The following acute health effects may occur immediately or shortly after exposure to 4-Aminopyridine:
- Contact can irritate the eyes, nose and throat.
- Exposure can cause headache, dizziness, heaviness and weakness of the arms and legs. Continued exposure may progress to convulsions and death.
- 4-Aminopyridine Blocks Potassium Channels And Thereby Increases Acetylcholine, & Possibly Noradrenaline, Release At Nerve Terminals

Other Effects: - Organ toxicity: Chronic exposure to 4-aminopyridine can cause the breakdown of proper liver and brain functioning. No effects were found in the blood and urine of rats and dogs.

TOXICITY:
RTECS#: US1750000.
- LD50/LC50: ACUTE ORAL LD50 (Mouse) = 19 mg/kg
- ACUTE ORAL LD50 (Bird) = 10 mg/kg
- INTRAPERITONEAL (Mouse) = 10 mg/kg
- INTRAVENOUS LD50 (Mouse) = 7 mg/kg
- LDLo - Oral Human – (Man) = 590 ug/kg

b) Skin corrosion/irritation
- Causes skin irritation.

c) Serious eye damage/irritation
- Causes serious eye irritation.

d) Respiratory or skin sensitization
- It may causes irritation to respiratory system.

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 the information presently available 4-Aminopyridine has not been tested for its ability to cause cancer in Humans and Animals.
g) Reproductive toxicity
   - According to the information presently 4-aminopyridine has not been tested for its ability to affect reproduction Toxicity.

h) STOT-single exposure
   - No data is available.

i) STOT- repeated exposure
   - No data available.

j) Aspiration Hazards
   - No data available.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity:
Ecotoxicity:
   - Fish ChV (mg/l): 3.4
   - It is expected to be non-toxic to aquatic organisms with long lasting effects.

Persistence and degradability
   - Ultimate Biodegradation Survey: 2.62 Weeks.
   - It has estimated that 4-Pyridinamine is expected to be found predominantly in soil and its persistence estimate is based on its transformation in this medium.
   - Its half-life in soil, 75 days, exceeds the EPA criteria of >= 2 months (and <= 6 months). Therefore, 4-Pyridinamine is estimated to be persistent in the environment and is non biodegradable.

Bio accumulative potential
   - Log Kow = 0.32.
   - BCF = 3.2
   - 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. The PBT Profiler estimates that is expected to bioaccumulation in the food chain because it exceed the BCF criteria.

Mobility in soil
   - Log Koc = 1.65 (estimated). Low Sorption.
   - Henry's Law Constant = 2.45 X 10^{-09} atm-m^3/mole. It is non-volatile from aqueous bodies.
   - Log Kow = 0.32 (estimated). Hypothetical to bioaccumulation.
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 non volatile from water bodies. Since this is an estimated result it is recommended that the material should not be disposed into the environment as it is very toxic to Birds. The material should never be disposed into the sewage.

### SECTION 13: DISPOSAL CONSIDERATIONS

**Waste treatment methods**

- 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/ARD/RID/IMO/IMDG.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Agency</th>
<th>UN Number</th>
<th>Proper Shipping name</th>
<th>Hazard Class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land Transport</strong></td>
<td>ADR/RIC</td>
<td>UN 2671</td>
<td>Aminopyridines (o-; m-; p-)</td>
<td>6, (6.1)</td>
<td>II</td>
</tr>
<tr>
<td><strong>Maritime Transport</strong></td>
<td>IMDG</td>
<td>UN 2671</td>
<td>Aminopyridines (o-; m-; p-)</td>
<td>6, (6.1)</td>
<td>II</td>
</tr>
<tr>
<td><strong>Air Transport</strong></td>
<td>IATA</td>
<td>UN 2671</td>
<td>Aminopyridines (o-; m-; p-)</td>
<td>6, (6.1)</td>
<td>II</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazard Label</th>
<th>Toxic</th>
</tr>
</thead>
</table>
| 6            | }
Environmental hazards:
- Marine pollutant: No

SECTION 15: REGULATORY INFORMATION

European Union Information
- **Classification as per Regulation 67/548/EEC:** +T;R24/28 - Xi; R36/37/38
  - T - Toxic
  - Xi - Irritant

Risk Phrases:
- R 24: Toxic in contact with skin.
- R 28: Very toxic if swallowed.
- R 36/37/38: Irritating to eyes, respiratory system and skin.

Safety Phrases:
- S 1: Keep locked up.
- S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S 36/37/39: Wear suitable protective clothing, gloves and eye/face protection.
- S 45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 28: After contact with skin, wash immediately with plenty of water.
- S61: Avoid release to the environment.

Classification as per CLP Regulation 1272/2008:
- **Hazard Class and Category:** Acute Tox. Oral cat 1; Acute Tox Dermal Cat 3; Skin irrt Cat 2; Eye irri. Cat 2
- **Hazard Statements:** H300; H311; H315; H319

<table>
<thead>
<tr>
<th>Chemical Inventory Lists</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA:</td>
<td>Present</td>
</tr>
<tr>
<td>EINECS:</td>
<td>207-987-9</td>
</tr>
<tr>
<td>Canada(DSL/NDSL):</td>
<td>Listed/DSL</td>
</tr>
<tr>
<td>Japan:</td>
<td>5-724</td>
</tr>
<tr>
<td>Korea:</td>
<td>KE29927</td>
</tr>
<tr>
<td>Australia:</td>
<td>Not Listed</td>
</tr>
<tr>
<td>China: IECSC</td>
<td>Listed</td>
</tr>
</tbody>
</table>
Biocidal Products Directive (Directive 98/8/EC) Information:
There is no information in ESIS for this substance with respect to the BPD.
Substances not listed either individually or in group entries must be self classified.

Export and Import of Dangerous Chemicals (Regulation (EC) No 689/2008) Information:
This substance is not listed in the Annex I of Regulation (EC) No 689/2008.

Biocidal Products Directive (Directive 98/8/EC) Information:
There is no information in ESIS for this substance with respect to the BPD.
Substances not listed either individually or in group entries must be self classified.

Export and Import of Dangerous Chemicals (Regulation (EC) No 689/2008) Information:
This substance is not listed in the Annex I of Regulation (EC) No 689/2008.

US FEDERAL

Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.

Section 12b
None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs
CAS# 504-24-5: 1000 lb final RQ; 454 kg final RQ

SARA Section 302 Extremely Hazardous Substances
CAS# 504-24-5: 500 lb lower threshold TPQ; 10000 lb upper threshold TPQ

Section 313: No chemicals are reportable under Section 313.

Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.

STATE
CAS# 504-24-5 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.
U.S. Environmental Protection Agency (EPA):
Based on its potential hazard to fish and non-target birds, some 4-aminopyridine formulations are classified by the U.S. Environmental Protection Agency (EPA) as Restricted Use Pesticides (RUPs). RUPs may be purchased and used only by certified applicators.

SECTION 16: OTHER INFORMATION

Compilation information of safety data sheet
Chemical: 4-Aminopyridine
CAS #: 504-24-5
File Name: 0078A04 Div.03 sds 4-Aminopyridine
Date: April 24, 2013
Revision Number: 04
Date of issue: April 17, 2013
Revision due Date: March, 2015

(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.
- EPA = Environmental Protection Agency.
- TSCA = Toxic Substances Control Act.
- SARA = Superfund Amendments and Reauthorization Act.
- DSL/NDSL = Domestic/Non-Domestic Substances List.
- CSR = Chemical Safety Report.
- BCF = Bio Concentration Factor.
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- DNEL = Derived No Effect Level.
- PNEC = Predicted No Effect Concentration.
- TLV = Threshold Limit Value.
- ACGIH = American Conference of Governmental Industrial Hygienists.
- REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals.
- CLP = Classification, Labelling and Packaging.
- LD / LC = Lethal Doses / Lethal Concentration.
- GHS = Globally Harmonised System.
- ADR = Accord européen relative au transport international de marchandises.
- EmS = Emergency measures on Sea.
- ICAO = International Civil Aviation Organization.
- IATA/DGR= International Air Transport Association/Dangerous Goods Regulation.

(b) 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
- DIR 67/548/EWG, last modification by DIR 2009/2/EC

Internet
- PBT profiler.
- ESIS

Company’s Declaration:

Information contained in this SDS is believed to be correct but no representation, guarantee or warranties of any kind are made as to its accuracy, suitability for a particular application or results to be obtained from them. This SDS shall be used as a guide only. Jubilant Life Sciences Limited makes no warranties expressed or implied of the adequacy of this document for any particular purpose.

(End of Safety Data Sheet)