

## SAFETY DATA SHEET

**1. Identification**

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|--|--|
| 1.1. Product name  | Brefeldin A Solution (1,000X)  |
| Product code   | 2703005  |
| 1.2. Relevant identified uses of the substance or mixture and uses advised against |  |
| Use of the substance/mixture   | Research use only  |
| 1.3. Supplier<br>Address<br>Telephone, fax,<br>email                               | SONY BIOTECHNOLOGY INC.<br>1730 North First Street, San Jose, CA 95112 U.S.A.<br>Voice: +1 800-275-5963, FAX: +1 408-352-4130,<br>SBTcustomerservice@sonybiotechnology.com |
| 1.4. e-mail address of person<br>responsible for this SDS                          | SBTcustomerservice@sonybiotechnology.com   |
| 1.5. Emergency telephone number  | US: +1 800-275-5963 (6:00AM – 5:30PM PT, M-F)  |

**2. Hazards Identification**

- |  |  |
|--|--|
| 2.1. Classification of the substance or<br>mixture |  |
| GHS-US classification                              | Flammable Liquid 4   |
| 2.2. Label elements                                |  |
| GHS-US labelling                                   |  |
| Hazard pictograms (GHS-US)                         | Not applicable.  |
| Signal word (GHS-US)                               | Warning  |
| Hazard statements (GHS-US)                         | Combustible liquid.  |
| Precautionary statements (GHS-US)                  | Keep away from flames and hot surfaces. – No smoking. Wear protective gloves/<br>protective clothing/eye protection/face protection. Store in a well-ventilated place.<br>Keep cool. Dispose of contents/container in accordance with local/regional/national/<br>international regulations. |
| 2.3. Other hazards                                 | No additional information available.   |

**3. Composition/Information on Ingredients**

- |                |                 |
|----------------|-----------------|
| 3.1. Substance | Not applicable. |
| 3.2. Mixture   |                 |

**Dimethyl sulfoxide**

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|-----------------------|--------------------|
| Product identifier    | (CAS No) (67-68-5) |
| %                     | 60-100             |
| GHS-US classification | Flam. Liq. 4       |

**4H-Cyclopent[f]oxacyclotridecin-4-one, 1,6,7,8,9,11a,12,13,14,14a-decahydro-1,13-dihydroxy-6-methyl-, (1R,2E,6S,10E,11aS,13S,14aR)-**

- |                    |                     |
|--------------------|---------------------|
| Product identifier | (CAS No) 20350-15-6 |
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%	0.1-1
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GHS-US classification	Acute Tox. 3 (Oral)
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**4. First Aid Measures**

## 4.1. Description of first aid measures

First-aid measures after inhalation	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
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First-aid measures after skin contact	In case of contact, immediately flush skin with plenty of water. Call a physician if irritation develops and persists.
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First-aid measures after eye contact	In case of contact, immediately flush eyes with plenty of water. Remove contact lenses, if worn. If irritation persists, get medical attention.
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First-aid measures after ingestion	If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.
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## 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation	May cause respiratory tract irritation.
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Symptoms/injuries after skin contact	May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.
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Symptoms/injuries after eye contact	May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
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Symptoms/injuries after ingestion	May be harmful if swallowed. May cause stomach distress, nausea or vomiting.
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4.3. Indication of immediate medical attention and special treatment needed	Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).
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**5. Fire-Fighting Measures**

## 5.1. Extinguishing media

Suitable extinguishing media	Water spray, alcohol-resistant foam, dry chemical, carbon dioxide.
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Unsuitable extinguishing media	None known.
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## 5.2. Special hazards arising from the substance or mixture

Fire hazard	Combustible liquid. Products of combustion may include, and are not limited to: oxides of carbon, oxides of sulfur.
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## 5.3. Advice for firefighters

Protection during firefighting	Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA). Use water spray to cool exposed surfaces.
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**6. Accidental Release Measures**

## 6.1. Personal precautions, protective equipment and emergency procedures

General measures	Eliminate sources of ignition. Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Use special care to avoid static electric charges.
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## 6.2. Methods and material for containment and cleaning up

For containment	Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).
Methods for cleaning up	Scoop up material and place in a disposal container. Vapors may be heavier than air and may travel along the ground to a distant ignition source and flash back. Provide ventilation.

## 6.3. Reference to other sections

See section 8 for further information on protective clothing and equipment and section 13 for advice on waste disposal.

## 7. Handling and Storage

## 7.1. Precautions for safe handling

Precautions for safe handling	Keep away from sources of ignition -No smoking. Avoid contact with skin and eyes. Avoid breathing vapour or mist. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke.
Hygiene measures	Laundry contaminated clothing before reuse. Wash hands before eating, drinking, or smoking.

## 7.2. Conditions for safe storage, including any incompatibilities

Technical measures	Proper grounding procedures to avoid static electricity should be followed.
Storage conditions	Keep container tightly closed. Store in dry, well-ventilated area. Store under inert gas. Hygroscopic product.

## 7.3. Specific end use(s)

Not available.

## 8. Exposure Controls / Personal Protection

## 8.1. Control parameters

**Dimethyl sulfoxide (67-68-5)**

AIHA	
AIHA - Workplace Environmental Exposure Levels (WEELs) -TWAs	250 ppm

**4H-Cyclopent[f]oxacyclotridecin-4-one, 1,6,7,8,9,11a,12,13,14,14a-decahydro-1,13-dihydroxy-6-methyl-, (1R,2E,6S,10E,11aS,13S,14aR)-**

ACGIH	Not applicable
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OSHA	Not applicable
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## 8.2. Exposure controls

Appropriate engineering controls	Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.
Hand protection	Wear suitable gloves.
Eye protection	Safety glasses or goggles are recommended when handling product.
Skin and body protection	Wear suitable protective clothing.

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Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
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Environmental exposure controls	Maintain levels below Community environmental protection thresholds.
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Other information	Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.
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**9. Physical and Chemical Properties**

Appearance	Clear
Physical state	Liquid
Colour	Colorless.
Odour	No data available
Odor threshold	No data available
pH	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	No data available
Flash point	87°C (189 °F) Closed cup
Relative evaporation rate (butylacetate=1)	No data available
Flammability (solid, gas)	Not flammable
Explosive limits	No data available
Explosive properties	No data available
Oxidising properties	No data available
Vapor pressure	No data available
Relative density	No data available
Relative vapour density at 20 °C	No data available
Solubility	No data available
Partition coefficient: n- octanol/water	No data available
Log Kow	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Viscosity, kinematic	No data available
Viscosity, dynamic	No data available

9.2. Other information	No additional information available.
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**10. Stability and Reactivity**

10.1. Reactivity	No dangerous reaction known under conditions of normal use.
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10.2. Chemical stability	Stable under normal storage conditions.
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10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
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10.4. Conditions to avoid	Heat. Incompatible materials. Sources of ignition.
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10.5. Incompatible materials	Acid chlorides. Phosphorus halides. Strong acids. Strong oxidizing agents. Strong reducing agents.
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10.6. Hazardous decomposition products	May include, and are not limited to: oxides of carbon, oxides of sulfur.
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**11. Toxicological Information**

11.1. Information on toxicological effects	
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Acute toxicity	Not classified.
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Brefeldin A Solution (1,000X)	LD50 oral rat LD50 dermal rabbit LC50 inhalation rat	> 2000 MG/KG > 2000 MG/KG No data available.
4H-Cyclopent[f]oxacyclotridecin-4-one, 1,6,7,8,9,11a,12,13,14,14a-decahydro-1,13-dihydroxy-6-methyl-, (1R,2E,6S,10E,11aS,13S,14aR)-	LD50 oral rat LD50 dermal rabbit	14500 MG/KG 40 G/KG
Skin corrosion/irritation	Based on available data, the classification criteria are not met.	
Serious eye damage/irritation	Based on available data, the classification criteria are not met.	
Respiratory or skin sensitisation	Based on available data, the classification criteria are not met.	
Germ cell mutagenicity	Based on available data, the classification criteria are not met.	
Carcinogenicity	Based on available data, the classification criteria are not met.	
Reproductive toxicity	Based on available data, the classification criteria are not met.	
Specific target organ toxicity (single exposure)	Based on available data, the classification criteria are not met.	
Specific target organ toxicity (repeated exposure)	Based on available data, the classification criteria are not met.	
Aspiration hazard	Based on available data, the classification criteria are not met.	
11.2. Symptoms related to the physical, chemical and toxicological characteristics		
After inhalation	May cause respiratory tract irritation.	
After skin contact	May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.	
After eye contact	May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.	
After ingestion	May be harmful if swallowed. May cause stomach distress, nausea or vomiting.	
12. Ecological Information		
12.1. Toxicity.		
Ecology -general	This product is not expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.	
12.2. Persistence and degradability		
Brefeldin A Solution (1,000X)		
Persistence and degradability	Not established.	
12.3. Bioaccumulative potential		
Brefeldin A Solution (1,000X)		
Bioaccumulative potential	Not established.	
12.4. Mobility in soil	No additional information available.	
12.5. Other adverse effects		

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Effect on the global warming

No known ecological damage caused by this product.

**13. Disposal Considerations**

## 13.1. Waste treatment methods

Waste disposal recommendations

This material must be disposed of in accordance with all local, state, provincial, and federal regulations. The generation of waste should be avoided or minimized wherever possible.

Additional information

Handle empty containers with care because residual vapours are flammable.

**14. Transport Information**

## 14.1. Department of Transportation (DOT)

In accordance with DOT

UN-No.(DOT)

NA1993

Proper Shipping Name (DOT)

Combustible liquid, n.o.s. (Dimethyl sulfoxide)

Department of Transportation (DOT) Hazard Classes

Combustible liquid

Packing group (DOT)

III

## 14.2. Additional information

Other information

No supplementary information available.

Special transport precautions

Do not handle until all safety precautions have been read and understood.

**15. Regulatory Information**

## 15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

Tetradecanoyl phorbol acetate (TPA)

CAS No 16561-29-8

10,16-Docosadienoic acid, 11,19,21-trihydroxy-4,6,8,12,14,18,20-heptamethyl-22-[(2S,2'R,5S,5'S)-octahydro-5'-[(1R)-1-hydroxyethyl]-2,5'-dimethyl[2,2'-bifuran]-5-yl]-9-oxo-, calcium salt (1:1), (4R,6S,8S,10Z,12R,14R,16E,18R,19R,20S,21S)-

CAS No 56092-82-1

4H-Cyclopent[f]oxacyclotridecin-4-one,1,6,7,8,9,11a,12,13,14,14a-decahydro-1,13-dihydroxy-6-methyl-, (1R,2E,6S,10E,11aS,13S,14aR)-

CAS No 20350-15-6

## 15.2. State Regulations

Brefeldin A Solution (1,000X)

State or local regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

## 16. Other Information

Date of issue	05/08/2015
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Other information	None.
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This SDS was created in good faith based on our current knowledge at the time of creation and revision, but no warranty is made on the information, hazards, and toxicity data described. Prior to use, be sure to examine the latest information, rules, laws, and regulations of your country or region concerning hazards and harmful effects as well as regarding equipment to be used, and accord the highest priority to them.

The precautions described in this document assume normal handling of the product. When handling the product in an unconventional manner, be sure to take appropriate safety measures according the situation and take sufficient precautions.

All chemical products should be handled assuming the presence of "unknown hazards and harmful effects" and with the knowledge that such hazards will vary greatly depending on the usage environment, handling method, and conditions and period of storage. All handling of the product, including use, unpacking, storage, and disposal, should be performed only by specialists with professional knowledge and experience or under close supervision of such qualified specialists.

It is the sole responsibility of the user to ensure and provide proper safe use conditions.

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