

## **Biological Algae Control Burlington Waterfront**

EcoSolutions is excited to offer a solution that begins to address the excess of phosphorous loading in Vermont's waterways including Lake Champlain. EcoSolutions provides Biological Algae Control and Phosphorous Reduction and Recovery Systems (BACS/PRRS). These media are designed to out compete algae and to recover phosphorous from water bodies that are inundated with nutrients in a soluble form.

In Burlington, EcoSolutions will provide a two-part demonstration project to show feasibility and performance of these two systems in addressing EPA requirements for phosphorous reductions and contribution to citizen's desires to have lake and beach access that is clean and free from toxic algae blooms. The main portion of this project will be a treatment system located on the Northern end of the public portion of North Beach in Burlington. This will consist of an anchor line that runs approximately 200' between buoys at the separation of the beach from the bay and deploys media in clusters to treat for algae and remove phosphorous. This portion will be accompanied by a sampling and monitoring plan to statistically verify observed performance.

The second part of this project will include a floating island with attached media located directly in front of the Burlington Boat House at Perkins Pier. This is designed to be an educational component of the project, allowing for ease of viewing existing and innovative management practices for addressing water treatment. This will also be accompanied with a nearby story board that describes how media captures phosphorous preventing algae growth.

### ***For additional information:***

**David Whitney, CEO, PE**  
**Regional Office**

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P : 802.598.6297

**Amanda Cording, Ph.D., Director Pacific**

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# Biological Algae Control

## Healthy Lakes Ponds and Lagoons



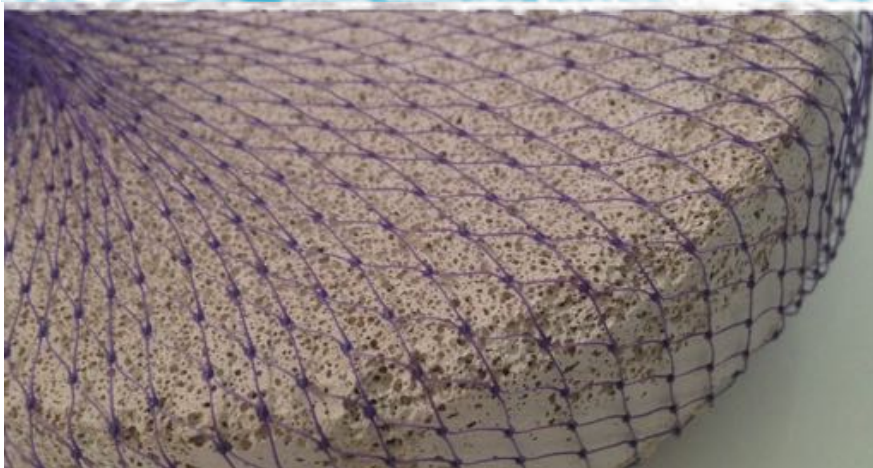
before treatment



after treatment

## EcoSolutions Biological Algae Control and Nutrient Reduction

Through natural biological processes we are able to offer Biological Algae Control Systems (BACS). BACS is a product line that out-competes algae in pools and ponds. We also capture nutrients using the Phosphorous Reduction and Recovery System (PRRS). PRRS does this by capturing Phosphorous and Nitrogen, reducing nutrients bound for discharge into streams and lakes preventing pollution in our water sheds. This also works great in commercial and agricultural applications. To get a free quote or find out more, send us an email. [info@ecosolddesigns.com](mailto:info@ecosolddesigns.com)



Sorption Media	mg-P/Kg
<b>BACS Sponge</b>	
High > 5mg/L	80,000
Low < 2 mg/L	25,000
Iron Ore (Hematite)	1,430
Iron Slag	420
Crushed Red Bricks	510
LECA (expanded clay)	800
Activated Fe Alumina	17,100
Filtra-D	2,500
Phostec	7,000

**EcoSolutions** is an engineering and construction company specializing in improving wastewater and stormwater treatment through Low Impact Development (LID).

315 Plains Rd. Westford, VT 05494

[www.ecosolddesigns.com](http://www.ecosolddesigns.com)

[info@ecosolddesigns.com](mailto:info@ecosolddesigns.com)



# BACS

Biological Algae Control System



# ECOSOLUTIONS, LLC

Innovative Designs - Living Systems



# PRRS

Phosphorous Reduction and Recovery System



# ECOSOLUTIONS, LLC

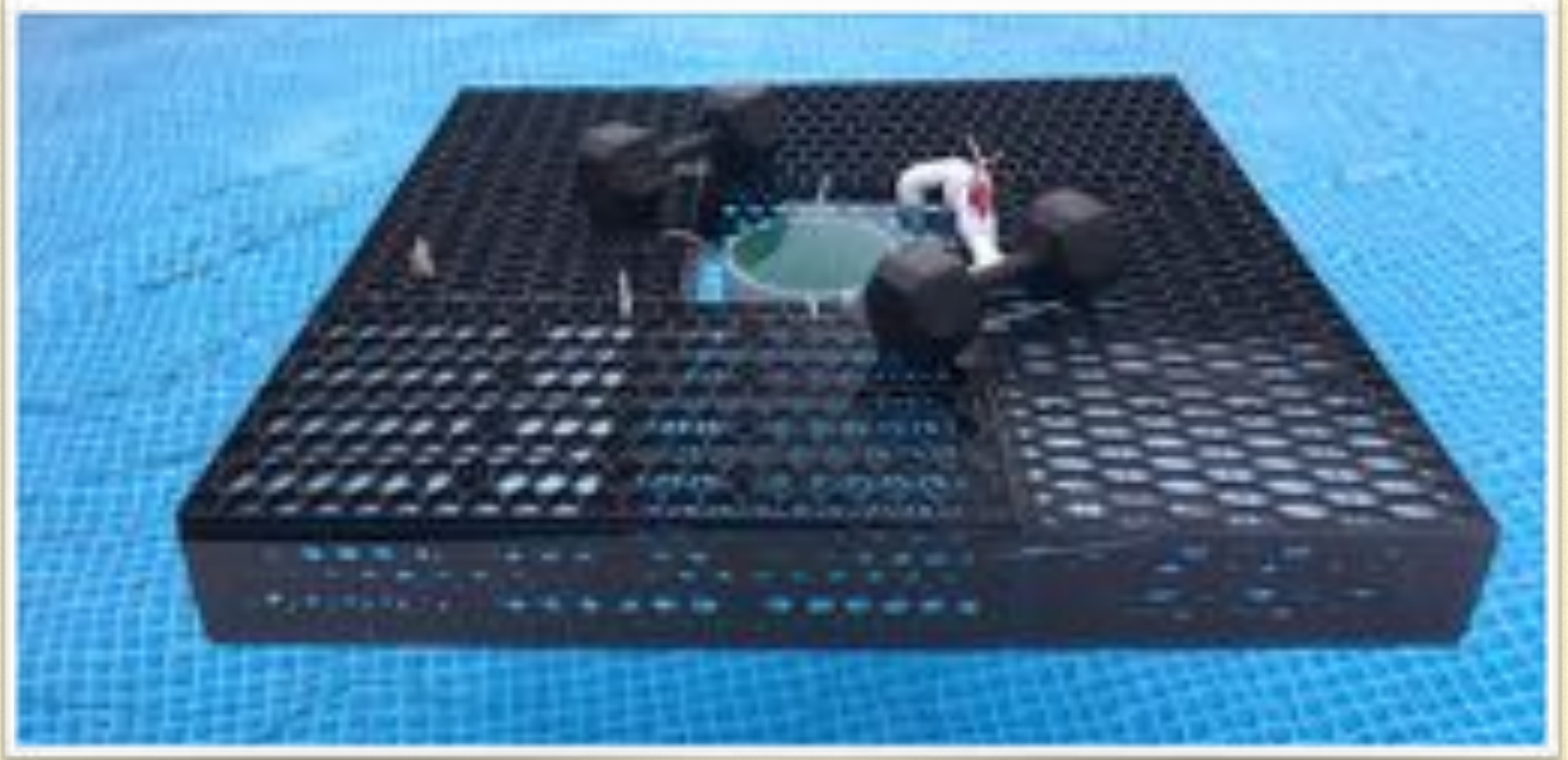
Innovative Designs - Living Systems





# Floating Wetland

Wetland Treatment System



## ECOSOLUTIONS, LLC

Innovative Designs - Living Systems



## **Biological Algae Control Monitoring Plan**

The proposed monitoring plan includes the collection of preliminary data to determine the efficacy of the Biological Algae Control (BAC) and Phosphorus Removal and Recovery System (PRRS) treatment technologies, in reducing both algae and the nutrients that cause algal blooms in the shoreline area of North Beach and the Boathouse in Burlington Vermont.

Preliminary data collection during this sampling period will include a minimum of seven grab samples, pre and post treatment installation. A minimum of five small samples will be collected at various locations within the sample area, and composited prior to analysis. Post-installation sampling will begin a minimum of 24 hours after the treatment technologies have been implemented to account for any disturbance effects.

Samples will be immediately taken to the laboratory for analysis in a dark cooler for sampler preservation. Samples will be analyzed by the University of Vermont Agricultural and Environmental Testing Laboratory (AETL) and Endyn Labs, for total nitrogen (TN), total phosphorus (TP) and chlorophyll *a*, respectively.

Temperature effects will be minimized by sampling at the same time of day (e.g., 2-3 pm) on each sampling occasion. Locational effects will be minimized by sampling at the same depth from the lake bottom in each sample (e.g., 2 ft).

Differences between pre-and post-treatment effects will be determined using a paired t-test, using JMP statistical analysis software.

# **Biological Algae Control Demonstration Plan**





## BOATHOUSE BACs LAYOUT

SCALE: NONE



**ECOSOLUTIONS**  
www.ecosol designs.com

315 Plains Road Westford, VT 05494  
t: 802.598.6297 f: 802.598.6297  
1440 Alewa Dr. E1 Honolulu, HI 96817  
o: 808.367.1026 c: 808.372.5719

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## BIOLOGICAL ALGAE CONTROL (BAC) SYSTEM - BURLINGTON

Drawn By:

DHW

Checked By:

DHW

Scale:

Not to Scale

Date:

AUGUST 13, 2016

Sheet:

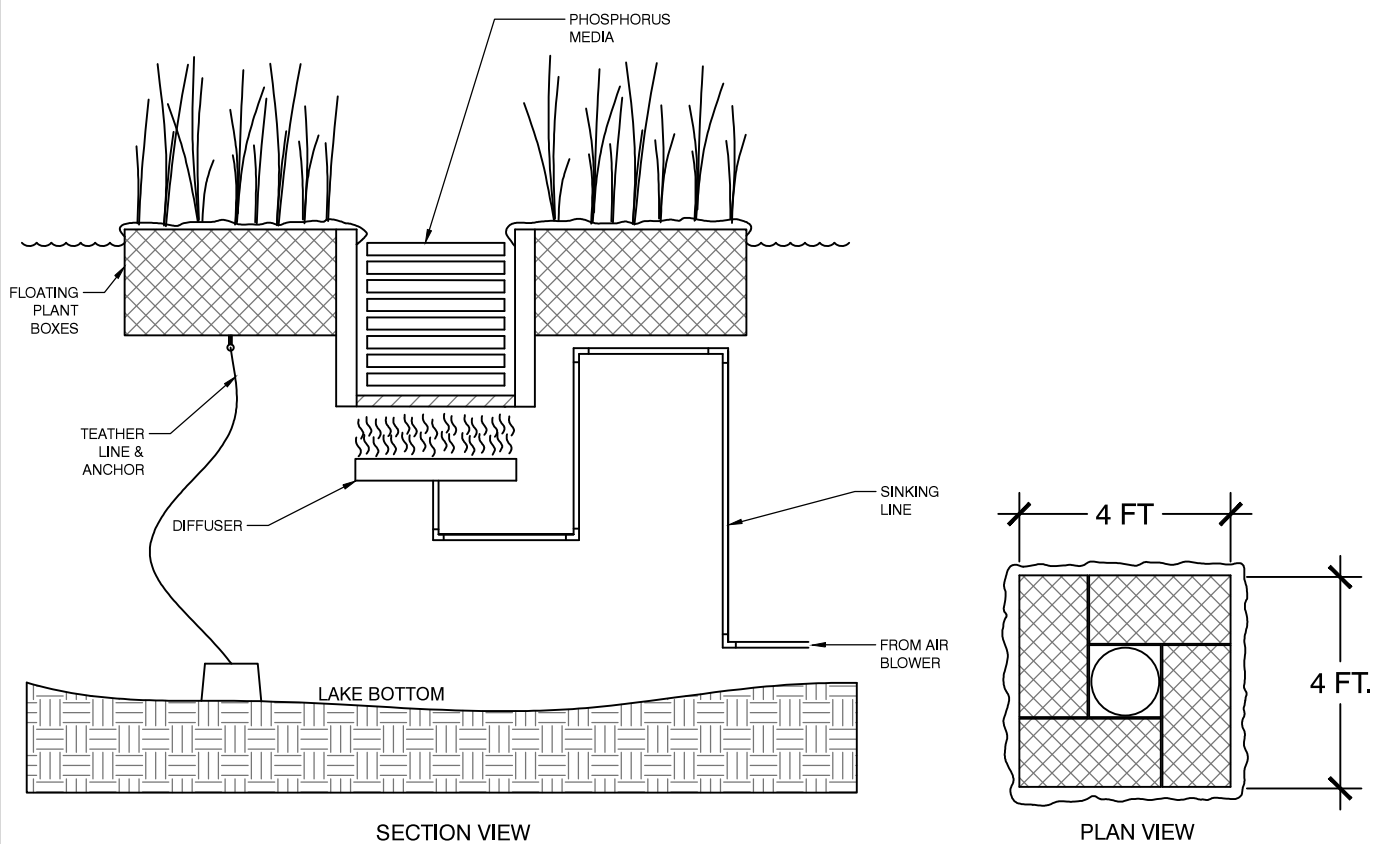
**1A**

of 2

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16-035





FLOATING AIR WITH PHOSPHORUS FILTER



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## BIOLOGICAL ALGAE CONTROL (BAC) SYSTEM - BURLINGTON

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of 2

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## NORTH BEACH BACs LAYOUT

SCALE: NONE



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### BIOLOGICAL ALGAE CONTROL (BAC) SYSTEM - BURLINGTON

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Date:

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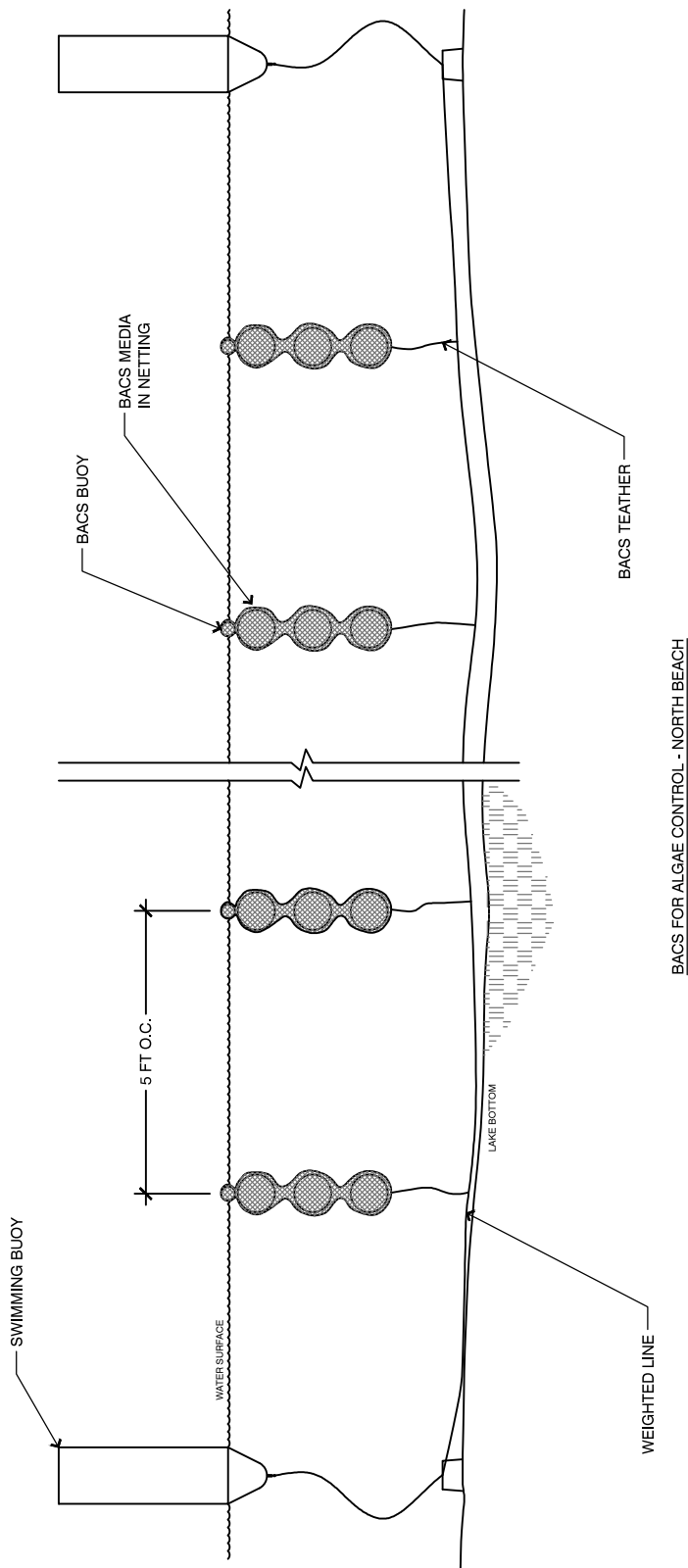
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Job Number:

16-035



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## BIOLOGICAL ALGAE CONTROL (BAC) SYSTEM - BURLINGTON

Drawn By:

DHW

Checked By:

DHW

Scale:

Not to Scale

Date:

AUGUST 13, 2016

Sheet:

**2B**

of 2

Job Number:

16-035



## **MSDS – BACS MEDIA**

**MATERIAL SAFETY DATA SHEET****BIOMEDIA****1. PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT NAME:** POROUS CERAMIC  
**MANUFACTURER:** MetaMateria Technologies  
870 Kaderly Dr,  
Columbus, OH 43228

**FOR MORE INFORMATION CALL:** (614) 340 1690 (8 AM to 5 PM EST, Monday to Friday)

**IN CASE OF EMERGENCY CALL:** 1-800-424-9300 (CHEMTREC)

**2. COMPOSITION / INFORMATION ON INGREDIENTS**

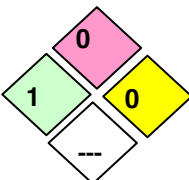
<u>INGREDIENT NAME:</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Sodium Aluminum Silicate	N/A	60-100 %

**OSHA:** This material is classified as hazardous under OSHA regulations (29 CFR 1910.1200)

**3. HAZARDS IDENTIFICATION****EMERGENCY OVERVIEW**

Porous solid Material

Dust: Caution may cause eye irritation. May cause respiratory irritation.

HM-IES	NFPA
H * 1	
F 0	
R 0	
PPE	

**4. POTENTIAL HEALTH HAZARDS**

**TARGET ORGANS:** Eyes, respiratory system

**ROUTES OF ENTRY:**      Inhalation - Yes      Skin Absorption - No  
                                 Ingestion - No      Injection - No

Effective Date: 8/28/13

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## 5. ACUTE HEALTH HAZARDS

**SKIN** None expected under normal conditions of use.

**EYES** May cause mild irritation. Inert particles may cause mechanical irritation of the eyes including scratches. Direct eye contact may produce severe irritation.

**INHALATION** May cause irritation to the nose, throat and upper respiratory tract. Symptoms may include coughing, choking and wheezing

**INGESTION** Ingestion may cause nausea, vomiting and diarrhea.

**CHRONIC EFFECTS** None known

**PRE-EXISTING MEDICAL CONDITION AGGRAVATED** May aggravate pre-existing skin, eye and respiratory disorders

## 6. FIRST AID MEASURES

**SKIN:** No first aid is usually required; if skin is irritated wash exposed areas thoroughly with soap and water for at least 15 minutes. If skin irritation or rash occurs, seek medical advice/attention.

**EYES:** Immediately flush eyes with running water for a minimum of 15 minutes. If irritation persists, seek prompt medical attention.

**INHALATION:** Immediately remove person to fresh air. If breathing has stopped, give artificial respiration and seek prompt medical attention.

**INGESTION:** Seek immediate medical advice/attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

## 7. FIRE FIGHTING MEASURES

**FLAMMABLE PROPERTIES:** Not flammable under normal conditions of use.

**FLASH POINT:** N/A

**UPPER FLAME LIMIT (volume % in air)** N/A

**LOWER FLAME LIMIT (volume % in air)** N/A

**OSHA FLAMMABILITY CLASS** Non-flammable

**EXTINGUISHING MEDIA** Dry Chemical, foam, carbon dioxide and water fog.

### SPECIAL FIRE FIGHTING PRECAUTIONS INSTRUCTIONS

Firefighters should use proper protective equipment and self-contained breathing apparatus with a full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame.

**HAZARDOUS COMBUSTION PRODUCTS** Silica, alumina dust and other irritating fumes.

Effective Date: 8/28/13

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## 8. ACCIDENTAL RELEASE MATERIALS

<b>PERSONAL PRECAUTIONS:</b>	All persons dealing with clean-up should wear appropriate personal protective equipment. Keep other personnel away from the spill or release and restrict access until completion of clean-up.
<b>ENVIRONMENTAL PRECAUTIONS:</b>	None
<b>SPILL RESPONSE AND CLEANUP:</b>	Sweep and shovel material into appropriate containers for disposal being careful not to generate dust. Finish clean-up using a vacuum fitted with a HEPA filtration system and mop the area thoroughly.

## 9. HANDLING AND STORAGE

<b>SAFE HANDLING PROCEDURES:</b>	Use in a well-ventilated area. Avoid breathing dust. Keep away from heat, sparks, and open flames. Avoid contact with incompatible materials.
<b>STORAGE RECOMMENDATIONS:</b>	Store in a dry, well ventilated area. Storage area should be clearly identified, clear of obstruction and accessible only to trained, authorized personnel.

## 10. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>ENGINEERING CONTROLS:</b>	Use in a well ventilated area. General mechanical ventilation should be sufficient.
<b><u>PERSONAL PROTECTIVE EQUIPMENT</u></b>	
<b>SKIN PROTECTION:</b>	Wear appropriate gloves when handling this material.
<b>EYE PROTECTION:</b>	Appropriate eye protection should be worn based on a process hazard analysis. Goggles are recommended. Contact lenses should not be worn.
<b>RESPIRATORY PROTECTION:</b>	Respiratory protection is required if concentrations exceed the PEL. NIOSH approved respirators are recommended.
<b>ADDITIONAL RECOMMENDATIONS:</b>	An eyewash station and safety shower should be made available in the immediate working area.

## EXPOSURE GUIDELINES

<b><u>INGREDIENT NAME</u></b>	<b><u>ACCGIH TLV</u></b>	<b><u>OSHA PEL</u></b>
Sodium Aluminum silicate	10 mg/m <sup>3</sup> (Inhalable particulate)	15 mg/m <sup>3</sup> (Total Dust)
	2 mg/m <sup>3</sup> (Respirable particles)	5 mg/m <sup>3</sup> (Respirable fraction)

Effective Date: 8/28/13

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## 11. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Cream to light brown porous solid
PHYSICAL STATE:	Solid
ODOR:	Odorless
SPECIFIC GRAVITY (WATER = 1.0)	0.28 g/cc
SOLUBILITY IN WATER (WEIGHT %):	N/A
pH:	N/A
BOILING POINT:	N/A
MELTING POINT:	N/A
VAPOR PRESSURE:	N/A
VAPOR DENSITY (AIR = 1.0):	N/A
EVAPORATION RATE:	N/A
% VOLATILES:	N/A

## 12. STABILITY AND REACTIVITY

STABILITY AND REACTIVITY:	Stable under the recommended storage and handling conditions prescribed.
INCOMPATIBILITIES:	Strong oxidizing agents; acids
HAZARDOUS DECOMPOSITION PRODUCTS:	None known
HAZARDOUS POLYMERIZATION:	Will not occur
CONDITIONS TO AVOID:	Avoid creating dust clouds. Avoid abrasion of surface of media.

## 13. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:	Primary Irritant effect:
on the skin:	May cause irritation
on the eye :	May cause irritation
sensitization :	No sensitization effects known
CARCINOGENICITY:	Does not contain any disclosable ingredients considered to be carcinogenic by IARC, ACGIH or NTP
REPRODUCTIVE EFFECTS:	Not expected to have reproductive effects
TERATOGENICITY:	Not expected to be a Teratogen.
MUTAGENICITY:	Not expected to be Mutagenic in humans.

Effective Date: 8/28/13

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#### 14. ECOLOGICAL INFORMATION

ENVIRONMENTAL EFFECTS: N/A

ECOTOXICOLOGICAL EFFECTS: N/A

#### 15. DISPOSAL CONSIDERATIONS

METHODS OF DISPOSAL: Follow Federal, State and Local regulations.

RCRA: It is the responsibility of the waste generator to determine the proper waste identification and disposal method.

*The information offered in Section 15 is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.*

#### 16. TRANSPORT INFORMATION

US DOT HAZARD CLASS: Not Regulated

LAND TRANSPORT: Not Regulated

AIR TRANSPORT ICAO/IATA: Not Regulated

*For additional information on shipping regulations affecting this material, contact the information number found in Section 1.*

#### 17. REGULATORY INFORMATION

##### **TOXICS SUBSTANCES CONTROL ACT (TSCA)**

TSCA INVENTORY STATUS: All ingredients appear on the TSCA inventory.

CERCLA REPORTABLE QUANTITY: N/A

NATIONAL REGULATIONS: All components of this product are listed in U.S.EPA toxic substances control act chemical substance inventory.

SARA 313 TOXIC CHEMICALS: This material is not subject to SARA notification requirements, since it does not contain any Toxic Chemical constituents above de minimus concentrations.

##### **US STATE RIGHT-TO-KNOW**

CALIFORNIA PROPOSITION 65: This product does not contain any chemicals known to the State of California to cause cancer or reproductive harm.

#### 18. OTHER INFORMATION

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this MSDS or in combination with any other product, is the responsibility of the user.

CURRENT ISSUE DATE: 8/28/2013

Effective Date: 8/28/13

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## **MSDS – PRRS MEDIA**

**MATERIAL SAFETY DATA SHEET****Phosphate media****1. PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT NAME:** Phosphate media  
**MANUFACTURER:** MetaMateria Technologies  
870 Kaderly Dr,  
Columbus, OH 43228

**FOR MORE INFORMATION CALL:** (614) 340 1690 (8 AM to 5 PM EST, Monday to Friday)

**IN CASE OF EMERGENCY CALL:** 1-800-424-9300 (CHEMTREC)

**2. COMPOSITION / INFORMATION ON INGREDIENTS**

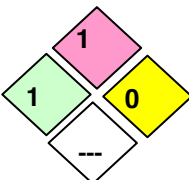
<u>INGREDIENT NAME:</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Sodium Aluminum Silicate	N/A	40-70 %
Iron	N/A	30-60 %

**OSHA:** This material is classified as hazardous under OSHA regulations (29 CFR 1910.1200)

**3. HAZARDS IDENTIFICATION****EMERGENCY OVERVIEW**

Porous solid Material

Dust: Caution may cause eye irritation. May cause respiratory irritation.

HM-IES	NFPA
H * 1	
F 1	
R 0	
PPE	

**4. POTENTIAL HEALTH HAZARDS**

**TARGET ORGANS:** Eyes, respiratory system

**ROUTES OF ENTRY:**      Inhalation - Yes      Skin Absorption - No  
                                 Ingestion - No      Injection - No

Effective Date: 8/28/13

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## **MSDS – EB BACTERIA**

# MATERIAL SAFETY DATA SHEET

pureBacteria EB50

MSDS DATE: 11/05/15

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## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

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**CONTACT:** R & D SPECIALTY PRODUCTS, LLC  
18640 MACK AVE. #1133  
GROSSE PTE, MI 48236  
(313) 570-4233

**COMMON NAME:** BACTERIAL INOCULANT FOR PETROLEUM DEGRADATION  
**TRADE NAME:** pureBacteria EB Environmental Blend

**MICROBIAL FORMULATION:** THIS PRODUCT FORMULATION CONSISTS OF NATURALLY OCCURRING MICROORGANISMS

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## SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

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**BASIC MATERIAL:** CONTAINS NO HAZARDOUS MATERIALS

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## SECTION 3: HAZARDS IDENTIFICATION

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**EMERGENCY OVERVIEW:** NATURAL, TAN LIQUID, EARTHY SCENT

**POTENTIAL ACUTE HEALTH EFFECTS**

**EYES:** CONSIDERED A SLIGHT EYE IRRITANT

**SKIN:** NOT CONSIDERED TO BE IRRITATING TO THE SKIN

**INGESTION:** LOW ORDER OF TOXICITY. LD50 > 5,000 MG/KG (ORAL, RAT)

**INHALATION:** NOT AN EXPECTED ROUTE OF EXPOSURE

**CHRONIC HEALTH HAZARDS:** NONE KNOWN

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:** NONE KNOWN

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## SECTION 4: FIRST AID MEASURES

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**EYES:** FLUSH EYES WITH STERILE WATER UNTIL IRRITATION SUBSIDES OR STOPS. CONTACT A PHYSICIAN.

**SKIN:** WASH WITH SOAP AND WATER

**INGESTION:** ALTHOUGH NOT AN ACUTE HAZARD AS TESTED IN RATS, CHRONIC EFFECTS ARE UNKNOWN. UPON PROLONGED OR REPEATED RESPIRATORY EXPOSURE, CONTACT A PHYSICIAN.

**INHALATION:** ALTHOUGH NOT AN ACUTE HAZARD AS TESTED IN RATS, CHRONIC EFFECTS ARE UNKNOWN. UPON PROLONGED OR REPEATED RESPIRATORY EXPOSURE, CONTACT A PHYSICIAN.

---

## SECTION 5: FIRE-FIGHTING MEASURES

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**FLAMMABLE LIMITS IN AIR, UPPER:** N/A  
(% BY VOLUME) **LOWER:** N/A

**FLASH POINT:** N/A

**METHOD USED:** N/A

**EXTINGUISHING MEDIA:** NONE

**SPECIAL FIRE FIGHTING PROCEDURES:** N/A

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** N/A IN A LIQUID STATE

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## SECTION 6: ACCIDENTAL RELEASE MEASURES

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**ACCIDENTAL RELEASE MEASURES:** NO HAZARD – WASH AWAY WITH PLENTY OF WATER



# MATERIAL SAFETY DATA SHEET

pureBacteria EB50

MSDS DATE: 11/05/15

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## SECTION 7: HANDLING AND STORAGE

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HANDLING AND STORAGE: STORE AT ROOM TEMPERATURE

OTHER PRECAUTIONS: PROTECT FROM FREEZING

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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ENGINEERING CONTROLS: TREAT AS YOU WOULD ANY CHEMICAL OR BIOLOGICAL MATERIAL

VENTILATION: TREAT AS YOU WOULD ANY CHEMICAL OR BIOLOGICAL MATERIAL

RESPIRATORY PROTECTION: TREAT AS YOU WOULD ANY CHEMICAL OR BIOLOGICAL MATERIAL

EYE PROTECTION: WEAR SAFETY GLASSES WITH SIDE SHIELDS

SKIN PROTECTION: WEAR PROTECTIVE WATER RESISTANT GLOVES

WORK HYGIENIC PRACTICES: TREAT AS YOU WOULD ANY CHEMICAL OR BIOLOGICAL MATERIAL

EXPOSURE GUIDELINES: THIS PRODUCT IS NOT INTENDED FOR HUMAN OR ANIMAL CONSUMPTION

---

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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APPEARANCE: BLUE COLOR

ODOR: EARTHY SCENT

PHYSICAL STATE: LIQUID OR POWDER

BOILING POINT:

F: 212 PROX

C: 100 PROX

VAPOR PRESSURE (mmHg): 24.00 PROX

SPECIFIC GRAVITY (H<sub>2</sub>O = 1): 1.0 PROX

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (cont.)

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SOLUBILITY IN WATER: SOLUBLE

PERCENT VOLATILE: N/A

---

## SECTION 10: STABILITY AND REACTIVITY

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STABLE: YES

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: THIS PRODUCT DOES NOT UNDERGO SPONTANEOUS DECOMPOSITION.

HAZARDOUS POLYMERIZATION: DOES NOT OCCUR.

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## SECTION 11: TOXICOLOGICAL INFORMATION

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TOXICOLOGICAL INFORMATION: ACUTE STUDIES – RAT ORAL LD<sub>50</sub> IS GREATER THAN 5g/kg OF BODY WIEGHT; AS EVIDENCED BY NO OBSERVED MORTALITY AFTER RATS WERE DOSED WITH 5g/kg AT A CONCENTRATION OF 500mg MUNOX/ ml OF WATER AND A DOSE VOLUME OF 10ml/kg OF BODY WIEGHT. RABBIT DERMAL LD<sub>50</sub> IS GREATER THAN 2g/kg OF BODY WIEGHT; AS EVIDENCED BY NO OBSERVED MORTALITY AFTER RABBITS WERE EXPOSED TO TEST MATERIAL APPLIED TO ABRADED AND NON-ABRADED OCCLUDED SKIN FOR 24 HOURS. NO SEVERE DRMAL EFFECTS WERE REPORTED AT THE DOSE SITE. EYE IRRITATION IN RABBITS WAS REPORTED AS SLIGHT. HIGHEST OBSERVED SCORES OUR OF A POSSIBLE SCORE OF 110 WERE AS FOLLOWS: 1HOUR – 12; 24 HOURS – 8; 72 HOURS – 4; 4 DAYS – 2; 7 DAYS – 2; 10 DAYS – 2; 14 DAYS – 2.

# MATERIAL SAFETY DATA SHEET

pureBacteria EB50

MSDS DATE: 11/05/15

SECTION 11 NOTES: CHRONIC HEALTH HAZARDS – ALTHOUGH CHRONIC STUDIES USING MUNOX ARE NOT AVAILABLE, INHALATION OF THIS PRODUCT SHOULD BE PREVENTED DUE TO UNKNOWN LONG TERM EFFECTS. THIS PRODUCT IS NOT FOR HUMAN OR ANIMAL CONSUMPTION.

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## SECTION 12: ECOLOGICAL INFORMATION

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ECOLOGICAL INFORMATION: ACUTE AQUATIC TOXICITY LC50 – FATHEAD MINNOWS – NOT TOXIC AT 100%

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## SECTION 13: DISPOSAL CONSIDERATIONS

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WASTE DISPOSAL METHOD: WASTE DISPOSAL METHOD – USE NORMAL LIQUID WASTE METHODS IN CONFORMANCE WITH PERINENT FEDERAL, STATE, AND LOCAL REGULATIONS.

RCRA HAZARD CLASS: N/A

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## SECTION 13: DISPOSAL CONSIDERATIONS (cont.)

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SECTION 13 NOTES: SEE ABOVE

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## SECTION 14: TRANSPORT INFORMATION

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U.S. DEPARTMENT OF TRANSPORTATION  
PROPER SHIPPING NAME: NOT REGULATED

WATER TRANSPORTATION  
PROPER SHIPPING NAME: NOT REGULATED

AIR TRANSPORTATION  
PROPER SHIPPING NAME: NOT REGULATED

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## SECTION 15: REGULATORY INFORMATION

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U.S. FEDERAL REGULATIONS  
TSCA (TOXIC SUBSTANCE CONTROL ACT): LISTED

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT): NONE LISTED

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT): NONE

311/312 HAZARD CATEGORIES: THIS PRODUCT IS CONSIDERED NON HAZARDOUS UNDER THE OSHA COMMUNICATIONS STANDARD.

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## SECTION 16: OTHER INFORMATION

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DISCLAIMER: THE INFORMATION GIVEN AND THE RECOMMENDATIONS MADE HEREIN APPLY TO THE PRODUCT (S) ALONE AND NOT IN COMBINATION WITH ANY OTHER PRODUCT (S). SUCH INFORMATION AND RECOMMENDATIONS ARE BASED ON RESEARCH AND ON DATA FROM OTHER RELIABLE SOURCES AND ARE BELIEVED TO BE ACCURATE BY NO GUARANTY OF THEIR ACCURACY IS MADE. IN EVERY CASE IT IS URGED AND RECOMMENDED THAT THE PURCHASERS BEFORE USING ANY PRODUCT MAKE THEIR OWN TESTS TO VERIFY THE DATA UNDER THEIR OPERATING CONDITIONS AND TO DETERMINE TO THEIR OWN SATISFACTION WHETHER THE PRODUCT IS SUITABLE FOR THEIR PATICULAR PURPOSES. THE PRODUCT (S) DISCUSSED HEREIN ARE SOLD WITHOUT ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED.

## 5. ACUTE HEALTH HAZARDS

**SKIN** None expected under normal conditions of use.

**EYES** May cause mild irritation. Inert particles may cause mechanical irritation of the eyes including scratches. Direct eye contact may produce severe irritation.

**INHALATION** May cause irritation to the nose, throat and upper respiratory tract. Symptoms may include coughing, choking and wheezing

**INGESTION** Ingestion may cause nausea, vomiting and diarrhea.

**CHRONIC EFFECTS** None known

**PRE-EXISTING MEDICAL CONDITION AGGRAVATED** May aggravate pre-existing skin, eye and respiratory disorders

## 6. FIRST AID MEASURES

**SKIN:** No first aid is usually required; if skin is irritated wash exposed areas thoroughly with soap and water for at least 15 minutes. If skin irritation or rash occurs, seek medical advice/attention.

**EYES:** Immediately flush eyes with running water for a minimum of 15 minutes. If irritation persists, seek prompt medical attention.

**INHALATION:** Immediately remove person to fresh air. If breathing has stopped, give artificial respiration and seek prompt medical attention.

**INGESTION:** Seek immediate medical advice/attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

## 7. FIRE FIGHTING MEASURES

**FLAMMABLE PROPERTIES:** Not flammable under normal conditions of use.

**FLASH POINT:** N/A

**UPPER FLAME LIMIT (volume % in air)** N/A

**LOWER FLAME LIMIT (volume % in air)** N/A

**OSHA FLAMMABILITY CLASS** Non-flammable

**EXTINGUISHING MEDIA** Dry Chemical, foam, carbon dioxide and water fog.

### SPECIAL FIRE FIGHTING PRECAUTIONS INSTRUCTIONS

Firefighters should use proper protective equipment and self-contained breathing apparatus with a full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame.

**HAZARDOUS COMBUSTION PRODUCTS** Silica, alumina dust and other irritating fumes.

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## 8. ACCIDENTAL RELEASE MATERIALS

<b>PERSONAL PRECAUTIONS:</b>	All persons dealing with clean-up should wear appropriate personal protective equipment. Keep other personnel away from the spill or release and restrict access until completion of clean-up.
<b>ENVIRONMENTAL PRECAUTIONS:</b>	None
<b>SPILL RESPONSE AND CLEANUP:</b>	Sweep and shovel material into appropriate containers for disposal being careful not to generate dust. Finish clean-up using a vacuum fitted with a HEPA filtration system and mop the area thoroughly.

## 9. HANDLING AND STORAGE

<b>SAFE HANDLING PROCEDURES:</b>	Use in a well-ventilated area. Avoid breathing dust. Keep away from heat, sparks, and open flames. Avoid contact with incompatible materials.
<b>STORAGE RECOMMENDATIONS:</b>	Store in a dry, well ventilated area. Storage area should be clearly identified, clear of obstruction and accessible only to trained, authorized personnel.

## 10. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>ENGINEERING CONTROLS:</b>	Use in a well ventilated area. General mechanical ventilation should be sufficient.
<b><u>PERSONAL PROTECTIVE EQUIPMENT</u></b>	
<b>SKIN PROTECTION:</b>	Wear appropriate gloves when handling this material.
<b>EYE PROTECTION:</b>	Appropriate eye protection should be worn based on a process hazard analysis. Goggles are recommended. Contact lenses should not be worn.
<b>RESPIRATORY PROTECTION:</b>	Respiratory protection is required if concentrations exceed the PEL. NIOSH approved respirators are recommended.
<b>ADDITIONAL RECOMMENDATIONS:</b>	An eyewash station and safety shower should be made available in the immediate working area.

### **EXPOSURE GUIDELINES**

<b><u>INGREDIENT NAME</u></b>	<b><u>ACCGIH TLV</u></b>	<b><u>OSHA PEL</u></b>
Sodium Aluminum silicate	10 mg/m <sup>3</sup> (Inhalable particulate)	15 mg/m <sup>3</sup> (Total Dust)
	2 mg/m <sup>3</sup> (Respirable particles)	5 mg/m <sup>3</sup> (Respirable fraction)

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## 11. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Reddish brown porous solid
PHYSICAL STATE:	Solid
ODOR:	Odorless
SPECIFIC GRAVITY (WATER = 1.0)	0.30 g/cc
SOLUBILITY IN WATER (WEIGHT %):	N/A
pH:	N/A
BOILING POINT:	N/A
MELTING POINT:	N/A
VAPOR PRESSURE:	N/A
VAPOR DENSITY (AIR = 1.0):	N/A
EVAPORATION RATE:	N/A
% VOLATILES:	N/A

## 12. STABILITY AND REACTIVITY

STABILITY AND REACTIVITY:	Stable under the recommended storage and handling conditions prescribed.
INCOMPATIBILITIES:	Strong oxidizing agents; acids
HAZARDOUS DECOMPOSITION PRODUCTS:	None known
HAZARDOUS POLYMERIZATION:	Will not occur
CONDITIONS TO AVOID:	Avoid creating dust clouds. Avoid abrasion of surface of media.

## 13. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:	Primary Irritant effect:
on the skin:	May cause irritation
on the eye :	May cause irritation
sensitization :	No sensitization effects known
CARCINOGENICITY:	Does not contain any listed ingredients considered to be carcinogenic by IARC, ACGIH or NTP
REPRODUCTIVE EFFECTS:	Not expected to have reproductive effects
TERATOGENICITY:	Not expected to be a Teratogen.
MUTAGENICITY:	Not expected to be Mutagenic in humans.

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**14. ECOLOGICAL INFORMATION**

**ENVIRONMENTAL EFFECTS:** N/A

**ECOTOXICOLOGICAL EFFECTS:** N/A

**15. DISPOSAL CONSIDERATIONS**

**METHODS OF DISPOSAL:** Follow Federal, State and Local regulations.

**RCRA:** It is the responsibility of the waste generator to determine the proper waste identification and disposal method.

*The information offered in Section 15 is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.*

**16. TRANSPORT INFORMATION**

**US DOT HAZARD CLASS:** Not Regulated

**LAND TRANSPORT:** Not Regulated

**AIR TRANSPORT ICAO/IATA:** Not Regulated

*For additional information on shipping regulations affecting this material, contact the information number found in Section 1.*

**17. REGULATORY INFORMATION****TOXICS SUBSTANCES CONTROL ACT (TSCA)**

**TSCA INVENTORY STATUS:** All ingredients appear on the TSCA inventory.

**CERCLA REPORTABLE QUANTITY:** N/A

**NATIONAL REGULATIONS:** All components of this product are listed in U.S.EPA toxic substances control act chemical substance inventory.

**SARA 313 TOXIC CHEMICALS:** This material is not subject to SARA notification requirements, since it does not contain any Toxic Chemical constituents above de minimus concentrations.

**US STATE RIGHT-TO-KNOW**

**CALIFORNIA PROPOSITION 65:** This product does not contain any chemicals known to the State of California to cause cancer or reproductive harm.

**18. OTHER INFORMATION**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this MSDS or in combination with any other product, is the responsibility of the user.

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