



Safety Data Sheet

According to REG (EC) no.453/2010

Product Identification: 4-Nitropyridine-N-oxide 0353Am Clp03 Div.3 sds 4-Nitropyridine-N- oxide

Date of issue: September 04, 2015

Date of Compilation : May 01, 2013

Date of Revision : September 04, 2015

Revision Number : 03

Version Number : 0353Am Clp03 Div.3 sds 4-Nitropyridine-N-oxide

Supersedes date : May 21, 2014

Supersedes version : 0353C02 Div.03 sds 4-Nitropyridine-N-oxide

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SECTION 1.: IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY

1.1 Product identification: 4-Nitropyridine-N-oxide; CAS RN; 1124-33-0; EC# 214-395-4

1.1.1. **Trade name:** 4-Nitropyridine-N-oxide

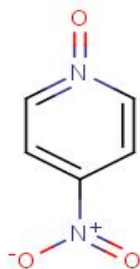
1.1.2. **Systematic Name:** 4-Nitropyridine 1-oxide; Pyridine, 4-nitro-, 1-oxide-

1.1.3. **Synonyms:** 4-Nitropyridine 1-oxide, p-Nitropyridine N-oxide

1.1.4. **Other Languages:**
De: 4-nitropyridin-N-oxid
Es: 4-nitro-piridina-N-óxido
Fr: 4-nitro-pyridine-N-oxyde

1.1.5 **Molecular Formula:** C₅H₄N₂O₃

1.1.6. **Structural Formula:**



1.1.7. **Registration Status under REACH Regulation (EC) No. 1907/2006**

CLP Notification Number: 02-2119970377-27-0000

Pre-Registration Status under REACH Regulation (EC) No. 1907/2006

EC Name	Submission Number	Pre-registration Number	Name of the Organization (OR)	Validity
4-nitropyridine 1-oxide	VF449476-21	05-2114572044-54-0000	Jubilant Life Sciences NV	31/05/2018

1.2 Identified Uses: 4-Nitropyridine-N-oxide is used in non-linear optics.

Uses advised against: None

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1.3 Company / supplier: **FACTORY ADDRESS:**

Jubilant Life Sciences Ltd.
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Ambernath (W) - 421501
Maharashtra, India
Phone No.: +91-251-2610588
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HEAD OFFICE:

Jubilant Life Sciences Ltd.
Plot 1-A, Sector 16-A,
Institutional Area, Noida,
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PHONE NO: +91-120-4361000
FAX NO : +91-120- 4234881 / 84 / 85 / 87 / 95 / 96
Email: support@jubl.com
Website: www.jubl.com

1.3 Emergency telephone: +91-9689925834

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance

2.1.1. Classification according to regulation (EC) 1272/2008

Acute Toxicity Oral: Category 3	H301
Eye damage/eye irritant: Category 2	H319
Skin corrosion/irritation: Category 2	H315

2.1.2 Classification according to regulation (EC) no.67/548/EEC

Classification: T;R25 – Xi;R36/38

2.2 Label elements according to regulation (EC) 1272/2008

Pictograms:



GHS 06-Toxic

Signal word: Danger!



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Hazard and precautionary statements:

Hazard Statements

- H301: Toxic if swallowed.
- H315: Causes skin irritation.
- H319: Causes serious eye irritation.

PRECAUTIONARY STATEMENTS

Prevention

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

Response

- P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P330: Rinse mouth
- P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
- P332+313: If skin irritation occurs: Get medical advice/attention.
- P362: Take off contaminated clothing and wash before reuse.
- 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.

Storage

- P405: Store locked up.

Disposal

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

2.3 Other Hazards

- Substance is not classified as PBT nor as vPvB. For further details see section 12.


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SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Substance	CAS No.	EINECS No.	Purity	Classification acc. to reg.(EC) no. 1272/2008		
				Hazard Classes and categories	Pictograms Signal Words	Hazard Statements
4-Nitropyridine-N-oxide	1124-33-0	214-395-4	>97 %	Acute Toxicity Oral: Category 3 Eye damage/eye irritant: Category 2 Skin corrosion/irritation: Category 2	GHS 06 	H301 H315 H319

Classification & Labeling acc.to dir.67/548/EEC		
Classification	Symbol	Risk Phrases
Xi-Irritant T-Toxic		R25-R36/38

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures.

4.1.1 *Route of exposure:* 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:**
4-Nitropyridine-N-oxide is toxic if swallowed. It causes irritation to skin, serious eyes irritation. May cause dyspnea (difficult or labored breathing).
- **Chronic effects:**
Possible risk of irreversible effect. Moderate mutagenic and tumorigenic effects have been observed on tests with bacteria and laboratory animals.



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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.
- **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 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 cyanide.
- 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).
- Report any run-off of firewater's contaminated with this chemical as per local and federal procedures applicable.



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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.

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 material 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.



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SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

- Do not breathe dust 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.

7.2. Conditions for safe storage, including any incompatibilities

- Store in a cool, 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)

- 4-Nitropyridine-N-oxide is used in non-linear optics.

SECTION 8 : EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

8.1.1 Exposure Limits Values

Chemical name	ACGIH	OSHA- Final PELs	NIOSH
4-Nitropyridine-N-oxide	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.



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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.
- **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.

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	Light brown powder
2.	Odor	Not available
3.	Odor Threshold	Not available
4.	pH	Not available
5.	Melting point/Freezing point	159-162°C
6.	Boiling Point	Not available
7.	Flash point	Not available
8.	Evaporation rate (n-BuAc=1)	Not available
9.	Flammability	Not available

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10.	Upper/lower flammability or Explosive limits	Not available
11.	Vapor pressure	5.49E-04 mm Hg at 25 °C
12.	Vapor density (air=1)	Not available
13.	Relative density	Not available
14.	Solubility	Insoluble in water
15.	Partition coefficient : n-(Octonol / water)	- 0.57
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

10.1. Reactivity

- 4-Nitropyridine-N-oxide is light brown powder. It is insoluble in water.

10.2. Chemical stability

- Stable under specified temperature and pressures.

10.3. Possibility of hazardous reactions

- Hazardous Polymerization: Not reported.

10.4. Conditions to avoid

- Keep away from heat, sparks, flame, high temperature and incompatible chemicals, dust generation. Not compatible with Strong oxidizing agents and acid chlorides. Avoid exposure to moist air or water.

10.5. Incompatible materials

- Strong oxidizing agents, acid chlorides.



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10.6. Hazardous decomposition products

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

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

a) Acute toxicity

- 4-Nitropyridine-N-oxide is toxic if swallowed. It causes irritation to skin, serious eyes irritation. May cause dyspnea (difficult or labored breathing).

TUMORIGENIC EFFECTS:

- Tumorigenic effects have been observed on tests with animals. It is an equivocal tumorigenic agent by RTECS criteria

TOXICITY:

RTECS#: UT6380000

ACUTE ORAL LD50 RAT	= 107 mg/kg
ACUTE ORAL LD50 MOUSE	= 50mg/m ³
ACUTE ORAL LD50 BIRD	= 8 mg/kg
ACUTE DERMAL LDLo RABBIT	= 360 mg/kg
INTRAPERITONEAL RAT LD50	= 25mg/kg
INTRAPERITONEAL MOUSE LD50	= 50mg/kg

b) Skin corrosion/irritation

- It causes skin irritation.

c) Serious eye damage/irritation

- It causes serious eye irritation.

d) Respiratory or skin sensitization

- No data is available.

e) Germ cell Mutagenicity

- Moderate mutagenic effects have been observed on tests with bacteria and laboratory animals. Tested against strains of Salmonella typhimurium (TA 100, TA 97 and TA 102), using Ames methods. (Ceska a Slovenska Farmacie, 1994 Oct; 43(5) :240-2 ISSN: 1210-7816).

f) Carcinogenicity

- Not listed by NTP, IARC and OSHA.
- Not present on the EU CMR list.
- According to the information presently available 4-Nitropyridine-N-oxide has not been tested for its ability to cause cancer in animals.

g) Reproductive toxicity

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- No data is available.
- 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

12.1. Toxicity

12.1.1 Ecotoxicity:

- Fish ChV=3,400 mg/l
- It has estimates that Pyridine, 4-nitro-, 1-oxide is not chronically toxic to fish. It is important to note that these results do not suggest that Pyridine, 4-nitro-, 1-oxide will not be toxic to all aquatic organisms. Some aquatic organisms, such as daphnids, may be more sensitive to both acute and chronic exposures to Pyridine, 4-nitro-, 1-oxide.

12.2. Persistence and degradability

- It has estimated that Pyridine, 4-nitro-, 1-oxide 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, Pyridine, 4-nitro-, 1-oxide is estimated to be persistent in the environment.

12.3. Bio accumulative potential

- BCF = 3.2
 - Log Kow = -0.57
- Based on the Log Kow and Bio concentration factor value it is expected to have low potential to concentrate in fatty tissue of fish and aquatic organisms. These results are estimated and it is recommended that this material should not be disposed into the environment. It has estimated that Pyridine, 4-nitro-, 1-oxide is not expected to bioaccumulate in the food chain because it does not exceed the BCF criteria.

12.4. Mobility in soil

- Koc=309. Moderate sorption in soil.
- Henry's Law constant: 2.054E-010 atm-m³/mole. Moderately volatile from aqueous bodies.
- Log Pow= -0.57

12.5. Results of PBT and vPvB assessment

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

12.6. Other adverse effects.

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- **Environmental Fate:**
- Based on environmental modeling, this material is not expected to be persistent in the environment. If released to the environment it is expected to be found predominantly in soil. It is also expected to be found in water but not in sediment. It does not undergo rapid bio degradation. 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

- 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.

Mode of Transport	Agency
Land transport	ADR/RID
Maritime Transport	IMDG
Air Transport	IATA

14.1. UN number

- UN 2811

14.2. UN proper shipping name

- Toxic solid, Organic, N.O.S. (4-Nitropyridine-N- oxide)

14.3. Transport hazard class (es)

- Hazard class 6
- Sub class, Toxic 6.1
- Hazard Label.



14.4. Packing group

- III

14.5. Environmental hazards

- Marine pollutant: No



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SECTION 15: REGULATORY INFORMATION

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

- European/International Regulations.
- European Labelling in Accordance with EC Directives.

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

- **Hazards Class and Category:** Acute Tox Oral Cat2, Skin Irrit.Cat2, Eye Irrit.Cat2
- **Hazard Statements:** H301; H315;H319

Classification as per directive 67/548/EEC

- Classification: T; R25 - Xi; R36/38 - R40
- T-Toxic
- Xi- Irritant

US Information:

- **TSCA**
CAS# 1124-33-0 is listed on the TSCA inventory.
- **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**
None of the chemicals in this material have an RQ.
- **SARA Section 302 Extremely Hazardous Substances**
CAS# 1124-33-0: 500 lb TPQ (lower threshold); 10000 lb TPQ (upper threshold)
- **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.



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- **STATE**
CAS# 1124-33-0 can be found on the following state right to know lists New Jersey, Pennsylvania, Massachusetts.
- **California Prop 65**
California No Significant Risk Level: None of the chemicals in this product are listed.
- **WGK (Water Danger/Protection)**
CAS# 1124-33-0: 3
- Canada - DSL/NDSL
CAS# 1124-33-0 is listed on Canada's NDSL List.
- Canada – WHMIS
WHMIS: Not available.

SECTION 16: OTHER INFORMATION

(a) Compilation information of safety data sheet

Chemical: 4-Nitropyridine-N-oxide

CAS: 1124-33-0

File Name: 0353Am Clp03 Div.3 sds 4-nitropyridine-N-oxide

Revision Number: 03

Date of Issue of SDS: September 04, 2015

Revision Due Date: August, 2017

(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



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- SARA= Superfund Amendments and Reauthorization Act
- NFPA= National Fire Protection Association
- WHIMS= Workplace Hazardous Materials Information System
- DSL/NDSL= 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
- 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
- ADR = Accord europeen 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

- 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

- RTECS
- ESIS

(d) List of Risk Phrases, Hazard statements, safety Phrases and/or precautionary statements.

Risk Phrases	<ul style="list-style-type: none">• R25: Toxic if swallowed.• R36/38: Irritating to eyes and skin.• R40: Possible risk of irreversible effects.
Hazards Statements	<ul style="list-style-type: none">• H301: Toxic if swallowed.• H315: Causes skin irritation.• H319: Causes serious eye irritation
Safety Phrases	<ul style="list-style-type: none">• S20: When using do not eat or drink.• S 26: In case of contact with eyes, rinse immediately with plenty of water and



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	<ul style="list-style-type: none">seek medical advice.S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.S45:In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
Precautionary Statements	<ul style="list-style-type: none">P264: P270: P280: P301+310: P330: P302 + P352: P332+313: P362: P305 + P351 + P338: P337 + P313: P405: P501

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)