

## SECTION 1 - PRODUCT AND COMPANY INFORMATION

- ◆ **Product name:** GeneBlaster™ Emerald
- ◆ **Catalog number:** GB-20014
- ◆ **Chemical name or synonyms:** none
- ◆ **Contact:**

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## SECTION 2 – COMPOSITION, INFORMATION ON INGREDIENTS

| <u>Ingredient name</u> | <u>CAS number</u> | <u>%</u> | <u>EINECS</u> | <u>Classification</u> |
|------------------------|-------------------|----------|---------------|-----------------------|
| Water                  | 7732-18-5         | ~ 40     | 231-791-2     | None                  |
| Ethanol                | 64-17-5           | ~ 60     | 200-578-6     | Flammable             |
| Other ingredients      | N/A               | < 0.5    | N/A           | None                  |

The chemical, physical and toxicological properties of the GeneBlaster™ Reagent have not yet been thoroughly investigated. Handle with care and practice safe laboratory techniques. We are unaware of any hazards with the GeneBlaster™ Emerald Reagent other than those associated with ethanol (ethyl alcohol), which is used as a solvent. The following informations pertain to ethanol.

## SECTION 3 – HAZARDS IDENTIFICATION

- ◆ This product contains hazardous ingredients (Yes; No; N/A): **Yes**. Flammable liquid and vapor. May cause skin and respiratory tract irritation. May cause liver, kidney and heart damage.
- ◆ Target organs: kidney, heart, central nervous system, liver.
- ◆ This product contains hazardous carcinogens (Yes; No; N/A): **No**
- ◆ This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

## SECTION 4 – FIRST AID MEASURES

### ◆ Effects and symptoms:

- *Inhalation* At high concentration, may cause central nervous system effects (nausea, headache, dizziness) and respiratory tract irritation.
- *Ingestion* Slightly hazardous in case of ingestion. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause central nervous system depression at high concentration.
- *Skin contact* Moderate skin irritation.
- *Eye contact* Severe eye irritation. May cause sensitization to light, chemical conjunctivitis and corneal damage.
- *Aggravating conditions* Repeated or prolonged exposure may cause reproductive and fetal effects, liver, kidney and heart damage.

### ◆ First-Aid measures:

- *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, DO NOT use mouth-to-mouth resuscitation. Get medical attention immediately.
- *Ingestion* Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
- *Skin contact* In case of contact, immediately flush skin with plenty of soap and water while removing contaminated clothing and shoes. Wash clothes before reuse. Thoroughly clean shoes before reuse.
- *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- *Notes to physician* Treat symptomatically and supportively. Persons with skin or eye disorders or liver, kidney, chronic respiratory diseases, or central and peripheral nervous system diseases may be at increased risk from exposure to this substance.
- *Protection of first-aiders* Not available.

## SECTION 5 – FIRE FIGHTING MEASURES

- ◆ **Flammability of the product:** Highly flammable liquid and vapors.
- ◆ **Flash Point:** 16.6 C (61.88 F).

- ✦ **Explosion limits, lower:** 3.3 vol %
- ✦ **Explosion limits, upper:** 19.0 vol %
- ✦ **Fire hazards in presence of various substances:** N/A.
- ✦ **Fire fighting media and instructions:** Use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.
- ✦ **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- ✦ **Hazardous thermal decomposition products:** Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

## SECTION 6 – ACCIDENTAL RELEASE MEASURES

- ✦ **Personal precautions:** Wear appropriate safety glasses, lab coat and gloves.
- ✦ **Environmental precautions and clean-up methods:** Absorb spill with an inert material (e.g. vermiculite, sand or earth) and place the spilled material in a suitable container. Dispose of according to local and regional authority requirements. Remove all source of ignition. Use a spark-proof tool. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.

## SECTION 7 – HANDLING AND STORAGE

- ✦ **Handling:** Avoid breathing vapors or spray mists. Use only in a well-ventilated area. Use spark-proof tools and explosion proof equipment. Avoid contact with heat, sparks and flame. Avoid contact with eyes, skin and clothing. Avoid ingestion and inhalation.
- ✦ **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep away from heat, sparks and flame. Store away from oxidizing materials and incompatible substances listed in section 10. Store at – 20 C.
- ✦ **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- ✦ **Packaging materials**
- ✦ **Suitable:** Use original container.

## SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

- ✦ **Engineering Controls:** Use process enclosures, general or local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.
- ✦ **Personal protection**
  - **Eyes:** Safety goggles.
  - **Body:** Lab coat and gloves.
  - **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.
- ✦ **Exposure limits.**

| Chemical Name | ACGIH        | NIOSH   | OSHA - Final PELs                           |
|---------------|--------------|---|---|
| Ethanol       | 1000 ppm TWA | 1000 ppm TWA; 1900 mg/m <sup>3</sup><br>TWA 3300 ppm IDLH | 1000 ppm TWA; 1900 mg/m <sup>3</sup><br>TWA |

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- ✦ **Appearance**
  - **Physical State:** Clear liquid.
  - **Color:** Colorless.
  - **Odor:** Mild.
- ✦ **Molecular weight:** 46.07 g/mol.
- ✦ **pH:** Not available
- ✦ **Boiling point:** 78 C.
- ✦ **Vapor pressure:** 59.3 mmHg @ 20 C
- ✦ **Vapor density:** 1.59
- ✦ **Decomposition temperature:** Not available.
- ✦ **Melting point:** - 114.1 C.
- ✦ **Flash point:** 16.6 C.
- ✦ **Solubility:** Miscible.

## SECTION 10 – STABILITY AND REACTIVITY

- ✦ **Stability and reactivity:** The product is stable at a pH between 4 and 11 under normal temperatures and pressures.
- ✦ **Conditions to avoid:** pH < 4 and pH > 11, using temperatures > + 78 C
- ✦ **Materials to avoid:** Strong oxidizing agents, acids, alkali metals, ammonia, hydrazine, peroxides, acid anhydrides, calcium hypochlorite, chromyl chloride, perchlorates, chromic acid, acid chlorides, permanganic

acid, nitric acid, mercuric nitrate, silver nitrate, uranium hexafluoride, silver oxide, bromine pentafluoride, iodine heptafluoride, acetyl bromide, potassium dioxide, potassium tert-butoxide.

- ◆ **Hazardous polymerization:** Will not occur.
- ◆ **Hazardous decomposition products:** Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

## SECTION 11 – TOXICOLOGICAL INFORMATION

- ◆ **LD50/LC50:**
  - Draize test, rabbit, eye: 500 mg Severe.
  - Draize test, rabbit, eye: 500 mg/24H Mild.
  - Draize test, rabbit, skin: 20 mg/24H Moderate.
  - Inhalation, mouse: LC50 = 39 gm/m<sup>3</sup>/4H.
  - Inhalation, rat: LC50 = 20000 ppm/10H.
  - Oral, mouse: LD50 = 3450 mg/kg.
  - Oral, rabbit: LD50 = 6300 mg/kg.
  - Oral, rat: LD50 = 7060 mg/kg.
- ◆ **Carcinogenicity:** Not listed by ACGIH, IARC, NTP, or CA Prop 65.
- ◆ **Epidemiology:** Ethanol has been shown to produce fetotoxicity in the embryo or fetus of laboratory animals. Prenatal exposure to ethanol is associated with a distinct pattern of congenital malformations that have collectively been termed the "fetal alcohol syndrome".
- ◆ **Teratogenicity:** Oral, Human - woman: TDLo = 41 gm/kg (female 41 week(s) after conception) Effects on Newborn - Apgar score (human only) and Effects on Newborn - other neonatal measures or effects and Effects on Newborn - drug dependence. Reproductive Effects: Intrauterine, Human - woman: TDLo = 200 mg/kg (female 5 day(s) pre-mating) Fertility - female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated).
- ◆ **Neurotoxicity:** No information available.
- ◆ **Mutagenicity:** DNA Inhibition: Human, Lymphocyte = 220 mmol/L.; Cytogenetic Analysis: Human, Lymphocyte = 1160 gm/L. Cytogenetic Analysis: Human, Fibroblast = 12000 ppm. Cytogenetic Analysis: Human, Leukocyte = 1 pph/72H (Continuous). Sister Chromatid Exchange: Human, Lymphocyte = 500 ppm/72H (Continuous). Other Studies: Standard Draize Test(Skin, rabbit) = 20 mg/24H (Moderate) Standard Draize Test: Administration into the eye (rabbit) = 500 mg (Severe).
- ◆ **Other toxic effects on humans:** Hazardous in case of ingestion, skin or eye contact.

## SECTION 12 – ECOLOGICAL INFORMATION

- ◆ **Ecotoxicity:** Fish: Rainbow trout: LC50 = 12900-15300 mg/L; 96 Hr; Flow-through @ 24-24.3°C Fish: Rainbow trout: LC50 = 11200 mg/L; 24 Hr; Fingerling (Unspecified) Bacteria: *Phytobacterium phosphoreum*: EC50 = 34900 mg/L; 5-30 min; Microtox test. When spilled on land it is apt to volatilize, biodegrade, and leach into the ground water, but no data on the rates of these processes could be found. Its fate in ground water is unknown. When released into water it will volatilize and probably biodegrade. It would not be expected to adsorb to sediment or bioconcentrate in fish.
- ◆ **Environmental:** When released to the atmosphere it will photodegrade in hours (polluted urban atmosphere) to an estimated range of 4 to 6 days in less polluted areas. Rainout should be significant.
- ◆ **Physical:** No information available.

## SECTION 13 – DISPOSAL CONSIDERATIONS

- ◆ **Waste stream:** Not available.
- ◆ **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- ◆ **European waste catalogue (EWC):** Not available.
- ◆ **Hazardous waste:** Will not occur.

## SECTION 14 – TRANSPORT INFORMATION

- ◆ **Proper shipping Name:** Ethyl alcohol
- ◆ **Hazard class:** 3
- ◆ **Packing group:** II
- ◆ **Labels:** Flammable liquid.

## SECTION 15 – REGULATORY INFORMATION

- ◆ **Hazard symbol:** F.
- ◆ **Risk Phrases:** R 11 highly flammable.
- ◆ **Safety phrases:** S 16 Keep away from sources of ignition – no smoking.  
S 33 Take precautionary measures against static discharges.

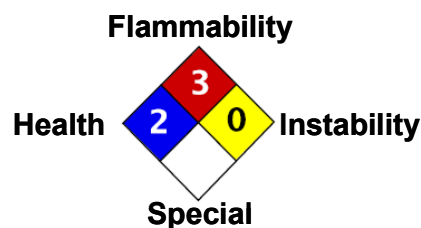
S 7 Keep container tightly closed.  
S 9 Keep container in a well-ventilated place.

SECTION 16 – OTHER INFORMATION

**Hazardous Material Information System (U.S.A.):**

|                            |          |
|----------------------------|----------|
| <b>Health</b>              | <b>3</b> |
| <b>Fire hazard</b>         | <b>2</b> |
| <b>Reactivity</b>          | <b>0</b> |
| <b>Personal protection</b> | <b>H</b> |

**National Fire Protection Association (U.S.A.):**



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Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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