

**Safety Data Sheet**

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: September 09, 2019

**1 Identification**

- **Product identifier**
- **Trade name:** Substrate
- **Product code:** 30432
- **Recommended use and restriction on use**
- **Recommended use:** Laboratory chemicals
- **Restrictions on use:** For Research Use Only – Not Human or Therapeutic Use
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**  
Chondrex, Inc.  
16928 Woodinville-Redmond Rd NE Suite B-101  
Woodinville, WA 98072  
USA  
425-702-6365  
support@chondrex.com
- **Emergency telephone number:**  
ChemTel LLC  
800-255-3924 (North America)  
(+1) 813-248-0585 (International)

**2 Hazard(s) identification**

- **Classification of the substance or mixture**  
Flam. Liq. 4 H227 Combustible liquid.
- **Label elements**
- **GHS label elements**  
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:** None.
- **Signal word:** Warning
- **Hazard statements:**  
H227 Combustible liquid.
- **Precautionary statements:**  
P210 Keep away from flames and hot surfaces. – No smoking.  
P264 Wash thoroughly after handling.  
P280 Wear protective gloves and eye protection.  
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. Continue rinsing.  
P332+P313 If skin irritation occurs: Get medical advice/attention.  
P362+P364 Take off contaminated clothing and wash it before reuse.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P370+P378 In case of fire: Use foam, powder, or carbon dioxide for extinction.  
P403+P235 Store in a well-ventilated place. Keep cool.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Other hazards** There are no other hazards not otherwise classified that have been identified.

**3 Composition/information on ingredients**

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**· Chemical characterization: Mixtures****· Components:**

67-68-5 | dimethyl sulfoxide

Flam. Liq. 4, H227

&gt;90%

**· Additional information:** For the wording of the listed Hazard Statements, refer to section 16.**4 First-aid measures****· Description of first aid measures****· After inhalation:** Supply fresh air; consult doctor in case of complaints.**· After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

Seek medical treatment in case of complaints.

**· After eye contact:**

Remove contact lenses if worn.

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

**· After swallowing:**

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; immediately call for medical help.

**· Most important symptoms and effects, both acute and delayed:**

Gastric or intestinal disorders when ingested.

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

No relevant information available.

**5 Fire-fighting measures****· Extinguishing media****· Suitable extinguishing agents:**

Foam

Water fog / haze

Water spray

Carbon dioxide

Gaseous extinguishing agents

Fire-extinguishing powder

**· For safety reasons unsuitable extinguishing agents:** None.**· Special hazards arising from the substance or mixture**

Combustible liquid.

During heating or in case of fire poisonous gases are produced.

**· Advice for firefighters****· Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

**· Additional information:**

Eliminate all ignition sources if safe to do so.

Cool endangered product with water spray.

**6 Accidental release measures**

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

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation.

Keep away from ignition sources.

**Environmental precautions**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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

Towel or mop up material and collect in a suitable container.

For large spills, absorb with non-combustible liquid-binding material (sand, diatomite, acid binders, universal binders).

Send for recovery or disposal in suitable receptacles.

**Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**7 Handling and storage****Handling****Precautions for safe handling:**

Avoid contact with the eyes and skin.

Avoid breathing mist, vapors, or spray.

Prevent formation of aerosols.

Avoid splashes or spray in enclosed areas.

Use only in well ventilated areas.

**Information about protection against explosions and fires:**

Combustible liquid.

Keep ignition sources away - Do not smoke.

**Conditions for safe storage, including any incompatibilities****Requirements to be met by storerooms and receptacles:**

Avoid storage near extreme heat, ignition sources or open flame.

Store in cool, dry conditions in well sealed receptacles.

**Information about storage in one common storage facility:**

Store away from foodstuffs.

Store away from oxidizing agents.

**Further information about storage conditions:** This product is hygroscopic.**Specific end use(s)** No relevant information available.**8 Exposure controls/personal protection****Control parameters****Components with limit values that require monitoring at the workplace:****67-68-5 dimethyl sulfoxide**

WEEL (USA) | Long-term value: 250 ppm

**Exposure controls**

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- **General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

- **Engineering controls:** Provide adequate ventilation.

- **Breathing equipment:**

Wear appropriate NIOSH respirator when ventilation is inadequate and occupational exposure limits are exceeded.

- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

- **Material of gloves**

Laminated film gloves.

Neoprene gloves

Nitrile rubber, NBR

- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**

Natural rubber, NR

- **Not suitable are gloves made of the following materials:**

PVA gloves

PVC gloves

- **Eye protection:**



Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

- **Body protection:** Protective work clothing

- **Limitation and supervision of exposure into the environment**

No relevant information available.

- **Risk management measures** No relevant information available.

### 9 Physical and chemical properties

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

- **Appearance:**

**Form:** Liquid

**Color:** Pale yellow

- **Odor:** Characteristic

- **Odor threshold:** Not determined.

- **pH-value:** Not determined.

- **Melting point/Melting range:** 18 °C (64.4 °F)

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· <b>Boiling point/Boiling range:</b>	189 °C (372.2 °F)
· <b>Flash point:</b>	89 °C (192.2 °F) (Closed Cup)
· <b>Flammability (solid, gaseous):</b>	Not applicable.
· <b>Auto-ignition temperature:</b>	>200 °C (>392 °F)
· <b>Decomposition temperature:</b>	Not determined.
· <b>Danger of explosion:</b>	Not determined.
· <b>Explosion limits</b>	
<b>Lower:</b>	1.8 Vol %
<b>Upper:</b>	63 Vol %
· <b>Oxidizing properties:</b>	Non-oxidizing.
· <b>Vapor pressure at 20 °C (68 °F):</b>	2.5 hPa (1.9 mm Hg)
· <b>Density:</b>	
<b>Relative density:</b>	~1.1
<b>Vapor density:</b>	Not determined.
<b>Evaporation rate:</b>	Not determined.
· <b>Solubility in / Miscibility with Water:</b>	Fully miscible.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
· <b>Other information</b>	No relevant information available.

**10 Stability and reactivity**

- **Reactivity:** No relevant information available.
- **Chemical stability:** Stable under normal temperatures and pressures.
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions**  
Combustible liquid.  
Used empty containers may contain product gases which form explosive mixtures with air.  
Can form explosive mixtures in air if heated above flash point and/or when sprayed or atomized.  
Toxic fumes may be released if heated above the decomposition point.  
Reacts with acids, alkalis and oxidizing agents.  
Reacts with reducing agents.  
Reacts with halogenated compounds.
- **Conditions to avoid** Keep ignition sources away - Do not smoke.
- **Incompatible materials** Oxidizers, strong bases, strong acids
- **Hazardous decomposition products**  
Under fire conditions only:  
Sulfur oxides (SO<sub>x</sub>)

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**11 Toxicological information****· Information on toxicological effects**

- **Acute toxicity:** Based on available data, the classification criteria are not met.

**· LD/LC50 values that are relevant for classification:****67-68-5 dimethyl sulfoxide**

Oral | LD50 | &gt;5000 mg/kg (rat)

**· Primary irritant effect:****· On the skin:**

Causes mild skin irritation.

Based on available data, the classification criteria are not met.

- **On the eye:** Based on available data, the classification criteria are not met.

- **Sensitization:** Based on available data, the classification criteria are not met.

**· IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

**· NTP (National Toxicology Program):**

None of the ingredients are listed.

**· OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

**· Probable route(s) of exposure:**

Ingestion.

Inhalation.

Eye contact.

Skin contact.

- **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.

- **STOT-single exposure:** Based on available data, the classification criteria are not met.

- **STOT-repeated exposure:** Based on available data, the classification criteria are not met.

- **Aspiration hazard:** Based on available data, the classification criteria are not met.

**12 Ecological information****· Toxicity**

- **Aquatic toxicity** No relevant information available.

- **Persistence and degradability** No relevant information available.

- **Bioaccumulative potential:** No relevant information available.

- **Mobility in soil:** No relevant information available.

- **Other adverse effects** No relevant information available.

**13 Disposal considerations****· Waste treatment methods****· Recommendation:**

The user of this material has the responsibility to dispose of unused material, residues and containers in

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compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

· <b>UN-Number</b>	
· <b>DOT</b>	NA1993
· <b>ADR/RID/ADN, IMDG, IATA</b>	Not regulated.
· <b>UN proper shipping name</b>	
· <b>DOT</b>	Combustible liquid, n.o.s. (dimethyl sulfoxide)
· <b>ADR/RID/ADN, IMDG, IATA</b>	Not regulated.
· <b>Transport hazard class(es)</b>	
· <b>DOT</b>	
· <b>Class</b>	3
· <b>Label</b>	3
· <b>ADR/RID/ADN, IMDG, IATA</b>	
· <b>Class</b>	Not regulated.
· <b>Packing group</b>	
· <b>DOT</b>	III
· <b>ADR/RID/ADN, IMDG, IATA</b>	Not regulated.
· <b>Environmental hazards</b>	
· <b>Marine pollutant:</b>	No
· <b>Special precautions for user</b>	Not applicable.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>DOT</b>	Classified as combustible under US DOT regulations. Labeling is only required for single packages $\geq$ 119 US gal / 450 L.

**15 Regulatory information**

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**

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**· SARA****· Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

**· Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

**· Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

**· TSCA (Toxic Substances Control Act)**

All ingredients are listed or exempt.

**· Proposition 65 (California)****· Chemicals known to cause cancer:**

None of the ingredients are listed.

**· Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

**· Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

**· Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

**· EPA (Environmental Protection Agency):**

None of the ingredients are listed.

**· IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

**· Canadian Domestic Substances List (DSL):**

All ingredients are listed, or are exempt from listing.

**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**· Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

OSHA: Occupational Safety &amp; Health Administration

Flam. Liq. 4: Flammable liquids – Category 4

**· Sources**Website, European Chemicals Agency ([echa.europa.eu](http://echa.europa.eu))Website, US EPA Substance Registry Services ([ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do](http://ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do))Website, Chemical Abstracts Registry, American Chemical Society ([www.cas.org](http://www.cas.org))

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6

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Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN:  
978-0-07-176923-5.  
Safety Data Sheets, Individual Manufacturers

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