



TriLink BioTechnologies, Inc.  
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## MATERIAL SAFETY DATA SHEET

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### 1. CHEMICAL IDENTIFICATION

**CATALOG NUMBER:** Custom Synthesized CleanAmp™ Primer  
**CHEMICAL NAME:** Oligonucleotide  
**CHEMICAL FAMILY:** Nucleic Acids

### 2. COMPOSITION/INGREDIENTS

**CAS NUMBER:** None  
**MOLECULAR FORMULA:** Sequence Specific  
**COMPONENTS:** Sequence Specific

### 3. HAZARDS IDENTIFICATION

**MEDICAL CONDITIONS AGGRAVATED:** Unknown, Custom Compound, Sequence Specific  
**PRIMARY ROUTES OF ENTRY:** Ingestion  
**PEL:** Unknown, Custom Compound, Sequence Specific  
**TLV:** Unknown, Custom Compound, Sequence Specific  
**LD50:** Unknown, Custom Compound, Sequence Specific  
**CARCINOGENICITY:** Unknown, Custom Compound, Sequence Specific  
**TOXICITY:** Unknown, Custom Compound, Sequence Specific  
**RTECS #:** Unknown, Custom Compound, Sequence Specific  
**ACUTE EFFECTS:** Unknown, Custom Compound, Sequence Specific  
**CHRONIC EFFECTS:** Unknown, Custom Compound, Sequence Specific

### 4. FIRST AID MEASURES

**EYES:** Immediately flush eyes with copious amounts of water for at least 15 minutes.  
**SKIN:** Immediately wash skin with soap and copious amounts of water.  
**INHALATION:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.  
**INGESTION:** If swallowed, wash out mouth with water provided person is conscious. Call a physician.  
**OTHER:** Wash contaminated clothing before re-use.

### 5. FIRE FIGHTING MEASURES

**UPPER FLAMMABLE LIMIT:** Unknown, Custom Compound, Sequence Specific  
**LOWER FLAMMABLE LIMIT:** Unknown, Custom Compound, Sequence Specific  
**UPPER EXPLOSION LIMIT:** Unknown, Custom Compound, Sequence Specific  
**LOWER EXPLOSION LIMIT:** Unknown, Custom Compound, Sequence Specific  
**FLASHPOINT:** Unknown, Custom Compound, Sequence Specific  
**AUTOIGNITION TEMPERATURE:** Unknown, Custom Compound, Sequence Specific

**FIRE EXTINGUISHING MEDIA:** Water spray, carbon dioxide, dry chemical powder, or appropriate foam.

**UNUSUAL FIRE/EXPLOSION DATA:** None Known

**6. ACCIDENTAL RELEASE MEASURES**

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves. Clean up contaminated area with a moistened towel, place in a bag, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

**7. HANDLING AND STORAGE**

Recommended storage at -20°C or less. Product should left at room temperature for short intervals only.

**8. EXPOSURE CONTROLS/EMPLOYEE PROTECTION**

Wear appropriate NIOSH/MSHA-approved respirator, chemical-resistant gloves, safety goggles, and other protective clothing. Safety shower and eye bath. Mechanical exhaust required. Wash thoroughly after handling.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**APPEARANCE:** Clear Liquid  
**BOILING POINT:** Custom Compound, Sequence Specific  
**MELTING POINT:** Custom Compound, Sequence Specific  
**FREEZING POINT:** Custom Compound, Sequence Specific  
**pH:** Custom Compound, Sequence Specific  
**SOLUBILITY:** Any aqueous solution  
**VAPOR DENSITY:** Custom Compound, Sequence Specific  
**VAPOR PRESSURE:** Custom Compound, Sequence Specific

**10. STABILITY & REACTIVITY**

**STABILITY:** Stable Material, hazardous polymerization will not occur.  
**INCOMPATIBILITY:** Strong oxidizing agents  
**HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:**  
Toxic fumes of carbon monoxide, carbon dioxide, nitrogen oxides, and phosphorus oxides

**11. TOXICOLOGICAL INFORMATION**

May be fatal if swallowed. Harmful if inhaled. May be harmful if absorbed through the skin. Causes eye and skin irritation. Material is irritating to mucous membranes and upper respiratory tract. Exposure can cause: CNS depression, gastrointestinal disturbances, narcotic effect, damage to the eyes, damage to the liver, damage to the heart, damage to the kidneys. May cause convulsions. Target organs: eyes, nerves, liver, kidneys.

**12. ECOLOGICAL INFORMATION**

Unknown

**13. WASTE DISPOSAL**

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

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TriLink BioTechnologies, Inc. believes the above information to be accurate, but not necessarily all-inclusive, and thus should only be used as a guide in the handling and use of this material. The data in this MSDS relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. TriLink BioTechnologies, Inc. shall not take responsibility for any damage resulting from handling or from contact with the above product. The information in this material safety data sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder 29 CFR § 1910.1200.



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## MATERIAL SAFETY DATA SHEET

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### 1. CHEMICAL IDENTIFICATION

**CATALOG NUMBER:** DMSO  
**CHEMICAL NAME:** Dimethyl Sulfoxide  
**CHEMICAL FAMILY:** Nucleic Acids

### 2. COMPOSITION/INGREDIENTS

**CAS NUMBER:** 67-68-5  
**MOLECULAR FORMULA:** C<sub>2</sub>H<sub>6</sub>O<sub>S</sub>  
**COMPONENTS:** Dimethyl Sulfoxide

### 3. HAZARDS IDENTIFICATION

**MEDICAL CONDITIONS AGGRAVATED:** Preexisting skin disease  
**PRIMARY ROUTES OF ENTRY:** Ingestion, skin absorption, skin contact, eye contact, inhalation  
**PEL:** N/A  
**TLV:** N/A  
**LD50/LC50:** Draize test, rabbit, eye: 100 mg;  
Draize test, rabbit, eye: 500 mg/24H Mild;  
Draize test, rabbit, skin: 500 mg/24H Mild;  
Oral, mouse: LD50 = 7920 mg/kg;  
Oral, rat: LD50 = 14500 mg/kg;  
Skin, rat: LD50 = 40 gm/kg;  
**CARCINOGENICITY:** Not listed by ACGIH, IARC, NTP or CA Prop 65  
**TOXICITY:** May be fatal if swallowed. Harmful if inhaled. May be harmful if absorbed through the skin  
**RTECS #:** N/A  
**ACUTE EFFECTS:** Harmful if inhaled. Causes respiratory tract irritation, headache, nausea, dizziness and drowsiness. Harmful if swallowed. Can cause dizziness, drowsiness, nausea, vomiting, cramps, and chills  
**CHRONIC EFFECTS:** Long-term skin application of 80-90% DMSO has produced CNS effects (such as fatigue, nausea, vomiting, sedation, dizziness and headache), and dermatitis (such as redness, dryness and scaling) in volunteers. A garlic-like breath odor has been noted

### 4. FIRST AID MEASURES

**EYES:** Immediately flush eyes with copious amounts of water for at least 15 minutes.  
**SKIN:** Immediately wash skin with soap and copious amounts of water.  
**INHALATION:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.  
**INGESTION:** If swallowed, wash out mouth with water provided person is conscious. Call a physician.  
**OTHER:** Wash contaminated clothing before re-use.

## 5. FIRE FIGHTING MEASURES

<b>UPPER FLAMMABLE LIMIT:</b>	N/A
<b>LOWER FLAMMABLE LIMIT:</b>	N/A
<b>UPPER EXPLOSION LIMIT:</b>	42%
<b>LOWER EXPLOSION LIMIT:</b>	3.5%
<b>FLASHPOINT:</b>	188.6°F, 87°C; Method: Closed Cup
<b>AUTOIGNITION TEMPERATURE:</b>	301°C

**FIRE EXTINGUISHING MEDIA:** Water spray, carbon dioxide, dry chemical powder, or appropriate foam.

**UNUSUAL FIRE/EXPLOSION DATA:** N/A

## 6. ACCIDENTAL RELEASE MEASURES

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves. Clean up contaminated area with dry lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete. In case of leak or spill evacuate area. Avoid contaminating water supply. Avoid contaminating sewers and waterways.

## 7. HANDLING AND STORAGE

**HANDLING:** Avoid prolonged or repeated exposure. Avoid inhalation. Avoid contact with DMSO solutions containing toxic materials or material with unknown toxicological properties. DMSO is readily absorbed through skin and may carry such materials into the body.

**STORAGE:** Store under inert gas. Keep tightly closed. Keep away from sparks and open flame. Store in a dry cool place. Hygroscopic.

## 8. EXPOSURE CONTROLS/EMPLOYEE PROTECTION

Wear appropriate NIOSH/MSHA-approved respirator, chemical-resistant gloves, safety goggles, and other protective clothing. Safety shower and eye bath. Mechanical exhaust required. Wash thoroughly after handling. Wash contaminated clothing before use.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>APPEARANCE:</b>	Clear Liquid
<b>BOILING POINT:</b>	189°C
<b>MELTING POINT:</b>	18.4°C
<b>FREEZING POINT:</b>	N/A
<b>pH:</b>	N/A
<b>SOLUBILITY:</b>	Soluble
<b>VAPOR DENSITY:</b>	2.7 g/l
<b>VAPOR PRESSURE:</b>	0.42 mmHg @ 20°C

## 10. STABILITY & REACTIVITY

**STABILITY:** Stable material, hazardous polymerization will not occur.

**INCOMPATIBILITY:** Acid chlorides, phosphorus halides, strong oxidizing agents, strong acids, strong reducing agents

**HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:**

Carbon monoxide, Carbon dioxide, Sulfur Dioxide

## 11. TOXICOLOGICAL INFORMATION

Causes eye and skin irritation. Material is irritating to mucous membranes and upper respiratory tract. Exposure can cause: CNS depression, gastrointestinal disturbances, narcotic effect, damage to the eyes, damage to the liver, damage to the heart, damage to the kidneys. May cause convulsions. Target organs: eyes, nerves, liver, kidneys.

12. **ECOLOGICAL INFORMATION**

**ECOTOXICITY:** N/A

**ENVIRONMENTAL:** Terrestrial: Expected to be mobile in soil, due to its high water solubility. Some volatilization from dry soil and surfaces may be expected. Aquatic: DMSO disproportionates in water to dimethyl sulfide and dimethyl sulfone, a reaction catalyzed by light. Atmospheric: Exists primarily in the vapor phase and can be removed by both wet and dry deposition. It will react with photochemically-produced hydroxyl radicals with a half-life of about 7 hr. DMSO is very difficult to biodegrade.

**PHYSICAL:** N/A

**OTHER:** Bacterial decomposition of DMSO during wastewater treatment can result in the release of dimethyl sulfide, a volatile substance with a strong, disagreeable odor.

13. **WASTE DISPOSAL**

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

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