

Section 1. Product and Manufacturer Identification

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|----------------------------------|---|
| Product Name: | Firefly Luciferase – RPMI 8226 Recombinant Cell Line |
| Catalog Number: | #79834 |
| CAS number: | Contains: Dimethyl Sulfoxide (CAS# 67-68-5) <u>See Section 3 for more details.</u> |
| Recommended Usage: | This product is intended for use in a research setting for the growth of cell culture. This product is sold only for research use by qualified laboratory personnel, and is not to be used as a drug, medical device, food additive, cosmetic, nor household chemical. It is not to be used in diagnostic, therapeutic, consumer, and agricultural applications. |
| Manufacturer Information: | BPS Bioscience, Inc. 6405 Mira Mesa Blvd., Suite 100 San Diego, CA 92121 USA. Tel: 1-858-202-1401 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. A safety datasheet for each component is available upon request.

Section 2. Hazard(s) Identification

Hazard Classification

Not a hazardous substance or mixture according to United States Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200).

| | |
|---|---|
| Hazard not otherwise classified (HNOC) | Biosafety Level 1 - Agents not known to consistently cause disease in healthy adults and present minimal potential hazard to laboratory personnel and the environment. |
| Signal Word | n/a |

Hazard Pictograms: n/a

Health Hazards:

| | |
|---------------------------|---|
| Respiratory sensitization | 0 |
| Skin sensitization | 0 |
| Reproductive Toxicity | 0 |

Physical Hazards: Not hazardous

Environmental Hazards: Not hazardous

Hazard Statement(s): Not hazardous

Precautionary statements

Prevention: Not Applicable

Response: Not Applicable

Storage: Not Applicable

Disposal: Not Applicable

Other Hazards: Not Applicable

HMIS

| | |
|---------------------|----------|
| Health | 0 |
| Flammability | 0 |
| Reactivity | 0 |

Section 3. Composition and Information on Ingredients

| Component | CAS No. | Common Name | EINECS-No | Classification | Weight-% |
|--------------------|---------|-------------|-----------|-----------------------|------------|
| Dimethyl sulfoxide | 67-68-5 | DMSO | 200-664-3 | Flam. Liq. 4; H227 | >= 5, <15% |

Contains fetal bovine serum or calf serum. The physical properties of this product have not been investigated thoroughly. We recommend handling all chemicals according to good lab practices, with proper personal protective equipment, proper engineering controls, and within the parameters of the purchaser's chemical hygiene plan.

Fetal bovine serum (FBS) is FBS is ISIA-certified and sourced from the United States of America. No viruses or bacteria are known to be present; however, appropriate precautions for biological materials should be used.

Section 4. First Aid Measures

Description of First Aid measures

Skin contact: Remove and wash affected articles of clothing immediately and rinse skin with soap and water for 15 minutes. Immediate medical attention is not required.

Eye contact: Rinse immediately with water for several minutes, including under the eyelids. Remove contact lenses, if present and easy to do. Rinse for at least 15 minutes.

Ingestion: Rinse mouth with water. Do not give anything by mouth to an unconscious person. Call a POISON CENTER/doctor if you feel unwell. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

Inhalation: Remove source of exposure or move person to fresh air and keep comfortable for breathing. Get medical advice/attention if you feel unwell or are concerned.

Notes to Physician: Treat symptomatically.

Most important symptoms and effects, both acute and delayed:

No known significant effects or critical hazards.

Indication of any immediate medical attention and special treatment needed:

No data available.

Section 5. Fire Fighting Measures

| | |
|--|--|
| Suitable extinguishing media | Water spray. Carbon dioxide (CO ₂). Foam. Dry chemical. Use caution when applying carbon dioxide in confined spaces. |
| Unsuitable extinguishing media | No data available. |
| Special hazards arising from the substance or mixture | None known. |
| Special protective equipment for firefighters | Standard procedure for chemical fires. |

Section 6. Accidental Release Measures

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|---|---|
| Personal precautions and protective equipment | Ensure adequate ventilation, and avoid breathing vapors, mist or gas. Avoid dust/aerosol formation. Isolate hazard area and keep unauthorized personnel away. Remove all sources of ignition. Always wear recommended Personal Protective Equipment. See section 8 for more information. |
| Emergency procedures | Evacuate personnel to safe areas. Wear Personal Protective Equipment and keep unprotected individuals away. |
| Environmental precautions | Stop spill/release if it can be done safely. Do not allow product to reach ground water, water course or sewage system. |
| Methods and material for containment and cleaning up | BSL-1 labs require immediate decontamination after spills. Allow aerosols to settle; wearing protective clothing, gently cover spill with paper towel and apply 10% sodium hypochlorite, starting at perimeter and working towards the center; allow sufficient contact time before cleanup (30 min). Clean up spills immediately. The use of additional PPE may be necessary for cleaning solutions. |

Reference to other sections See section 8 for more information.

Section 7. Handling and Storage

Precautions for Safe Handling Avoid contact with skin and eyes.
Use aseptic procedures. Use personal protective equipment as required by BSL-1 regulations.
Use personal protective equipment as required.
Do not eat, drink, or smoke in working areas.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Wash hands thoroughly after leaving the laboratory.
Standard microbiological practices should be followed.

Precautions for protection against explosions and fires Keep ignition sources away - Do not smoke.
The product is not flammable.

Precautions for minimizing the release of the chemical into the environment No special environmental precautions are needed. Avoid discharge into drains and waterways whenever possible.

Conditions for safe storage, including any incompatibilities Keep container tightly sealed in a dry, cool and well-ventilated place.
Recommended storage temperature: As described in technical data sheet
Storage class (TRGS 510): 12: Non-Combustible Liquids

Section 8. Exposure Controls, Personal Protection

Control Parameters

| Chemical Name | OSHA PEL | OSHA PEL (Ceiling) | ACGIH OEL (8-hour TWA) | ACGIH OEL (STEL) |
|--------------------|----------|--------------------|--------------------------------|------------------|
| Dimethyl sulfoxide | - | - | 250 ppm [USA WEELs, AIHA 2003] | - |

The lists that were valid during the creation of this document were used as basis.

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.

Exposure Controls

Personal Protective Equipment (PPE)

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).

Hand protection

Handle with suitable impervious gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Recommended Gloves

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.2 mm

Break through time: >10 min

Material tested: uvex u-fit strong N2000 chemical protection glove (UVEX Article number: 60962)

test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Remarks:

Supplementary note: The specifications are based on information and tests from similar substances by analogy.

Due to varying conditions (e.g., temperature or other strains) it must be considered that the usage of a chemical protective glove in practice may be much shorter than the permeation time determined in accordance with EN 374.

Since actual conditions of practical use often deviate from standardized conditions according EN 374, we recommend using the chemical protective glove in practice not longer than 50% of the recommended permeation time. Wash hands with soap and water after removal of contaminated gloves.

Manufacturer's directions for use should be observed because of manufacturer-specific differences in products.

Eye protection

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

Body protection

Wear suitable impervious protective clothing.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls

Do not allow product to reach ground water, water course, or sewage system.

Section 9. Physical and Chemical Properties

Physical and chemical properties

| | |
|--------------------------------------|-------------------|
| Physical state | Frozen liquid |
| Odor | No data available |
| Odor threshold | No data available |
| pH | 6-8 |
| Molecular weight | No data available |
| Melting Point / melting range | -10°C to 2°C |
| Boiling point / boiling range | No data available |
| Flash point | No data available |
| Autoignition temperature | No data available |
| Decomposition temperature | No data available |
| Evaporation rate | No data available |
| Flammability (solid, gas) | No data available |

| | |
|---|-------------------|
| Upper explosion limit | No data available |
| Lower explosion limit | No data available |
| Vapor Pressure | No data available |
| Vapor density | No data available |
| Relative density | No data available |
| Specific gravity | No data available |
| Solubility | No data available |
| Partition coefficient: n-octanol/water | No data available |
| Viscosity | No data available |
| Explosive properties | No data available |
| Oxidizing properties | No data available |
| Other information | No data available |

Section 10. Stability and Reactivity

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|---|--|
| Chemical Stability | Stable under normal conditions. |
| Possibility of hazardous reactions | No dangerous reaction known under conditions of normal use. |
| Conditions to avoid | No data available |
| Incompatible materials | Strong oxidizing agents |
| Hazardous decomposition products | Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulphur Oxides, formaldehyde Other decomposition products - No data available |
| Polymerization | Hazardous polymerization does not occur under conditions of normal use. |

Section 11. Toxicological Information

Acute toxicity

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LD50 | Concentration / % |
|---------------------------|---|--|--|-------------------|
| Dimethyl Sulfoxide (DMSO) | Acute oral toxicity Species: Rat Value: 28,500 mg/kg Method: OECD Test Guideline 401 | LD50 Species: Rat Value: 40,000 mg/kg Method: No information available. | Acute inhalation toxicity: LC0 Species: Rat Value: > 5.33 mg/l Exposure time: 4 h Method: OECD Test Guideline 403 | >= 5%, < 15% |

Skin corrosion / irritation

Chemical Name: DMSO

Species: Rabbit
Result: Mild skin irritation
Method: OECD Test Guideline 404

Serious eye damage / irritation

Chemical Name: DMSO

Species: Rabbit
Result: Mild eye irritation
Method: OECD Test Guideline 405

Respiratory or skin sensitization

Chemical Name: DMSO

Species: Guinea pig
Result: Does not cause skin sensitization.
Method: OECD Test Guideline 406

Specific target organ toxicity (STOT) – single exposure

No data available

Specific target organ toxicity (STOT) – repeated exposure

No data available

Carcinogenicity

No data available

Germ cell mutagenicity

No data available

Reproductive toxicity

No data available

Aspiration hazard

No data available

Principle Routes of Exposure

Respiratory organs, mouth, skin, and eyes.

Symptoms of exposure

No data available

Additional information

<https://pubchem.ncbi.nlm.nih.gov/>

Section 12. Ecological Information

Ecotoxicity

Substance: DMSO

Toxicity to fish:

LC50

Species: Danio rerio (zebra fish)

Value: > 25,000 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Substance: DMSO

Toxicity to aquatic plants:

EC50

Species: Pseudokirchneriella subcapitata (green algae)

Value: 17,000 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Substance: DMSO

Toxicity to Microorganisms:

EC50

Species: activated sludge

Value: 10 - 100 mg/l

Exposure time: 30 min

Method: ISO 8192

Substance: DMSO

Toxicity to aquatic invertebrates:

EC50

Species: Daphnia magna (Water flea)

Value: 7,000 mg/l

Exposure time: 24 h

Method: OECD Test Guideline 202

Persistence and degradability

Substance: DMSO

Biodegradation: 31 %

Exposure time: 28 d

Result: Not readily biodegradable.

Method: OECD 301 D

Bioaccumulative potential

No information available

Mobility in soil

No information available

Results of PBT and vPvB assessment No information available

Other adverse effects Do not dispose into surface water or sanitary sewer system.

Section 13. Disposal Considerations

Disposal of Product

It is the responsibility of the user of the product to determine at the time of disposal whether the product meets local criteria for hazardous waste. Waste management should be in full compliance with federal, state and local laws.

Section 14. Transport Information

IATA / ADR / DOT-US / IMDG

Classified as dangerous in the meaning of transport regulation

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|---|----------------|
| UN Number | Not Regulated |
| UN proper shipping name | Not Applicable |
| Transport hazard class(es) | Not Applicable |
| Packing group | Not Applicable |
| Special Precautions for user | Not Applicable |
| Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code | Not Applicable |

Section 15. Regulatory Information

| Chemical Name | US TSCA | TSCA Inventory notification - Active/Inactive | TSCA - EPA Regulatory Flags |
|----------------------|----------------|--|------------------------------------|
| Dimethyl Sulfoxide | Listed | Active | None |

TSCA 12(b) - Notices of Export

Not applicable

U.S. Federal Regulations

SARA 302 Components

Not applicable

SARA 313 Components

Not applicable

SARA 311/312 Hazards

Chronic Health Hazard. See section 2 for more information.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs)

Product does not contain HAPs.

CWA (Clean Water Act)

Not applicable

OSHA - Occupational Safety and Health Administration (Hazardous Materials)

Not applicable

CERCLA

Not Applicable

U.S. Department of Transportation

Reportable Quantity (RQ): Not applicable

DOT Marine Pollutant: Not applicable

DOT Severe Marine Pollutant: Not applicable

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

U.S. State Regulations

California Prop 65

Product does not contain chemicals listed under Proposition 65.

US State Right To Know Regulations

| Chemical Name | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|--------------------|---------------|------------|--------------|------------|--------------|
| Dimethyl Sulfoxide | Not Listed | Listed | Not Listed | Not Listed | Not Listed |

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 |
|--------------------|---------|--------|------------|-----------|--------|--------|--------|--------|--------|----------|
| Dimethyl Sulfoxide | 67-68-5 | Listed | Not Listed | 200-664-3 | Listed | Listed | Listed | Listed | Listed | KE-32367 |

Mexico - Grade

Slight risk, Grade 1

WHMIS Hazard Class

Not Applicable.

Section 16. Other Information

Revision date: December 21, 2021

Contact information:

Phone: 1-858-202-1401

Email: support@bpsbioscience.com

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.

BPS Bioscience provides this information in good faith and is based on our present knowledge. This information shall not be taken as being all inclusive and is to be used only as a guide. This SDS does not constitute a warranty of any kind.

End of Safety Data Sheet