



18 July 2017

**Kit Components**

Product Code	Description
FSE5101K and FSE51100	FailSafe™ Enzyme Mix

Components

FailSafe™ Enzyme Mix
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**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1. Product identifier**

Product name : FailSafe™ Enzyme Mix  
 Product form : Mixture  
 Product code : Catalog numbers for this product are: FSE510K, FSE51100, FSP121E.

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Use of the substance/mixture : Laboratory chemical.

**1.3. Details of the supplier of the safety data sheet**

Lucigen Corporation  
 2905 Parmenter Street  
 Middleton, WI 53562  
 U.S.A.  
 Phone: (608) 831-9011  
 Fax: (608) 831-9012  
 E-mail: techserv@lucigen.com

**1.4. Emergency telephone number**

Emergency number : 1-888-575-9695 (Lucigen: Monday-Friday, 8:00AM-5:00PM)

**SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture**

**GHS-US classification**

Not classified.

**2.2. Label elements**

**GHS-US labelling**

No labelling applicable.

**2.3. Other hazards**

Irritant to eyes and skin. Target organs are kidneys.

**2.4. Unknown acute toxicity (GHS-US)**

No data available.

**SECTION 3: Composition/information on ingredients**

**3.2. Mixture**

Name	Product identifier	%
Glycerol, CAS # 56-85-1 EC# 200-289-5 Chemical Formula: C <sub>3</sub> H <sub>8</sub> O <sub>3</sub> Molecular Weight: 92.09 g/mol Synonyms: Glycerin, 1,2,3-Propanetriol	Ingredient in product.	50%

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

First-aid measures general : If exposed or concerned, consult a physician. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.

First-aid measures after inhalation : IF INHALED: Remove to fresh air and keep at rest in a comfortable position for breathing. If not breathing, give artificial respiration. Consult a physician.

First-aid measures after skin contact : IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin for at least 15 minutes with tepid water. Consult a physician.

First-aid measures after eye contact : IF IN EYES: Immediately flush with plenty of tepid water for at least 15 minutes. Remove contact lenses if present and easy to do so. Continue rinsing. Consult a physician.

First-aid measures after ingestion : IF SWALLOWED: Rinse mouth thoroughly and consult a physician. Do not induce vomiting.

**4.2. Most important symptoms and effects, both acute and delayed**

Symptoms/injuries : Not expected to present a significant acute hazard under anticipated conditions of normal use.

Symptoms/injuries after inhalation : May cause upper respiratory irritation.

Symptoms/injuries after skin contact : May cause skin irritation.

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Symptoms/injuries after eye contact : Direct contact with the eyes is likely to be irritating.  
Symptoms/injuries after ingestion : May cause gastrointestinal irritation.

### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Water spray, carbon dioxide, dry chemical powder, or appropriate foam.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard : Emits toxic fumes under fire conditions.  
Explosion hazard : Emits toxic fumes under fire conditions.  
Reactivity : No dangerous reactions known under normal conditions of use.

### 5.3. Advice for firefighters

Firefighting instructions : Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.  
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ventilate area. Evacuate area. Keep upwind. Spill should be handled by trained clean-up crews properly equipped with respiratory equipment and full chemical protective gear (see Section 8).

#### 6.1.1. For non-emergency personnel

Protective equipment : Wear Personal Protective Equipment as described in Section 8.

#### 6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing, gloves, respirator, and eye or face protection. For further information refer to section 8: "Exposure controls/personal protection".

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or inert absorbents (e.g., sand or vermiculite) to prevent migration and entry into sewers or streams.  
Methods for cleaning up : Soak up spills with inert absorbants, such as sand or vermiculite as soon as possible. Place in closed waste container for disposal. This material and its container must be disposed of in a safe way, and as per local, state, and federal legislation.

### 6.4. Reference to other sections

No additional information available

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Wear recommended personal protective equipment. Wash hands and other exposed areas with mild soap and water after handling material, leaving the laboratory, before eating, drinking or smoking and when leaving work.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store at -20°C in a freezer without a defrost cycle.

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### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Glycerol	56-81-5	TWA	10 mg/m3	USA. OSHA – TABLE Z-1 Limits for Air Contaminants – 1910.1000
		TWA	10 mg/3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract Irritation		
		TWA	5 mg/m3	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
		TWA	15 mg/m3	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants

#### 8.2. Exposure controls

Appropriate engineering controls

: Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Ensure adequate ventilation, especially in confined areas. Emergency safety shower and eye wash station should be available. Avoid prolonged or repeated exposure.

Personal protective equipment

: Gloves. Protective goggles. Laboratory Coat.



Hand protection

: Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1296. Suitable gloves for this specific application can be recommended by the glove supplier. Suggested glove materials are: Neoprene, Nitrile.

Eye protection

: Safety goggles should be worn when working with mixture. Avoid direct contact with eyes.

Skin and body protection

: Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.

Respiratory protection

: Use NIOSH/MSHA-approved dust/particulate respirator. Where vapor, mist, or dust exceed PELs or other applicable OELs, use NIOSH-approved respiratory protective equipment. Do not breathe in vapour, mist, or dust.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid, viscous and colorless
Color	: Colorless
Odor	: No data available
Odor Threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point (50% aqueous solution)	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20°C	: No data available
Relative density	: No data available
Solubility in Water	: No data available
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available

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Explosive limits : No data available

### 9.2. Other information

None.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No dangerous reactions known under normal conditions of use.

### 10.2. Chemical stability

Stable under use and storage conditions as recommended in section 7.

### 10.3. Possibility of hazardous reactions

None known. Hazardous polymerization does not occur.

### 10.4. Conditions to avoid

None known.

### 10.5. Incompatible materials

Strong oxidizing agents, strong bases.

### 10.6. Hazardous decomposition products

Carbon monoxide, carbon dioxide.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : No data available

Skin corrosion/irritation : No data available

Serious eye damage/irritation : No data available

Respiratory or skin sensitisation : No data available

Germ cell mutagenicity : No data available

Carcinogenicity : IARC – No component of this product present at levels greater than or equal to 0.1% is identified as probably, possible, or confirmed human carcinogen by IARC.

ACGIH – No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP – No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA – No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity : 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

Symptoms/injuries after inhalation : May cause upper respiratory irritation. May cause headaches.

Symptoms/injuries after skin contact : May cause skin irritation.

Symptoms/injuries after eye contact : Direct contact with the eyes is likely to be irritating.

Symptoms/injuries after ingestion : May cause gastrointestinal irritation.

Additional Information : RTECS: MA8050000. Prolonged exposure may cause nausea, vomiting, and headache. Kidneys may be affected.

## SECTION 12: Ecological information

### 12.1. Toxicity

No additional information available

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

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### 12.5. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods : Obtain the consent of pollution control authorities before discharging to wastewater treatment plants. Product should not be discharged to surface waters without a NPDES permit.

Waste disposal recommendations : Dispose in a safe manner in accordance with local, state, and federal regulations. Avoid release to the environment.

## SECTION 14: Transport information

### DOT

Not hazardous for transport

### IMDG

No additional information available

### IATA

No additional information available

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### SARA 304 Extremely Hazardous Substances Reportable Quantity

This product does not contain any components with a section 304 EHS RQ.

#### SARA 311/312 Hazards

Chronic Health Hazard

#### SARA 302

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### SARA 313

This materials does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### 15.2. International regulations

European Union Directive 67/548/EEC: Irritant R36/38, irritant to eyes and skin. S26, in the case of eye contact, rinse immediately with plenty of water and consult a physician. S36, wear appropriate personal protective equipment.

### 15.3. US State regulations

#### California Proposition 65

This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm.

#### Massachusetts Right To Know Components

Glycercol, CAS 56-81-5

#### New Jersey Right to Know Hazardous Substance List

Glycerol, CAS 56-81-5

#### Pennsylvania Right to Know List

Glycercol, CAS 56-81-5

## SECTION 16: Other information

Indication of changes : Revision X.0: Updated format.

Revision date : 07/09/2017

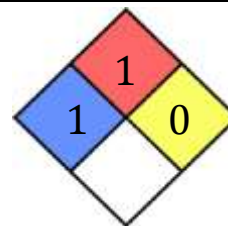
Other information : Author:

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NFPA health hazard : 1 – Exposure will cause irritation.  
NFPA fire hazard : 1 – Flash point is at or above 93.3°C.  
NFPA reactivity : 0 - Normally stable, even under fire exposure conditions,  
and are not reactive with water.



### HMIS III Rating

Health : 1  
Flammability : 1  
Physical Hazard : 0  
Personal Protection :

This information is disclosed to the best of Lucigen's knowledge. This document does not constitute a contractual relationship with product end users or handlers with respect to the possible presence of hazards in this item. Disposal should be in accordance with applicable regional, national and local laws and regulations.