

**SECTION 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY / UNDERTAKING**

Product Name	<b>2-AB Dye</b>
Product Catalogue Name	<b>LT-2AB-01/03/96</b>
CAS-No.	<b>88-68-6</b>
Company:	Ludger Ltd Culham Science Centre Abingdon Oxford OX14 3EB
Telephone:	01865 408554
Emergency Telephone:	01865 408554
Email:	info@ludger.com

**SECTION 2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture**

**Classification according to Regulation (EC) No 1272/2008 as amended by GB-CLP  
Regulation, UK SI 2019/720, and UK SI 2020/1567**

Eye irritation (Category 2), H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 Label elements**

**Labelling according to Regulation (EC) No 1272/2008 as amended by GB-CLP  
Regulation, UK SI 2019/720, and UK SI 2020/1567**



Signal Word: **Warning**

**Hazard Statement(s)**

H319 Causes serious eye irritation.

**Precautionary Statement(s)**

P264 Wash skin thoroughly after handling.

P280 Wear eye protection/ face protection.

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.

Supplemental Hazard Statements **None**

Reduced Labelling (&lt;= 125 ml)



Signal Word

Warning

Hazard statement(s) None

Precautionary Statement(s) None

Supplemental Hazard Statements None

**2.3 Other hazard information:**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS****3. 1 Substances**

Synonyms: 2-Aminobenzamide  
Anthrаниlic Acid Amide  
Anthrаниlamide  
2-AB

Formula: C<sub>7</sub>H<sub>8</sub>N<sub>2</sub>O  
Molecular Weight: 136.15g/mol

Component	Classification	Concentration
Name Anthranilamide		< = 100%
CAS-No. 88-68-6	Eye Irrit. 2; 319	
EC-No. 201-851-2		

**SECTION 4. FIRST-AID MEASURES****4.1 Description of First Aid Measures****General Advice**

Consult a physician if exposure causes ill effects and if in any doubt. Show this safety data sheet to the physician/ first responder in attendance.

**If Ingested**

Never give anything by mouth to an unconscious person. Rinse mouth well with water.

**If the skin is exposed**

Wash the area well with soap and water.

**If eyes are exposed**

Rinse well with plenty of water for 15 minutes.

**If inhaled**

Move the person into fresh air. If not breathing give artificial respiration.

**4.2 Most important symptoms and effects, both acute and delayed**

To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated so cannot be reported.

**4.3 Indication of immediate medical attention and special treatment needed**

No Data available

**SECTION 5. FIRE-FIGHTING MEASURES****5.1 Extinguishing media**

Use a water spray, alcohol-resistant foam, dry chemical or carbon dioxide extinguisher.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides, nitrogen oxides (NOx)

**5.3 Advice for Firefighters**

Firefighters are to wear self-contained breathing apparatus if necessary.

**SECTION 6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation in work areas. Evacuate personnel to safe areas to avoid breathing dust.

**6.2 Environmental Precautions**

Do not let the product enter the drains.

**6.3 Methods and material for containment and cleaning up**

Carefully sweep up the spill without creating any dust. Contain the collected material in a sealed suitable container, to await disposal.

**6.4 Reference to other sections**

Please refer to section 13 for the disposal of products and spills.

**SECTION 7. HANDLING AND STORAGE****7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid the formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for fire prevention protection.

**7.2 Conditions for safe storage, including any incompatibilities**

Store in a cool, dark place. Keep the container tightly closed in a dry well-ventilated place.

**7.3 Specific end uses**

No data available

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1 Control parameters****Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

**8.2 Exposure controls****Appropriate engineering controls**

Handle following good laboratory and safety practices. Wash hands before entering the laboratory and at the end of the workday/ when finished handling the material.

## Personal Protective Equipment

### Eye / face protection

Safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

### Skin protection

Handle wearing gloves. Gloves must be inspected before use. Use proper glove removal technique (without the glove touching the skin) to avoid skin contact with the product. Dispose of contaminated gloves as chemical dry waste following applicable laws and good laboratory practices. Wash and dry your hands.

Gloves must satisfy the specifications of EU directive 89/686/EEC and the standard EN 374 derived from it.

### Body Protection

Laboratory coat or other types of body covering suitable for use in a laboratory.

### Respiratory protection

When used under an operational fume hood no special protection is required. If required use respirators and components tested and approved under government standards such as NIOSH (US) or CEN (EU). Required level for nuisance exposure P98 (US) or P1 (EU EN 143), and higher levels of protection OV/AG/P99 (US) or ABEK-P2 (EU EN 143).

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance	Form: Crystalline Colour: Beige
Odour	No data available
Odour threshold	No data available
pH	No data available
Freezing/Melting Point	Melting point/range: 111-113°C Melting point/range: 111-113°C
Initial boiling point and boiling range	No data available
Flash Point	198°C – closed cup
Evaporation rate	No data available
Flammability	No data available
Upper/lower flammability or explosive limits	No data available
Vapour Pressure	No data available
Relative Density	No data available
Solubility in water and solvents (mg/l)	No data available
Partition coefficient: n- Octanol/water	No data available
Auto ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidising properties	No data available

### 9.2 Other information

No data available

**SECTION 10. STABILITY AND REACTIVITY****10.1 Reactivity**

No data available

**10.2 Chemical stability**

No data available

**10.3 Possibility of Hazardous Reactions**

No data available

**10.4 Conditions to Avoid**

No data available

**10.5 Incompatible materials**

Oxidizing agents

**10.6 Hazardous decomposition products**

Other decomposition products - No data available

**SECTION 11. TOXICOLOGICAL INFORMATION****11.1 Information on toxicological effects****Acute toxicity**

No data available

**Skin corrosion/irritation**

No data available

**Serious eye damage/irritation**

No data available

**Respiratory or skin sensitisation**

No data available

May cause sensitisation by inhalation.

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

IARC: No components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity**

No data available

**STOT-single exposure**

Inhalation – May cause respiratory irritation.

**STOT-repeated exposure**

No data available

**Aspiration hazard.**

No data available

**Potential Health Hazards**

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	May be harmful if absorbed through the skin. Causes skin irritation.
Eyes	Causes serious eye irritation.

**Signs and symptoms of exposure**

To the best of our knowledge the chemical, physical and toxicological properties have not been thoroughly investigated.

**Additional Information**

RTECS: CU8993000

**SECTION 12. ECOLOGICAL INFORMATION****12.1 Toxicity**

No data available

**12.2 Persistence and Degradability**

No data available

**12.3 Bio-accumulative potential**

No data available

**12.4. Mobility in soil**

No data available

**12.5. Results of PBT and vPvB assessment**

No data available

**12.6. Other adverse effects**

No data available

**SECTION 13. DISPOSAL CONSIDERATIONS****13.1 Waste Treatment Methods**

Contact a licensed waste disposal service to collect/dispose of any waste material.

**Contaminated packaging**

Treat it as an unopened/ unused product.

**SECTION 14. TRANSPORT INFORMATION****14.1 UN Number**

ADR/RID: -                   IMDG: -                   IATA: -

**14.2 UN Proper Shipping Name**

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

**14.3 Transport hazard class(es)**

ADR/RID: -                   IMDG: -                   IATA: -

**14.4 Packing group**

ADR/RID: -

IMDG: -

IATA: -

**14.5 Environmental hazards**

ADR/RID: No

IMDG Marine pollutant: No

IATA: No

**14.6 Special precautions for user**

No data available

**SECTION 15. REGULATORY INFORMATION**

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

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

No data available

**15.2 Chemical Safety Assessment**

No data available

*Note that the label elements, the Risk and Safety phrases (now Hazard and Precautionary statements) that used to be in Section 15 are now in Section 2.*

**SECTION 16. OTHER INFORMATION**

The advice offered is derived from the currently available information on the hazardous materials in this product and its component(s). Consideration has been made regarding the quantities offered in the pre-dispensed container. The advice offered is, therefore not all-inclusive nor should it be taken as the descriptive of the compound generally.

**SECTION 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY / UNDER-TAKING**

Product Name	<b>Acetic Acid / dimethyl sulfoxide solution</b>
Product Catalogue Name	<b>LT-ACETIC-DMSO-01/96</b>
Company:	Ludger Ltd Culham Science Centre Abingdon Oxford OX14 3EB
Telephone:	01865 408554
Emergency Telephone:	01865 408554
Email:	info@ludger.com

**SECTION 2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [EU-GHS-CLP]**

Flammable liquids (Category 3)

Skin corrosion (Category 1A)

**2.2 Label elements**

Signal Word: Danger

**Hazard Statement(s)**

H226 Flammable liquid and vapour

H314 Causes severe skin burns and eye damage.

**Precautionary Statement(s)**

P280 Wear proactive gloves/ protective clothing/ eye protection/ face protection.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and safe to do so. Continue rinsing.  
P310 Immediately call a POISON CENTRE or doctor/ physician.

**2.3 Other hazard information:**

None

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS****3. 1 Substances**Synonyms: DMSO, methyl sulfoxide, dimethyl sulfoxide  
Glacial acetic acidFormula: DMSO: C<sub>2</sub>H<sub>6</sub>OS

Molecular Weight:

Acetic Acid: C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>

DMSO: 78.13 g/mol

Acetic Acid: 60.05 g/mol

Component	Concentration
Name	Dimethyl Sulfoxide
CAS-No.	67-68-5
EC-No.	200-664-3
Name	Acetic Acid
CAS-No.	64-19-7
EC-No.	200-580-7
Index-No.	607-002-00-6

## SECTION 4. FIRST-AID MEASURES

### 4.1 Description of First Aid Measures

#### General Advice

Consult a physician if exposure causes ill effects and if in any doubt. Show this safety data sheet to the physician/ first responder in attendance.

#### If Ingested

Do NOT induce vomiting. Rinse mouth well with water. Never give anything by mouth to an unconscious person.

#### If the skin is exposed

Remove all contaminated clothing immediately; wash the area well with plenty of soap and water.

#### If eyes are exposed

Flush eyes with plenty of water/ eye wash solution for at least 15 minutes, if present and safe to do so, remove contact lenses and continue rinsing.

#### If inhaled

Move effect person to fresh air. If not breathing give artificial respiration.

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

Nausea, Fatigue and Headache. To our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

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

No data available.

## SECTION 5. FIRE-FIGHTING MEASURES

### 5.1 Extinguishing media

Small fires: Use extinguishing media such as "alcohol" foam, dry chemicals or carbon dioxide.

Large fires: Use extinguishing media such as water, from a faraway distance as possible. Use very large quantities of water as mist or spray to flood the fire and the combustible material. Cool all affected containers with large quantities of water.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides, Sulphur oxides

**5.3 Advice for Firefighters**

Wear self-contained breathing apparatus for firefighting if necessary, to spray cool water on any unopened containers near the fire.

**SECTION 6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

Avoid breathing vapours, gas or mist. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

**6.2 Environmental Precautions**

Prevent further leakage or spillage if safe to do so, e.g. with spill mats. Do not let the product enter drains.

**6.3 Methods and material for containment and cleaning up**

Contain the spillage and put the collected material into a suitable container with a secure lid. Wash the area well, do not let run off into the drains, and collect it as waste.

**6.4 Reference to other sections**

See section 13 for disposal of waste material(s).

**SECTION 7. HANDLING AND STORAGE****7.1 Precautions for safe handling**

Avoid inhalation of vapour or mist. Keep away from sources of ignition- No smoking. Take measures to prevent the build-up of electrostatic charge.

**7.2 Conditions for safe storage, including any incompatibilities**

Store in a cool place. Keep the container closed in a dry well-ventilated place.

**7.3 Specific end uses**

No data available

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1 Control parameters**

Components with workplace control parameters.

**ACETIC ACID**

CAS-No.	Value	Control Parameters	Update	Basis
64-19-7	TWA	10ppm 25mg/m <sup>3</sup>	1991-07-05	Europe. Commission Directive 91/322/EEC on establishing indicative limits on values.
Remarks	Indicative			

DMSO contains no substances with occupational exposure limit values.

**8.2 Exposure controls****Appropriate engineering controls**

Handle following good laboratory hygiene and safety practices. Wash hands before breaks and at the end of the day.

**Personal Protective Equipment****Eye / face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

**Skin protection**

Handle with gloves, which should be inspected before use. Use proper glove removal technique (removal without the outside of the glove touching the skin) to avoid contact with the skin/chemical. Dispose of contaminated gloves as Laboratory waste following applicable laws and good laboratory practices. Wash and dry hands.

Gloves should be of the standard that will stratify the specifications of EU directive 89/696/EEC and the standard EN 374 derived from it.

**Body Protection**

The type of protective clothing must be selected according to the amount of substance at the specific workplace being used. Impervious coats or laboratory coats.

**Respiratory protection**

Use substance in an operation fume hood/ outside venting extraction cupboard. Wear a full-face respirator if appropriate to use, and it must be tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES****9.1 Information on basic physical and chemical properties**

Appearance	Form: Liquid, clear
Odour	Colour: Colourless
Odour threshold	Strong
pH	No data available
Freezing/Melting Point	No data available
Initial boiling point and boiling range	No data available
Flash Point	No data available
Evaporation rate	No data available
Flammability	No data available
Upper/lower flammability or explosive limits	No data available
Vapour Pressure, Pa at temperature degree C	No data available
Relative Density	No data available
Solubility in water and solvents	Completely miscible
Partition coefficient: n-octanol/water	No data available
Auto ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidising properties	No data available

**9.2 Other information**

No data available

**SECTION 10. STABILITY AND REACTIVITY****10.1 Reactivity**

No data available

**10.2 Chemical stability**

No data available

**10.3 Possibility of Hazardous Reactions**

No data available

**10.4 Conditions to Avoid**

Heat, flames, and sparks

**10.5 Incompatible materials**

Acid chlorides, Phosphorus halides, Strong oxidizing agents and strong reducing agents, soluble carbonates and phosphates, hydroxides, metals, peroxides, permanganates, e.g. potassium permanganate, Amines, and Alcohols.

**10.6 Hazardous decomposition products**

Other decomposition products – No data available

**SECTION 11. TOXICOLOGICAL INFORMATION****11.1 Information on toxicological effects****DMSO****Acute toxicity**

LD50 Oral – Rat – 14,500mg/kg

LC50 Inhalation – Rat – 4h – 40250ppm

LD50 Dermal – Rabbit - > 5,000mg/kg

**Acetic Acid****Acute toxicity**

LD50 Oral – Rat – 3,310 mg/kg

LC50 Inhalation – Mouse – 1h - 5620ppm

Remarks: Sense Organs and Special Senses (Nose, Eyes, Ears and Taste): Eyes: Conjunctive irritation.

Eyes: Other. Blood: Other changes.

LD50 Dermal – Rabbit – 1,112 mg/kg

**DMSO****Skin corrosion/irritation**

Skin – Rabbit – No skin irritation – 4h

**Acetic Acid****Skin corrosion/irritation**

Skin – Rabbit – Mild skin irritation – 24h

**DMSO****Serious eye damage/irritation**

Eyes – Rabbit – Mild eye irritation

**Acetic Acid****Serious eye damage/irritation**

Eyes – Rabbit – Corrosive to eyes.

**Respiratory or skin sensitisation**

May cause sensitization by skin contact.

**Germ cell mutagenicity**

Genotoxicity in vitro – Mouse – lymphocyte

Cytogenetic analysis

Genotoxicity in vitro – Mouse – lymphocyte

Mutation in mammalian somatic cells

Genotoxicity in vivo – Rat – Intraperitoneal

Cytogenetic analysis

Genotoxicity in vivo - Mouse – Intraperitoneal

DNA damage

**Carcinogenicity**

Carcinogenicity – Rat – Oral

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Others: Tumours.

Carcinogenicity – Mouse – Oral

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukaemia skin and appendages: Other: Tumours.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible, or confirmed human carcinogen by IARC.

**Reproductive toxicity**

Reproductive toxicity – Rat – Intraperitoneal

Effects on fertility: Abortion

Reproductive toxicity – Rat – Intraperitoneal

Effects on fertility: Post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).

Reproductive toxicity – Rat – Subcutaneous

Effects on fertility: Post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants). Effects on fertility: Litter size (e.g. # fetuses per litter; measured before birth).

Reproductive toxicity – Mouse – Oral

Effects on fertility: Pre-implantation mortality (e.g. reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or fetus: Fetotoxicity (except death, e.g. stunted fetus). Specific developmental abnormalities: Musculoskeletal system.

Reproductive toxicity – Mouse – Intraperitoneal

Effects on embryo or fetus: Fetotoxicity (except death, e.g. stunted fetus). Specific developmental abnormalities: Musculoskeletal system.

**STOT-single exposure**

No data available

**STOT-repeated exposure**

No data available

**Aspiration hazard.**

No data available

**Potential Health Hazards****Inhalation**

Harmful if inhaled. Causes serious respiratory tract irritation.

**Ingestion**

Harmful if swallowed. Causes burns.

**Skin**

May be harmful if absorbed through the skin. Causes skin burns.

**Eyes**

Causes eye irritation/ burns.

**Aggravated Medical Condition**

Avoid contact with DMSO solutions containing toxic materials or materials with unknown toxicological properties. Dimethyl sulfoxide is readily absorbed through the skin and may carry such materials into the body.

**Signs and symptoms of exposure**

Nausea, Fatigue, Headache. To our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

**Additional Information**

RTECS: PV6210000

RTECS: AF1225000

**SECTION 12. ECOLOGICAL INFORMATION****12.1 Toxicity****DMSO**

Toxicity to Fish

LC50-Pimephales promelas (fathead minnow) – 34,000mg/l - 96h  
LC50-Oncorhynchus mykiss (rainbow trout) – 34,000mg/l-96h

Toxicity to daphnia and other

Aquatic invertebrates

Toxicity to algae

EC50-Daphnia pulex (water fleas) – 27,500mg/l  
EC50-Lepomis macrochirus (bluegill) - >400,000mg/l-96h

Acetic Acid

Toxicity to Fish

LC50 – Leuciscus idus (Golden Orfe) – 410.00mg/l – 48h

LC50 – Cyprinus carpio (Carp) – 49.00mg/l – 48h

LC50 – Pimephales promelas (Fathead minnow) – 79.00 - 88.00mg/l – 96h

LC50 – Lepomis macrochirus – 75mg/l – 96h

Toxicity to Daphnia and other

aquatic invertebrates.

EC50 – Daphnia magna (Water flea) – 65.00mg/l – 48h

**12.2 Persistence and Degradability****Biodegradability**

Remarks: Expected to be biodegradable.

**12.3 Bioaccumulative potential**

No data available

**12.4 Mobility in soil**

No data available

**12.5 Results of PBT and vPvB assessment**

No data available

**12.6 Other adverse effects**

Biochemical Oxygen Demand (BOD) - 880mg/g

**SECTION 13. DISPOSAL CONSIDERATIONS****13.1 Waste Treatment Methods**

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber or be disposed of by a licensed professional waste disposal company.

**Contaminated packaging**

Dispose of it as an unused product.

**SECTION 14. TRANSPORT INFORMATION****14.1 UN Number**

DMSO	ADR/RID: -	IMDG: -	IATA: -
Acetic Acid	ADR/RID: 2789	IMDG: 2789	IATA: 2789

**14.2 UN Proper Shipping Name**

DMSO	ADR/RID: Not Dangerous Goods
	IMDG: Not Dangerous Goods
	IATA: Not Dangerous Goods
Acetic Acid	ADR/RID: ACETIC ACID, GLACIAL
	IMDG: ACETIC ACID, GLACIAL
	IATA: Acetic Acid, glacial

**14.3 Transport hazard class (es)**

DMSO	ADR/RID: -	IMDG: -	IATA: -
Acetic Acid	ADR/RID: 8 (3)	IMDG: 8 (3)	IATA: 8 (3)

**14.4 Packing group**

DMSO	ADR/RID: -	IMDG: -	IATA: -
Acetic Acid	ADR/RID: II	IMDG: II	IATA: II

**14.5 Environmental hazards**

ADR/RID: No	IMDG Marine pollutant: No	IATA: No
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**14.6 Special precautions for user**

No data available

**SECTION 15. REGULATORY INFORMATION**

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

**15.1 Safety, health, and environmental regulations/legislation specific to the substance or mixture**

No data available

**15.2 Chemical Safety Assessment**

No data available

Please note that the label elements that used to go in Section 15 are now in Section 2.

**SECTION 16. OTHER INFORMATION**

The advice offered is derived from the currently available information on the hazardous materials in this product and its component(s). Consideration has been made regarding the quantities offered in the pre-dispensed container. The advice offered is, therefore not all-inclusive nor should it be taken as the descriptive of the compound generally.

## SECTION 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY / UNDERTAKING

Product Name	<b>2-Picoline Borane</b>
Product Catalogue Name	<b>LT-PB-01/96</b>
CAS-No:	<b>3999-38-0</b>
Company:	Ludger Ltd Culham Science Centre Abingdon Oxford OX14 3EB
Telephone:	01865 408554
Emergency Telephone:	01865 408554
Email:	info@ludger.com

## SECTION 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

#### Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]

Substances, which in contact with water, emit flammable gases (Category 2)

Skin irritation (Category 2)

Eye irritation (Category 2)

Specific target organ toxicity – Single exposure (Category 3), respiratory system

### 2.2 Label elements



Signal Word: Danger

#### Hazard Statement(s)

H261 In contact with water releases flammable gas.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

#### Precautionary Statement(s)

P231+P232 Handle under inert gas. Protect from moisture.

P261 Avoid breathing dust/ fume/gas/mist/vapours/spray.

P302 + P352 IF ON SKIN: Wash with plenty of water

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do so. Continue rinsing.

### 2.3 Other hazard information:

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS****3.1 Substances**

Synonyms: 2-picoline borane complex  
2-Methylpyridine borane complex

Formula:  $C_6H_{10}NB$

Molecular Weight: 106.96 g/mol

Component	Classification	Concentration
Name complex	2-picoline borane Water-reac, 2; Skin Irrit. 2; Eye Irrit.2; STOT SE 3; H261, H315, H319, H335	100%
CAS-No.	3999-38-0	

**SECTION 4. FIRST-AID MEASURES****4.1 Description of First Aid Measures****General Advice**

Consult a physician if exposure causes ill effects and if in any doubt. Show this safety data sheet to the physician/ first responder in attendance.

**If Ingested**

Never give anything by mouth to an unconscious person. Rinse mouth well with water.

**If the skin is exposed**

Wash the area well with soap and water. Consult a physician.

**If eyes are exposed**

Rinse well with plenty of water for 15 minutes and consult a physician.

**If inhaled**

Move the person into fresh air. If not breathing give artificial respiration. Consult a physician.

**4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2)

**4.3 Indication of immediate medical attention and special treatment needed**

No Data available

**SECTION 5. FIRE-FIGHTING MEASURES****5.1 Extinguishing media**

Use a dry chemical extinguisher, as it is the only suitable extinguishing media. Do NOT use a water jet.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides, nitrogen oxides (NOx), Borane/ boron oxides.

**5.3 Advice for Firefighters**

Firefighters must wear self-contained breathing apparatus if necessary.

**SECTION 6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation in work areas. Evacuate personnel to safe areas to avoid breathing dust.

**6.2 Environmental Precautions**

Prevent further leakage or spillage if safe to do so. Do not let the product enter the drains.

**6.3 Methods and material for containment and cleaning up**

Carefully sweep up the spill without creating any dust. Contain the collected material in a sealed suitable container, to await disposal. DO NOT USE WATER IN THE CLEANING PROCESS.

**6.4 Reference to other sections**

Please refer to section 13 for the disposal of products and spills.

**SECTION 7. HANDLING AND STORAGE****7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid the formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition.

**7.2 Conditions for safe storage, including any incompatibilities**

Store in a cool, dark place. Keep the container tightly closed in a dry well-ventilated place.

**7.3 Specific end uses**

No data available

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1 Control parameters****Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

**8.2 Exposure controls****Appropriate engineering controls**

Handle following good laboratory and safety practices. Wash hands before entering the laboratory and at the end of the workday/ when finished handling the material.

**Personal Protective Equipment****Eye / face protection**

Safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

**Skin protection**

Handle wearing gloves. Gloves must be inspected before use. Use proper glove removal technique (without the glove touching the skin) to avoid skin contact with the product. Dispose of contaminated gloves as chemical dry waste following applicable laws and good laboratory practices. Wash and dry your hands. Gloves must satisfy the specifications of EU directive 2016/425 and the standard EN 374 derived from it.

**Body Protection**

Laboratory coat or other types of body covering suitable for use in a laboratory.

**Respiratory protection**

When used under an operational fume hood no special protection is required. If required use respirators and components tested and approved under government standards such as NIOSH (US) or CEN (EU). Required level for nuisance exposure P98 (US) or P1 (EU EN 143), and higher levels of protection OV/AG/P99 (US) or ABEK-P2 (EU EN 143).

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES****9.1 Information on basic physical and chemical properties**

Appearance	Form: Solid
Odour	Colour: White
Odour threshold	No data available
pH	No data available
Freezing/Melting Point	Melting point/ range: 44 - 46°C – lit.
Initial boiling point and boiling range	No data available
Flash Point	100°C – closed cup
Evaporation rate	No data available
Flammability	No data available
Upper/lower flammability or explosive limits	No data available
Vapour Pressure	No data available
Relative Density	No data available
Solubility in water and solvents (mg/l)	No data available
Partition coefficient: n- Octanol/water	No data available
Auto ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidising properties	No data available

**9.2 Other information**

No data available

**SECTION 10. STABILITY AND REACTIVITY****10.1 Reactivity**

No data available

**10.2 Chemical stability**

Stable under recommended storage conditions.

**10.3 Possibility of Hazardous Reactions**

Reacts violently with water.

**10.4 Conditions to Avoid**

Exposure to moisture.

**10.5 Incompatible materials**

Strong oxidizing agents

**10.6 Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx), Borane/boron oxides.

Other decomposition products - No data available.  
In the event of fire: see section 5.

## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

No data available

#### Skin corrosion/irritation

No data available

#### Serious eye damage/irritation

No data available

#### Respiratory or skin sensitisation

No data available

#### Germ cell mutagenicity

No data available

#### Carcinogenicity

IARC: No components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

#### Reproductive toxicity

No data available

#### STOT-single exposure

Inhalation – May cause respiratory irritation.

#### STOT-repeated exposure

No data available

#### Aspiration hazard.

No data available

#### Signs and symptoms of exposure

To the best of our knowledge the chemical, physical and toxicological properties have not been thoroughly investigated.

#### Additional Information

RTECS: Not available

## SECTION 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

No data available

### 12.2 Persistence and Degradability

No data available

### 12.3 Bioaccumulative potential

No data available



**SECTION 16. OTHER INFORMATION**

The advice offered is derived from the currently available information on the hazardous materials in this product and its component(s). Consideration has been made regarding the quantities offered in the pre-dispensed container. The advice offered is, therefore not all-inclusive nor should it be taken as the descriptive of the compound generally.