




## SAFETY DATA SHEET

### 1. Identification

<b>Product identifier</b>	MEBSTAIN Apoptosis TUNEL Kit III TdT buffer II
<b>Other means of identification</b>	
<b>Product code</b>	8442
<b>Recommended use</b>	Research use only.
<b>Recommended restrictions</b>	None known.
<b>Manufacturer / Importer / Supplier / Distributor information</b>	
<b>Manufacturer and Supplier (Asia)</b>	Medical & Biological Laboratories (MBL) Co., Ltd. 4-5-3 Sakae, Naka-ku, Nagoya, Aichi 460-0008, Japan
<b>Telephone number</b>	+81-52-238-1901 (Monday to Friday, 9 AM to 5 PM JST)
<b>Fax</b>	+81-52-238-1440
<b>E-mail</b>	sds-support@mbi.co.jp
<b>URL</b>	<a href="http://www.mbl.co.jp/e/index.html">http://www.mbl.co.jp/e/index.html</a>
<b>Contact person</b>	SDS Support
<b>Supplier</b>	MBL International Corporation 15A Constitution Way, Woburn, MA 01801, USA
<b>Telephone number</b>	+1-800-200-5459, option 3
<b>Fax</b>	+1-781-939-6963
<b>E-mail</b>	tech@mblintl.com
<b>URL</b>	<a href="http://www.mblintl.com/">http://www.mblintl.com/</a>
<b>Contact person</b>	Technical Service

### 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.	
<b>Health hazards</b>	Carcinogenicity	Category 1A
<b>Environmental hazards</b>	Not classified.	
<b>OSHA hazard(s)</b>	Not classified.	
<b>Label elements</b>		
<b>Hazard symbol</b>		
<b>Signal word</b>	Danger	
<b>Hazard statement</b>	May cause cancer.	
<b>Precautionary statement</b>		
<b>Prevention</b>	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required.	
<b>Response</b>	If exposed or concerned: Get medical advice/attention.	
<b>Storage</b>	Store locked up.	
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.	
<b>Hazard(s) not otherwise classified (HNOC)</b>	None.	
<b>Supplemental information</b>	None.	

### 3. Composition/Information on ingredients

#### Mixtures

Chemical name	CAS number	%
Potassium cacodylate	21416-85-3	1.8
Cobalt dichloride	7646-79-9	≤ 0.04

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

**4. First-aid measures**

**Inhalation** Move to fresh air. Get medical attention if discomfort develops or persists.  
**Skin contact** Remove contaminated clothing. Wash with soap and water. Get medical attention if irritation develops or persists. Wash contaminated clothing before reuse.  
**Eye contact** Rinse immediately with plenty of water, also under the eyelids. Get medical attention if irritation develops or persists.  
**Ingestion** Rinse mouth thoroughly. Get medical attention if any discomfort occurs.  
**Most important symptoms/ effects, acute and delayed** May cause temporary irritation on skin or eye on direct contact.  
**Indication of immediate medical attention and special treatment needed** Treat symptomatically.  
**General information** Get medical attention if any discomfort develops.

**5. Fire-fighting measures**

**Suitable extinguishing media** Water. Foam. Dry powder. Carbon dioxide (CO2).  
**Unsuitable extinguishing media** None known.  
**Specific hazards arising from the chemical** Fire or high temperatures create: Carbon oxides. Arsenic oxides.  
**Special protective equipment and precautions for firefighters** Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.  
**Fire-fighting equipment/ instructions** Move containers from fire area if you can do it without risk. Use water spray to cool unopened containers. Prevent entry to sewers and public waters.

**6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures** Ensure adequate ventilation. Avoid inhalation of mist and contact with skin and eyes. For personal protection, see Section 8 of the SDS.  
**Methods and materials for containment and cleaning up** Dike far ahead of liquid spill for later disposal. Small Spills: Absorb spillage with suitable absorbent material. Clean contaminated surface thoroughly. After removal, flush contaminated area thoroughly with water. Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.  
**Environmental precautions** Prevent further leakage or spillage if safe to do so.

**7. Handling and storage**

**Precautions for safe handling** Should be handled in closed systems, if possible. Obtain special instructions before use. Pregnant women should not work with the product, if there is the least risk of exposure. Provide adequate ventilation. Use work methods which minimize production of vapors and mists. Avoid inhalation of mist and contact with skin and eyes. Wash hands after handling. Observe good industrial hygiene practices.  
**Conditions for safe storage, including any incompatibilities** Keep container tightly closed. Store away from incompatible materials.

**8. Exposure controls/personal protection**

**Occupational exposure limits**

**US. ACGIH Threshold Limit Values**

Components	Type	Value
Cobalt dichloride (CAS 7646-79-9)	TWA	0.02 mg/m3

**Biological limit values**

**ACGIH Biological Exposure Indices**

Components	Value	Determinant	Specimen	Sampling Time
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Cobalt dichloride (CAS 7646-79-9)	15 µg/L 1 µg/L	Cobalt Cobalt	Urine Blood	* *
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\* For sampling details, please see the source document.

<b>Exposure guidelines</b>	No exposure standards allocated.
<b>Appropriate engineering controls</b>	Provide adequate ventilation and minimise the risk of inhalation of vapours and mists.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	Wear safety goggles or face shield.
<b>Skin protection</b>	
<b>Hand protection</b>	Wear protective gloves. Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.
<b>Other</b>	Wear appropriate clothing to prevent repeated or prolonged skin contact.
<b>Respiratory protection</b>	In case of inadequate ventilation or risk of inhalation of vapors, use suitable respiratory equipment with combination filter (gas filter/dust filter). Seek advice from local supervisor.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	Handle in accordance with good industrial hygiene and safety practice. Wash hands after handling. Routinely wash work clothing and protective equipment to remove contaminants. Observe any medical surveillance requirements.

## 9. Physical and chemical properties

<b>Appearance</b>	
<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Color</b>	Colorless.
<b>Odor</b>	Not available.
<b>Odor threshold</b>	Not available.
<b>pH</b>	7.2 Neutral.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	Soluble in water.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.

## 10. Stability and reactivity

<b>Reactivity</b>	The product is non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Stable at normal conditions.
<b>Possibility of hazardous reactions</b>	None known.
<b>Conditions to avoid</b>	Strong heating. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents. Strong bases.

**Hazardous decomposition products** No hazardous decomposition products are known. Hydrogen chloride gas. Cobalt oxides.

## 11. Toxicological information

### Information on likely routes of exposure

**Inhalation** Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

**Skin contact** Prolonged contact may cause dryness of the skin.

**Eye contact** May cause eye irritation on direct contact.

**Ingestion** Ingestion may cause irritation and malaise.

**Symptoms related to the physical, chemical and toxicological characteristics** Irritation of eyes and mucous membranes. Mild skin irritation.

### Information on toxicological effects

**Acute toxicity** Large quantities: May cause discomfort if swallowed.

Components	Species	Test Results
Potassium cacodylate (CAS 21416-85-3)		
<b>Acute</b> <i>Oral</i>	LD50	
	Mouse	145 mg/kg
	Rat	763 mg/kg

**Skin corrosion/irritation** Prolonged contact may cause dryness of the skin.

**Serious eye damage/eye irritation** May cause eye irritation on direct contact.

### Respiratory or skin sensitization

**Respiratory sensitization** The product contains a small amount of sensitizing substance which may provoke an allergic reaction among sensitive individuals.

**Skin sensitization** The product contains a small amount of sensitizing substance which may provoke an allergic reaction among sensitive individuals.

**Germ cell mutagenicity** Not classified.

**Carcinogenicity** May cause cancer.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)** Not listed.

**ACGIH** Group A1: confirmed human carcinogen (listed as Arsenic).

**IARC** Group 2B: possibly carcinogenic to humans (listed as Arsenic).

**NTP** Group a: known to be human carcinogen.

**Reproductive toxicity** Not classified.

**Specific target organ toxicity - single exposure** Not classified.

**Specific target organ toxicity - repeated exposure** Not classified.

**Aspiration hazard** Not classified.

**Further information** Repeated ingestion or inhalation of arsenic compounds may adversely affect the skin, liver, circulatory system, upper respiratory tract and lungs.

## 12. Ecological information

### Ecotoxicity

Components	Species	Test Results
Potassium cacodylate (CAS 21416-85-3)		
<b>Aquatic</b> Crustacea	LC50	
	Water flea ( <i>Daphnia magna</i> )	3.3 - 4.3 mg/L, 48 hours
Cobalt dichloride (CAS 7646-79-9)		
<b>Aquatic</b> Algae	EC50	
	Green alga ( <i>Chlorella vulgaris</i> )	0.6 mg/L, 96 hours

**Persistence and degradability** The product is not expected to be readily biodegradable.

**Bioaccumulative potential** No data available.

**Mobility in soil** Expected to be highly mobile in soil.

**Mobility in general** The product is water soluble and may spread in water systems.

**Other adverse effects** No data available.

**13. Disposal considerations**

**Disposal instructions** Dispose of in accordance with all applicable regulations. Do not discharge into drains, water courses or onto the ground.

**Local disposal regulations** Dispose of in accordance with local regulations.

**Hazardous waste code** Not regulated.

**Waste from residues / unused products** Dispose of in accordance with local regulations.

**Contaminated packaging** Dispose of in same manner as unused product.

**14. Transport information**

**DOT**

**UN number** UN3082

**UN proper shipping name** Environmentally hazardous substances, liquid, n.o.s. (Potassium cacodylate, Cobalt dichloride)

**Transport hazard class(es)**

**Class** 9

**Subsidiary risk** -

**Label(s)** 9

**Packing group** III

**Environmental hazards**

**Marine pollutant** Yes

**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

**Special provisions** 8, 146, 335, IB3, T4, TP1, TP29

**Packaging exceptions** 155

**Packaging non bulk** 203

**Packaging bulk** 241

**IATA**

**UN number** UN3082

**UN proper shipping name** Environmentally hazardous substances, liquid, n.o.s. (Potassium cacodylate, Cobalt dichloride)

**Transport hazard class(es)**

**Class** 9

**Subsidiary risk** -

**Label(s)** 9

**Packing group** III

**Environmental hazards** Yes

**ERG Code** 9L

**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

**IMDG**

**UN number** UN3082

**UN proper shipping name** Environmentally hazardous substances, liquid, n.o.s. (Potassium cacodylate, Cobalt dichloride)

**Transport hazard class(es)**

**Class** 9

**Subsidiary risk** -

**Label(s)** 9

**Packaging group** III

**Environmental hazards**

**Marine pollutant** Yes

**EmS** F-A, S-F

**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** This substance/mixture is not intended to be transported in bulk.

**15. Regulatory information**

**US federal regulations** This product is not hazardous according to OSHA 29CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)** Not regulated.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)** Not listed.

**CERCLA Hazardous Substance List (40 CFR 302.4)** Cobalt dichloride (CAS 7646-79-9) Listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories** Immediate Hazard - No  
 Delayed Hazard - Yes  
 Fire Hazard - No  
 Pressure Hazard - No  
 Reactivity Hazard - No

**SARA 302 Extremely hazardous substance** No

**SARA 311/312 Hazardous chemical** Yes

**SARA 313 (TRI reporting)** Not regulated.

**Other federal regulations**

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List** Cobalt dichloride (CAS 7646-79-9)

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)** Not regulated.

**Safe Drinking Water Act (SDWA)** Not regulated.

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

**Massachusetts RTK - Substance List** Not regulated.

**New Jersey Worker and Community Right-to-Know Act** Cobalt dichloride (CAS 7646-79-9)

**Pennsylvania RTK - Hazardous Substances** Not regulated.

**Rhode Island RTK** Cobalt dichloride (CAS 7646-79-9)

**California Proposition 65** Not listed.

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	EC Inventory	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).  
 A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information**

**Issue date** 01/30/2016

**Revision date** 09/30/2016

**Version** 10

**List of abbreviations** EC50: Effective Concentration, 50%.  
 LC50: Lethal Concentration, 50%.  
 LD50: Lethal Dose, 50%.

**Further information**

Not available.

**References**

IUCLID

**Disclaimer**

This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.



## SAFETY DATA SHEET

### 1. Identification

<b>Product identifier</b>	MEBSTAIN Apoptosis TUNEL Kit III Biotin-dUTP II
<b>Other means of identification</b>	
<b>Product code</b>	8442
<b>Recommended use</b>	Research use only.
<b>Recommended restrictions</b>	None known.
<b>Manufacturer / Importer / Supplier / Distributor information</b>	
<b>Manufacturer and Supplier (Asia)</b>	Medical & Biological Laboratories (MBL) Co., Ltd. 4-5-3 Sakae, Naka-ku, Nagoya, Aichi 460-0008, Japan
<b>Telephone number</b>	+81-52-238-1901 (Monday to Friday, 9 AM to 5 PM JST)
<b>Fax</b>	+81-52-238-1440
<b>E-mail</b>	sds-support@mbl.co.jp
<b>URL</b>	<a href="http://www.mbl.co.jp/e/index.html">http://www.mbl.co.jp/e/index.html</a>
<b>Contact person</b>	SDS Support
<b>Supplier</b>	MBL International Corporation 15A Constitution Way, Woburn, MA 01801, USA
<b>Telephone number</b>	+1-800-200-5459, option 3
<b>Fax</b>	+1-781-939-6963
<b>E-mail</b>	tech@mblintl.com
<b>URL</b>	<a href="http://www.mblintl.com/">http://www.mblintl.com/</a>
<b>Contact person</b>	Technical Service

### 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.
<b>Health hazards</b>	Not classified.
<b>OSHA hazard(s)</b>	Not classified.
<b>Label elements</b>	
<b>Hazard symbol</b>	None.
<b>Signal word</b>	None.
<b>Hazard statement</b>	None.
<b>Precautionary statement</b>	
<b>Prevention</b>	Observe good industrial hygiene practices.
<b>Response</b>	Wash thoroughly after handling.
<b>Storage</b>	Store away from incompatible materials.
<b>Disposal</b>	Dispose of waste and residues in accordance with local authority requirements.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None.

### 3. Composition/Information on ingredients

#### Mixtures

Chemical name	CAS number	%
Glycerol (Glycerin)	56-81-5	50 - 60

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### 4. First aid measures

<b>Inhalation</b>	Move to fresh air. Get medical attention if discomfort develops or persists.
<b>Skin contact</b>	Remove contaminated clothing. Wash with soap and water. Get medical attention if irritation develops or persists. Wash contaminated clothing before reuse.



<b>Eye contact</b>	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation develops or persists.
<b>Ingestion</b>	Drink plenty of water. Seek medical advice.
<b>Most important symptoms/ effects, acute and delayed</b>	Irritation of eyes and mucous membranes. Mild skin irritation.
<b>Indication of immediate medical attention and special treatment needed</b>	Treat symptomatically.
<b>General information</b>	Get medical attention if any discomfort develops.

**5. Fire fighting measures**

<b>Suitable extinguishing media</b>	Water. Foam. Dry powder. Carbon dioxide (CO2).
<b>Unsuitable extinguishing media</b>	None known.
<b>Specific hazards arising from the chemical</b>	Fire or high temperatures create: Carbon oxides.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.
<b>Fire-fighting equipment/instructions</b>	Move containers from fire area if you can do that without risk. Use water spray to cool unopened containers. Prevent entry to sewers and public waters.

**6. Accidental release measures**

<b>Personal precautions, protective equipment and emergency procedures</b>	Ensure adequate ventilation. Avoid inhalation of mist and contact with skin and eyes. For personal protection, see Section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	Dike far ahead of liquid spill for later disposal. Small Spills: Absorb spillage with suitable absorbent material. Clean contaminated surface thoroughly. After removal, flush contaminated area thoroughly with water. Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so.

**7. Handling and storage**

<b>Precautions for safe handling</b>	Provide adequate ventilation. Use work methods which minimize production of vapors and mists. Avoid inhalation of mist and contact with skin and eyes. Wash hands after handling. Observe good industrial hygiene practices.
<b>Conditions for safe storage, including any incompatibilities</b>	Keep container tightly closed. Store away from incompatible materials.

**8. Exposure controls/personal protection**

**Occupational exposure limits**

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value	Form
Glycerol (CAS 56-81-5)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

**US. ACGIH Threshold Limit Values**

Components	Type	Value	Form
Glycerol (CAS 56-81-5)	TWA	10 mg/m3	Mist.

<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>Exposure guidelines</b>	No exposure standards allocated.
<b>Appropriate engineering controls</b>	Provide adequate ventilation and minimize the risk of inhalation of vapors and mists.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	Wear safety glasses.
<b>Skin protection</b>	

<b>Hand protection</b>	Wear protective gloves. Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.
<b>Other</b>	Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear protective gloves. Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.
<b>Respiratory protection</b>	In case of inadequate ventilation or risk of inhalation of vapors, use suitable respiratory equipment with combination filter (gas filter/dust filter). Seek advice from local supervisor.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	Handle in accordance with good industrial hygiene and safety practice. Wash hands after handling. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

### Appearance

<b>Physical state</b>	Liquid.
<b>Form</b>	Viscous liquid.
<b>Color</b>	Colorless.
<b>Odor</b>	Odorless.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Neutral.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	Soluble in water.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.

## 10. Stability and reactivity

<b>Reactivity</b>	The product is non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Stable at normal conditions.
<b>Possibility of hazardous reactions</b>	Hazardous reactions do not occur.
<b>Conditions to avoid</b>	Strong heating. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	None known.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Ingestion</b>	Ingestion may cause irritation and malaise.
<b>Inhalation</b>	Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

<b>Skin contact</b>	May cause skin irritation. Causes skin irritation.
<b>Eye contact</b>	May cause eye irritation on direct contact. Causes eye irritation.
<b>Symptoms related to the physical, chemical and toxicological characteristics</b>	Irritation of eyes and mucous membranes. Mild skin irritation.
<b>Information on toxicological effects</b>	
<b>Acute toxicity</b>	Ingestion may cause irritation and malaise.
<b>Skin corrosion/irritation</b>	May cause skin irritation.
<b>Serious eye damage/eye irritation</b>	May cause eye irritation on direct contact.
<b>Respiratory sensitization</b>	Not classified.
<b>Skin sensitization</b>	Not a skin sensitizer.
<b>Germ cell mutagenicity</b>	Not classified.
<b>Carcinogenicity</b>	IARC not listed.
<b>Reproductive toxicity</b>	Not classified.
<b>Specific target organ toxicity - single exposure</b>	Knowledge about health hazard is incomplete.
<b>Specific target organ toxicity - repeated exposure</b>	Knowledge about health hazard is incomplete.
<b>Aspiration hazard</b>	Not classified.

**12. Ecological information**

<b>Ecotoxicity</b>	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills have a harmful or damaging effect on the environment.	
<b>Persistence and degradability</b>	The product is biodegradable.	
<b>Bioaccumulative potential</b>	The product is not bioaccumulating.	
<b>Partition coefficient <i>n</i>-octanol / water (log <i>Kow</i>)</b>	Glycerol (CAS 56-81-5)	-1.76
<b>Mobility in soil</b>	Expected to be highly mobile in soil.	
<b>Mobility in general</b>	The product is water soluble and may spread in water systems.	
<b>Other adverse effects</b>	No data available.	

**13. Disposal considerations**

<b>Disposal instructions</b>	Dispose of in accordance with all applicable regulations. Do not discharge into drains, water courses or onto the ground.	
<b>Local disposal regulations</b>	Dispose of in accordance with local regulations.	
<b>Hazardous waste code</b>	Not regulated.	
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations.	
<b>Contaminated packaging</b>	Dispose of in same manner as unused product.	

**14. Transport information**

<b>DOT</b>	Not regulated as a dangerous good.
<b>IATA</b>	Not regulated as a dangerous good.
<b>IMDG</b>	Not regulated as a dangerous good.
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable.

**15. Regulatory information**

<b>US federal regulations</b>	This product is hazardous according to OSHA 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.	
<b>TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)</b>	Not regulated.	
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>	Not regulated.	
<b>CERCLA Hazardous Substance List (40 CFR 302.4)</b>	Not listed.	
<b>Superfund Amendments and Reauthorization Act of 1986 (SARA)</b>		

**Hazard categories**

Immediate Hazard - Yes  
 Delayed Hazard - No  
 Fire Hazard - No  
 Pressure Hazard - No  
 Reactivity Hazard - No  
 No  
 Yes

SARA 302 Extremely hazardous substance  
 SARA 311/312 Hazardous chemical

**Other federal regulations**

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List Not regulated.  
 Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130) Not regulated.  
 Safe Drinking Water Act (SDWA) Not regulated.  
 Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number Not listed.  
 Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c)) Not regulated.  
 DEA Exempt Chemical Mixtures Code Number Not regulated.  
 Food and Drug Administration (FDA) Not regulated.

**US state regulations**

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

Massachusetts RTK - Substance List Glycerol (CAS 56-81-5)  
 New Jersey Worker and Community Right-to-Know Act Not regulated.  
 Pennsylvania RTK - Hazardous Substances Glycerol (CAS 56-81-5)  
 Rhode Island RTK Glycerol (CAS 56-81-5)  
 California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT) Not listed.

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	EC Inventory	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).  
 A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information**

Issue date 01/30/2016  
 Revision date 09/30/2016  
 Version 10  
 Further information Not available.  
 References IUCLID  
 Disclaimer This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.




## SAFETY DATA SHEET

### 1. Identification

<b>Product identifier</b>	MEBSTAIN Apoptosis TUNEL Kit III TdT
<b>Other means of identification</b>	
<b>Product code</b>	8442
<b>Recommended use</b>	Research use only.
<b>Recommended restrictions</b>	None known.
<b>Manufacturer / Importer / Supplier / Distributor information</b>	
<b>Manufacturer and Supplier (Asia)</b>	Medical & Biological Laboratories (MBL) Co., Ltd. 4-5-3 Sakae, Naka-ku, Nagoya, Aichi 460-0008, Japan
<b>Telephone number</b>	+81-52-238-1901 (Monday to Friday, 9 AM to 5 PM JST)
<b>Fax</b>	+81-52-238-1440
<b>E-mail</b>	sds-support@mbl.co.jp
<b>URL</b>	http://www.mbl.co.jp/e/index.html
<b>Contact person</b>	SDS Support
<b>Supplier</b>	MBL International Corporation 15A Constitution Way, Woburn, MA 01801, USA
<b>Telephone number</b>	+1-800-200-5459, option 3
<b>Fax</b>	+1-781-939-6963
<b>E-mail</b>	tech@mblintl.com
<b>URL</b>	http://www.mblintl.com/
<b>Contact person</b>	Technical Service

### 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.	
<b>Health hazards</b>	Carcinogenicity	Category 1A
<b>Environmental hazards</b>	Hazardous to the aquatic environment, acute hazard	Category 3
	Hazardous to the aquatic environment, long-term hazard	Category 3
<b>OSHA hazard(s)</b>	Not classified.	
<b>Label elements</b>		
<b>Hazard symbol</b>		
<b>Signal word</b>	Danger	
<b>Hazard statement</b>	May cause cancer. Harmful to aquatic life with long lasting effects.	
<b>Precautionary statement</b>		
<b>Prevention</b>	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid release to the environment. Use personal protective equipment as required.	
<b>Response</b>	If exposed or concerned: Get medical advice/attention.	
<b>Storage</b>	Store locked up.	
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.	
<b>Hazard(s) not otherwise classified (HNOC)</b>	None.	
<b>Supplemental information</b>	None.	

### 3. Composition/Information on ingredients

**Mixtures**

Chemical name	CAS number	%
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Glycerol (Glycerin)	56-81-5	40 - 70
Potassium cacodylate	21416-85-3	1.6
Sodium cacodylate	124-65-2	1.4
2-Mercaptoethanol	60-24-2	0.05

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

**4. First-aid measures**

**Inhalation** Move to fresh air. Get medical attention if discomfort develops or persists.  
**Skin contact** Remove contaminated clothing. Wash with soap and water. Get medical attention if irritation develops or persists. Wash contaminated clothing before reuse.  
**Eye contact** Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation develops or persists.  
**Ingestion** Rinse mouth thoroughly. Get medical attention if any discomfort occurs.  
**Most important symptoms/ effects, acute and delayed** May cause temporary irritation on skin or eye on direct contact.  
**Indication of immediate medical attention and special treatment needed** Treat symptomatically.  
**General information** Get medical attention if any discomfort develops.

**5. Fire-fighting measures**

**Suitable extinguishing media** Water. Foam. Dry powder. Carbon dioxide (CO2).  
**Unsuitable extinguishing media** None known.  
**Specific hazards arising from the chemical** Fire or high temperatures create: Carbon oxides. Arsenic oxides.  
**Special protective equipment and precautions for firefighters** Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.  
**Fire-fighting equipment/ instructions** Move containers from fire area if you can do that without risk. Use water spray to cool unopened containers. Prevent entry to sewers and public waters.

**6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures** Ensure adequate ventilation. Avoid inhalation of mist and contact with skin and eyes. For personal protection, see Section 8 of the SDS.  
**Methods and materials for containment and cleaning up** Dike far ahead of liquid spill for later disposal. Small Spills: Absorb spillage with suitable absorbent material. Clean contaminated surface thoroughly. After removal, flush contaminated area thoroughly with water. Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.  
**Environmental precautions** Prevent further leakage or spillage if safe to do so.

**7. Handling and storage**

**Precautions for safe handling** Should be handled in closed systems, if possible. Obtain special instructions before use. Provide adequate ventilation. Pregnant women should not work with the product, if there is the least risk of exposure. Use work methods which minimize production of vapors and mists. Avoid inhalation of mist and contact with skin and eyes. Wash hands after handling. Observe good industrial hygiene practices.  
**Conditions for safe storage, including any incompatibilities** Keep container tightly closed. Store away from incompatible materials.

**8. Exposure controls/personal protection**

**Occupational exposure limits**

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value	Form
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Glycerol (CAS 56-81-5)	PEL	5 mg/m3 15 mg/m3	Respirable fraction Total dust
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**US. ACGIH Threshold Limit Values**

Components	Type	Value	Form
Glycerol (CAS 56-81-5)	TWA	10 mg/m3	Mist

**US. Workplace Environmental Exposure Level (WEEL) Guides**

Components	Type	Value	Form
2-Mercaptoethanol (CAS 60-24-2)	TWA	0.6 mg/m3 0.2 ppm	

<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).	
<b>Exposure guidelines</b>		
<b>US WEEL Guides: Skin designation</b>	2-Mercaptoethanol (CAS 60-24-2)	Can be absorbed through the skin.
<b>Appropriate engineering controls</b>	Provide adequate ventilation and minimise the risk of inhalation of vapours and mists.	
<b>Individual protection measures, such as personal protective equipment</b>		
<b>Eye/face protection</b>	Wear safety glasses.	
<b>Skin protection</b>		
<b>Hand protection</b>	Wear protective gloves. Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.	
<b>Other</b>	Wear appropriate clothing to prevent repeated or prolonged skin contact.	
<b>Respiratory protection</b>	In case of inadequate ventilation or risk of inhalation of vapors, use suitable respiratory equipment with combination filter (gas filter/dust filter). Seek advice from local supervisor.	
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.	
<b>General hygiene considerations</b>	Handle in accordance with good industrial hygiene and safety practice. Wash hands after handling. Routinely wash work clothing and protective equipment to remove contaminants. Observe any medical surveillance requirements.	

**9. Physical and chemical properties**

<b>Appearance</b>	
<b>Physical state</b>	Liquid.
<b>Form</b>	Viscous liquid.
<b>Color</b>	Colorless.
<b>Odor</b>	Faint.
<b>Odor threshold</b>	Not available.
<b>pH</b>	7.2 Neutral.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	Soluble in water.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.

**Viscosity** Not available.

**10. Stability and reactivity**

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and  
**Chemical stability** Stable at normal conditions.  
**Possibility of hazardous reactions** None known.  
**Conditions to avoid** Strong heating. Contact with incompatible materials.  
**Incompatible materials** Strong oxidizing agents. Strong bases.  
**Hazardous decomposition products** None known.

**11. Toxicological information**

**Information on likely routes of exposure**

**Inhalation** Under normal conditions of intended use, this material is not expected to be an inhalation hazard.  
**Skin contact** May cause skin irritation.  
**Eye contact** May cause eye irritation on direct contact.  
**Ingestion** Ingestion may cause irritation and malaise.

**Symptoms related to the physical, chemical and toxicological characteristics** Irritation of eyes and mucous membranes. Mild skin irritation.

**Information on toxicological effects**

**Acute toxicity** Large quantities: May cause discomfort if swallowed.

Components		Species	Test Results
<b>Glycerol (CAS 56-81-5)</b>			
<b>Acute</b>			
<i>Oral</i>	LD50	Rat	12,600 mg/kg
<b>Potassium cacodylate (CAS 21416-85-3)</b>			
<b>Acute</b>			
<i>Oral</i>	LD50	Mouse	145 mg/kg
		Rat	763 mg/kg
<b>Sodium cacodylate (CAS 124-65-2)</b>			
<b>Acute</b>			
<i>Oral</i>	LD50	Mouse	145 mg/kg
		Rat	763 mg/kg
<b>2-Mercaptoethanol (CAS 60-24-2)</b>			
<b>Acute</b>			
<i>Oral</i>	LD50	Rat	244 mg/kg
<i>Dermal</i>	LD50	Rabbit	150 mg/kg
<i>Inhalation</i>	LC50	Rat	2 mg/L, 4 hours

**Skin corrosion/irritation** May cause skin irritation.  
**Serious eye damage/eye irritation** May cause eye irritation on direct contact.  
**Respiratory sensitization** Not classified.  
**Skin sensitization** Not a skin sensitizer.  
**Germ cell mutagenicity** Not classified.  
**Carcinogenicity** May cause cancer.  
**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)** Not listed.  
**ACGIH** Group A1: confirmed human carcinogen (listed as Arsenic).  
**IARC** Group 2B: possibly carcinogenic to humans (listed as Arsenic).  
**NTP** Group a: known to be human carcinogen.  
**Reproductive toxicity** Not classified.  
**Specific target organ toxicity - single exposure** Not classified.  
**Specific target organ toxicity - repeated exposure** Not classified.



**Aspiration hazard** Not classified.  
**Further information** Repeated ingestion or inhalation of arsenic compounds may adversely affect the skin, liver, circulatory system, upper respiratory tract and lungs.

**12. Ecological information**

**Ecotoxicity** Harmful to aquatic life with long lasting effects.

Components	Species	Test Results
Potassium cacodylate (CAS 21416-85-3)		
<b>Aquatic</b>		
Crustacea LC50	Water flea ( <i>Daphnia magna</i> )	3.3 - 4.3 mg/L, 48 hours
Sodium cacodylate (CAS 124-65-2)		
<b>Aquatic</b>		
Crustacea LC50	Water flea ( <i>Daphnia magna</i> )	3.3 - 4.3 mg/L, 48 hours
2-Mercaptoethanol (CAS 60-24-2)		
<b>Aquatic</b>		
Crustacea EC50	Water flea ( <i>Daphnia magna</i> )	0.4 mg/L, 48 hours

**Persistence and degradability** The product is not expected to be readily biodegradable.

**Bioaccumulative potential**

**Partition coefficient *n*-octanol / water (log *Kow*)**

Glycerol (CAS 56-81-5)	-1.76
2-Mercaptoethanol (CAS 60-24-2)	-0.326

**Mobility in soil** Expected to be highly mobile in soil.

**Mobility in general** The product is water soluble and may spread in water systems.

**Other adverse effects** No data available.

**13. Disposal considerations**

**Disposal instructions** Dispose of in accordance with all applicable regulations. Do not discharge into drains, water courses or onto the ground.

**Local disposal regulations** Dispose of in accordance with local regulations.

**Hazardous waste code** Not regulated.

**Waste from residues / unused products** Dispose of in accordance with local regulations.

**Contaminated packaging** Dispose of in same manner as unused product.

**14. Transport information**

**DOT** Not regulated as dangerous goods.

**IATA** Not regulated as dangerous goods.

**IMDG** Not regulated as dangerous goods.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

**15. Regulatory information**

**US federal regulations** This product is not hazardous according to OSHA 29CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

<b>TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)</b>	Not regulated.
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>	Not listed.
<b>CERCLA Hazardous Substance List (40 CFR 302.4)</b>	Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

<b>Hazard categories</b>	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
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**SARA 302 Extremely hazardous substance**

Chemical name (CAS number)	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
Sodium cacodylate (CAS 124-65-2)	100		100 lbs	10,000 lbs

**SARA 311/312 Hazardous chemical** Yes  
**SARA 313 (TRI reporting)** Not regulated.

**Other federal regulations**

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List** Not regulated.  
**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)** Not regulated.  
**Safe Drinking Water Act (SDWA)** Not regulated.

**US state regulations**

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

**Massachusetts RTK - Substance List** Glycerol (CAS 56-81-5)  
 Sodium cacodylate (CAS 124-65-2)  
**New Jersey Worker and Community Right-to-Know Act** Glycerol (CAS 56-81-5)  
 Sodium cacodylate (CAS 124-65-2)  
**Pennsylvania RTK - Hazardous Substances** Glycerol (CAS 56-81-5)  
 Sodium cacodylate (CAS 124-65-2)  
**Rhode Island RTK** Sodium cacodylate (CAS 124-65-2)  
**California Proposition 65** Not listed.

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
<b>Australia</b>	Australian Inventory of Chemical Substances (AICS)	No
<b>Canada</b>	Domestic Substances List (DSL)	No
<b>Canada</b>	Non-Domestic Substances List (NDSL)	No
<b>China</b>	Inventory of Existing Chemical Substances in China (IECSC)	No
<b>Europe</b>	EC Inventory	No
<b>Japan</b>	Inventory of Existing and New Chemical Substances (ENCS)	No
<b>Korea</b>	Existing Chemicals List (ECL)	No
<b>New Zealand</b>	New Zealand Inventory	No
<b>Philippines</b>	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
<b>United States &amp; Puerto Rico</b>	Toxic Substances Control Act (TSCA) Inventory	No

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).  
 A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information**

**Issue date** 01/30/2016  
**Revision date** 09/30/2016  
**Version** 10  
**List of abbreviations** EC50: Effective Concentration, 50%.  
 LC50: Lethal Concentration, 50%.  
 LD50: Lethal Dose, 50%.  
**Further information** Not available.  
**References** IUCLID  
**Disclaimer** This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.



## SAFETY DATA SHEET

### 1. Identification

<b>Product identifier</b>	MEBSTAIN Apoptosis TUNEL Kit III Blocking concentrate (x4)
<b>Other means of identification</b>	
<b>Product code</b>	8442
<b>Recommended use</b>	Research use only.
<b>Recommended restrictions</b>	None known.
<b>Manufacturer / Importer / Supplier / Distributor information</b>	
<b>Manufacturer and Supplier (Asia)</b>	Medical & Biological Laboratories (MBL) Co., Ltd. 4-5-3 Sakae, Naka-ku, Nagoya, Aichi 460-0008, Japan
<b>Telephone number</b>	+81-52-238-1901 (Monday to Friday, 9 AM to 5 PM JST)
<b>Fax</b>	+81-52-238-1440
<b>E-mail</b>	sds-support@mbl.co.jp
<b>URL</b>	<a href="http://www.mbl.co.jp/e/index.html">http://www.mbl.co.jp/e/index.html</a>
<b>Contact person</b>	SDS Support
<b>Supplier</b>	MBL International Corporation 15A Constitution Way, Woburn, MA 01801, USA
<b>Telephone number</b>	+1-800-200-5459, option 3
<b>Fax</b>	+1-781-939-6963
<b>E-mail</b>	tech@mblintl.com
<b>URL</b>	<a href="http://www.mblintl.com/">http://www.mblintl.com/</a>
<b>Contact person</b>	Technical Service

### 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.
<b>Health hazards</b>	Not classified.
<b>OSHA hazard(s)</b>	Not classified.
<b>Label elements</b>	
<b>Hazard symbol</b>	None.
<b>Signal word</b>	None.
<b>Hazard statement</b>	None.
<b>Precautionary statement</b>	
<b>Prevention</b>	Observe good industrial hygiene practices.
<b>Response</b>	Wash hands after handling.
<b>Storage</b>	Store away from incompatible materials.
<b>Disposal</b>	Dispose of waste and residues in accordance with local authority requirements.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None.
<b>Supplemental information</b>	None.

### 3. Composition/Information on ingredients

#### Mixtures

Chemical name	CAS number	%
Sodium azide	26628-22-8	< 0.1

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### 4. First-aid measures

<b>Inhalation</b>	Move to fresh air. Get medical attention if any discomfort continues.
<b>Skin contact</b>	Remove contaminated clothing. Wash skin with soap and water. Get medical attention if irritation develops or persists.

<b>Eye contact</b>	Rinse immediately with plenty of water, also under the eyelids. Get medical attention if irritation develops or persists.
<b>Ingestion</b>	Rinse mouth thoroughly. Get medical attention if any discomfort occurs.
<b>Most important symptoms/ effects, acute and delayed</b>	Dry skin.
<b>Indication of immediate medical attention and special treatment needed</b>	Treat symptomatically.
<b>General information</b>	Get medical attention if any discomfort develops.

**5. Fire-fighting measures**

<b>Suitable extinguishing media</b>	Use fire-extinguishing media appropriate for surrounding materials.
<b>Unsuitable extinguishing media</b>	None known.
<b>Specific hazards arising from the chemical</b>	None known.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.
<b>Fire-fighting equipment/ instructions</b>	Move containers from fire area if you can do it without risk. Use water spray to cool unopened containers. Prevent entry to sewers and public waters.
<b>General fire hazards</b>	The product is non-combustible.

**6. Accidental release measures**

<b>Personal precautions, protective equipment and emergency procedures</b>	Avoid inhalation of mist and contact with skin and eyes. For personal protection, see Section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	Absorb spillage with suitable absorbent material. After removal, flush contaminated area thoroughly with water. For waste disposal, see Section 13 of the SDS.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so.

**7. Handling and storage**

<b>Precautions for safe handling</b>	Avoid contact with eyes and prolonged skin contact. Wash hands after handling. Observe good industrial hygiene practices.
<b>Conditions for safe storage, including any incompatibilities</b>	Keep container tightly closed. Store away from incompatible materials.

**8. Exposure controls/personal protection**

**Occupational exposure limits**

**US. ACGIH Threshold Limit Values**

Components	Type	Value
Sodium azide (CAS 26628-22-8)	Ceiling	0.29 mg/m3 0.11 ppm

**US NIOSH Pocket Guide to Chemical Hazards: Ceiling Limit Value and Time Period (if specified)**

Components	Type	Value
Sodium azide (CAS 26628-22-8)	Ceiling	0.3 mg/m3 0.1 ppm

<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>Appropriate engineering controls</b>	Provide adequate ventilation. Provide easy access to water supply and eye wash facilities.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	Risk of splashes: Wear safety glasses with side shields.
<b>Skin protection</b>	
<b>Hand protection</b>	Wear protective gloves. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.

<b>Other</b>	Wear appropriate clothing to prevent repeated or prolonged skin contact.
<b>Respiratory protection</b>	No special precautions. Seek advice from local supervisor.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	Handle in accordance with good industrial hygiene and safety practice. Wash hands after handling. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

### Appearance

<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Color</b>	Colorless.
<b>Odor</b>	Odorless.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Neutral.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	Soluble in water.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non reactive under normal conditions of use, storage and
<b>Chemical stability</b>	Stable at normal conditions.
<b>Possibility of hazardous reactions</b>	Sodium azide: Reacts with copper, lead, silver, mercury and carbon disulfide to form particularly shock-sensitive compounds. Reacts with acids, forming toxic and explosive hydrogen azide.
<b>Conditions to avoid</b>	None known.
<b>Incompatible materials</b>	Heavy metals. Acids.
<b>Hazardous decomposition products</b>	None known.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Ingestion</b>	Large quantities: May cause discomfort if swallowed.
<b>Inhalation</b>	Under normal conditions of intended use, this material is not expected to be an inhalation hazard.
<b>Skin contact</b>	Prolonged contact may cause dryness of the skin.
<b>Eye contact</b>	Direct contact with eyes may cause temporary irritation.
<b>Symptoms related to the physical, chemical and toxicological characteristics</b>	Dry skin.
<b>Information on toxicological effects</b>	

<b>Acute toxicity</b>	Large quantities: May cause discomfort if swallowed.
<b>Skin corrosion/irritation</b>	May cause mild skin irritation.
<b>Serious eye damage/eye irritation</b>	May cause eye irritation.
<b>Respiratory sensitization</b>	Based on available data, the classification criteria are not met.
<b>Skin sensitization</b>	Based on available data, the classification criteria are not met.
<b>Germ cell mutagenicity</b>	No data available.
<b>Carcinogenicity</b>	
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>	Not listed.
<b>NTP Report on Carcinogens</b>	Not listed.
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>	Not listed.
<b>Reproductive toxicity</b>	No data available.
<b>Specific target organ toxicity - single exposure</b>	No data available.
<b>Specific target organ toxicity - repeated exposure</b>	No data available.
<b>Aspiration hazard</b>	Based on available data, the classification criteria are not met.
<b>Chronic effects</b>	Prolonged inhalation may be harmful.

## 12. Ecological information

<b>Ecotoxicity</b>	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills have a harmful or damaging effect on the environment.
<b>Persistence and degradability</b>	No data available.
<b>Bioaccumulative potential</b>	No data available.
<b>Mobility in soil</b>	No data available.
<b>Mobility in general</b>	The product is water soluble and may spread in water systems.
<b>Other adverse effects</b>	The environmental hazard of the product is considered to be limited.

## 13. Disposal considerations

<b>Disposal instructions</b>	Dispose of in accordance with all applicable regulations. Do not discharge into drains, water courses or onto the ground.
<b>Local disposal regulations</b>	Dispose of in accordance with local regulations.
<b>Hazardous waste code</b>	Not regulated.
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations.
<b>Contaminated packaging</b>	Dispose of in same manner as unused product.

## 14. Transport information

<b>DOT</b>	Not regulated as dangerous goods.
<b>IATA</b>	Not regulated as dangerous goods.
<b>IMDG</b>	Not regulated as dangerous goods.
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable.

## 15. Regulatory information

<b>US federal regulations</b>	This product is not hazardous according to OSHA 29CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.	
<b>TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)</b>		Not regulated.
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>		Not listed.
<b>CERCLA Hazardous Substance List (40 CFR 302.4)</b>		Not listed.
<b>Superfund Amendments and Reauthorization Act of 1986 (SARA)</b>		

**Hazard categories**

Immediate Hazard - No  
 Delayed Hazard - No  
 Fire Hazard - No  
 Pressure Hazard - No  
 Reactivity Hazard - No  
 No  
 No  
 Not regulated.

**SARA 302 Extremely hazardous substance**  
**SARA 311/312 Hazardous chemical**  
**SARA 313 (TRI reporting)**

**Other federal regulations**

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List** Not regulated.  
**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)** Not regulated.  
**Safe Drinking Water Act (SDWA)** Not regulated.  
**Food and Drug Administration (FDA)** Not regulated.

**US state regulations**

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

**Massachusetts RTK - Substance List** Not listed.  
**New Jersey Worker and Community Right-to-Know Act** Not listed.  
**Pennsylvania RTK - Hazardous Substances** Not listed.  
**Rhode Island RTK** Not listed.  
**California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT)** Not listed.

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	EC Inventory	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).  
 A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information**

**Issue date** 01/30/2016  
**Revision date** 09/30/2016  
**Version** 10  
**Further information** Not available.  
**References** Registry of Toxic Effects of Chemical Substances (RTECS)  
 HSDB® - Hazardous Substances Data Bank  
**Disclaimer** This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.



## SAFETY DATA SHEET

### 1. Identification

<b>Product identifier</b>	MEBSTAIN Apoptosis TUNEL Kit III Avidin-DTAF
<b>Other means of identification</b>	
<b>Product code</b>	8442
<b>Recommended use</b>	Research use only.
<b>Recommended restrictions</b>	None known.
<b>Manufacturer / Importer / Supplier / Distributor information</b>	
<b>Manufacturer and Supplier (Asia)</b>	Medical & Biological Laboratories (MBL) Co., Ltd. 4-5-3 Sakae, Naka-ku, Nagoya, Aichi 460-0008, Japan
<b>Telephone number</b>	+81-52-238-1901 (Monday to Friday, 9 AM to 5 PM JST)
<b>Fax</b>	+81-52-238-1440
<b>E-mail</b>	sds-support@mbl.co.jp
<b>URL</b>	<a href="http://www.mbl.co.jp/e/index.html">http://www.mbl.co.jp/e/index.html</a>
<b>Contact person</b>	SDS Support
<b>Supplier</b>	MBL International Corporation 15A Constitution Way, Woburn, MA 01801, USA
<b>Telephone number</b>	+1-800-200-5459, option 3
<b>Fax</b>	+1-781-939-6963
<b>E-mail</b>	tech@mblintl.com
<b>URL</b>	<a href="http://www.mblintl.com/">http://www.mblintl.com/</a>
<b>Contact person</b>	Technical Service

### 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.
<b>Health hazards</b>	Not classified.
<b>OSHA hazard(s)</b>	Not classified.
<b>Label elements</b>	
<b>Hazard symbol</b>	None.
<b>Signal word</b>	None.
<b>Hazard statement</b>	None.
<b>Precautionary statement</b>	
<b>Prevention</b>	Observe good industrial hygiene practices.
<b>Response</b>	Wash thoroughly after handling.
<b>Storage</b>	Store away from incompatible materials.
<b>Disposal</b>	Dispose of waste and residues in accordance with local authority requirements.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None.

### 3. Composition/Information on ingredients

<b>Mixtures</b>		
Chemical name	CAS number	%
Glycerol (Glycerin)	56-81-5	50 - 60
Sodium azide	26628-22-8	< 0.1

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### 4. First aid measures

<b>Inhalation</b>	Move to fresh air. Get medical attention if discomfort develops or persists.
<b>Skin contact</b>	Remove contaminated clothing. Wash with soap and water. Get medical attention if irritation develops or persists. Wash contaminated clothing before reuse.



<b>Eye contact</b>	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation develops or persists.
<b>Ingestion</b>	Rinse mouth thoroughly. Get medical attention if any discomfort occurs.
<b>Most important symptoms/ effects, acute and delayed</b>	Irritation of eyes and mucous membranes. Mild skin irritation.
<b>Indication of immediate medical attention and special treatment needed</b>	Treat symptomatically.
<b>General information</b>	Get medical attention if any discomfort develops.

### 5. Fire fighting measures

<b>Suitable extinguishing media</b>	Water. Foam. Dry powder. Carbon dioxide (CO2).
<b>Unsuitable extinguishing media</b>	None known.
<b>Specific hazards arising from the chemical</b>	Fire or high temperatures create: Carbon oxides.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.
<b>Fire-fighting equipment/instructions</b>	Move containers from fire area if you can do that without risk. Use water spray to cool unopened containers. Prevent entry to sewers and public waters.

### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Ensure adequate ventilation. Avoid inhalation of mist and contact with skin and eyes. For personal protection, see Section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	Dike far ahead of liquid spill for later disposal. Small Spills: Absorb spillage with suitable absorbent material. Clean contaminated surface thoroughly. After removal, flush contaminated area thoroughly with water. Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so.

### 7. Handling and storage

<b>Precautions for safe handling</b>	Provide adequate ventilation. Use work methods which minimize production of vapors and mists. Avoid inhalation of mist and contact with skin and eyes. Wash hands after handling. Observe good industrial hygiene practices.
<b>Conditions for safe storage, including any incompatibilities</b>	Keep container tightly closed. Store away from incompatible materials.

### 8. Exposure controls/personal protection

#### Occupational exposure limits

##### US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Glycerol (CAS 56-81-5)	PEL	5 mg/m3	Respirable fraction
		15 mg/m3	Total dust

##### US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Glycerol (CAS 56-81-5)	TWA	10 mg/m3	Mist
Sodium azide (CAS 26628-22-8)	Ceiling	0.29 mg/m3	
		0.11 ppm	

##### US NIOSH Pocket Guide to Chemical Hazards: Ceiling Limit Value and Time Period (if specified)

Components	Type	Value
Sodium azide (CAS 26628-22-8)	Ceiling	0.3 mg/m3
		0.1 ppm

<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
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<b>Exposure guidelines</b>	No exposure standards allocated.
<b>Appropriate engineering controls</b>	Provide adequate ventilation and minimize the risk of inhalation of vapors and mists.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	Wear safety glasses.
<b>Skin protection</b>	
<b>Hand protection</b>	Wear protective gloves. Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.
<b>Other</b>	Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear protective gloves. Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.
<b>Respiratory protection</b>	In case of inadequate ventilation or risk of inhalation of vapors, use suitable respiratory equipment with combination filter (gas filter/dust filter). Seek advice from local supervisor.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	Handle in accordance with good industrial hygiene and safety practice. Wash hands after handling. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

<b>Appearance</b>	
<b>Physical state</b>	Liquid.
<b>Form</b>	Viscous liquid.
<b>Color</b>	Colorless.
<b>Odor</b>	Odorless.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Neutral.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	Soluble in water.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.

## 10. Stability and reactivity

<b>Reactivity</b>	The product is non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Stable at normal conditions.
<b>Possibility of hazardous reactions</b>	Sodium azide: Reacts with copper, lead, silver, mercury and carbon disulfide to form particularly shock-sensitive compounds. Reacts with acids, forming toxic and explosive hydrogen azide.
<b>Conditions to avoid</b>	Strong heating. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents. Heavy metals. Acids.

**Hazardous decomposition products** None known.

**11. Toxicological information**

**Information on likely routes of exposure**

**Ingestion** Ingestion may cause irritation and malaise.  
**Inhalation** Under normal conditions of intended use, this material is not expected to be an inhalation hazard.  
**Skin contact** May cause skin irritation. Causes skin irritation.  
**Eye contact** May cause eye irritation on direct contact. Causes eye irritation.

**Symptoms related to the physical, chemical and toxicological characteristics** Irritation of eyes and mucous membranes. Mild skin irritation.

**Information on toxicological effects**

**Acute toxicity** Ingestion may cause irritation and malaise.  
**Skin corrosion/irritation** May cause skin irritation.  
**Serious eye damage/eye irritation** May cause eye irritation on direct contact.  
**Respiratory sensitization** Not classified.  
**Skin sensitization** Not a skin sensitizer.  
**Germ cell mutagenicity** Not classified.  
**Carcinogenicity** IARC not listed.  
**Reproductive toxicity** Not classified.  
**Specific target organ toxicity - single exposure** Knowledge about health hazard is incomplete.  
**Specific target organ toxicity - repeated exposure** Knowledge about health hazard is incomplete.  
**Aspiration hazard** Not classified.

**12. Ecological information**

**Ecotoxicity** The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills have a harmful or damaging effect on the environment.

**Persistence and degradability** No data available.

**Bioaccumulative potential**

**Partition coefficient *n*-octanol / water (log *Kow*)**  
 Glycerol (CAS 56-81-5) -1.76

**Mobility in soil** Expected to be highly mobile in soil.

**Mobility in general** The product is water soluble and may spread in water systems.

**Other adverse effects** No data available.

**13. Disposal considerations**

**Disposal instructions** Dispose of in accordance with all applicable regulations. Do not discharge into drains, water courses or onto the ground.

**Local disposal regulations** Dispose of in accordance with local regulations.

**Hazardous waste code** Not regulated.

**Waste from residues / unused products** Dispose of in accordance with local regulations.

**Contaminated packaging** Dispose of in same manner as unused product.

**14. Transport information**

**DOT** Not regulated as a dangerous good.

**IATA** Not regulated as a dangerous good.

**IMDG** Not regulated as a dangerous good.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

**15. Regulatory information**

<b>US federal regulations</b>	This product is hazardous according to OSHA 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.	
<b>TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)</b>		Not regulated.
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>		Not regulated.
<b>CERCLA Hazardous Substance List (40 CFR 302.4)</b>		Not listed.
<b>Superfund Amendments and Reauthorization Act of 1986 (SARA)</b>		
<b>Hazard categories</b>		Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
<b>SARA 302 Extremely hazardous substance</b>		No
<b>SARA 311/312 Hazardous chemical</b>		Yes
<b>Other federal regulations</b>		
<b>Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List</b>		Not regulated.
<b>Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)</b>		Not regulated.
<b>Safe Drinking Water Act (SDWA)</b>		Not regulated.
<b>Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number</b>		Not listed.
<b>Drug Enforcement Administration (DEA). List 1 &amp; 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))</b>		Not regulated.
<b>DEA Exempt Chemical Mixtures Code Number</b>		Not regulated.
<b>Food and Drug Administration (FDA)</b>		Not regulated.
<b>US state regulations</b>	This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.	
<b>Massachusetts RTK - Substance List</b>		Glycerol (CAS 56-81-5)
<b>New Jersey Worker and Community Right-to-Know Act</b>		Not regulated.
<b>Pennsylvania RTK - Hazardous Substances</b>		Glycerol (CAS 56-81-5)
<b>Rhode Island RTK</b>		Glycerol (CAS 56-81-5)
<b>California Proposition 65 - Carcinogens &amp; Reproductive Toxicity (CRT)</b>		Not listed.
<b>International Inventories</b>		
<b>Country(s) or region</b>	<b>Inventory name</b>	<b>On inventory (yes/no)*</b>
<b>Australia</b>	Australian Inventory of Chemical Substances (AICS)	Yes
<b>Canada</b>	Domestic Substances List (DSL)	Yes
<b>Canada</b>	Non-Domestic Substances List (NDSL)	No
<b>China</b>	Inventory of Existing Chemical Substances in China (IECSC)	Yes
<b>Europe</b>	EC Inventory	Yes
<b>Japan</b>	Inventory of Existing and New Chemical Substances (ENCS)	Yes
<b>Korea</b>	Existing Chemicals List (ECL)	Yes
<b>New Zealand</b>	New Zealand Inventory	Yes
<b>Philippines</b>	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
<b>United States &amp; Puerto Rico</b>	Toxic Substances Control Act (TSCA) Inventory	Yes
*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s). A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).		

**16. Other information**

<b>Issue date</b>	01/30/2016
<b>Revision date</b>	09/30/2016
<b>Version</b>	10
<b>Further information</b>	Not available.

**References**

IUCLID  
Registry of Toxic Effects of Chemical Substances (RTECS)  
HSDB® - Hazardous Substances Data Bank

**Disclaimer**

This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.



## SAFETY DATA SHEET

### 1. Identification

<b>Product identifier</b>	MEBSTAIN Apoptosis TUNEL Kit III Proteinase K, TB buffer (x10)
<b>Other means of identification</b>	
<b>Product code</b>	8442
<b>Recommended use</b>	Research use only.
<b>Recommended restrictions</b>	None known.
<b>Manufacturer / Importer / Supplier / Distributor information</b>	
<b>Manufacturer and Supplier (Asia)</b>	Medical & Biological Laboratories (MBL) Co., Ltd. 4-5-3 Sakae, Naka-ku, Nagoya, Aichi 460-0008, Japan
<b>Telephone number</b>	+81-52-238-1901 (Monday to Friday, 9 AM to 5 PM JST)
<b>Fax</b>	+81-52-238-1440
<b>E-mail</b>	sds-support@mbl.co.jp
<b>URL</b>	<a href="http://www.mbl.co.jp/e/index.html">http://www.mbl.co.jp/e/index.html</a>
<b>Contact person</b>	SDS Support
<b>Supplier</b>	MBL International Corporation 15A Constitution Way, Woburn, MA 01801, USA
<b>Telephone number</b>	+1-800-200-5459, option 3
<b>Fax</b>	+1-781-939-6963
<b>E-mail</b>	tech@mblintl.com
<b>URL</b>	<a href="http://www.mblintl.com/">http://www.mblintl.com/</a>
<b>Contact person</b>	Technical Service

### 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.
<b>Health hazards</b>	Not classified.
<b>OSHA hazard(s)</b>	Not classified.
<b>Label elements</b>	
<b>Hazard symbol</b>	None.
<b>Signal word</b>	None.
<b>Hazard statement</b>	None.
<b>Precautionary statement</b>	
<b>Prevention</b>	Observe good industrial hygiene practices.
<b>Response</b>	Wash thoroughly after handling.
<b>Storage</b>	None.
<b>Disposal</b>	None.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None.

### 3. Composition/Information on ingredients

**Mixtures**

The manufacturer lists no ingredients as hazardous according to OSHA 29 CFR 1910.1200.

### 4. First-aid measures

<b>Inhalation</b>	Under normal conditions of intended use, this material is not expected to be an inhalation hazard.
<b>Skin contact</b>	Remove contaminated clothing. Dry skin with paper towel or similar. Get medical attention if irritation develops or persists.
<b>Eye contact</b>	Rinse immediately with plenty of water, also under the eyelids. Get medical attention if irritation develops or persists.

<b>Ingestion</b>	No adverse effects due to ingestion are expected. Get medical attention if any discomfort occurs.
<b>Most important symptoms/ effects, acute and delayed</b>	Dry skin.
<b>Indication of immediate medical attention and special treatment needed</b>	Treat symptomatically.
<b>General information</b>	Get medical attention if any discomfort develops.

**5. Fire-fighting measures**

<b>Suitable extinguishing media</b>	Use fire-extinguishing media appropriate for surrounding materials.
<b>Unsuitable extinguishing media</b>	None known.
<b>Specific hazards arising from the chemical</b>	None known.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing should be worn when fighting chemical fires. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.
<b>Fire-fighting equipment/ instructions</b>	Use standard firefighting procedures and consider the hazards of other involved materials.
<b>General fire hazards</b>	The product is non-combustible.

**6. Accidental release measures**

<b>Personal precautions, protective equipment and emergency procedures</b>	Avoid prolonged and repeated contact. Wear suitable protective clothing. For personal protection, see Section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	Absorb spillage with non-combustible, absorbent material. After removal, flush contaminated area thoroughly with water. For waste disposal, see Section 13 of the SDS.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so.

**7. Handling and storage**

<b>Precautions for safe handling</b>	Avoid prolonged and repeated contact. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
<b>Conditions for safe storage, including any incompatibilities</b>	Keep container closed.

**8. Exposure controls/personal protection**

<b>Occupational exposure limits</b>	No exposure limits noted for ingredient(s).
<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>Appropriate engineering controls</b>	Provide adequate ventilation.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	If risk of splashing, wear safety goggles or face shield.
<b>Skin protection</b>	
<b>Hand protection</b>	Wear protective gloves. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.
<b>Other</b>	Wear protective gloves. Wear appropriate clothing to prevent repeated or prolonged skin contact.
<b>Respiratory protection</b>	No protection is ordinarily required under normal conditions of use.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

**9. Physical and chemical properties**

**Appearance**

<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Color</b>	Colorless.
<b>Odor</b>	Odorless.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	Soluble in water.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.

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## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non reactive under normal conditions of use, storage and
<b>Chemical stability</b>	Stable at normal conditions.
<b>Possibility of hazardous reactions</b>	None known.
<b>Conditions to avoid</b>	None known.
<b>Incompatible materials</b>	None known.
<b>Hazardous decomposition products</b>	No hazard in normal industrial use.

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## 11. Toxicological information

### Information on likely routes of exposure

<b>Ingestion</b>	Large quantities: May cause discomfort if swallowed.
<b>Inhalation</b>	Under normal conditions of intended use, this material is not expected to be an inhalation hazard.
<b>Skin contact</b>	Prolonged contact may cause dryness of the skin.
<b>Eye contact</b>	Direct contact with eyes may cause temporary irritation.
<b>Symptoms related to the physical, chemical and toxicological characteristics</b>	Dry skin.

### Information on toxicological effects

<b>Acute toxicity</b>	Large quantities: May cause discomfort if swallowed.
<b>Skin corrosion/irritation</b>	Prolonged contact may cause dryness of the skin.
<b>Serious eye damage/eye irritation</b>	Direct contact with eyes may cause temporary irritation.
<b>Respiratory sensitization</b>	No data available.
<b>Skin sensitization</b>	Not a skin sensitizer.
<b>Germ cell mutagenicity</b>	No data available.
<b>Carcinogenicity</b>	No data available.
<b>Reproductive toxicity</b>	No data available.



**Specific target organ toxicity - single exposure** No data available.  
**Specific target organ toxicity - repeated exposure** No data available.  
**Aspiration hazard** No data available.

**12. Ecological information**

**Ecotoxicity** The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills have a harmful or damaging effect on the environment.  
**Persistence and degradability** No data available.  
**Bioaccumulative potential** No data available.  
**Mobility in soil** No data available.  
**Mobility in general** The product is water soluble and may spread in water systems.  
**Other adverse effects** No data available.

**13. Disposal considerations**

**Disposal instructions** Dispose of in accordance with all applicable regulations. Do not discharge into drains, water courses or onto the ground.  
**Local disposal regulations** Dispose of in accordance with local regulations.  
**Hazardous waste code** Not regulated.  
**Waste from residues / unused products** Dispose of in accordance with local regulations.  
**Contaminated packaging** Dispose of in same manner as unused product.

**14. Transport information**

**DOT** Not regulated as dangerous goods.  
**IATA** Not regulated as dangerous goods.  
**IMDG** Not regulated as dangerous goods.  
**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

**15. Regulatory information**

**US federal regulations** This product is not hazardous according to OSHA 29CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

<b>TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)</b>	Not regulated.
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>	Not listed.
<b>CERCLA Hazardous Substance List (40 CFR 302.4)</b>	Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

<b>Hazard categories</b>	Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
<b>SARA 302 Extremely hazardous substance</b>	No
<b>SARA 311/312 Hazardous chemical</b>	No
<b>SARA 313 (TRI reporting)</b>	Not regulated.

**Other federal regulations**

<b>Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List</b>	Not regulated.
<b>Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)</b>	Not regulated.
<b>Safe Drinking Water Act (SDWA)</b>	Not regulated.
<b>Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number</b>	Not listed.
<b>Drug Enforcement Administration (DEA). List 1 &amp; 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))</b>	Not regulated.

**DEA Exempt Chemical Mixtures Code Number** Not regulated.  
**Food and Drug Administration (FDA)** Not regulated.

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

**Massachusetts RTK - Substance List** Not regulated.  
**New Jersey Worker and Community Right-to-Know Act** Not regulated.  
**Pennsylvania RTK - Hazardous Substances** Not regulated.  
**Rhode Island RTK** Not regulated.  
**California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT)** Not listed.

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	EC Inventory	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).  
 A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

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**16. Other information**

**Issue date** 01/30/2016  
**Revision date** 09/30/2016  
**Version** 10  
**Further information** Not available.  
**Disclaimer** This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.