

## **Section 1. Product and Manufacturer Identification**

- 1.1 Product identifier**                      **Firefly Luciferase Reagent Substrate**  
(Component B of TWO-Step™ Luciferase Assay System,  
Cat# 60683)
- Catalog Numbers:** 78271-1, 78271-2
- CAS number:** Contains Methanol, CAS# 67-56-1.
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**
- Identified Uses: This product is intended for use in a research setting for cell culture work. It is sold only for research use by qualified laboratory personnel.
- Uses Advised Against: It is not for use as a drug, medical device, food additive, cosmetic, or household chemical. It is not intended for use in diagnostic, therapeutic, consumer, or agricultural applications.
- 1.3 Details of the supplier of the safety data sheet**
- BPS Bioscience, Inc.  
6405 Mira Mesa Blvd., Suite 100  
San Diego, CA 92121 USA.  
Tel: 1-858-202-1401  
[www.bpsbioscience.com](http://www.bpsbioscience.com)
- For a complete list of components shipped with a product, please review the product datasheet, which is available on our website at [www.bpsbioscience.com](http://www.bpsbioscience.com). A safety datasheet for each component is available upon request.
- 1.4 Emergency Telephone Number**                      1-858-202-1401

## **Section 2. Hazard(s) Identification**

- 2.1 Classification:**                      This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).
- Hazards:**                                      Flammable liquid – Category 2, H225  
Acute toxicity (oral) – Category 3, H301  
Acute toxicity (dermal) – Category 3, H311  
Acute toxicity (inhalation) – Category 3, H331  
Specific target organ toxicity – single exposure – Category 1 (central nervous system, eyes), H370

Eye irritation – Category 2, H319  
STOT SE – Category 3 (respiratory tract irritation, drowsiness/dizziness), H335, H336  
Reproductive toxicity – Category 1B, H360  
STOT RE – Category 2 (central nervous system, liver, kidneys), H373

**Hazard Statements:** H225: Highly flammable liquid and vapor  
H301: Toxic if swallowed  
H311: Toxic in contact with skin  
H331: Toxic if inhaled  
H319: Causes serious eye irritation  
H335: May cause respiratory irritation  
H336: May cause drowsiness or dizziness  
H360: May damage fertility or the unborn child  
H370: Causes damage to organs  
H373: Causes damage to organs through prolonged or repeated exposure

## 2.2 Label Elements

### Hazard Pictograms:



**Signal Word:** Danger

### Precautionary statements

**Prevention:** P201: Obtain special instructions before use  
P202: Do not handle until all safety precautions have been read and understood  
P210: Keep away from heat, sparks, open flames, and hot surfaces. — No smoking  
P233: Keep container tightly closed  
P240: Ground and bond container and receiving equipment  
P241: Use explosion-proof electrical, ventilating, lighting, and all other equipment  
P242: Use only non-sparking tools  
P243: Take precautionary measures against static discharge  
P260: Do not breathe dust/fume/gas/mist/vapors/spray

P264: Wash exposed skin thoroughly after handling  
 P270: Do not eat, drink, or smoke when using this product  
 P271: Use only outdoors or in a well-ventilated area  
 P280: Wear protective gloves, protective clothing, eye protection, and face protection

**Response:** P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  
 P302 + P352: IF ON SKIN: Wash with plenty of soap and water  
 P303 + P361 + P353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower  
 P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 P308 + P311: IF exposed or concerned: Call a POISON CENTER or doctor/physician  
 P311: Call a POISON CENTER or doctor/physician  
 P330: If swallowed, rinse mouth  
 P332 + P313: If skin irritation occurs, get medical advice/attention  
 P337 + P313: If eye irritation persists, get medical advice/attention  
 P362: Take off contaminated clothing and wash before reuse

**Storage:** P403 + P233: Store in a well-ventilated place. Keep container tightly closed  
 P403 + P235: Store in a well-ventilated place. Keep cool  
 P405: Store locked up

**Disposal:** P501: Dispose of contents/container to comply with local, state, and federal regulations

### **Section 3. Composition and Information on Ingredients**

#### **3.1 Substances**

Component	CAS No.	Common Name	EINECS-No	Classification	Weight-%
Methyl Alcohol	67-56-1	Methanol	200-659-6	Flammable liquids, Category 2	97-99%

This product is intended for research only and is not for direct administration into animals or humans.

### 3.2 Mixtures

Hazardous Components: None known or applicable for this mixture.

### 3.3 Impurities and Stabilizing Additives

Impurities and Stabilizing Additives: None known to contribute to the classification of the substance.

## **Section 4. First Aid Measures**

### 4.1 Description of First Aid measures

**General advice:** Seek immediate medical attention. Show this safety data sheet to the doctor in attendance. Move the affected person out of dangerous area.

**4.2 Inhalation:** Move person to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a POISON CENTER or doctor/physician immediately.

**4.3 Skin Contact:** Immediately remove all contaminated clothing. Rinse skin with plenty of water for at least 15 minutes. Wash contaminated clothing before reuse. Call a POISON CENTER or doctor/physician.

**4.4 Eye contact:** Rinse thoroughly with plenty of water for at least 15 minutes, lifting eyelids occasionally. Remove contact lenses if present and easy to do. Continue rinsing. Seek immediate medical attention.

**4.5. Ingestion:** Do NOT induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious person. Call a POISON CENTER or doctor/physician immediately.

### **4.6 Most important symptoms and effects, both acute and delayed:**

May cause headache, nausea, vomiting, dizziness, drowsiness, confusion, visual disturbances (including blindness), and central nervous system depression.

Delayed symptoms may include metabolic acidosis and damage to organs such as the eyes, liver, and kidneys.

Symptoms of methanol poisoning can be delayed for 6–24 hours after exposure.

**4.7 Indication of any immediate medical attention and special treatment needed:**

Immediate medical attention is required in all cases of significant methanol exposure.

Treatment may include administration of ethanol or fomepizole as antidotes to methanol toxicity.

Hemodialysis may be required in severe poisoning cases.

Monitor acid-base balance, serum electrolytes, and vision status.

**Section 5. Fire Fighting Measures**

<b>5.1 Suitable extinguishing media</b>	Alcohol-resistant foam, Carbon dioxide (CO <sub>2</sub> ), Dry chemical powder, Water spray (fog)
<b>5.2 Unsuitable extinguishing media</b>	Water may be ineffective.
<b>5.3 Flash Point</b>	9.7 °C / 49.5°F
<b>5.4 Autoignition Temperature</b>	301 °C / 573.8 °F
<b>5.5 Explosion Limits</b>	Upper: 31.0 vol % Lower: 6.0 vol %
<b>5.6 Sensitivity to Mechanical Impact</b>	No information available
<b>5.7 Sensitivity to Static Discharge</b>	No information available
<b>5.8 Specific Hazards Arising from the Chemical</b>	Methanol is highly flammable. Vapors may form explosive mixtures with air. Vapors are heavier than air and may travel along surfaces to distant ignition sources. Containers may explode when exposed to heat or fire. <b>Environmental Hazards:</b> Prevent firefighting water from entering drains or waterways, as methanol is harmful to aquatic life.
<b>5.9 Special protective equipment for firefighters</b>	As in any fire, wear self-contained breathing apparatus (SCBA) with a pressure-demand air supply, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition may lead to release of irritating gases and vapors. To prevent ignition, ensure equipment is properly grounded to

limit static discharge. Use non-sparking tools, especially when handling methanol in situations involving fire or potential for static buildup.

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

Carbon monoxide (CO)  
Carbon dioxide (CO<sub>2</sub>)  
Formaldehyde

**5.11 NFPA Rating**

<b>Health</b>	<b>1</b>
<b>Flammability</b>	<b>3</b>
<b>Reactivity</b>	<b>0</b>
<b>Physical Hazards</b>	<b>N/A</b>

**Section 6. Accidental Release Measures**

**6.1 Personal precautions, protective equipment, and emergency procedures**

Wear appropriate personal protective equipment (PPE), including gloves, protective clothing, and safety goggles. Avoid skin contact and inhalation of vapors or mist. Ensure adequate ventilation. Keep ignition sources away from the spill area. Take precautions to prevent static discharge.

**6.2 Environmental precautions**

Prevent spillage from entering drains or water sources. Avoid release to the environment.

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

Absorb with an inert material (e.g., sand, earth, or vermiculite) and place in a properly labeled waste container. Remove ignition sources. Clean the area with water and detergent after material is removed.

**6.4 Reference to other sections**

See Section 8 for recommended personal protective equipment (PPE).  
See Section 13 for disposal considerations.

**Section 7. Handling and Storage**

**7.1 Precautions for Safe Handling**

Use appropriate ventilation and exhaust systems to ensure adequate airflow and prevent exposure.

Avoid exposure to vapors, mist, or dust. Use PPE (personal protective equipment) as indicated in Section 8, including gloves and safety goggles.

	<p>Ground all equipment to prevent static discharge and ensure the safe handling of flammable substances.</p> <p>Do not eat, drink, or smoke while handling the chemical. Wash hands thoroughly after handling.</p>
<b>7.2 Precautions for protection against explosions and fires</b>	<p>Keep the product away from heat, sparks, open flames, and ignition sources.</p> <p>Use non-sparking tools during the handling process.</p>
<b>7.3 Precautions for minimizing the release of the chemical into the environment</b>	<p>Store in an appropriate, well-ventilated area, away from incompatible materials such as oxidizing agents.</p> <p>Avoid the release of methanol into the environment. Use secondary containment when appropriate to prevent spills.</p> <p>Prevent discharge to water systems, soil, or drains. Follow local environmental regulations for waste disposal.</p>
<b>7.4 Conditions for safe storage, including any incompatibilities</b>	<p>Store in a tightly closed container in a cool, dry, well-ventilated area, away from ignition sources and incompatible materials.</p> <p>Incompatibilities: Strong oxidizers, acids, and reactive metals.</p> <p>Recommended storage temperature: Refer to the technical data sheet for specific temperature details.</p>
<b>7.5 Specific end use(s)</b>	<p>For research use only. Not for direct administration into humans or animals.</p>

## **Section 8. Exposure Controls, Personal Protection**

### **8.1 Control Parameters**

<b>Occupational Exposure Limits (OELs):</b>	OSHA PEL (TWA): 200 ppm (260 mg/m <sup>3</sup> )
	ACGIH TLV (TWA): 200 ppm
	ACGIH STEL: 250 ppm
	NIOSH REL (TWA): 200 ppm

NIOSH STEL: 250 ppm

**Biological Exposure Index (BEI):**

Formic acid in urine (end of shift): 15 mg/L (ACGIH)

**8.2 Exposure Controls**

**Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Personal Protective Equipment (PPE)**

**Eye protection**

Tight sealing safety goggles with side-shields conforming to NIOSH (US) or EN 166(EU).

**Skin protection**

Handle with suitable chemical resistant gloves. Gloves must be inspected prior to use. Use proper glove removal. Wash and dry hands. Lab coats or other protective clothing should be worn to prevent skin contact.

**Respiratory protection**

In case of insufficient ventilation wear respirators and components tested and approved under appropriate government standard, such as NIOSH (US) or CEN (EU).

**Hygiene measures**

Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink, or smoke during use. Wash hands thoroughly after handling.

**Environmental exposure controls**

Avoid release to the environment. Prevent substance from entering drains, surface waters, or soil.

**Section 9. Physical and Chemical Properties**

**9.1 Information on basic physical and chemical properties**

**Appearance**

Clear, colorless liquid

**Odor**

Alcohol-like

**Odor threshold**

100 ppm

**pH**

Not applicable

<b>Melting point / Freezing point</b>	-97.6 °C (-143.7 °F)
<b>Initial boiling point and range</b>	64.7 °C (148.5 °F)
<b>Flash point</b>	9.7 °C (49.5 °F) – closed cup
<b>Evaporation rate</b>	2.1 (butyl acetate = 1)
<b>Flammability (solid, gas)</b>	Not applicable
<b>Upper/lower flammability or explosive limits</b>	Upper: 36.5% vol Lower: 6.0% vol
<b>Vapor pressure</b>	96 mmHg @ 20 °C
<b>Vapor density</b>	1.11 (air = 1)
<b>Relative density (Water = 1)</b>	0.791 g/cm <sup>3</sup>
<b>Solubility</b>	Completely miscible in water
<b>Partition coefficient (n-octanol/water)</b>	-0.77
<b>Auto-ignition temperature</b>	464 °C (867 °F)
<b>Decomposition temperature</b>	Not available (can decompose into CO, CO <sub>2</sub> , formaldehyde).
<b>Viscosity</b>	0.59 mPa·s @ 25 °C
<b>Explosive properties</b>	Not explosive
<b>Oxidizing properties</b>	Not oxidizing
<b>9.2 Other information</b>	VOC Content(%): 100

## **Section 10. Stability and Reactivity**

<b>10.1 Reactivity</b>	Methanol is not considered reactive under normal conditions of use, storage, and transport. Vapors may form explosive mixtures with air.
<b>10.2 Chemical Stability</b>	Stable under recommended storage conditions. Sensitive to light and air over prolonged exposure. See product datasheet for optimal storage conditions.
<b>10.3 Possibility of hazardous reactions</b>	May form explosive vapor/air mixtures. May form formaldehyde when heated. Hazardous polymerization does not occur.

May react violently with:  
Strong oxidizing agents (e.g., chromates, perchloric acid)  
Reducing agents  
Halogens and acid halides

**10.4 Conditions to avoid**

Heat, flames, sparks, and other sources of ignition  
Electrostatic discharge  
Inadequate ventilation  
Prolonged exposure to air or light

**10.5 Incompatible materials**

Oxidizing agents (e.g., nitric acid, hydrogen peroxide, permanganates)  
Strong acids and bases  
Alkali and alkaline earth metals (e.g., sodium, potassium, magnesium)  
Halogens (e.g., chlorine, bromine)  
Acid anhydrides and hydrides

**10.6 Hazardous decomposition products**

Carbon monoxide, carbon dioxide, and formaldehyde under fire conditions or thermal decomposition.

**Section 11. Toxicological Information**

**11.1 Information on toxicological effects**

**Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LD50	Concentration / %
Methyl Alcohol (Methanol)	Oral (rat): LD <sub>50</sub> = 5628 mg/kg	Dermal (rabbit): LD <sub>50</sub> = 15800 mg/kg	Inhalation (rat): LC <sub>50</sub> = 83 mg/L (4-hour exposure)	97-99%

**Classification according to CLP (EC 1272/2008):**

Acute toxicity, Oral (Category 3)  
Acute toxicity, Dermal (Category 3)  
Acute toxicity, Inhalation (Category 3)

**Skin corrosion / irritation**

Not expected to be irritating based on available data. However, prolonged or

	repeated exposure may cause irritation to skin.
<b>Serious eye damage/irritation</b>	May cause eye irritation, characterized by redness and pain. Vapors may also irritate eyes. Classified under CLP as Eye Irritation, Category 2 (H319).
<b>Respiratory or skin sensitization</b>	Respiratory Sensitization: Not expected to be a respiratory sensitizer.  Skin Sensitization: No data suggests skin sensitization.
<b>Germ cell mutagenicity</b>	Some in vitro studies have shown mutagenic effects at high concentrations. No significant evidence from in vivo studies. Note: Methanol is metabolized to formaldehyde, a known mutagen.
<b>Carcinogenicity</b>	Not classified as a carcinogen by IARC, NTP, or OSHA. No known carcinogenic effects in humans.
<b>Reproductive and developmental toxicity</b>	Classified under CLP as Reproductive Toxicity, Category 1B (H360): May damage fertility or the unborn child.  Listed under Annex VI of CLP Regulation and California Proposition 65.  Developmental effects have been observed in animal studies at high doses.
<b>Specific target organ toxicity (STOT) – Single Exposure</b>	Classified under CLP as Category 1 (H370): Causes damage to organs (optic nerve, CNS, kidneys). Also Category 3 (H336): May cause drowsiness or dizziness.
<b>Specific target organ toxicity (STOT) – Repeated Exposure</b>	Classified under CLP as Category 2 (H373): May cause damage to organs through prolonged or repeated exposure. Target organs: optic nerve, CNS, liver, kidney, spleen, blood.

STOT RE Category 2 (H373)

**Aspiration hazard**

Low viscosity and volatility; not classified. Methanol is not classified as an aspiration hazard under GHS Rev. 9 or CLP.

**Principle Routes of Exposure**

Respiratory organs, mouth, skin, and eyes.

**Toxicologically Synergistic Products**

Carbon tetrachloride

**Symptoms Related to Physical, Chemical, and Toxicological Characteristics:**

Headache, nausea, vomiting, dizziness, visual disturbances (including blindness), CNS depression.  
Delayed onset of symptoms (6–24 hours) may occur.

**Delayed and Immediate Effects:**

Metabolic acidosis  
Optic nerve damage, potentially leading to permanent vision loss  
Liver and kidney toxicity with repeated or high exposure

**Section 12. Ecological Information**

**12.1 Toxicity**

Chemical Name	Freshwater Algae	Freshwater Fish	Microtox	Water Flea	Concentration / %
Methyl Alcohol (Methanol)	Algae (Chlorella vulgaris): EC <sub>50</sub> (72 h) = 22,000 mg/L	Fish (Lepomis macrochirus - bluegill): LC <sub>50</sub> (96 h) = 15,400 mg/L	EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min	Algae (Chlorella vulgaris): EC <sub>50</sub> (72 h) = 22,000 mg/L	97-99%

**12.2 Persistence and degradability**

Persistence is unlikely based on information available. Methanol is readily biodegradable in water and soil. Half-life in water: 1–7 days (aerobic conditions).

**12.3 Bioaccumulative potential**

Methanol has low potential for bioaccumulation. BCF (Bioconcentration Factor): <10 (very low)

**12.4 Mobility in soil**

Methyl Alcohol log Pow: -0.74  
Will likely be mobile in the environment due to its volatility.

**12.5 Results of PBT and vPvB assessment**

This substance does not meet the criteria for classification as PBT (Persistent, Bioaccumulative, Toxic).

This substance is not considered vPvB (very Persistent, very Bioaccumulative) under REACH Annex XIII criteria.

**12.6 Other adverse effects**

Methanol contributes to ground-level ozone formation through volatile organic compound (VOC) reactions.

**Section 13. Disposal Considerations**

**13.1 Waste Treatment Methods**

**Disposal of Product and Containers**

Dispose of methanol in accordance with local, regional, and national regulations. Even small volumes should be treated as hazardous chemical waste. Do not pour down the drain or dispose of with general laboratory trash. Use a properly labeled, compatible waste container for flammable organic solvents.

**RCRA Classification (U.S. EPA)**

Component	RCRA - U Series Wastes	P Series Wastes
Methyl alcohol - 67-56-1	U154	--

**Contaminated containers:**

Rinse empty containers with water and dispose of as chemical waste. Do not reuse containers. Follow institutional procedures for disposal of hazardous waste containers.

**Additional information:**

Incineration by a licensed waste disposal contractor is the preferred method of disposal. Ensure compliance with local environmental control legislation. Do not allow product to enter drains, waterways, or soil.

**Section 14. Transport Information**

**14.1 UN Number:** UN1230

**14.2 UN Proper Shipping Name:** Methanol Solution

**14.3 Transport Hazard Classes**

Regulatory Body	Class	Subsidiary Hazard	Packing Group
DOT (49 CFR)	3	6.1 (Toxic)	II
TDG (Canada)	3	6.1	II
IATA (Air)	3	6.1	II

---

<b>IMDG (Sea)</b>	<b>3</b>	<b>6.1</b>	<b>II</b>
-------------------	----------	------------	-----------

#### 14.4 Packaging Exceptions / Special Provisions

**DOT Small Quantity Exception (49 CFR §173.4):** Eligible if ≤30 mL per inner container and ≤500 mL per outer package with compliant packaging and labeling.

**IATA Excepted Quantities (Section 2.6, DGR):** May apply if ≤30 mL per inner container and ≤500 mL total per outer packaging. Requires specific "Excepted Quantity" labels.

#### 14.5 Environmental Hazards (IMDG/IMO)

**Marine Pollutant:** No

#### 14.6 Special Precautions for User

Avoid shipment near heat sources, ignition sources, or oxidizers.

Follow proper packaging instructions to prevent leaks or breakage.

#### 14.7 Transport in Bulk (per MARPOL/IBC)

Not intended for bulk transport under MARPOL Annex II or IBC Code.

#### 14.8 EmS (Emergency Schedule) – IMDG

**EmS Code:** F-E (Fire), S-D (Spill)

### Section 15. Regulatory Information

#### 15.1 U.S. Federal Regulations

##### **TSCA (Toxic Substances Control Act):**

Methanol (CAS No. 67-56-1) is **listed** on the TSCA Inventory and is **Active** under the TSCA Inventory Notification.

##### **CWA (Clean Water Act)**

Methanol is classified as a Priority Pollutant under the Clean Water Act (CWA).

It is subject to monitoring and discharge limits if released into water systems. Compliance with EPA discharge standards is required when discharging methanol waste into water bodies.

##### **OSHA Hazard Communication Standard (HazCom 2012):**

Flammable liquid – Category 2

Acute toxicity (oral, dermal, inhalation) – Category 3

Specific target organ toxicity (single exposure) – Category 1 (central nervous system, eyes)

**SARA Title III:**

**SARA 302/304:** Not listed.

**SARA 313 (Toxic Release Inventory):** Listed.

**Section 311/312:** Immediate health hazard, fire hazard

**CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):**

Methanol has a reportable quantity (RQ) of 5000 lbs.

**RCRA Status:**

Methanol is classified as a U-Series Waste (U154) if discarded in its unused form.

**U.S. Department of Transportation**

Reportable Quantity (RQ): N

DOT Marine Pollutant: N

DOT Severe Marine Pollutant: N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

**15.2 U.S. State Regulations**

**California Prop 65**

Methyl Alcohol – Carcinogen Developmental

**US State Right To Know Regulations**

Methanol is listed in:

Massachusetts, New Jersey, Pennsylvania, Rhode Island, Illinois, Connecticut, Minnesota, Michigan, and others. Specific reporting or exposure limits may vary by state.

**15.3 International Inventories**

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Chemical Name	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Methyl Alcohol	67-56-1	X	-	200-659-6	X	X	X	X	X	KE-23193

**Canada – WHMIS Classification (WHMIS 2015):**

Flammable Liquid – GHS Category 2  
Acute Toxicity – Dermal (Category 3)  
Acute Toxicity – Inhalation (Category 3)  
Acute Toxicity – Oral (Category 3)  
Specific Target Organ Toxicity – Single Exposure (Category 1)

**EU Classification (CLP Regulation – EC No. 1272/2008):**

Methanol is classified as:  
Flam. Liq. 2; H225  
Acute Tox. 3 (oral, dermal, inhalation); H301, H311, H331  
STOT SE 1; H370

**REACH Status:**

Methanol is registered under REACH. Subject to restriction under Annex XVII (entry 69) – not to be used in products for general public in concentrations  $\geq 0.6\%$  w/w unless specific conditions are met.

**Section 16. Other Information**

**Revision date:** 12/1/2025

**Contact information:**

**Phone:** 1-858-202-1401

**Email:** [support@bpsbioscience.com](mailto:support@bpsbioscience.com)

**Hazard Statement Abbreviations**

H225: Highly flammable liquid and vapor  
H301: Toxic if swallowed  
H311: Toxic in contact with skin  
H331: Toxic if inhaled  
H319: Causes serious eye irritation  
H335: May cause respiratory irritation  
H336: May cause drowsiness or dizziness  
H360: May damage fertility or the unborn child  
H370: Causes damage to organs  
H373: Causes damage to organs through prolonged or repeated exposure

### Abbreviations and acronyms

TWA - Time-Weighted Average  
OELs - Occupational Exposure Limits  
STEL - Short Term Exposure Limit  
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List  
KECL - Korean Existing and Evaluated Chemical Substances  
ENCS - Japan Existing and New Chemical Substances  
IECSC - China Inventory of Existing Chemical Substances  
PICCS - Philippines Inventory of Chemicals and Chemical Substances  
AICS - Australian Inventory of Chemical Substances  
NZIoC - New Zealand Inventory of Chemicals  
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory  
CEPA - Canadian Environmental Protection Act  
EPA - Environmental Protection Agency  
OSHA - Occupational Safety and Health Administration of the US Department of Labor  
IATA - International Air Transport Association  
DOT - Department of Transportation  
IMDG - International Maritime Dangerous Goods  
ACGIH - American Conference of Governmental Industrial Hygienists  
NIOSH - National Institute for Occupational Safety and Health  
AIHA - American Industrial Hygiene Association  
HMIS - Department of Defense Hazardous Materials Information System  
NTP - National Toxicology Program  
IARC - International Agency for Research on Cancer

### References:

OSHA Hazard Communication Standard (29 CFR 1910.1200)  
ACGIH Threshold Limit Values (TLVs)  
National Fire Protection Association (NFPA) Health: 1, Flammability: 3, Reactivity: 0

Disclaimer: The information provided in this Safety Data Sheet is believed to be accurate at the time of preparation. However, no warranty is expressed or implied regarding its completeness or accuracy. The user is responsible for determining the suitability of the information for their application. This product is for **research use only** and is not intended for human or animal diagnostic or therapeutic uses. The recipient is responsible for ensuring that, where applicable, existing laws and guidelines are observed. All materials and mixtures may present unknown hazards and should be used with caution.

End of Safety Data Sheet