

## 1 Identification

- **Product identifier**
- **Trade name:** Betamax ES™ Liquid Scintillation Cocktail
- **Article number:** 880020
- **Application of the substance / the mixture** For Research Use Only
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
MP Biomedicals, LLC  
29525 Fountain Parkway  
Solon, OH 44139  
United States  
www.mpbio.com
- **Information department:** Quality Control Department
- **Emergency telephone number:** CHEMTREC: 1-800-424-9300 (1-703-527-3887)

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS07



GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**  
Phenylxyllyethane-PXE
- **Hazard statements**  
Harmful if swallowed or if inhaled.  
Causes skin irritation.  
Causes serious eye irritation.  
May be fatal if swallowed and enters airways.
- **Precautionary statements**  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Wash thoroughly after handling.  
Do not eat, drink or smoke when using this product.

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Use only outdoors or in a well-ventilated area.

Wear protective gloves / eye protection / face protection.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

IF ON SKIN: Wash with plenty of water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Specific treatment (see on this label).

Rinse mouth.

Do NOT induce vomiting.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 2

Fire = 1

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = \*2

Fire = 1

Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

### 3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:**

Mixture of substances listed below with nonhazardous additions.

Mixture: consisting of the following components.

· **Dangerous components:**

6196-95-8	Phenylxylyethane-PXE	50-90%
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### 4 First-aid measures

· **Description of first aid measures**

· **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

If breathed in, supply fresh air. If not breathing, give artificial respiration. Consult a Doctor.

· **After skin contact:** Wash off with soap and plenty of water. Consult a Doctor.

· **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

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- **After swallowing:**  
Never give anything by mouth to an unconscious person. Rinse mouth with water. If symptoms persist consult a Doctor.
- **Information for doctor**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.  
For personal protection see section 8.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Pick up mechanically, dispose contaminated material as waste according to Section 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

6196-95-8	Phenylxylylethane-PXE	30 mg/m <sup>3</sup>
68648-87-3	Linear Alkylbenzene	2.3 mg/m <sup>3</sup>
92-71-7	2,5-diphenyloxazole	2.5 mg/m <sup>3</sup>
13280-61-0	1,4-bis(4-methyl-alpha-styryl)benzene	12 mg/m <sup>3</sup>

· **PAC-2:**

6196-95-8	Phenylxylylethane-PXE	330 mg/m <sup>3</sup>
68648-87-3	Linear Alkylbenzene	26 mg/m <sup>3</sup>
92-71-7	2,5-diphenyloxazole	27 mg/m <sup>3</sup>
13280-61-0	1,4-bis(4-methyl-alpha-styryl)benzene	130 mg/m <sup>3</sup>

· **PAC-3:**

6196-95-8	Phenylxylylethane-PXE	2,000 mg/m <sup>3</sup>
68648-87-3	Linear Alkylbenzene	150 mg/m <sup>3</sup>
92-71-7	2,5-diphenyloxazole	160 mg/m <sup>3</sup>

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13280-61-0	1,4-bis(4-methyl-alpha-styryl)benzene
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790 mg/m<sup>3</sup>

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
*Ensure good ventilation/exhaustion at the workplace. Avoid direct contact with skin and eyes.*
- **Information about protection against explosions and fires:** *No special requirements.*
- **Conditions for safe storage, including any incompatibilities**
- **Storage:** *15-30°C*
- **Requirements to be met by storerooms and receptacles:** *No special requirements.*
- **Further information about storage conditions:**
- **Specific end use(s)** *No further relevant information available.*

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** *No further data; see Section 7.*
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**  
*The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.*
- **Additional information:** *The lists that were valid during the creation were used as basis.*
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
*Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.*
- **Breathing equipment:**  
*In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.*
- **Protection of hands:**



Protective gloves

*The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.*

*Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation*

- **Material of gloves**

*The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.*

- **Penetration time of glove material**

*The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.*

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· **Eye protection:**

Tightly sealed goggles

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**· **General Information**· **Appearance:**

· <b>Form:</b>	Liquid
· <b>Color:</b>	According to product specification
· <b>Odor:</b>	Indeterminate
· <b>Odor threshold:</b>	Not determined.

· **pH-value:** Not determined.· **Change in condition**· **Boiling point/Boiling range:** Undetermined.· **Flash point:** Not applicable.· **Flammability (solid, gaseous):** Not applicable.· **Ignition temperature:**· **Decomposition temperature:** Not determined.· **Auto igniting:** Product is not selfigniting.· **Danger of explosion:** See section 10· **Explosion limits:**

· <b>Lower:</b>	Not Applicable
· <b>Upper:</b>	Not Applicable

· **Vapor pressure:** Not Applicable· **Density:** Not Applicable· **Relative density** Not determined.· **Vapor density** Not determined.· **Evaporation rate** Not determined.· **Solubility in / Miscibility with** Not Determined· **Water:** Not determined.· **Partition coefficient (n-octanol/water):** Not determined.· **Viscosity:**· **Dynamic:** Not determined.· **Kinematic:** Not determined.· **Solvent content:**· **VOC content:** 0.00 %  
0.0 g/l / 0.00 lb/gl· **Other information** No further relevant information available.

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## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

**ATE (Acute Toxicity Estimate)**

Oral	LD50	>841 mg/kg
Dermal	LD50	>4,513 mg/kg (rat)
Inhalative	LC50/4 h	20 mg/L

**6196-95-8 Phenylxylylethane-PXE**

Oral	LD50	500 mg/kg (ATE)
Inhalative	LC50/4 h	11 mg/L (ATE)

**68648-87-3 Linear Alkylbenzene**

Oral	LD50	>5,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rat)
		>10,200 mg/kg (rabbit)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Harmful  
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.

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- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
*Water hazard class 1 (Self-assessment): slightly hazardous for water*  
*Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.*
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
*Can not be disposed together with household garbage. Do not allow product to reach sewage system.*
- **Uncleaned packagings:**
- **Recommendation:** *Discard must be made according to official regulations.*

## 14 Transport information

<ul style="list-style-type: none"> <li>· <b>UN-Number</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul>	<p style="text-align: center;">UN3082</p>
<ul style="list-style-type: none"> <li>· <b>UN proper shipping name</b></li> <li>· <b>DOT</b></li> <li>· <b>ADR</b></li> <li>· <b>IMDG</b></li> <li>· <b>IATA</b></li> </ul>	<p style="text-align: center;"><i>Environmentally hazardous substances, liquid, n.o.s. (Phenylxylylethane-PXE)</i></p> <p style="text-align: center;"><i>3082 Environmentally hazardous substances, liquid, n.o.s. (Phenylxylylethane-PXE)</i></p> <p style="text-align: center;"><i>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Phenylxylylethane-PXE), MARINE POLLUTANT</i></p> <p style="text-align: center;"><i>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Phenylxylylethane-PXE)</i></p>
<ul style="list-style-type: none"> <li>· <b>Transport hazard class(es)</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul>	<div style="text-align: center;">  </div> <p style="text-align: center;">9</p>
<ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	<p style="text-align: center;"><i>9 Miscellaneous dangerous substances and articles</i></p> <p style="text-align: center;">9</p>
<ul style="list-style-type: none"> <li>· <b>Packing group</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul>	<p style="text-align: center;">III</p>
<ul style="list-style-type: none"> <li>· <b>Environmental hazards:</b></li> <li>· <b>Marine pollutant:</b></li> </ul>	<p style="text-align: center;"><i>Product contains environmentally hazardous substances: Phenylxylylethane-PXE</i></p> <p style="text-align: center;"><i>Yes</i></p> <p style="text-align: center;"><i>Symbol (fish and tree)</i></p>

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· <b>Special marking (ADR):</b>	Symbol (fish and tree)
· <b>Special marking (IATA):</b>	Symbol (fish and tree)
· <b>Special precautions for user</b>	Warning: Miscellaneous dangerous substances and articles
· <b>Danger code (Kemler):</b>	90
· <b>EMS Number:</b>	F-A,S-F
· <b>Stowage Category</b>	A
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>DOT</b>	
· <b>Quantity limitations</b>	On passenger aircraft/rail: No limit On cargo aircraft only: No limit
· <b>Remarks:</b>	Special marking with the symbol (fish and tree).
· <b>ADR</b>	
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	5L
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <b>UN "Model Regulation":</b>	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (PHENYLXYLYLETHANE-PXE), 9, III

## 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**· **Sara**· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65**· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

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· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS07    GHS08

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

*Phenylxylylethane-PXE*

· **Hazard statements**

*Harmful if swallowed or if inhaled.*

*Causes skin irritation.*

*Causes serious eye irritation.*

*May be fatal if swallowed and enters airways.*

· **Precautionary statements**

*Avoid breathing dust/fume/gas/mist/vapors/spray*

*Wash thoroughly after handling.*

*Do not eat, drink or smoke when using this product.*

*Use only outdoors or in a well-ventilated area.*

*Wear protective gloves / eye protection / face protection.*

*IF SWALLOWED: Immediately call a POISON CENTER/ doctor.*

*IF ON SKIN: Wash with plenty of water.*

*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*

*If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.*

*Continue rinsing.*

*Specific treatment (see on this label).*

*Rinse mouth.*

*Do NOT induce vomiting.*

*If skin irritation occurs: Get medical advice/attention.*

*If eye irritation persists: Get medical advice/attention.*

*Take off contaminated clothing and wash it before reuse.*

*Store locked up.*

*Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

· **Department issuing SDS:** Quality Control Dept.

· **Date of preparation / last revision** 09/06/2017 / -

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**· Abbreviations and acronyms:**

*ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)*  
*IMDG: International Maritime Code for Dangerous Goods*  
*DOT: US Department of Transportation*  
*IATA: International Air Transport Association*  
*ACGIH: American Conference of Governmental Industrial Hygienists*  
*EINECS: European Inventory of Existing Commercial Chemical Substances*  
*ELINCS: European List of Notified Chemical Substances*  
*CAS: Chemical Abstracts Service (division of the American Chemical Society)*  
*NFPA: National Fire Protection Association (USA)*  
*HMIS: Hazardous Materials Identification System (USA)*  
*VOC: Volatile Organic Compounds (USA, EU)*  
*LC50: Lethal concentration, 50 percent*  
*LD50: Lethal dose, 50 percent*  
*PBT: Persistent, Bioaccumulative and Toxic*  
*vPvB: very Persistent and very Bioaccumulative*  
*NIOSH: National Institute for Occupational Safety*  
*OSHA: Occupational Safety & Health*  
*TLV: Threshold Limit Value*  
*PEL: Permissible Exposure Limit*  
*REL: Recommended Exposure Limit*  
*Acute Tox. 4: Acute toxicity – Category 4*  
*Skin Irrit. 2: Skin corrosion/irritation – Category 2*  
*Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A*  
*Asp. Tox. 1: Aspiration hazard – Category 1*

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