MATERIAL SAFETY DATA SHEET

SECTION 1 - IDENTIFICATION OF SUBSTANCE

Product Identifier: PerfeCta PreAmp SuperMix
Product Code(s): Catalog numbers: 95149-250; 95149-01K; 95149-05K
Part Numbers: 84267; 84268

General Use: Laboratory reagent
For Research Use Only, Not for Use in Diagnostic Procedures

MSDS Issue Date: 6 June, 2013

Manufacturer:
QUANTA BIOSCIENCES INC.
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Quanta BioSciences: (240) 454-8912 (09:00 to 17:00 EST)
Or contact your local distributor for Quanta BioSciences products.

SECTION 2 – HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
No classification is assigned based on classification criteria.
Review the entire data sheet for any additional information which did not result in a classification.

GHS LABEL ELEMENTS
Symbol(s) None needed according to classification criteria.
Signal Word None needed according to classification criteria.
Hazard Statement(s) None needed according to classification criteria.
Precautionary Statement(s)
Prevention None needed according to classification criteria.
Response None needed according to classification criteria.
Storage None needed according to classification criteria.
Disposal None needed according to classification criteria.

SECTION 3 – COMPOSITION/DATA ON COMPONENTS

<table>
<thead>
<tr>
<th>CAS</th>
<th>Component</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-55-6</td>
<td>1,2-Propylene glycol</td>
<td>10-30</td>
</tr>
<tr>
<td>56-81-5</td>
<td>Glycerin</td>
<td>1-5</td>
</tr>
</tbody>
</table>
SECTION 4 - FIRST AID MEASURES

Description of Necessary Measures
Inhalation
If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

Skin Contact
Wash with plenty of soap and water. Get medical attention if irritation develops or persists.

Eye Contact
Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops or persists.

Ingestion
It is unlikely that first aid will be required. If a large amount is ingested, seek medical attention.

Most Important Symptoms/Effects
Acute
No information on significant adverse effects.

Delayed
No information on significant adverse effects.

Indication of Immediate Medical Attention and Special Treatment Needed, If Needed
Treat symptomatically and supportively

SECTION 5 - FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
- regular dry powder, carbon dioxide, water spray, alcohol resistant foam

Unsuitable Extinguishing Media
None known.

Special Hazards Arising from the Chemical

Hazardous Combustion Products

Combustion: oxides of carbon

Special Protective Equipment and Precautions for Firefighters
Slight fire hazard. Fire fighters should wear full-face, self-contained breathing apparatus and impervious protective clothing.

Sensitivity to Mechanical Impact
No

Sensitivity to Static Discharge
No

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment.

Methods and Materials for Containment and Cleaning Up
Collect with appropriate absorbent and place into suitable container. Keep out of water supplies and sewers.

SECTION 7 - HANDLING AND STORAGE

Precautions for Safe Handling
Avoid breathing vapor or mist. Avoid contact with skin and eyes. Wash thoroughly after handling. Use only in well ventilated areas. Use in accordance with good industrial hygiene practices.
Conditions for Safe Storage, including any Incompatibilities
Store and handle in accordance with all current regulations and standards. Store at -20 ºC. Store in a cool, dry place. Store in a well-ventilated area. Keep away from heat. Keep container tightly closed. Keep away from food, drink and animal feed. Keep separated from incompatible substances.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits
Glycerin (56-81-5)

OSHA: 15 mg/m3 TWA (mist, total particulate); 5 mg/m3 TWA (mist, respirable fraction)
Mexico 10 mg/m3 TWA LMPE-PPT (mist)

Biological Exposure Limits
There are no biological limit values for any of this product's components.

Appropriate Engineering Controls
Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eyes/Face Protection
Wear chemical safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection
Wear appropriate chemical resistant clothing.

Glove Recommendations
Wear appropriate chemical resistant gloves.

Respiratory Protection
Respiratory protection is not required under normal conditions of use.

If ventilation is not sufficient to effectively prevent buildup of mists or vapors, appropriate respiratory protection must be provided.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical State:</th>
<th>Liquid</th>
<th>Appearance:</th>
<th>pink liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>Pink</td>
<td>Physical Form:</td>
<td>liquid</td>
</tr>
<tr>
<td>Odor:</td>
<td>odorless</td>
<td>Odor Threshold:</td>
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</tr>
<tr>
<td>pH:</td>
<td>8.65</td>
<td>Melting Point:</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>100 ºC</td>
<td>Decomposition Temperature:</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability (solid, gas):</td>
<td>Not applicable</td>
<td>Flash Point:</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation Rate:</td>
<td>Not available</td>
<td>Lower Explosive Limit:</td>
<td>Not available</td>
</tr>
<tr>
<td>Upper Explosive Limit:</td>
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<td>Auto Ignition Temperature:</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>23 hPa @ 20 ºC</td>
<td>Vapor Density (air = 1):</td>
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</tr>
<tr>
<td>Density:</td>
<td>1.9 g/ml</td>
<td>Specific Gravity (water = 1):</td>
<td>Not available</td>
</tr>
<tr>
<td>Water Solubility:</td>
<td>Soluble</td>
<td>Coeff. Water/Oil Dist:</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity:</td>
<td>Not available</td>
<td>Volatility:</td>
<td>Not available</td>
</tr>
<tr>
<td>Oxidizing Properties:</td>
<td>Not available</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION 10 – STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.

Chemical Stability
Stable at normal temperatures and pressure.
Possibility of Hazardous Reactions
Will not polymerize.

Conditions to Avoid
Prolonged storage above -20 ºC. Avoid excessive heat and ignition sources. Avoid contact with incompatible materials.

Incompatible Materials
strong oxidizing materials

Hazardous Decomposition
Combustion: oxides of carbon

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity
May cause respiratory tract irritation. May cause irritation of the skin and eyes.

Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:
1,2-Propylene glycol (57-55-6)
Dermal LD50 Rabbit 20800 mg/kg; Oral LD50 Rat 20000 mg/kg

Glycerin (56-81-5)
Dermal LD50 Rabbit >10 g/kg; Inhalation LC50 Rat >570 mg/m3 1 h

Information on Likely Routes of Exposure

Inhalation
May cause respiratory tract irritation.

Ingestion
No information on significant adverse effects.

Skin Contact
May cause irritation.

Eye Contact
May cause irritation.

Immediate Effects
respiratory tract irritation, skin irritation, eye irritation

Delayed Effects
No information on significant adverse effects.

Medical Conditions Aggravated by Exposure
None known.

Respiratory Sensitization
No data available.

Dermal Sensitization
No data available.

Germ Cell Mutagenicity
No data available.

Carcinogenicity
Component Carcinogenicity
None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA.

Reproductive Toxicity
No data available.

Specific Target Organ Toxicity - Single Exposure
No significant target organ effects reported.

Specific Target Organ Toxicity - Repeated Exposure
No significant target organ effects reported.

Aspiration Hazard
No data available.
SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity
May be harmful to aquatic life.
Component Analysis - Aquatic Toxicity
1,2-Propylene glycol (57-55-6)
Fish: 96 Hr LC50 Oncorhynchus mykiss: 51600 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 41 - 47 mL/L [static]; 96 Hr LC50 Pimephales promelas: 51400 mg/L [static]; 96 Hr LC50 Pimephales promelas: 710 mg/L
Algae: 96 Hr EC50 Pseudokirchneriella subcapitata: 19000 mg/L
Invertebrate: 24 Hr EC50 Daphnia magna: >10000 mg/L; 48 Hr EC50 Daphnia magna: >1000 mg/L [Static]
Glycerin (56-81-5)
Fish: 96 Hr LC50 Oncorhynchus mykiss: 51 - 57 mL/L [static]
Invertebrate: 24 Hr EC50 Daphnia magna: >500 mg/L

Persistence and Degradability
No information available for the product.
Bioaccumulative Potential
No data available.
Mobility in Soil
No data available.
Other Ecological Information
Keep out of water supplies and sewers

SECTION 13 – DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose in accordance with all applicable regulations. Reprocess whenever possible.
Disposal of Contaminated Packaging
Recycle if possible.

SECTION 14 – TRANSPORT INFORMATION

US DOT Information
Not regulated as a hazardous material.
TDG Information
Not regulated as dangerous goods.

SECTION 15 – REGULATORY INFORMATION

U.S. Federal Regulations
Component Analysis
None of this product components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 311/312 (40 CFR 370.21), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.
SARA Section 311/312
Acute Health: No  Chronic Health: No  Fire: No  Pressure: No  Reactive: No
U.S. State Regulations
Component Analysis - State
The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propylene glycol</td>
<td>57-55-6</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Glycerin</td>
<td>56-81-5</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Not regulated under California Proposition 65

Canada Regulations
This product has been classified in accordance with the criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.
WHMIS CLASSIFICATION: Uncontrolled product according to WHMIS classification criteria

Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which fall under WHMIS criteria specified in the Controlled Products Regulations and present above the threshold limits listed on the IDL.

1,2-Propylene glycol (57-55-6)
1 %
Inventory
For research and development purposes only.

Component Analysis - Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>US</th>
<th>CA</th>
<th>EU</th>
<th>AU</th>
<th>PH</th>
<th>JP</th>
<th>KR</th>
<th>CN</th>
<th>NZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propylene glycol</td>
<td>57-55-6</td>
<td>Yes</td>
<td>DSL</td>
<td>EIN</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Glycerin</td>
<td>56-81-5</td>
<td>Yes</td>
<td>DSL</td>
<td>EIN</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

SECTION 16 – OTHER INFORMATION

History
Revision 1.0000, 6 June 2013: original

NFPA Ratings: Health: 1 Fire: 1 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; CAS - Chemical Abstracts Service; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IMDG - International Maritime Dangerous Goods; Kow - Octanol/water partition coefficient; LEL - Lower Explosive Limit; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NIOSH - National Institute for Occupational Safety and Health; NTP = National Toxicology Program; RID - European Rail Transport; STEL - Short-term Exposure Limit; TWA - Time Weighted Average; UEL - Upper Explosive Limit

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.
For research and development purposes only.

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