

P32 +P31 -If skin irritation occurs: Get medical advice/attention
 P264 -Wash hands thoroughly after handling
 P280 -Wear protective gloves/protective clothing/eye protection/face protection
 P362 -Take of contaminated clothing and wash before use

HMIS Classification:

Component A:	Component B:	Component C:	Component D:	Component E:	Component F:
Health hazard: 0	Health hazard: 0	Health hazard: 1	Health hazard: 1	Health hazard: 0	Health hazard: 1
Flammability: 2	Flammability: 2	Flammability: 1	Flammability: 1	Flammability: 2	Flammability: 0
Physical hazards: 0					

NFPA Rating:

Component A:	Component B:	Component C:	Component D:	Component E:	Component F:
Health hazard: 0	Health hazard: 0	Health hazard: 1	Health hazard: 1	Health hazard: 0	Health hazard: 1
Fire: 2	Fire: 2	Fire: 1	Fire: 1	Fire: 2	Fire: 0
Reactivity hazard: 0					

3. Composition / Information on Ingredients**Ingredients/Components:**

Chemical Name:	Description	CAS Number:
Component A	Contains DMSO	67-68-5
Component B	Contains DMSO	67-68-5
Component C	Proprietary	NA
Component D	Proprietary	NA
Component E	Contains DMSO	67-68-5
Component F	1 M DTT solution	16096-97-2

4. First Aid Measures**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Component A,B,E

Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Skin: Wash off with soap and plenty of water. Consult a physician.

Eyes: Flush eyes with water as a precaution.

Component C,D

Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

Ingestion: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Skin: Wash off with soap and plenty of water. Consult a physician.

Eyes: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Component F

Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Skin: Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

Eyes: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

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<u>5. Fire Fighting Measures</u>	
<i>Extinguishing media:</i>	<p>Component A, B and E: For small fires, use dry chemical, or carbon dioxide. For large fires, use water spray from a safe distance.</p> <p>Component C and D: Use water spray, dry chemical or carbon dioxide.</p> <p>Component F: Use water spray, dry chemical or carbon dioxide.</p>
<i>Special firefighting procedures:</i>	<p>Component A, B and E: Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.</p> <p>Component C, D and F: Wear self-contained breathing apparatus (SCBA) if necessary.</p>
<i>Unusual fire and explosions hazards:</i>	<p>Component A, B and E: Combustible liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Hazardous carbon oxides and sulphur oxides formed under fire conditions.</p> <p>Component C,D: Hazardous carbon oxides, sodium oxides, and nitrogen oxides (NOx) formed under fire conditions.</p> <p>Component F: Hazardous carbon oxides and sulphur oxides formed under fire conditions.</p>
<u>6. Accidental Release Measures</u>	
<i>Containment and spill response</i>	<p>Component A, B and E: Immediately contact emergency personnel. Prevent further leakage or spillage if safe to do so. Avoid breathing vapors or mist. Remove all sources of ignition and provide ventilation. Collect with an electrically protected vacuum cleaner, by wet-brushing, or by absorbing with vermiculite, sand or earth, and place in appropriate container for disposal. Do not let material enter drains.</p> <p>Component C and D: Do not let material enter drains. Keep in suitable, closed container for disposal.</p> <p>Component F: Keep in suitable, closed container for disposal. Do not let material enter drains.</p>
<i>PPE</i>	Use personal protective equipment
<u>7. Handling and Storage</u>	
<p>Component A, B and E: <i>Handling:</i> Wash thoroughly after handling. Remove and wash any contaminated clothing. Keep container tightly closed and avoid contact with eyes, skin, and clothing. Use with adequate ventilation and avoid ingestion and inhalation. Keep away from heat and flame. <i>Storage:</i> Store in a tightly closed container away from moisture, heat, and flame. Store away from incompatible substances. Storage under a nitrogen blanket has been recommended.</p> <p>Component C and D: <i>Handling:</i> Avoid contact with skin and eyes. <i>Storage:</i> Keep container tightly closed in a dry and well-ventilated place.</p> <p>Component F: <i>Handling:</i> Avoid contact with skin and eyes.</p>	

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Storage: Store in a tightly closed container in a dry place at -20C.

8. Exposure Controls / Personal Protection

<i>Engineering controls</i>	<p>Component A, B, E and F: Facilities storing and using this material should be equipped with a safety shower and eyewash station. Adequate ventilation should also be present.</p> <p>Component C and D: Not applicable.</p>
<i>PPE</i>	<p>Components A, B, C, D, E and F:</p> <p><i>Respiratory System:</i> A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.</p> <p><i>Skin and Body:</i> Wear appropriate work uniform or laboratory coat to prevent skin exposure.</p> <p><i>Hands:</i> Use chemical resistant, impervious gloves. Appropriate techniques should be used to remove potentially contaminated gloves.</p> <p><i>Eyes:</i> Wear chemical splash goggles (EN166)</p>

9. Physical and Chemical Properties

<i>Physical State</i>	Liquid
<i>Odor</i>	Not determined
<i>Solubility in Water</i>	Soluble
<i>Specific Gravity</i>	Not determined
<i>pH</i>	Component C -5.0 Component D -5.5
<i>Boiling Point</i>	Not determined
<i>Melting Point</i>	Not determined
<i>Flash Point</i>	Not determined
<i>Vapor Pressure:</i>	Not determined
<i>Vapor Density:</i>	Not determined

10. Stability and Reactivity

<i>Thermal Decomposition</i>	Not applicable
<i>Dangerous Products of Decomposition</i>	Not applicable
<i>Dangerous Reactions</i>	Not applicable

11. Toxicological Information

<i>RTECS Number</i>	<p>Component A: PV6210000</p> <p>Component B: PV6210000</p> <p>Component C: AJ4300010</p> <p>Component D: N/A</p> <p>Component E: PV6210000</p> <p>Component F: EK1612000</p>
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<i>Toxicity</i>	<p><i>Components A, Component B and Component E contain DMSO.</i></p> <p><i>For DMSO</i></p> <p>Oral LD50</p> <p>LD50 Oral - rat - 14,500 mg/kg</p> <p>Inhalation LC50</p> <p>LC50 Inhalation - rat - 4 h - 40250 ppm</p> <p>Dermal LD50</p> <p>LD50 Dermal - rabbit - > 5,000 mg/kg</p> <p><i>Components D:</i></p> <p>Acute toxicity</p> <p>Oral LD50</p> <p>LD50 Oral - rat - 1,000 mg/kg</p> <p>Remarks: Gastrointestinal:Ulceration or bleeding from stomach. Gastrointestinal:Other changes. Liver: Fatty liver degeneration.</p> <p>Skin corrosion/irritation</p> <p>Skin - rabbit - Skin irritation - 24 h</p> <p>Serious eye damage/eye irritation</p> <p>Eyes - rabbit - Severe eye irritation - 24 h</p> <p><i>Component F</i></p> <p>LD50 Intraperitoneal - mouse - 179 mg/kg</p>
<i>Health Hazards</i>	<i>No data available</i>
<i>Potential Hazards</i>	<p>Potential Health Effects</p> <p><i>Inhalation:</i> May be harmful if inhaled. Causes respiratory tract irritation.</p> <p><i>Ingestion:</i> Harmful if swallowed.</p> <p><i>Skin:</i> May be harmful if absorbed through skin. May cause skin irritation.</p> <p><i>Eyes:</i> Causes eye irritation.</p> <p>Aggravated Medical Condition: Avoid contact with DMSO solutions containing toxic materials or materials with unknown toxicological properties. Dimethyl sulfoxide is readily absorbed through skin and may carry such materials into the body.</p>
<i>Carcinogenicity:</i>	No data available
<i>OSHA Permissible Exposure Limit(PEL) Data</i>	No data available
<i>ACGIH Threshold Limit Values (TLV)</i>	No data available
<u>12. Ecological Information</u>	

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For Dimethyl sulfoxide (DMSO) CAS-No. 67-68-5 (Component A, B and E contain DMSO)

Toxicity

Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 34,000 mg/l - 96 h

LC50 - Oncorhynchus mykiss (rainbow trout) - 35,000 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates. EC50 - Daphnia pulex (Water flea) - 27,500 mg/l

Toxicity to algae EC50 - Lepomis macrochirus (Bluegill) - > 400,000 mg/l - 96 h

Components C

Toxicity

Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 13,330 mg/l - 120 h

LC50 - Lepomis macrochirus (Bluegill) - 5,000 mg/l - 24 h

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - > 1,000 mg/l - 48 h

Persistence and degradability

Biodegradability Result: 99 % - Readily biodegradable.

Component D

Toxicity

Toxicity to fish mortality NOEC - Lepomis macrochirus - 24 mg/l - 96.0 h

LC50 - Lepomis macrochirus (Bluegill) - 34 - 62 mg/l - 96.0 h

Toxicity to daphnia

and other aquatic

invertebrates

EC50 - Daphnia magna (Water flea) - 113 mg/l - 48 h

Persistence and degradability

Bioaccumulative potential

Bioaccumulation Lepomis macrochirus - 28 d

Bioconcentration factor (BCF): 1.8

Component F

Toxicity

No data available

Components A, B, E and F

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

PBT and vPvB assessment

No data available

Other adverse effects

No data available

13. Disposal Considerations

For Components A, B, C, D, E and F

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

14. Transport Information:

UN Number

N/A

Hazard Class

N/A

Identification Number

N/A

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<i>Packing Group</i>	N/A
<i>Proper Shipping Name (DOT)</i>	N/A

15. Regulatory information	
<i>California Proposition 65:</i>	N/A
US TSCA (Toxic Substance Control Act):	Component A : Listed Component B : Listed Component C : Listed Component D : Not Listed Component E : Listed Component F : Not Listed
<i>US CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):</i>	Component A : 261.33 8(d). Component B : 261.33 8(d). Component C : 261.33 8(d). Component D : Not listed Component E : 261.33 8(d). Component F : Not listed
US SARA Title III	Component A,B,E SARA 302 components: N/A SARA 313 components: N/A SARA 311/312 Hazards: Fire Hazard, Chronic Health Hazard Component C,D SARA 302 components: N/A SARA 313 components: N/A SARA 311/312 Hazards: N/A Component F SARA 302 components: N/A SARA 313 components: N/A SARA 311/312 Hazards: Acute Health Hazard
US Clean Air Act:	Component A, B, C, D, E and F <i>Listed under Hazardous Air Pollutants: Not listed</i> <i>Listed under Class 1 Ozone Depletors: Not listed</i> <i>Listed under Class 2 Ozone Depletors: Not listed</i>
<i>US Clean Water Act:</i>	Components A, B, E and F <i>Listed under "Hazardous Substances": Not listed</i> <i>Listed under "Priority Pollutants": Not listed</i> <i>Listed under "Toxic Pollutants": Not listed</i> Component C, D <i>Listed under "Hazardous Substances": Listed</i> <i>Listed under "Priority Pollutants": Not listed</i> <i>Listed under "Toxic Pollutants": Not listed</i>

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US States: Right-to-Know: Listed in the following States:

Component A:	Component B:	Component C:	Component D:	Component E:	Component F:
Pennsylvania Revision Date 2007-03-01 67-68-5	Pennsylvania Revision Date 2007-03-01 67-68-5	Pennsylvania Revision Date 2007-03-01	Pennsylvania Revision Date 2007-03-01	Pennsylvania Revision Date 2007-03-01 67-68-5	Pennsylvania Revision Date CAS#16096-97-2
New Jersey Revision Date 2007-03-01 67-68-5	New Jersey Revision Date 2007-03-01 67-68-5	New Jersey Revision Date 2007-03-01	New Jersey Revision Date 2007-03-01	New Jersey Revision Date 2007-03-01 67-68-5	New Jersey Revision Date CAS#16096-97-2
Massachusetts N/A	Massachusetts N/A	Massachusetts Revision Date 2007-03-01	Massachusetts Revision Date 2007-03-01	Massachusetts N/A	Massachusetts N/A

European/International Regulations:

	Component A:	Component B:	Component C:	Component D:	Component E:	Component F:
EC EINICS	200-664-3	200-664-3	204-823-8	N/A	200-664-3	240-263-0
EC Risk statements	36/37/38	36/37/38	36/37/38	36/37/38--22	36/37/38	36/37/38--22
WGK	1	1	1	N/A	1	N/A
Canada- DSL/NDL	Listed	Listed	Listed	Listed	Listed	Not Listed
Canada- WHMIS classification	D2B	D2B	N/A	N/A	D2B	D1B, D2B
Canada- Canadian Ingredient Disclosure List	Listed	Listed	Not Listed	Not Listed	Listed	Not listed

16. Other Information

It is not intended for food, drug, household, agricultural or cosmetic use. A technically qualified individual experienced in handling potentially hazardous chemicals must supervise its use. The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. Users should make independent decisions regarding completeness of the information based on all sources available. AnaSpec shall not be held liable for any damage resulting from handling or from contact with the above product.

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