

# Safety Data Sheet

## MBEC Assay® Device

### Titanium Dioxide Coated Pegs

#### CAS: 9003-53-6, 13463-67-7

## 1. IDENTIFICATION

**Product Identifier/Name(s):**

MBEC Assay® Device with Titanium Dioxide Coated Pegs (Biofilm Inoculator With Trough Base or 96 Well Base).

**Other Means of Identification (Product Family/Synonyms/Molecular Formula):**

Polystyrene (C<sub>8</sub>H<sub>8</sub>)<sub>n</sub>, silica (SiO<sub>2</sub>), titanium dioxide coating (TiO<sub>2</sub>; titanium (IV) oxide).

**Recommended Uses:**

Laboratory device.

**Restrictions on Use:**

For research or laboratory use only.

**Supplier Identifier:**

Innovotech, Inc.  
Suite L131, 2011 94 St.  
Edmonton, AB, Canada, T6N 1H1  
Telephone: 1-780-448-0585, Fax: 1-780-424-0941  
Email: [info@innovotech.ca](mailto:info@innovotech.ca),  
Website: [www.innovotech.ca](http://www.innovotech.ca)

**Emergency Phone Number:**

1-888-670-5445 (North America, English)  
1-780-448-0585 (Worldwide, English)

## 2. HAZARD IDENTIFICATION

**Hazard Classification (Class, Category):**

**Health Hazards:**

**Polystyrene/silica: Eye Irritation: 1** – Intense or continued, but not necessarily chronic, exposure could cause injury. **Titanium dioxide: Skin Irritation: 1** – Causes mild skin irritation/corrosion. Very toxic material causing other toxic effects – carcinogen.

**Physical Hazards:** None.

**Label Elements (Symbol Images/Names, Symbol Words, Hazard Statements, Precautionary Statements):**

**Precautionary Statements:**

All ingredients are bound and potential for hazardous exposure as shipped is minimal. However, some vapors may be released upon heating from polystyrene/silica, and the end-user must take the necessary precautions (mechanical ventilation, respiratory protection) to protect employees from exposure.

**Other Hazards:**

Not applicable.

**NFPA Ratings:**

Health: **1**; Flammability: **0**; Reactivity: **1**; Other: **N/A**.

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

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**Chemical Name:**

Polystyrene, titanium dioxide coating.

**Common Name(s) and/or Synonyms:**

For titanium dioxide: titanium (IV) oxide, titania.

**Chemical Abstract Service (CAS) Registry Number:**

9003-53-6, 13463-67-7.

**Unique Identifiers:**

(C<sub>8</sub>H<sub>8</sub>)<sub>n</sub>, TiO<sub>2</sub>.

**Concentration of Chemical:**

95-99% polystyrene base; 100% titanium dioxide coating.

**Chemical Names of Impurities, Stabilizing Solvents, and/or Additives:**

Silica, amorphous.

**Common Names of Impurities, Stabilizing Solvents, and/or Additives:**

N/A.

**CAS Registry Numbers of Impurities, Stabilizing Solvents, and/or Additives:**

7631-86-9.

**Unique Identifiers of Impurities, Stabilizing Solvents, and/or Additives:**

SiO<sub>2</sub>.

**Concentrations of Impurities, Stabilizing Solvents, and/or Additives:**

1-5% of base.

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### 4. FIRST-AID MEASURES

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**Inhalation:**

**Polystyrene/silica:** Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. When symptoms persist, or in all cases of doubt, seek medical advice. **Titanium dioxide:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. Show this safety data sheet to the doctor in attendance.

**Skin Contact:**

**Polystyrene/silica:** Wash any residue off with soap and plenty of water. If skin irritation persists, seek medical attention. **Titanium dioxide:** Wash off with soap and plenty of water. Consult a physician. Show this safety data sheet to the doctor in attendance.

**Eye Contact:**

**Polystyrene/silica:** If any particles contact the eye, rinse immediately with plenty of water for 15 minutes, including rinsing under the eyelids. If eye irritation persists, seek medical attention. **Titanium dioxide:** Flush eyes with water as a precaution.

**Ingestion:**

**Polystyrene/silica:** Do not induce vomiting without medical advice. When symptoms persist, or in all cases of doubt, seek medical advice. **Titanium dioxide:** Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**Most Important Symptoms and Effects (Acute or Delayed):**

**Polystyrene/silica:** Resin particles can be mechanically irritating upon inhalation or contact with the eye, and harmful if swallowed. **Titanium dioxide:** Causes mild skin irritation. Toxic – carcinogen.

**Situations Where Immediate Medical Attention and/or Special Treatment Are Necessary:**

**Polystyrene/silica:** Whenever symptoms are prolonged or severe. **Titanium dioxide:** Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

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## 5. FIRE-FIGHTING MEASURES

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**Suitable Extinguishing Media:**

Carbon dioxide blanket, water spray, dry chemical powder, alcohol-resistant foam.

**Unsuitable Extinguishing Media:**

None identified.

**Specific Hazards Arising from Hazardous Combustion Products:**

Hazardous decomposition products formed under fire conditions: toxic fumes, titanium/titanium oxides.

**Special Procedures, Protective Equipment, and Precautions for Fire-Fighters:**

Full face self-contained breathing apparatus used in positive pressure mode should be worn to prevent inhalation of airborne contaminants formed during firefighting.

**Fire Hazards Associated with Material:**

None.

**Explosion Hazards Associated with Material:**

None/no data available.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal Precautions:**

Wear appropriate personal protection during cleanup, such as impervious gloves, boots, and coveralls. Avoid dust formation. Avoid breathing vapors, mists, or gas. Avoid breathing dust.

**Protective Equipment:**

Use appropriate exhaust ventilation.

**Emergency Procedures:**

The product/residue from the product should not be released into the environment. The product/residue from the product should not be allowed to enter drains, water courses, or the soil.

**Methods and Materials for Containment and Cleaning Up:**

Clean up product/residue from the product without creating dust. Sweep up and shovel. Package all material in suitable closed containers for disposal. Refer to Section 13 of this SDS for proper disposal methods.

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## 7. HANDLING AND STORAGE

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**Precautions for Safe Handling:**

Take measures to prevent the buildup of electrostatic charge. Heat only in areas with appropriate exhaust ventilation. Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for Safe Storage (Temperature, Conditions, Chemicals to Avoid):**

Store product dry and in tightly sealed containers to avoid moisture and contamination. Keep in a dry cool well-ventilated place.

**Incompatible Materials:**

Strong acids and oxidizing agents.

**Avoid Contact With (Body Parts):**

Eyes, skin.

**Should Skin Be Washed After Working With the Chemical?**

Yes/No

**Any Special Working Environments or Personal Protective Equipment to be Used:**

Safety glasses with side-shields, protective gloves, long sleeved clothing, safety shoes.

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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### Control Parameters:

Airborne exposure limits: Silica, amorphous – 20 mppcf Permissible Exposure Limit (PEL). Exposure type: total dust.  
List: OSHA, Z3.

### Engineering Controls:

Heat only in areas with appropriate exhaust ventilation. Provide appropriate exhaust ventilation, e.g. mechanical exhaust or laboratory fume hood to avoid exposure to titanium dioxide.

### Individual Protection Measures:

#### Eyes:

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

#### Skin:

Protective gloves\*, long sleeved clothing, safety shoes. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

\*Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with titanium dioxide. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Full contact – material: nitrile rubber; minimum layer thickness: 0.11mm; breakthrough time: 489 min; material tested: Dermatril®. Splash contact – material: nitrile rubber; minimum layer thickness: 0.11 mm; breakthrough time: 480 min; material tested: Dermatril®.

#### Respiratory:

Typically, respiratory protection is not required. Where risk assessment shows air-purifying respirators are appropriate (e.g. protection from nuisance levels of dusts) use a full-face particle respirator type N95 (US) or type P1 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or EN 14387 (EU).

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Appearance (Physical State, Color, etc.):

**Polystyrene/silica:** Solid, transparent. **Titanium dioxide:** White nanoparticles.

### Odor:

Very faint.

### Odor Threshold:

Unknown.

### pH:

Not applicable/unknown.

### Melting Point/Freezing Point:

**Polystyrene/silica:** Unknown. **Titanium dioxide:** 1825°C (3317°F).

### Initial Boiling Point/Boiling Range:

Not applicable (polystyrene/silica decomposes on heating)/unknown.

### Flash Point:

Not applicable.

### Evaporation Rate:

Not applicable/unknown.

### Flammability (Solid or Gas):

Unknown.

**Lower Flammable/Explosive Limit:**

Not applicable/unknown.

**Upper Flammable/Explosive Limit:**

Not applicable/unknown.

**Vapor Pressure:**

Not applicable/unknown.

**Vapor Density:**

Not applicable/unknown.

**Relative Density:**

**Polystyrene/silica:** Unknown. **Titanium dioxide:** 3.9-4.26 g/mL at 25°C (77°F).

**Solubility:**

Insoluble/unknown.

**Partition Coefficient – *n*-octanol/water:**

Unknown/not applicable.

**Auto-Ignition Temperature:**

Not applicable.

**Decomposition Temperature:**

Unknown.

**Viscosity:**

Not applicable/unknown.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:**

Stable under recommended storage conditions.

**Chemical Stability:**

Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:**

May occur if contacted with incompatibles.

**Conditions to Avoid:**

Keep away from oxidizing agents, strong acids, and open flame. To avoid thermal decomposition, do not overheat.

**Incompatible Materials:**

Incompatible with strong acids and oxidizing agents.

**Hazardous Decomposition Products:**

Carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), oxides of nitrogen, titanium/titanium oxides, other hazardous materials, and smoke are all possible.

**Hazardous Polymerization:**

Will not occur.

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## 11. TOXICOLOGICAL INFORMATION

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**Likely Routes of Exposure:**

**Ingestion:**

Yes (residue/dust).

**Dermal:**

Yes (residue/dust).

**Inhalation:**

Yes (residue/dust).

**Eye Contact:**

Yes (residue/dust).

**Symptoms Related to the Physical, Chemical, and Toxicological Characteristics:**

Mechanically irritating upon inhalation or eye contact. Harmful if swallowed.

**Delayed Effects from Short-Term Exposure:**

**Ingestion:**

Unknown.

**Dermal:**

Unknown.

**Inhalation:**

Unknown.

**Eye Contact:**

Unknown.

**Delayed Effects from Long-Term Exposure:**

**Ingestion:**

Unknown.

**Dermal:**

Unknown.

**Inhalation:**

Unknown.

**Eye Contact:**

Unknown.

**Immediate Effects from Short-Term Exposure:**

**Ingestion:**

**Polystyrene/silica:** Harmful if swallowed. **Titanium dioxide:** Oral LD<sub>50</sub> – female rat >5000 mg/kg. May be harmful if swallowed.

**Dermal:**

**Polystyrene/silica:** No hazard from routine handling. **Titanium dioxide:** Dermal LD<sub>50</sub> – Rabbit >10000 mg/kg. May be harmful if absorbed through skin. May cause skin irritation.

**Inhalation:**

**Polystyrene/silica:** Mechanically irritating. **Titanium dioxide:** LC<sub>50</sub> – male rat >6.82 mg/L (4h). May be harmful if inhaled – may cause respiratory tract irritation.

**Eye Contact:**

**Polystyrene/silica:** Mechanically irritating. **Titanium dioxide:** May cause eye irritation.

**Immediate Effects from Long-Term Exposure:**

**Ingestion:**

Unknown.

**Dermal:**

Unknown.

**Inhalation:**

Unknown.

**Eye Contact:**

Unknown.

### Chronic Effects from Short-Term Exposure:

**Ingestion:**

Unknown.

**Dermal:**

Unknown.

**Inhalation:**

Unknown.

**Eye Contact:**

Unknown.

### Chronic Effects from Long-Term Exposure:

**Ingestion:**

Unknown.

**Dermal:**

Unknown.

**Inhalation:**

Unknown.

**Eye Contact:**

Unknown.

### Irritancy:

**Polystyrene/silica:** Mechanically irritating if inhaled or contacted to the eye. **Titanium dioxide:** Rabbit skin – no skin irritation; Human skin – mild skin irritation (3h). Rabbit eye – no eye irritation.

### Sensitization:

**Polystyrene/silica:** Experience shows no unusual dermatitis hazard from routine handling. **Titanium dioxide:** Sensitization will not occur.

### Carcinogenicity:

**Polystyrene/silica:** Unknown. **Titanium dioxide:** IARC – Group 2B: Possibly carcinogenic to humans. ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.

### Reproductive Toxicity:

Unknown.

### Teratogenicity:

Unknown.

### Mutagenicity:

**Polystyrene/silica:** Unknown. **Titanium dioxide:** Germ cell mutagenicity – Genotoxicity *in vitro*: Hamster – ovary micronucleus test; Genotoxicity *in vitro*: Hamster – lungs DNA inhibition; Genotoxicity *in vitro*: Hamster – ovary sister chromatid exchange; Genotoxicity *in vivo*: Mouse – intraperitoneal micronucleus test.

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## 12. ECOLOGICAL INFORMATION

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### Ecotoxicity:

**Polystyrene/silica:** Chemicals are not readily available as they are bound within the matrix of the polymer.

**Titanium dioxide:** Toxicity to fish: LC50 – other fish > 1000 mg/L, 96h; Toxicity to daphnia and other aquatic invertebrates: EC50 and EC0 – Daphnia magna (Water flea) > 1000 mg/L, 48h.

### Persistence and Degradability:

**Polystyrene/silica:** Not readily biodegradable. **Titanium dioxide:** Unknown.

### Bioaccumulative Potential:

**Polystyrene/silica:** Chemicals are not readily available as they are bound within the matrix of the polymer.

**Titanium dioxide:** Unknown.

**Mobility in Soil:**

**Polystyrene/silica:** Chemicals are not readily available as they are bound within the matrix of the polymer.

**Titanium dioxide:** Unknown.

**Other Adverse Effects:**

Unknown.

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### 13. DISPOSAL CONSIDERATIONS

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**Safe Handling for Disposal:**

Handle following all safety precautions and use personal protective equipment as listed in this SDS.

**Methods of Disposal (Including Contaminated Packaging):**

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Dispose of contaminated packaging as per unused product. The generator of waste material has the responsibility for proper waste classification, transportation, and disposal in accordance with applicable federal, state/provincial, and local regulations.

**Methods for Neutralization of Material:**

Neutralization not necessary prior to disposal.

Disposal should be in accordance with municipal, provincial/state, and federal laws and regulations.

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### 14. TRANSPORTATION INFORMATION

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**UN Number:**

As of 2018 not classified as a hazardous good.

**UN Proper Shipping Name:**

As of 2018 not classified as a hazardous good.

**Transport Hazard Class(es):**

As of 2018 not classified as a hazardous good.

**Packing Group:**

As of 2018 not classified as a hazardous good.

**Environmental Hazards:**

As of 2018 not classified as a hazardous good.

**Transport in Bulk:**

As of 2018 not classified as a hazardous good. Fragile, ship according to Fragile requirements.

**Special Precautions:**

As of 2018 not classified as a hazardous good. Fragile, ship according to Fragile requirements.

**USA Department of Transportation (DOT) Number:**

Not regulated for transportation/not dangerous goods.

**Domestic Transportation Information:**

Not regulated for transportation/not dangerous goods.

**International Transportation Information:**

Not regulated for transportation/not dangerous goods.



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## 15. REGULATORY INFORMATION

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### **Safety Regulations:**

**Polystyrene/silica:** US – OSHA Status: Classified as hazardous based on components.

### **Health Regulations:**

**Polystyrene/silica:** US – TSCA Status: All components of this product are listed on the TSCA inventory or are exempt.

### **Environmental Regulations:**

**Polystyrene/silica:** US EPA CERCLA Hazardous Substances (40 CFR 302): Not applicable.

California Proposition: This product does not contain a substance listed by California Prop 65.

### **WHMIS Class:**

**Polystyrene/silica:** Canadian Regulations – WHMIS Classification: Not controlled. DSL: Listed.

**Titanium dioxide:** WHMIS Classification: D2A Very Toxic Material Causing Other Toxic Effects – Carcinogen.

### **Regulatory Agencies Which Have Classified This Product as Hazardous:**

**Polystyrene/silica:** National Inventories: Australia AICS – Listed; China IECS – Listed; Europe EINECS – Not Determined; Japan ENCS – Not Determined; Korea KECI – Listed; Philippines PICCS – Listed.

This SDS was created according to Canadian legislation.

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## 16. OTHER INFORMATION

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<b>Date of the Last Review of the SDS:</b> 19/11/21	<b>Date of the Latest Revision of the SDS:</b> 19/11/21
<b>Date of the Next Review of the SDS:</b> 19/11/23	<b>Date of Issue of the SDS:</b> 19/11/21

The current version of the SDS replaces all previous versions.

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### **Precautions About the Compound – Know This:**

Residue/dust is mechanically irritating if inhaled or contacted to the eye. Toxic vapors may be released upon heating.