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Applies to part numbers: R-02016-B10

SAFETY STATEMENT

Product and company identification

Product(s): AdvanStain Scarlet Protein Gel Stain.
Supplier: Advansta Inc.
Address: 1505 Adams Drive, Suite B1
Menlo Park, CA 94025
Phone: 650-325-1980

Composition/Information on Ingredients

Adavnstain Ruby is supplied in solution containing less than 1% of the active ingredient. The active ingredient is epicocconone, a biodegradable natural product.

According to the OSHA Hazard Communications Standard (29 CFR 1910.1200), if a material contains less than 1% of a hazardous chemical or less than 0.1% of a carcinogen, the mixture shall not be considered hazardous.

There are no materials or ingredients included that are considered hazardous and require reporting in this section.

This information is supplied in good faith. To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. These products are intended for research use only, not for diagnostic, household or any other use.

Document: D-54069
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Release date: Jan 28, 2012
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MATERIAL SAFETY DATA SHEET

Applies to part numbers: K-11072-250, K-11072-B50, K-11072-C25, R-04016-C40

Section 1 Product and company identification

Product name: **AdvanStain Scarlet Powder A**
Supplier: Advansta Inc.
Address: 1505 Adams Dr., Ste. B1
Menlo Park, CA 94025
Phone: 650-325-1980

Section 2 Composition/Information on Ingredients

Ingredient	CAS #	%
Citric acid	77-92-9	100

There are no other ingredients present which within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous according to the OSHA Hazard Communications Standard (29 CFR 1910.1200) and require reporting in this section.

Section 3 Hazards identification

CLASSIFICATION	Skin Irritant 2. Eye Irritant 2.
SIGNAL WORD	Warning
HAZARD STATEMENTS	H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation.
PRECAUTIONARY STATEMENTS	P280 - Wear protective gloves/protective clothing/eye protection/face protection P302+P352 - IF ON SKIN: Wash with plenty of soap and water P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Section 4 - First Aid Measures

ORAL EXPOSURE	Clean mouth with water and afterwards drink plenty of water
INHALATION EXPOSURE	Move to fresh air. If breathing becomes difficult, give oxygen.
DERMAL EXPOSURE	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.
EYE EXPOSURE	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
NOTES TO PHYSICIAN	Treat symptomatically.

Section 5 - Fire Fighting Measures

FLASH POINT	Not determined
FLAMMABILITY	Not flammable
SUITABLE EXTINGUISHING MEDIA	Use dry chemical, CO ₂ , water spray, or alcohol-resistant foam
HAZARDOUS COMBUSTION PRODUCTS	Carbon oxides.
EXPLOSION DATA	
Sensitivity to mechanical impact	Not sensitive
Sensitivity to static discharge	Not sensitive
PROTECTIVE EQUIPMENT AND PRECAUTIONS	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
SPECIFIC HAZARDS ARISING FROM THE CHEMICALS.	Dusts or fumes may form explosive mixtures in air.

Section 6 - Accidental Release Measures

PERSONAL PRECAUTIONS	Avoid contact with skin, eyes and clothing. Use personal protective equipment. Ensure adequate ventilation.
METHODS FOR CONTAINMENT	Prevent further leakage or spillage if safe to do so.

METHODS FOR CLEANING UP

Avoid dust formation. Pick up and transfer to properly labeled containers. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

Handle in accordance with good industrial hygiene and safety practice .

STORAGE

Keep containers tightly closed in a dry, cool and well-ventilated place.

INCOMPATIBLE PRODUCTS

Bases. Reducing agents. Oxidizing agents. Nitrates.

Section 8 - Exposure Controls / PPE

EXPOSURE LIMITS

ACGIH TLV

N/A

NIOSH REL

N/A

OSHA PEL

N/A

ENGINEERING MEASURES

Showers

Eyewash stations

Ventilation systems

PERSONAL PROTECTIVE EQUIPMENT

Respiratory:

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations. Maintain adequate ventilation.

Eye:

Safety goggles with side-shields. Avoid contact with eyes..

Skin:

Wear protective gloves and clothing.

GENERAL HYGIENE MEASURES:

Handle in accordance with good industrial hygiene and safety practice.

Section 9 - Physical and chemical properties

Appearance:

White

Odor

No information available

Odor threshold:

No information available

Decomposition temperature °C :

No information available

Freezing point:

No information available

Initial boiling point:

No information available

Physical state:

Crystalline powder

pH

No data available

Flash point

Not determined

Autoignition temperature

No data available

Boiling point/range

No data available

Melting point/range

No data available

Flammability limits in air

Upper: No data available Lower: No data available

Explosive properties

No information available

Oxidizing properties

No information available

Evaporation rate

No data available

MMHG @ 37.8°C

No data available

Vapor density

No data available

Specific gravity

No data available

Solubility

No information available

Partition coefficient (n-octanol/water)

No data available

Viscosity

No information available

Section 10 - Stability and Reactivity

STABILITY

Stable under recommended storage conditions.

INCOMPATIBLE PRODUCTS

Bases, reducing agents, oxidizing agents, nitrates.

CONDITIONS TO AVOID

None known based on information supplied.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon oxides.

HAZARDOUS POLYMERIZATION

Hazardous polymerization does not occur.

Section 11 - Toxicological Information

ACUTE TOXICITY

Irritating to eye, skin and respiratory system .

CHRONIC TOXICITY

No known effect based on information supplied

TARGET ORGAN EFFECTS

None known

Section 12 - Ecological Information

ECOTOXICITY

The environmental impact of this product has not been fully investigated.

Section 13 - Disposal Considerations

WASTE DISPOSAL

Dispose of material in accordance with all federal, state, and local regulations .

CONTAMINATED PACKAGING

Dispose of in accordance with all federal, state and local regulations .

Section 14 - Transport Information

IATA

Not regulated

DOT

Not regulated

Section 15 - Regulatory Information

REACH TITLE VII RESTRICTIONS	No information available
HCS Classification	
Dangerous substances	N/A
Organic Solvents	N/A
Harmful Substances Whose Names Are to be on the Label	N/A
Pollution Release and Transfer Registry (Class II)	N/A
Pollution Release and Transfer Registry (Class I)	N/A
Poison and Deleterious Substances Control Law	N/A
ISHA – Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	N/A
ISHA – Harmful Substances Requiring Permission	N/A
Toxic Chemical Classification Listing (TCCL) – Toxic Chemicals	N/A
Toxic Release Inventory (TRI) – Group I	N/A
Toxic Release Inventory (TRI) – Group II	N/A
INTERNATIONAL INVENTORIES	
TSCA	all components listed or exempted
EINECS/ELINCS	all components listed or exempted
ENCS	all components listed or exempted
IECSC	all components listed or exempted
KECL	all components listed or exempted
PICCS	all components listed or exempted
AICS	all components listed or exempted
US FEDERAL REGULATIONS	
SARA 313	Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories	Acute Health Hazard	Yes
	Chronic Health Hazard	No
	Fire Hazard	No
	Sudden Release of Pressure Hazard	No
	Reactive Hazard	No
Clean Water Act	This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)	
Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)	This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)	
STATE REGULATIONS		
California Prop. 65	This product does not contain any Proposition 65 chemicals.	
INTERNATIONAL REGULATIONS		
Mexico – Grade	No information available	
WHMIS hazard class	E - Corrosive material	

Section 16 Other information

For R&D use only. Not for drug, household or other uses.

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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MATERIAL SAFETY DATA SHEET

Applies to part numbers: K-11072-250, K-11072-B50, K-11072-C25, R-04017-C23

Section 1 Product and company identification

Product name: **AdvanStain Scarlet Powder B**
Supplier: Advansta Inc.
Address: 1505 Adams Dr., Ste. B1
Menlo Park, CA 94025
Phone: 650-325-1980

Section 2 Composition/Information on Ingredients

Ingredient	CAS #	%
CAPS	1135-40-6	67.8
CAPS, sodium salt	N/A	32.2

There are no other ingredients present which within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous according to the OSHA Hazard Communications Standard (29 CFR 1910.1200) and require reporting in this section.

Section 3 Hazards identification

CLASSIFICATION Not classified as a hazard

Section 4 - First Aid Measures

ORAL EXPOSURE	Clean mouth with water and afterwards drink plenty of water
INHALATION EXPOSURE	Move to fresh air. If breathing becomes difficult, give oxygen.
DERMAL EXPOSURE	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Wash contaminated clothes before reuse.
EYE EXPOSURE	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
NOTES TO PHYSICIAN	Treat symptomatically.

Section 5 - Fire Fighting Measures

FLASH POINT	Not determined
FLAMMABILITY	Not flammable
SUITABLE EXTINGUISHING MEDIA	Use dry chemical, CO ₂ , water spray, or foam
HAZARDOUS COMBUSTION PRODUCTS	Carbon oxides, nitrogen oxides (NOx), sulfur oxides.
EXPLOSION DATA	
Sensitivity to mechanical impact	Not sensitive
Sensitivity to static discharge	Not sensitive
PROTECTIVE EQUIPMENT AND PRECAUTIONS	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
UNUSUAL FIRE AND EXPLOSIONS HAZARD	Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PERSONAL PRECAUTIONS	Avoid contact with skin, eyes and clothing. Use personal protective equipment. Ensure adequate ventilation.
METHODS FOR CONTAINMENT	Prevent further leakage or spillage if safe to do so.
METHODS FOR CLEANING UP	Avoid dust formation. Pick up and transfer to properly labeled containers. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING	Handle in accordance with good industrial hygiene and safety practice.
STORAGE	Keep containers tightly closed in a dry, cool and well-ventilated place.
INCOMPATIBLE PRODUCTS	Strong oxidizing agents.

Section 8 - Exposure Controls / PPE

EXPOSURE LIMITS

ACGIH LTV	N/A
NIOSH REL	N/A
OSHA PEL	N/A

ENGINEERING MEASURES

Showers
Eyewash stations
Ventilation systems

PERSONAL PROTECTIVE EQUIPMENT

Respiratory:	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Eye:	Tightly fitting safety goggles.
Skin:	Wear protective gloves and clothing.

GENERAL HYGIENE MEASURES:

Handle in accordance with good industrial hygiene and safety practice.

Section 9 - Physical and chemical properties

Appearance:	White to off-white
Odor	No information available
Odor threshold:	No information available
Decomposition temperature °C :	No information available
Freezing point:	No information available
Initial boiling point:	No information available
Physical state:	Powder
pH	No data available
Flash point	Not determined
Autoignition temperature	No data available
Boiling point/range	No data available
Melting point/range	No data available
Flammability limits in air-purifying	Upper: No data available Lower: No data available
Explosive properties	No information available
Oxidizing properties	No information available
Evaporation rate	No data available
MMHG @ 37.8°C	No data available
Vapor density	No data available
Specific gravity	No data available
Solubility	Partly soluble
Water solubility	Partly soluble
Partition coefficient (n-octanol/water)	No data available
Viscosity	No information available

Section 10 - Stability and Reactivity

STABILITY	Stable under recommended storage conditions.
INCOMPATIBLE PRODUCTS	Strong oxidizing agents.
CONDITIONS TO AVOID	None known based on information supplied.
HAZARDOUS DECOMPOSITION PRODUCTS	Carbon oxides. Nitrogen oxides (NOx). Sulfur oxides.
HAZARDOUS POLYMERIZATION	Hazardous polymerization does not occur.

Section 11 - Toxicological Information

ACUTE TOXICITY	May be harmful if swallowed. Vapor or mist may be irritative to the eyes, mucous membranes and upper respiratory tract. May cause skin irritation.
CHRONIC TOXICITY	No known effect based on information supplied

TARGET ORGAN EFFECTS

None known

To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated

Section 12 - Ecological Information

ECOTOXICITY

The environmental impact of this product has not been fully investigated.

Section 13 - Disposal Considerations

WASTE DISPOSAL

Dispose of material in accordance with all federal, state, and local regulations .

CONTAMINATED PACKAGING

Dispose of in accordance with all federal, state and local regulations .

Section 14 - Transport Information

IATA

Not regulated

DOT

Not regulated

Section 15 - Regulatory Information

REACH TITLE VII RESTRICTIONS	No information available	
HCS Classification		
Dangerous substances	N/A	
Organic Solvents	N/A	
Harmful Substances Whose Names Are to be on the Label	N/A	
Pollution Release and Transfer Registry (Class II)	N/A	
Pollution Release and Transfer Registry (Class I)	N/A	
Poison and Deleterious Substances Control Law	N/A	
ISHA – Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	N/A	
ISHA – Harmful Substances Requiring Permission	N/A	
SARA 302/304/311/312 extremely hazardous substances Toxic Chemical Classification Listing (TCCL) – Toxic Chemicals	N/A	
Toxic Release Inventory (TRI) – Group I	N/A	
Toxic Release Inventory (TRI) – Group II	N/A	
INTERNATIONAL INVENTORIES		
TSCA	all components listed or exempted	
EINECS/ELINCS	all components listed or exempted	
ENCS	all components listed or exempted	
IECSC	all components listed or exempted	
KECL	all components listed or exempted	
PICCS	all components listed or exempted	
AICS	all components listed or exempted	
US FEDERAL REGULATIONS		
SARA 313	Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.	
SARA 311/312 Hazard Categories	Acute Health Hazard	Yes

	Chronic Health Hazard	No
	Fire Hazard	No
	Sudden Release of Pressure Hazard	No
	Reactive Hazard	No
Clean Water Act (CWA)	This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)	
Clean Air Act (CAA) 112(b) hazardous air pollutants (HAPs)	This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)	
STATE REGULATIONS		
California Prop. 65	This product does not contain any Proposition 65 chemicals.	
INTERNATIONAL REGULATIONS		
Mexico – Grade	No information available	
WHMIS hazard class	Not controlled	

Section 16 Other information

For R&D use only. Not for drug, household or other uses.

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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MATERIAL SAFETY DATA SHEET

Applies to part numbers: K-11072-250 K-11072-B50 K-11072-C25

Section 1 Product and company identification

Product name: **AdvanStain Scarlet Protein Gel Stain**

Supplier: Advansta Inc.
Address: 1505 Adams Dr., Ste. B1
Menlo Park, CA 94025
Phone: 650-325-1980

Section 2 Composition/Information on Ingredients

Ingredient	CAS #	%
Dimethyl sulfoxide	67-68-5	67.8
Acetonitrile	75-05-8	32.2

There are no other ingredients present which within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous according to the OSHA Hazard Communications Standard (29 CFR 1910.1200) and require reporting in this section.

Section 3 Hazards identification

OSHA/HCS STATUS

This material is considered by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

EMERGENCY OVERVIEW:

Warning! Combustible liquid and vapor. Harmful if inhaled, absorbed through skin or swallowed. Causes respiratory tract, eye and skin irritation. Contains material that can cause target organ damage.

HMIS RATING	
HEALTH	2
FLAMMABILITY	2
REACTIVITY	0

NFPA RATING	
HEALTH	2
FLAMMABILITY	2
REACTIVITY	0

PRECAUTIONARY MEASURES

Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Keep away from heat and flame. Keep container tightly closed. Wash thoroughly after handling.

ROUTES OF ENTRY

Dermal contact. Eye contact. Inhalation. Ingestion.

POTENTIAL ACUTE HEALTH EFFECTS

Eyes: Irritating to eyes
Skin: Toxic in contact with skin. Irritating to skin.
Inhalation: Toxic by inhalation. Irritating to respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion: Toxic if swallowed.

PotENTIAL CHRONIC HEALTH EFFECTS

Chronic Effects: Contains material that can cause target organ damage
Carcinogenicity: No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards.
Teratogenicity: No known significant effects or critical hazards.
Developmental effects: No known significant effects or critical hazards.
Fertility effects: No known significant effects or critical hazards.
Target organs: Contains material which causes damage to the following organs: blood. Contains material which may cause damage to the following organs: kidneys, liver, cardiovascular system, upper respiratory tract, skin, eyes, central nervous system (CNS).
Inhalation: Adverse symptoms may include the following: respiratory tract irritation, coughing .
Ingestion: No specific data.

Skin:	Adverse symptoms may include the following: irritation, redness.
Eyes:	Adverse symptoms may include the following: pain or irritation, watering, redness.
MEDICAL CONDITIONS AGGRAVATED BY OVER-EXPOSURE	Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.
For additional information on toxicity, please refer to Section 11.	

Section 4 - First Aid Measures

ORAL EXPOSURE	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
INHALATION EXPOSURE	Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
DERMAL EXPOSURE	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
EYE EXPOSURE	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
PROTECTION OF FIRST-AIDERS	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash.

Section 5 - Fire Fighting Measures

FLASH POINT	N/A
AUTOIGNITION TEMP	N/A
FLAMMABILITY	Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.
EXTINGUISHING MEDIA	
Suitable:	Use dry chemical, CO ₂ , water spray (fog) or foam
Not suitable:	Do not use water jet.
FIREFIGHTING	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
SPECIAL EXPOSURE HAZARDS	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
HAZARDOUS COMBUSTION PRODUCTS	Decomposition products may include the following materials: carbon dioxide, carbon monoxide, nitrogen oxides, sulfur oxides.

Section 6 - Accidental Release Measures

PERSONAL PRECAUTIONS	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
ENVIRONMENTAL PRECAUTIONS	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
METHODS FOR CLEANING UP	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.
SMALL SPILL	Stop leak without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

Section 7 - Handling and Storage

HANDLING	Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking.
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Remove contaminated clothing and protective equipment before entering eating areas. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measure against electrostatic discharges. To avoid fire or explosion dissipate static electricity during transfer by ground and bonding container and equipment before transferring material empty containers retain product residue and be hazardous. Do not reuse container.

STORAGE

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from light at -15°C to -25°C, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8 - Exposure Controls / PPE

Components	CAS-No	Exposure Limits		Basis
Dimethyl sulfoxide	67-68-5	TWA	250 ppm 8 hour(s)	AIHA WEEL (United States, 1/2009)
Acetonitrile	75-05-8	TWA	20 ppm 8 hour(s) Absorbed through skin	ACGIH TLV (United States, 2/2010)
		TWA	34 mg/m3 10 hour(s)	NIOSH REL (United States, 6/2009)
		TWA	20 ppm 10 hours	NIOSH REL (United States, 6/2009)
		TWA	70 mg/m3 8 hour(s)	OSHA PEL (United States, 11/2006)
		TWA	40 ppm 8 hour(s)	OSHA PEL (United States, 11/2006)
		STEL	105 mg/m3 15 minute(s)	OSHA PEL 1989 (United States, 3/1989)
		STEL	60 ppm 15 minute(s)	OSHA PEL 1989 (United States, 3/1989)
		TWA	70 mg/m3 8 hour(s)	OSHA PEL 1989 (United States, 3/1989)
		TWA	40 ppm 8 hour(s)	OSHA PEL 1989 (United States, 3/1989)

RECOMMENDED MONITORING PROCEDURES If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

ENGINEERING MEASURES

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory:

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. 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.

Hand:

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye:

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin:

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental Exposure Controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

GENERAL HYGIENE MEASURES:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 9 - Physical and chemical properties

Physical State:	Liquid
Flash Point:	Closed cup: 61 to 93.3°C (141.8 to 199.9°F)
Color:	Purple
Odor:	Ethereal (slight)
Volatility:	>99% (w/w)
VOC:	100% (w/w)
Solubility:	N/A

Section 10 - Stability and Reactivity

STABILITY:	This product is stable.
MATERIALS TO AVOID	Reactive or incompatible with the following materials: oxidizing materials
HAZARDOUS DECOMPOSITION PRODUCTS	Under normal conditions of storage use, hazardous reactions will not occur
CONDITIONS OF REACTIVITY	Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat. Not considered to be a product presenting a risk of explosion.

Section 11 - Toxicological Information

ACUTE TOXICITY

Product/Ingredient Name	Result	Species	Dose	Exposure
Dimethyl sulfoxide	LC50 Inhalation Vapor	Rat	>1600 mg/m3	4 hours
	LC50 Dermal	Rat	40000 mg/kg	
	LC50 Oral	Rat	14.5 g/kg	
Acetonitrile	LC50 Inhalation Gas	Rat	17100 ppm	4 hours
	LC50 Dermal	Rabbit	980 mg/kg	
	LC50 Oral	Rat	2460 mg/kg	

Conclusion/Summary N/A

SENSITIZER

Conclusion/Summary N/A

CLASSIFICATION

Product/Ingredient Name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Acetonitrile	A4	-	D	-	-	-

Section 12 - Ecological Information

ENVIRONMENTAL EFFECTS No known significant effects or critical hazards.

AQUATIC ECOTOXICITY

Product/Ingredient Name	Test	Result	Species	Exposure
Dimethyl sulfoxide	-	Acute LC50 25000 ppm Fresh water	Daphnia-Water flea- <i>Daphnia magna</i> (neonate – < 24 hours)	48 hours
	-	Acute LC50 3400000 mg/L Fresh water	Fish-Fathead-minnow- <i>Pimephales promelas</i> (31 days – 15.8 mm to 0.062 g)	96 hours
Acetonitrile	-	Acute LC50 3600000 mg/L Fresh water	Daphnia-Water flea- <i>Daphnia magna</i> (< 24 hours)	48 hours
	-	Acute LC50 > 100000 mg/L Fresh water	Fish-Fathead-minnow- <i>Pimephales promelas</i> (Juvenile, Fledgling, Hatchling, Weaning – 0.2 to 0.5g)	96 hours

Conclusion/Summary N/A

BIODEGRADABILITY Not available

Conclusion/Summary N/A

Section 13 - Disposal Considerations**WASTE DISPOSAL:**

The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7 and Section 8 for additional handling information and protection of employees.

Section 14 - Transport Information

INTERNATIONAL TRANSPORT REGULATIONS Not classified

Section 15 - Regulatory Information

HCS Classification	Combustible liquid	
	Toxic material	
	Irritating material	
	Target organ effects	
US FEDERAL REGULATIONS		
TSCA 4(a) final test rules	Acetonitrile	
TSCA 8(a) PAIR	Acetonitrile	
TSCA 8(a) IUR exempt/Partial exemption	Not determined	
United States inventory (TSCA 8b)	All components are listed or exempted	
SARA 302/304/311/312 extremely hazardous substances	No products were found	
SARA 302/304 emergency planning and notification	No products were found	
SARA 302/304/311/312 hazardous chemicals	Dimethyl sulfoxide; Acetonitrile	
SARA 311/312 MSDS distribution - chemical inventory - hazard identification	Dimethyl sulfoxide: Immediate (acute) health hazard, Delayed (chronic) health hazard; Acetonitrile: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard	
Clean Water Act (CWA) 307	Acetonitrile	
Clean Water Act (CWA) 311	No products were found	
Clean Air Act (CAA) 112 regulated flammable substances	No products were found	
Clean Air Act (CAA) 112 regulated toxic substances	No products were found	
Clean Air Act (CAA) 112(b) hazardous air pollutants (HAPs)	Listed	
Clean Air Act (CAA) 602 Class I Substances	Not listed	
Clean Air Act (CAA) 602 Class II Substances	Not listed	
DEA List I Chemicals (precursor chemicals)	Not listed	
DEA List II Chemicals (precursor chemicals)	Not listed	

SARA 313	Product name	CAS number	Concentration
Form R-Reporting requirements	Acetonitrile	75-05-8	32.2
Supplier notification	Acetonitrile	75-05-8	32.2

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

STATE REGULATIONS	
Massachusetts	The following components are listed: Acetonitrile
New York	The following components are listed: Acetonitrile
New Jersey	The following components are listed: Dimethyl sulfoxide; Acetonitrile
Pennsylvania	The following components are listed: Acetonitrile
California prop. 65	Not listed
UNITED STATES INVENTORY (TSCA 8B)	All components are listed or exempted
INTERNATIONAL REGISTRIES	
Australia inventory (AICS)	All components are listed or exempted
China inventory (IESCS)	All components are listed or exempted
Japan inventory	All components are listed or exempted
Korea inventory	All components are listed or exempted
New Zealand inventory of chemicals (NZIoC)	All components are listed or exempted
Philippines inventory (PICCS)	All components are listed or exempted
CHEMICAL WEAPONS CONVENTION LIST SCHEDULE I CHEMICALS	Not listed
CHEMICAL WEAPONS CONVENTION LIST SCHEDULE II CHEMICALS	Not listed
CHEMICAL WEAPONS CONVENTION LIST SCHEDULE III CHEMICALS	Not listed

Section 16 Other information

For R&D use only. Not for drug, household or other uses.

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.