**PRODUCT NAME:** APPLIED BIOCHEMISTS BLACK ALGAETRINE

### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Supplier</th>
<th>REVISION DATE:</th>
<th>MSDS Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Biochemists</td>
<td>05/26/2015</td>
<td>000000024400</td>
</tr>
<tr>
<td>1400 Bluegrass Lakes Parkway, Alpharetta, GA, 30004 USA</td>
<td>SUPERCEDES:</td>
<td></td>
</tr>
<tr>
<td>Telephone: +17705215999</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telefax: +17705215999</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web: <a href="http://www.poolspacare.com">www.poolspacare.com</a></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Manufacturer              |               |               |
|---------------------------|---------------|
| Advantis Technologies     |               |               |
| 1200 Bluegrass Lakes Parkway, Alpharetta, GA 30004 United States of America | | |

### SECTION 2. HAZARDS IDENTIFICATION

**GHS Classification**

- **Acute toxicity (Oral):** Category 4
- **Acute toxicity (Dermal):** Category 4
- **Skin corrosion:** Category 1B
- **Serious eye damage:** Category 1
Hazard pictograms

Signal word : Danger

Hazard statements : H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.

Precautionary statements : Prevention:
P260 Do not breathe vapours.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P330 Rinse mouth.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P321 Specific treatment (see supplemental first aid instructions on this label).
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/ physician.

Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/container in accordance with local regulation.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS OR CHEMICAL NAME</th>
<th>CAS #</th>
<th>% RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUATERNARY AMMONIUM COMPOUNDS, BENZYL-C12-16-ALKY</td>
<td>68424-85-1</td>
<td>20 - 30</td>
</tr>
</tbody>
</table>
SECTION 4. FIRST AID MEASURES

General Advice: Call a poison control center or doctor for treatment advice. For 24-hour emergency medical assistance, call Arch Chemical Emergency Action Network at 1-800-654-6911. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

Inhalation: IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Skin Contact: IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Eye Contact: IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Ingestion: IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

SECTION 5. FIREFIGHTING MEASURES

Flammability Summary (OSHA): Product is not known to be flammable, combustible, pyrophoric or explosive.

Flammable Properties
Flash Point: No data.
Autoignition Temperature: No data
Fire / Explosion Hazards: Material will not ignite or burn.
Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Fire Fighting Instructions: Use water spray to cool unopened containers. In case of fire, use normal fire-fighting equipment and the personal protective equipment recommended in Section 8 to include a NIOSH approved self-contained breathing apparatus.

Hazardous Combustion Products: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Upper Flammable / Explosive Limit, % in air: No data
Lower Flammable / Explosive Limit, % in air: No data

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Protection for Emergency Situations: Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to boots, impervious gloves, hard hat, splash-proof goggles, impervious clothing, i.e., chemically impermeable suit, self-contained breathing apparatus.

Spill Mitigation Procedures
Air Release: Keep people away from and upwind of spill/leak.
Water Release: This material is soluble in water. Notify all downstream users of possible contamination. Divert water flow around spill if possible and safe to do so.
Land Release: Contain and/or absorb spill with inert material (e.g. sand, vermiculite). Do not use clay to absorb spill. Avoid release to the environment.
Additional Spill Information: Prevent further leakage or spillage if safe to do so. Use personal protective equipment as required. Evacuate personnel to safe areas.

SECTION 7. HANDLING AND STORAGE

Handling: Do not take internally. Avoid contact with skin, eyes and clothing. If in eyes or on skin, rinse well with water. Avoid breathing vapours, mist or gas.
Storage: Store in a cool, dry and well ventilated place. Isolate from incompatible materials. Do not freeze.
Incompatible Materials for Storage: Refer to Section 10, “Incompatible Materials.”
Empty Container Warning: Empty containers retain hazardous residue, dispose of accordingly.
SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation: Use local exhaust ventilation to maintain levels below exposure limits.

Protective Equipment for Routine Use of Product

Respiratory Protection: Wear a NIOSH approved respirator if levels above the exposure limits are possible. A NIOSH approved air purifying respirator with organic vapor/N95 cartridges. Air purifying respirators should not be used in oxygen deficient or IDLH atmospheres or if exposure concentrations exceed ten (10) times the published limit. A NIOSH approved full-face respirator as a minimum.

Skin Protection: Avoid contact with skin. Impervious gloves Boots Apron A full impervious suit is recommended if exposure is possible to a large portion of the body.

Eye Protection: Chemical resistant goggles must be worn. Face-shield

Protective Clothing Type: Impervious, Neoprene, Butyl rubber

General Protective Measures: Ensure that eyewash stations and safety showers are close to the workstation location.

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components (CAS-No.)</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis (Update)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine (102-71-6)</td>
<td>TWA</td>
<td>5 mg/m3</td>
<td>ACGIH (02 2014)</td>
</tr>
<tr>
<td>Ethanolamine (141-43-5)</td>
<td>TWA</td>
<td>3 ppm</td>
<td>ACGIH (02 2014)</td>
</tr>
<tr>
<td></td>
<td>STEL</td>
<td>6 ppm</td>
<td>ACGIH (02 2014)</td>
</tr>
<tr>
<td>BASIC COPPER CARBONATE (12069-69-1)</td>
<td>Conc</td>
<td>100 mg/m3</td>
<td>NIOSH/GUIDE (2005)</td>
</tr>
<tr>
<td>Ethanol (64-17-5)</td>
<td>STEL</td>
<td>1,000 ppm</td>
<td>ACGIH (02 2014)</td>
</tr>
</tbody>
</table>

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: liquid
Form: No data.
Color: dark blue
Odor: No data.
Molecular Weight: None established
pH: 9.5 - 9.7
Boiling Point: No Data
Melting point/freezing point: No data
Density: no data available
Vapor Pressure: No data
Vapor Density: > 1
Viscosity: 34.5 mPa.s
Solubility in Water: Soluble
Partition coefficient n-octanol/water: Not applicable
Evaporation Rate: no data available
Oxidizing: None established
Voc, % by vol.: no data available

VOC Content
This product does not contain any chemicals listed under the U.S.
Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40
CFR 60.489). This product does not contain any VOC exemptions
listed under the U.S. Clean Air Act Section 450.

HAP Content
Not applicable

SECTION 10. STABILITY AND REACTIVITY

Stability and Reactivity Summary: Stable under normal conditions., Product will not undergo
hazardous polymerization.
Conditions to Avoid: Heat
Chemical Incompatibility: Strong acids and oxidizing agents, Clay
Hazardous Decomposition Products: Hydrogen chloride gas, Carbon oxides, Nitrogen oxides (NOx)
Decomposition Temperature: No data

SECTION 11. TOXICOLOGICAL INFORMATION

Component Animal Toxicology
Oral LD50 value:
QUATERNARY AMMONIUM COMPOUNDS, BENZYL-C12-16-ALKY
Triethanolamine LD50 = 426 mg/kg Rat
Ethanolamine LD50 = 1,700 mg/kg Rat
Ethanol LD50 = 7,060 mg/kg Rat

Component Animal Toxicology
Dermal LD50 value:
QUATERNARY AMMONIUM COMPOUNDS, BENZYL-C12-16-ALKY
Triethanolamine LD50 > 2,000 mg/kg Rabbit
Component Animal Toxicology

Inhalation LC50 value:

QUATERNARY AMMONIUM COMPOUNDS, BENZYL-C12-16-ALKY
Triethanolamine  A saturated vapor concentration for 8 hours (rats) did not produce any deaths.

Ethanolamine LC50 1 h > 2.42 mg/l Mouse
LC50 4 h > 970 ppm Mouse

Ethanol Inhalaion LC50 10 h = 20000 ppm Rat

Product Animal Toxicity

Oral LD50 value: 1.030 mg/kg Rat
Dermal LD50 value: 1.872 mg/kg Rat
Inhalation LC50 value: No data.

Skin Irritation: Corrosive to skin
Eye Irritation: Corrosive to eyes
Skin Sensitization: Not believed to be sensitising to skin.

Triethanolamine This material tested negative for skin sensitization in animals.

Ethanolamine This material tested negative for skin sensitization in animals.

Subchronic / Chronic Toxicity:

There are no known or reported effects from repeated exposure except those secondary to burns.

Triethanolamine Animal studies suggest that chronic (repeated) overexposure may result in damage to the liver and kidney.

Ethanol Prolonged or repeated ingestion may cause liver damage.

Reproductive and Developmental Toxicity:

Not known or reported to cause reproductive or developmental toxicity.
Triethanolamine This product has been tested and was shown not to produce any adverse effects on reproductive function or fetal development when administered to laboratory animals.

Ethanolamine This chemical has been tested in laboratory animals and no evidence of teratogenicity, embryotoxicity or fetotoxicity was seen.

Ethanol This chemical has been tested in laboratory animals and developmental and/or teratogenic effects were seen following ingestion.

**Mutagenicity:** Not known or reported to be mutagenic.

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>This chemical has been shown to be non-mutagenic based on a battery of assays.</td>
</tr>
<tr>
<td>Ethanolamine</td>
<td>This chemical has been tested in a battery of mutagenicity/genotoxicity assays and the results were negative.</td>
</tr>
<tr>
<td>Ethanol</td>
<td>This product has been tested for mutagenicity. Tests revealed both positive and negative results. Based on the weight of evidence, we judge this product NOT to be a mutagenic hazard.</td>
</tr>
</tbody>
</table>

**Carcinogenicity:** This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA.

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>The International Agency for Research on Cancer (IARC) has classified this product or a component of this product as a Group 3 substance, Unclassifiable as to its Carcinogenicity to Humans.</td>
</tr>
<tr>
<td>Ethanolamine</td>
<td>This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA. Chemicals of similar structure have been shown not to cause cancer in laboratory animals.</td>
</tr>
<tr>
<td>Ethanol</td>
<td>The International Agency for Research on Cancer (IARC) has classified this product or a component of this product as a Group 3 substance, Unclassifiable as to its Carcinogenicity to Humans. The FDA determined that this product is not carcinogenic in laboratory animals.</td>
</tr>
</tbody>
</table>

**SECTION 12. ECOLOGICAL INFORMATION**

**Overview:** Very toxic to aquatic organisms.

**Ecological Toxicity Values for:** QUATERNARY AMMONIUM COMPOUNDS, BENZYL-C12-16-ALKY

<table>
<thead>
<tr>
<th>Organism</th>
<th>96 h LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pimephales promelas (fathead minnow)</td>
<td>0.28 mg/l</td>
</tr>
</tbody>
</table>
Ecological Toxicity Values for: Triethanolamine

- **Pimephales promelas (fathead minnow)** - (measured, flow-through) 96 h LC50 = 11,800 mg/l
- **Daphnia magna** - (nominal, static). 24 h EC50 = 1,850 mg/l
- **Common shrimp (Crangon crangon)** - (nominal, renewal). 48 h LC50> 100 mg/l
- **Green algae (Scenedesmus subspicatus)** - (nominal, static). 48 h EC50 = 750 mg/l

Ecological Toxicity Values for: Ethanolamine

- **Rainbow trout (Oncorhynchus mykiss)** - (nominal, static). 96 h LC50 = 150 mg/l
- **Mosquito fish** - (nominal, static). 96 h LC50 = 337.5 mg/l
- **Bluegill** - (nominal, static). 96 h LC50 = 329.16 mg/l
- **Pimephales promelas (fathead minnow)** - (measured, flow-through) 96 h LC50 = 2,070 mg/l
- **Goldfish** - (measured, static) 96 h LC50 = 170 mg/l
- **Daphnia magna (Water flea)** - (nominal, static). 24 h LC50= 140 mg/l
- **Crangon crangon (shrimp)** - (nominal, renewal). 48 h LC50> 100 mg/l
- **Brine shrimp** - 48 h LC50= 7,100 mg/l
- **Daphnia magna (Water flea)** - 48 h EC50= 65 mg/l

Ecological Toxicity Values for: Ethanol

- **Pimephales promelas (fathead minnow)** - (nominal, static). 96 h LC50 = 14,700 mg/l
- **Rainbow trout (Salmo gairdneri)** - (nominal, static). 96 h LC50 = 13,000 mg/l
- **Brine shrimp** - (nominal, static). 48 h LC50= 25.5 mg/l
- **Daphnia pulex** - (nominal, static). 18 h LC50= 12,100 mg/l
- **Daphnia magna** - (nominal, static). 48 h EC50> 10,000 mg/l
- **Daphnia magna**, **Ceriodaphnia dubia** - (nominal, static). 48 h LC50= 8,808 mg/l

**SECTION 13. DISPOSAL CONSIDERATIONS**
CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THE MATERIAL. THE USER OF THE MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

Waste Disposal Summary: If this product becomes a waste, it DOES NOT meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D. As a nonhazardous liquid waste, it should be disposed of in accordance with local, state and federal regulations.

SECTION 14. TRANSPORT INFORMATION

DOT
- UN number: 1760
- Description of the goods: Corrosive liquids, n.o.s.
  (Copper triethanolamine complex)
- Class: 8
- Packing group: III
- Labels: 8
- Emergency Response Guidebook Number: 154

TDG
- UN number: 1760
- Description of the goods: CORROSIVE LIQUID, N.O.S.
  (Copper triethanolamine complex)
- Class: 8
- Packing group: III
- Labels: 8

IATA
- UN number: 1760
- Description of the goods: Corrosive liquid, n.o.s.
  (Copper triethanolamine complex)
- Class: 8
- Packing group: III
- Labels: 8
- Packing instruction (cargo aircraft): 856
- Packing instruction (passenger aircraft): 852
- Packing instruction (passenger aircraft): Y841

IMDG-CODE
SECTION 15. REGULATORY INFORMATION

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals.

Signal word : DANGER!
Hazard statements : Harmful if swallowed.
                  May be fatal if absorbed through skin.
                  Corrosive. Causes skin burns.
                  Corrosive. Causes irreversible eye damage.
                  This pesticide is toxic to fish.
                  This pesticide is toxic to aquatic invertebrates.

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
<th>Calculated product RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2'-Iminodiethanol</td>
<td>111-42-2</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

SARA 302

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

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Conc. (wt%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>copper carbonate</td>
<td>12069-69-1</td>
<td>5.64 %</td>
</tr>
</tbody>
</table>

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC’s (40 CFR 60.489).

**Clean Water Act**

The following Hazardous Substances are listed under the U.S. Clean Water Act, Section 311, Table 116.4A:

- Formaldehyde 50-00-0 0.002 %
- Sodium hydroxide 1310-73-2 0.0001 %

The following Hazardous Chemicals are listed under the U.S. Clean Water Act, Section 311, Table 117.3:

- Formaldehyde 50-00-0 0.002 %
- Sodium hydroxide 1310-73-2 0.0001 %

This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

- copper carbonate 12069-69-1 5.64 %

**US State Regulations**

**Massachusetts Right To Know**

- 2,2',2''-Nitrilotriethanol 102-71-6
- 2-Aminoethanol 141-43-5
- Ethanol 64-17-5

**Pennsylvania Right To Know**

- Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides 68424-85-1
- 2,2',2''-Nitrilotriethanol 102-71-6
- 2-Aminoethanol 141-43-5
- copper carbonate 12069-69-1
- Ethanol 64-17-5

**New Jersey Right To Know**

- Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides 68424-85-1
- 2,2',2''-Nitrilotriethanol 102-71-6
- 2-Aminoethanol 141-43-5
- copper carbonate 12069-69-1
- Ethanol 64-17-5

**California Prop 65**
WARNING! This product contains a chemical known to the State of California to cause cancer.

2,2'-Iminodiethanol 111-42-2
Formaldehyde 50-00-0

The components of this product are reported in the following inventories:

TSCA: This is an EPA registered pesticide.
: silica, amorphous, precipitated
: Carbopol 941

Inventories
AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

SECTION 16. OTHER INFORMATION

SECTIONS REVISED: 3
Major References: Available upon request.