MATERIAL SAFETY DATA SHEET

TELEPHONE NUMBER FOR INFORMATION: 44 (0) 1638 552 882
EMERGENCY TELEPHONE NUMBER: 44 (0) 1638 552 375
DATE OF ISSUE: May 2012

PRODUCT NAME: MycXtra Fungal DNA Extraction Kit
Catalogue Number: 6080005

SECTION 1 – MATERIAL IDENTIFICATION

CHEMICAL NAME:
TRADE NAME: Bead Solution Tubes
Catalogue Number: 050-042

SECTION 2 - COMPOSITION/IDENTITY INFORMATION

CAS No.: 593-84-0
Molecular Weight: N/A
Chemical Formula: NH2C(:NH)NH2.CHNS and inert particles made of a proprietary material, in aqueous solution.
Synonyms: Thiocyanic acid, compounded with guanidine (1:1); Guanidine monothiocyanate; Guanidium thiocyanate; Guanidine isothiocyanate

SECTION 3 – HAZARD INFORMATION

Emergency Overview: Harmful if swallowed, causes irritation to skin, eyes and respiratory tract. DO NOT ADD TO BLEACH!

Potential Health Effects: Information on the health effects from exposure to this substance is limited. The health effects given below are those of soluble thiocyanate salts. The health effects of this substance are expected to be similar.
Inhalation: Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath.
Ingestion: May cause psychosis, vomiting, disorientation, weakness, low blood pressure, convulsions and death which may be delayed.
Skin Contact: Causes irritation to skin. Symptoms include redness, itching and pain.
Eye Contact: Causes irritation, redness and pain.
Chronic Exposure: Prolonged or repeated skin exposure may cause dermatitis. Repeated ingestion of small amounts may cause weakness, confusion, central nervous system effects, nausea and skin eruptions.
Aggravation of Pre-existing Conditions: No information found.

SECTION 4 – FIRST AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion: Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.
Skin Contact: Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothes and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.
Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

SECTION 5 - FIRE AND EXPLOSION HAZARD DATA

Fire: Possible at elevated temperatures or by contact with an ignition source.
Explosion: Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Special Information: In the event of a fire, wear full protective clothing and self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. May emit toxic and flammable fumes of cyanide if involved in a fire.

SECTION 6 –STABILITY AND REACTIVITY DATA

Stability: Stable under ordinary conditions of use and storage.
Conditions to Avoid: Heat, flames, ignition sources and incompatibles.
Incompatibility (Materials to Avoid): Strong oxidizing agents and strong acids, Iron. Do not allow to come in contact with Bleach.
Hazardous Decomposition or Byproducts: Cyanide fumes if burning, Carbon monoxide, Carbon dioxide, Nitrogen oxides and Sulfur oxides
Hazardous Polymerization: Will not occur
**SECTION 7 – PHYSICAL/CHEMICAL CHARACTERISTICS**

- **Boiling Point at 1 ATM, Deg F:** N/A
- **Vapor Pressure (mm Hg):** N/A
- **Vapor Density (Air = 1):** N/A
- **Solubility in Water:** Soluble liquid, insoluble particles.
- **Appearance and Odor:** Clear, colorless and odorless liquid with inert particles.
- **Specific Gravity (H2O = 1):** N/A
- **Melting Point:** N/A
- **Evaporation Rate (Butyl Acetate = 1):** N/A
- **Volatile, % by Volume:** N/A
- **Molecular Weight:** N/A

**SECTION 8 – ACCIDENTAL RELEASE MEASURES**

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 10. Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container.

**SECTION 9 – HANDLING AND STORAGE**

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from oxidizing materials. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

**SECTION 10 – EXPOSURE CONTROLS / PERSONAL PROTECTION**

Airborne Exposure Limits: N/A

Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposure as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH-approved): For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. Warning: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection: Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

**SECTION 11 – DISPOSAL CONSIDERATIONS**

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

**SECTION 12 – TRANSPORT INFORMATION**

Not regulated.

**SECTION 13 – TOXICOLOGICAL INFORMATION**

No LD50/LC50 information found relating to normal routes of occupational exposure.

US National Institutes of Health National Toxicology Programme (NTP) Carcinogen:

- Known: No
- Anticipated: No
- TARC Category: None

**SECTION 14 – ECOLOGICAL INFORMATION**

Environmental Fate: No information found

Environmental Toxicity: No information found
**SECTION 15 – REGULATORY INFORMATION**

Chemical Inventory Status – Part 1
- TSCA: Yes
- EC: Yes
- Japan: No
- Australia: Yes

Chemical Inventory Status – Part 2
- Korea: No
- Canada DSL: Yes
- Canada NDSL: No
- Phil.: Yes

Federal, State and International Regulations – Part 1
- SARA 302
  - RO: No
  - TPQ: No
  - List: No
- Chemical Catg.: No

Federal, State and International Regulations – Part 2
- CERCLA: No
- RCRA 261.33: No
- TSCA 8(d): No

Chemical Weapons Convention: No
- TSCA 12(b): No
- CDTA: No
- SARA 311/312
- Acute: Yes
- Chronic: Yes
- Fire: No
- Pressure: No
- Reactivity: No

Australian Hazchem Code: None allowed.
- Poison Schedule: None allocated.

**SECTION 16 – OTHER INFORMATION**

DATE OF PREPARATION: 25 October 2007

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MATERIAL SAFETY DATA SHEET
TELEPHONE NUMBER FOR INFORMATION: +44 (0) 1638 552 882
EMERGENCY TELEPHONE NUMBER: +44 (0) 1638 552 375
DATE PREPARED: May 2012

PRODUCT NAME: MyXtra Fungal DNA Extraction Kit
DATE OF ISSUE: May 2012

SECTION 1 – MATERIAL IDENTIFICATION

CHEMICAL NAME: Aqueous solution of Sodium Dodocyl Sulfate and proprietary, non-hazardous salts.
TRADE NAME: Solution S1
Catalogue Number: 050-023

SECTION 2 – COMPOSITION/IDENTITY INFORMATION

Synonyms: Solution S1
Chemical Characterization: Aqueous solution of Sodium Dodocyl Sulfate and proprietary, non-hazardous salts.
Hazardous Components: According to the OSHR 29 CFR 1910.1200, Commonwealth of Australia [NOHSC:1005, 1008(1999)] and the latest amendments to the European Union Directives 67/548/EC and 1999/45/EC, products that do not contain more than 1% of a component classified as hazardous and do not contain more than 0,1% of a component classified as carcinogenic are not considered hazardous, unless there is evidence to the contrary. We do not consider Solution S1 to be hazardous, however we recommend the use of gloves, lab coats, and eye protection when working with these or any chemical reagents.
Chronic Exposure: N/A
Aggravation of Pre-existing Conditions: N/A

SECTION 3 – HAZARD INFORMATION

Irritating to eyes and skin. May cause sensitization by skin contact.
LABELING:Xn/ harmful, R 36/37/38-42/43.

SECTION 4 – FIRST AID MEASURES

Inhalation: Remove to fresh air. If breathing has stopped, artificially respiration. If breathing is difficult, give oxygen.
Ingestion: Wash out mouth with water provided person is conscious. Call a physician. Remove and wash contaminated clothing promptly.
Skin Contact: Immediately wash skin with soap and copious amounts of water.
Eye Contact: Immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing of the eyes by separating the eyelids with the fingers.

SECTION 5 - FIRE AND EXPLOSION HAZARD DATA

Extinguishing Media: Non-combustible. Use extinguishing media appropriate to surrounding fire conditions.
Special Firefighting Procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

SECTION 6 –STABILITY AND REACTIVITY DATA

Substances to be avoided: N/A
Hazardous, combustion, or decomposition products: N/A

SECTION 7 – PHYSICAL/CHEMICAL CHARACTERISTICS

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<thead>
<tr>
<th>PHYSICAL STATE / FORM:</th>
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</tr>
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<td>SOLUBILITY IN WATER:</td>
<td>(20°C) Soluble</td>
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</table>
SECTION 8 – ACCIDENTAL RELEASE MEASURES

Precautionary Measures: Wear self-contained breathing apparatus, chemical safety goggles, rubber boots, and heavy rubber gloves.

Clean-up Procedures: Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pick-up is complete.

SECTION 9 – HANDLING AND STORAGE

Storage: Store at room temperature.

SECTION 10 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical safety goggles. Rubber gloves. NIOSH / MSHA-Approved respirator. Safety shower and eye bath. Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing.

SECTION 11 – DISPOSAL CONSIDERATIONS

For small quantities, flush down sink with water. Observe all federal, state, and local laws.

SECTION 12 – TRANSPORT INFORMATION

No information found.

SECTION 13 – TOXICOLOGICAL INFORMATION

TOXICITY DATA: N/A
ACUTE EFFECTS INHALATION: May be harmful by inhalation.
EYE CONTACT: May cause eye irritation.
SKIN CONTACT: May cause skin irritation.
INGESTION: May be harmful if swallowed.
PROLONGED EXPOSURE: N/A
CHRONIC EFFECTS: N/A
RTECS number: N/A
ADDITIONAL INFORMATION: The product should be handled with the normal caution accorded chemicals. Additional harmful properties cannot be ruled out.

SECTION 14 – ECOLOGICAL INFORMATION

No information found.

SECTION 15 – REGULATORY INFORMATION

No information found.

SECTION 16 – OTHER INFORMATION

DATE OF PREPARATION: 25 October 2007
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SECTION 1 – MATERIAL IDENTIFICATION

CHEMICAL NAME: Proprietary
TRADE NAME: IRS Solution
Catalogue Number: 050-025

SECTION 2 - COMPOSITION/IDENTITY INFORMATION

Synonyms: N/A
Chemical Characterization: Proprietary
Hazardous Components: According to the OSHR 29 CFR 1910.1200, Commonwealth of Australia [NOHSC:1005, 1008(1999)] and the latest amendments to the European Union Directives 67/548/EC and 1999/45/EC, products that do not contain more than 1% of a component classified as hazardous and do not contain more than 0.1% of a component classified as carcinogenic are not considered hazardous, unless there is evidence to the contrary. We do not consider IRS Solution to be hazardous, however we recommend the use of gloves, lab coats, and eye protection when working with these or any chemical reagents.

SECTION 3 – HAZARD INFORMATION

Label Precautionary Statements
- Corrosive
- Causes burns.
- Harmful by inhalation, in contact with skin and if swallowed.
- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- Take off immediately all contaminated clothing.
- Wear suitable protective clothing, gloves and eye/face protection.

SECTION 4 – FIRST AID MEASURES

Inhalation: Remove to fresh air. If not breathing give artificial respiration.
If Breathing is Difficult: Give oxygen.
Ingestion: Wash out mouth with water provided if person is conscious. Call a physician immediately.
Skin Contact: Flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.
Eye Contact: Flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

SECTION 5 - FIRE AND EXPLOSION HAZARD DATA

Extinguishing Media: Non-combustible. Use extinguishing media appropriate to surrounding fire conditions.
Special Firefighting Procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Unusual Fire and Explosions Hazards: Emits toxic fumes under fire conditions.

SECTION 6 –STABILITY AND REACTIVITY DATA

Stability: Stable.
Incompatibilities / Reacts with: Aluminum, strong bases, zinc, steel and copper
Hazardous Combustion or Decomposition Products: Ammonia, sulfur oxides and aluminum oxide
Hazardous Polymerization: Will not occur.
SECTION 7 – PHYSICAL/CHEMICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Physical State / Form:</th>
<th>Liquid</th>
</tr>
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<tr>
<td>Solubility in Water:</td>
<td>(20°C) Soluble</td>
</tr>
</tbody>
</table>

SECTION 8 – ACCIDENTAL RELEASE MEASURES

Precautionary Measures: Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.

Clean-up Procedures: Sweep up, place in a bag and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

SECTION 9 – HANDLING AND STORAGE

Storage: Store at room temperature.

SECTION 10 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical safety goggles. Rubber gloves. NIOSH / MSHA-Approved respirator. Safety shower and eye bath. Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing.

SECTION 11 – DISPOSAL CONSIDERATIONS

For small quantities flush down sink with water. Observe all federal, state, and local laws.

SECTION 12 – TRANSPORT INFORMATION

Not regulated.

SECTION 13 – TOXICOLOGICAL INFORMATION

ACUTE EFFECTS:
Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.
Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting.
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes and skin.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Causes burns.
Harmful if absorbed through skin.
Harmful if inhaled.

SECTION 14 – ECOLOGICAL INFORMATION

N/A

SECTION 15 – REGULATORY INFORMATION

EUROPEAN INFORMATION
Caution: Substance not yet fully tested.
Corrosive
R: 34
Causes burns.
S: 38/37/39
Wear protective clothing, gloves and eye/face protection.
SECTION 16 – OTHER INFORMATION

DATE OF PREPARATION: 25 October 2007
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**SECTION 1 – MATERIAL IDENTIFICATION**

**CHEMICAL NAME:** Aqueous solution of acetate and proprietary, non-hazardous salts.

**TRADE NAME:** Solution S2

**Catalogue Number:** 050-027

**SECTION 2 - COMPOSITION/IDENTITY INFORMATION**

**Synonyms:** Solution S2

**Chemical Characterization:** Aqueous solution of acetate and proprietary, non-hazardous salts.

**Hazardous Components:**

- **NAME:** acetate
- **MF:** CH₃COONH₄
- **CAS-NO.:** 64-19-7
- **RTECS NO.:** AF1225000

**WARNING:** Combustible (USA Definition), flammable(European Definition), corrosive.

**HEALTH HAZARD DATA:** Harmsful if swallowed, inhaled, or absorbed through skin. Material is destructive to tissue of mucous membranes and upper respiratory tract. Inhalation may be fatal as a result of spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Material is destructive to eyes and skin.

**TOXICITY:**

- **ORL-RAT LD₅₀:** 3310 mg/kg DMDJAP 31,276,59
- **IHL-MUS LD₅₀:** 56200 ppm/h MELAAD 48,559,57
- **IVN-MUS LD₅₀:** 525 mg/kg APTOA6 18,141,61
- **SKN-RBT LD₅₀:** 1060 mg/kg UCDS 8/7/63

- **NAME:** proprietary salt
- **MF:** NA
- **CAS-NO.:** NA
- **RTECS NO.:** NA

**WARNING:** Hygroscopic

**HEALTH HAZARD DATA:** May be harmful by inhalation, ingestion, or skin absorption. May cause irritation.

**TOXICITY DATA:** ORL-RAT LD₅₀: 3250 mg/kg ALHAAP 30,470,69

**SECTION 3 – HAZARD INFORMATION**

Corrosive. Causes burns. Harmful by inhalation and if swallowed. Irritating to the eyes and skin. Labeling: C Xn, corrosive, harmful, R 34-20/22-36/38

**SECTION 4 – FIRST AID MEASURES**

**Inhalation:** Remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

**Ingestion:** Wash out mouth with water provided person is conscious. Call a physician. Remove and wash any contaminated clothing promptly.

**Skin Contact:** Immediately wash skin with soap and copious amounts of water.

**Eye Contact:** Immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing of eyes by separating the eyelids with fingers.

**SECTION 5 - FIRE AND EXPLOSION HAZARD DATA**

**Extinguishing Media:** Non-combustible. Use extinguishing media appropriate to surrounding fire conditions.

**Special Firefighting Procedures:** Wear self-contained breathing apparatus and protective clothing to prevent contact with eyes and skin.

**SECTION 6 –STABILITY AND REACTIVITY DATA**

**Substances to be avoided:** Strong oxidizing agents.

**Hazardous, combustion, or decomposition products:** Toxic fumes of carbon monoxide, carbon dioxide, nitrogen oxide, and hydrogen chloride gas.
SECTION 7 – PHYSICAL/CHEMICAL CHARACTERISTICS

PHYSICAL STATE / FORM: Liquid
COLOR: Colorless
ODOR: None
pH FACTOR: (20°C) 5.0-5.75
VISCOSITY: (20°C) N/A
MELTING POINT: N/A
BOILING POINT: N/A
IGNITION TEMPERATURE: N/A
FLASHPOINT: >200°F (>93.3°C)
EXPLOSION LEVEL: LOWER:N/A
VAPOR PRESSURE: (20°C) N/A
SPECIFIC GRAVITY: (20°C) N/A
SOLUBILITY IN WATER: (20°C) Soluble

SECTION 8 – ACCIDENTAL RELEASE MEASURES

Precautionary Measures: Wear self-contained breathing apparatus, chemical safety goggles, rubber boots, and heavy rubber gloves.
Clean-up Procedures: Absorb on sand or vermiculite and place in closed container for disposal. Ventilate area and wash spill site after material pick-up is complete.

SECTION 9 – HANDLING AND STORAGE

Storage: Store tightly closed at 20-25°C.

SECTION 10 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical safety goggles. Rubber gloves. NIOSH/MSHA-Approved respirator. Face shield (8 inch minimum). Safety shower and eye bath. Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing.

SECTION 11 – DISPOSAL CONSIDERATIONS

There are no uniform regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. We recommend that you contact either authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste. Handle contaminated packaging in the same way as the substance itself. Unless specified differently, non-contaminated packaging may be treated like household waste or recycled.

SECTION 12 – TRANSPORT INFORMATION

No information found.

SECTION 13 – TOXICOLOGICAL INFORMATION

TOXICITY DATA: See Section II, Composition/Information on Ingredients.
ACUTE EFFECTS INHALATION: May be harmful by inhalation.
EYE CONTACT: Material is destructive to eyes.
SKIN CONTACT: Material is destructive to skin, harmful by skin absorption.
INGESTION: Harmful if swallowed.
PROLONGED EXPOSURE: N/A
CHRONIC EFFECTS: N/A
RTECS number: N/A
ADDITIONAL INFORMATION: The product should be handled with the normal caution accorded chemicals. Additional harmful properties cannot be ruled out.

SECTION 14 – ECOLOGICAL INFORMATION

No information found.
### SECTION 15 – REGULATORY INFORMATION

LABELING: C Xn, corrosive, harmful, R 34-20/22-36/38.

### SECTION 16 – OTHER INFORMATION

DATE OF PREPARATION: 25 October 2007

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SECTION 1 – MATERIAL IDENTIFICATION

CHEMICAL NAME: Aqueous solution of Guanidine HCl, Isopropanol and proprietary, non-hazardous salts.
TRADE NAME: Solution S3
Catalogue Number: 050-029

SECTION 2 - COMPOSITION/IDENTITY INFORMATION

Synonyms: NA
Chemical Characterization: Aqueous solution of Guanidine HCl, Isopropanol and proprietary, non-hazardous salts.
Hazardous Components:
Name: Guanidine Hydrochloride
MF: CH6N3Cl
CAS-No.: 50-01-1
RTECS No.: MF4300000
WARNING: Toxic (U.S. definition), harmful (European definition).
Health Hazard Data:
Harmful if swallowed, inhaled, or absorbed through skin. Cause severe irritation. High concentrations are extremely destructive to tissues of the mucous membranes and upper respiratory tract, eyes, and skin. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. May cause nervous system disturbances. Target Organs: Bone Marrow, Nerves.
Toxicity Data:
ORL-RAT LD50: 475 mg/kg NTIS AD-A165-747
IPR-MUS LD50: 500 mg/kg NTIS AD277-689
Only selected registry of toxic effects of chemical substances (RTECS) data is presented here. See actual entry in RTECS for complete information.

Name: Isopropanol
CAS #: N/A
MF: C3H8O
Synonyms: Alcool Isopropilico (Italian) * Alcool Isopropylique (French) * Alcosolve * Avantin * Avantine * Combi-schutz * Dimethylcarbinol * Hartosol * 2-Hydroxypropane * Imsol A * Isohol * Isopropanol * Isopropanol * Isopropyl Alcohol (ACGIH:OSHA) * Isoproprylalkohol (German) * IPS 1 (Alcohol) * Lutosol * 1-Methylethanol * 1-Methylethyl Alcohol * Petrohol * PRO * 2-Propanol * l-Propanol (German) * N-Propan-2-OL * SEC-Propyl Alcohol * 2-Propyl Alcohol * l-Propylalkohol (German) * Spectrar * Sterisol Hand disinfectant * Takineocol * Virahol *

SECTION 3 – HAZARD INFORMATION

Corrosive. Causes burns. Harmful by inhalation and if swallowed. Irritating to the eyes and skin. Labeling: C Xn, corrosive, harmful, R 34-20/22-36/38
Label Precautionary Statements:
Flammable (USA)
Highly Flammable (EU)
Irritant
Irritating to eyes and skin.
Vapors may cause drowsiness and dizziness.
Target organ(s):
Nerves
Kidneys
Skin irritant.
Keep container tightly closed.
Keep away from sources of ignition - no smoking.
Avoid contact with skin and eyes.
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

SECTION 4 – FIRST AID MEASURES

Inhalation: Remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.
Ingestion: Wash out mouth with water provided person is conscious. Call a physician. Remove and wash any contaminated clothing promptly.
Skin Contact: Immediately wash skin with soap and copious amounts of water.
Eye Contact: Immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing of eyes by separating the eyelids with fingers.
SECTION 5 - FIRE AND EXPLOSION HAZARD DATA

Extinguishing Media: Non-combustible. Use extinguishing media appropriate to surrounding fire conditions.
Special Firefighting Procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with eyes and skin.
Use water spray to cool fire-exposed containers.
Unusual Fire and Explosions Hazards: Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions. Flammable liquid. Emits toxic fumes under fire conditions.

SECTION 6 – STABILITY AND REACTIVITY DATA

Substances to be Avoided: Strong oxidizing agents, acids, acid anhydrides, halogens and aluminum. Do not allow to come in contact with bleach.
Hazardous, Combustion, or Decomposition Products: Toxic fumes of carbon monoxide, carbon dioxide, nitrogen oxide, and hydrogen chloride gas.

SECTION 7 – PHYSICAL/CHEMICAL CHARACTERISTICS

PHYSICAL STATE / FORM: Liquid
COLOR: Colorless
ODOR: Characteristic
pH-FACTOR: (20°C) 5.0-5.75
VISCOSITY: (20°C) N/A
MELTING POINT: N/A
BOILING POINT: N/A
IGNITION TEMPERATURE: N/A
FLASHPOINT: >200°F (>93.3°C)
EXPLOSION LEVEL LOWER: N/A
UPPER: N/A
VAPOR PRESSURE: (20°C) N/A
SPECIFIC GRAVITY: (20°C) N/A
SOLUBILITY IN WATER: (20°C) Soluble

SECTION 8 – ACCIDENTAL RELEASE MEASURES

Precautionary Measures: Wear self-contained breathing apparatus, chemical safety goggles, rubber boots, and heavy rubber gloves.
Clean-up Procedures: Absorb on sand or vermiculite and place in closed container for disposal. Ventilate area and wash spill site after material pick-up is complete.

SECTION 9 – HANDLING AND STORAGE

Storage: Store tightly closed at 20-25°C.

SECTION 10 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical safety goggles. Rubber gloves. NIOSH/MSHA-Approved respirator. Face shield (8 inch minimum). Safety shower and eye bath. Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing. Use non-sparking tools. Keep away from heat, sparks, and open flame.

SECTION 11 – DISPOSAL CONSIDERATIONS

There are no uniform regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. We recommend that you contact either authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste. Handle contaminated packaging in the same way as the substance itself. Unless specified differently, non-contaminated packaging may be treated like household waste or recycled.

SECTION 12 – TRANSPORT INFORMATION

No information found.
SECTION 13 – TOXICCOLOGICAL INFORMATION

TOXICITY DATA: See Section II, Composition/Information on Ingredients.

ACUTE EFFECTS
Can cause CNS depression.

INHALATION: May be harmful by inhalation. Material may be irritating to mucous membranes and upper respiratory tract.

EYE CONTACT: Material is destructive to eyes. Will cause irritation.

SKIN CONTACT: Material is destructive to skin, harmful by skin absorption. Can cause irritation.

INGESTION: Harmful if swallowed.

PROLONGED EXPOSURE: Nausea, headache and vomiting, narcotic effect and/or drowsiness.

CHRONIC EFFECTS:
Target organ(s):
Nerves
Kidneys
Cardiovascular system
G.I. system

RTECS NUMBER: N/A

ADDITIONAL INFORMATION: The product should be handled with the normal caution accorded chemicals. Additional harmful properties cannot be ruled out. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP or EPA classification.

SECTION 14 – ECOLOGICAL INFORMATION

No information found.

SECTION 15 – REGULATORY INFORMATION

LABELING: C Xn, corrosive, harmful, R 34-20/22-36/38.

European information
ec index no: 603-003-00-0
flammable
irritant
R 11 highly flammable.
R 36 irritating to eyes.
R 67 vapors may cause drowsiness and dizziness.
S 7 keep container tightly closed.
S 16 keep away from sources of ignition - no smoking.
S 24/25 avoid contact with skin and eyes.
S 26 in case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Reviews, Standards, and Regulations
OEL=MAK
ACGIH TLV-TWA 500 PPM DTLVS* TLV/BEL 1999
ACGIH TLV-TWA 400 PPM DTLVS* TLV/BEL 1999
IARC CANCER REVIEW: ANIMAL INADEQUATE EVIDENCE IMEMDT 15,223,1977
IARC CANCER REVIEW: HUMAN INADEQUATE EVIDENCE IMSUDL 7,229,1987
IARC CANCER REVIEW: HUMAN INADEQUATE EVIDENCE IMEMDT 71,1027,1999
IARC CANCER REVIEW: GROUP 3 IMEMDT 71,1027,1999
EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION FEREC 54,7740,1989
MSHA STANDARD-AIR: TWA 400 PPM (998 MG/M3)
DTLVS* 3,141,1971
OSHA PEL (GEN INDU): 8H TWA 400 PPM (998 MG/M3)
CFRBR 29, 1910.1000,1994
OSHA PEL (CONSTRUCT): 8H TWA 400 PPM (998 MG/M3)
CFRBR 29, 1926.55,1994
OSHA PEL (SHIPYARD): 8H TWA 400 PPM (998 MG/M3)
CFRBR 29, 1915.1000,1993
OSHA PEL (FED CONT): 8H TWA 400 PPM (998 MG/M3)
CFRBR 41, 50-204.50,1994
OEL-AUSTRALIA: TWA 400 PPM (998 MG/M3), STEL 500 PPM, JAN1993
OEL-AUSTRIA: MAK 400 PPM (998 MG/M3), JAN1999
OEL-BELGIUM: TWA 400 PPM (985 MG/M3), STEL 500 PPM, JAN1993
OEL-DENMARK: TWA 200 PPM (490 MG/M3), JAN1999
OEL-FRANCE: VLE 400 PPM, JAN1999
OEL-GERMANY: MAK 400 PPM (998 MG/M3), JAN1999
OEL-JAPAN: STEL 400 PPM (998 MG/M3), JAN1999
OEL-THE NETHERLANDS: MAC-TGG 400 PPM (998 MG/M3), SKIN, JAN1999
OEL-NORWAY: TWA 100 PPM (245 MG/M3), JAN1999
OEL-THE PHILIPPINES: TWA 400 PPM (998 MG/M3), JAN1993
OEL-POLAND: MAC(TWA) 900 MG/M3, MAC(STEL) 1200 MG/M3, JAN1999
OEL-RUSSIA: STEL 400 PPM (10 MG/M3), JAN1993
OEL-SWEDEN: NGV 150 PPM (350 MG/M3), KTV 250 PPM (600 MG/M3), JAN1999
OEL-SWITZERLAND: MAK-W 400 PPM (998 MG/M3), KZG-W 800 PPM (1960 MG/M3), JAN1999
OEL-TURKEY: TWA 200 PPM (500 MG/M3), JAN1993
OEL-UNITED KINGDOM: LTEL 400 PPM (998 MG/M3), STEL 500 PPM, SKIN, JAN1993
OEL IN ARGENTINA, BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV;
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV
NIOSH REL TO ISOPROPYL ALCOHOL-AIR:10H TWA 400 PPM; STEL 500 PPM
NIOSH* DHHS #92-100,1992
NOHS 1974: HZD 40987; NIS 465; TNF 213605; NOS 252; TNE 3183554
NOES 1983: HZD 40987; NIS 449; TNF 183402; NOS 278; TNE 4665524; TFE 2058264
EPA GENETOX PROGRAM 1988, NEGATIVE: CELL TRANSFORM.-SA7/SHE; N CRASSA-ANEUPLOIDY
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY
EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES
EPA TSCA SECTION 8(E) RISK NOTIFICATION, 8EHQ-0293-8734; 8EHQ-0892-8787
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, OCTOBER 2000
NIOSH ANALYTICAL METHOD, 1994: ALCOHOLS I, 1400
NIOSH ANALYTICAL METHOD, 1996: VOLATILE ORGANIC COMPOUND, 2549
U.S. Information
This product is subject to SARA section 313 reporting requirements.

SECTION 16 – OTHER INFORMATION

DATE OF PREPARATION: 25 October 2007
Lab21 Healthcare Ltd believes the information contained herein to be valid and accurate. No warranties or representations are made or implied as to its validity, accuracy or currency. Lab21 Healthcare Ltd shall not be liable or otherwise responsible in any way for the use of this information. Disposal of hazardous materials may be subject to local laws or regulation.
SECTION 1 – MATERIAL IDENTIFICATION

CHEMICAL NAME: Aqueous solution of Ethyl Alcohol and proprietary, non-hazardous salts.

TRADE NAME: Solution S4

Catalogue Number: 050-031

SECTION 2 - COMPOSITION/IDENTITY INFORMATION

Synonyms: Wash Solution

Chemical Characterization: Aqueous solution of Ethyl Alcohol and proprietary, non-hazardous salts.

Hazardous Component: Ethyl Alcohol.

MF: CH₃-CH₂-OH

CAS-No.: 64-17-5

RTECS-No.: Not known.

WARNING: Flammable. Keep away from heat, sparks, flame, and all other ignition sources. Vapor may form flammable mixtures with air. Keep container closed whenever possible. Use with adequate ventilation. EXCESSIVE EXPOSURES MAY BE HARMFUL OR FATAL. MAY DEPRESS CENTRAL NERVOUS SYSTEM. MAY CAUSE DAMAGE TO BRAIN OR LIVER. May irritate body tissues. Avoid breathing vapors. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling.

Health Hazard Data:

Inhalation: Exposure over 1000 ppm may cause headache, drowsiness and lassitude, loss of appetite, inability to concentrate and irritation of the throat. No evidence of teratogenicity (birth defects) was noted following inhalation exposure by pregnant rats of airborne vapor concentrations of up to 16,000 ppm for 7 hours on days 1 through 19 of gestation. In the same study, pregnant rats exposed to 20,000 ppm showed severe narcosis; offspring of these rats did not show clear evidence of increased incidence of abnormalities.

Swallowing: Effects of ethyl alcohol ingestion depend on the amount and rate of consumption. Short term overexposure can cause drunkenness, depression of the central nervous system, nausea, vomiting, diarrhea, liver damage, and death. Long term exposure can also cause loss of appetite, weight loss, nervousness, memory loss, and mental retardation. The Internal Agency for Research on Cancer (IARC) has reported a relationship between drinking alcoholic beverages and cancer of the oral cavity, pharynx, larynx, esophagus, and liver. Ingestion of alcoholic beverages by pregnant women is associated with “fetal alcohol syndrome” in offspring.

Eye Contact: Ethyl alcohol, either as a liquid or vapor, may cause eye irritation.

Skin Contact: Ethyl alcohol may cause irritation and defatting of skin upon prolonged contact.

SECTION 3 – HAZARD INFORMATION

Flammable liquid.

SECTION 4 – FIRST AID MEASURES

For Over Exposure:

Inhalation: Remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion: If victim is conscious and able to swallow, have victim drink water to dilute. Never give anything by mouth if victim is unconscious or having convulsions. Induce vomiting only if advised by physician or Poison Control Center. Call a physician or Poison Control Center immediately.

Skin Contact: Immediately flush affected area with plenty of water while removing contaminated clothing before reuse.

Eye Contact: Immediately flush eyes with plenty of cool water for at least 15 minutes. Do not permit victim to rub eyes. Get medical attention immediately.

SECTION 5 - FIRE AND EXPLOSION HAZARD DATA

Extinguishing Media: Use dry chemical, “alcohol resistant” foam, or carbon dioxide; water may be ineffective, but water applied as a spray can absorb some of the fire’s heat and should be used to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop a leak. Water spray must be used to flush spills away from exposures and to dilute spills to nonflammable mixtures.

Special Firefighting Procedures: Firefighters should wear full firefighting turn out gear (full bunker gear). They should use self-contained breathing apparatus operating in the positive pressure mode and equipped with full eye protection and full face piece when there is a possibility of exposure to smoke, fumes or hazardous decomposition products.

Usual Fire and Explosion Hazards: Ethanol vapors are heavier than air and may travel a considerable distance to a source of ignition and flashback.

SECTION 6 –STABILITY AND REACTIVITY DATA
Substances to be Avoided: Generally stable, not likely for hazardous polymerization. Avoid contact with Acetyl chloride or other oxidizing agents may result in violent reaction.

Hazardous, Combustion, or Decomposition Products: Carbon monoxide and carbon dioxide can form upon combustion.

SECTION 7 – PHYSICAL/CHEMICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>PHYSICAL STATE / FORM:</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLOR:</td>
<td>Colorless</td>
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<tr>
<td>ODOR:</td>
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<tr>
<td>pH-FACTOR:</td>
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<tr>
<td>VISCOSITY:</td>
<td>(20°C) N/A</td>
</tr>
<tr>
<td>MELTING POINT:</td>
<td>N/A</td>
</tr>
<tr>
<td>BOILING POINT:</td>
<td>N/A</td>
</tr>
<tr>
<td>IGNITION TEMPERATURE:</td>
<td>N/A</td>
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<td>FLASHPOINT:</td>
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<td>FLAMMABLE LIMITS IN AIR, % BY VOLUME:</td>
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<td></td>
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<tr>
<td>VAPOUR PRESSURE:</td>
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<tr>
<td>SPECIFIC GRAVITY:</td>
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</tr>
<tr>
<td>SOLUBILITY IN WATER:</td>
<td>(20°C) Soluble</td>
</tr>
</tbody>
</table>

SECTION 8 – ACCIDENTAL RELEASE MEASURES

Precautionary Measures: Wear self-contained breathing apparatus, chemical safety goggles, rubber boots, and heavy rubber gloves.

Clean-up Procedures: Wear appropriate respiratory protection and protective clothing as described in PRECAUTIONARY MEASURES above. Turn off or remove all ignition sources. Contained spilled material. Transfer to secure containers. Where necessary, collect using absorbent media. In the event of an uncontrolled release of this material, the user should determine if the release is reportable under the applicable laws and regulations.

SECTION 9 – HANDLING AND STORAGE

Storage: Protect container against physical damage. Detached or outside storage is preferred. Inside storage should be in a NFPA approved flammable liquids storage room or cabinet. All ignition sources should be eliminated. Smoking should be prohibited in storage areas. Electrical installations should be in accordance with Article 501 of the National Electrical Code. NFPA 30, Flammable and Combustible Liquids Code, should be followed for all storage and handling. Frequent careful leakage inspection should be done.

Automatic sprinkler system should be provided. Isolate from oxidizers, chemicals capable of spontaneous heating, materials reacting with air or moisture to liberate heat, ignition sources and explosives. Consult local fire codes for additional storage information.

Handling: When containers are being transferred, the metallic container must be bonded to the receiving container and grounded to avoid static discharges. Never use pressure to empty. Replace closure securely after opening. Keep packaged material out of sun or away from heat. Remove closure carefully; internal pressure may be present. Keep closure up to prevent leakage. Containers hazardous when emptied. Since emptied containers retain residual product (vapor or liquid), all precautions described on this MSDS must be observed.

Usage: For industrial use only. Not for household use. Not intended or permitted for drinking beverage purposes.

SECTION 10 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Controls: PEL (OSHA Permissible Exposure Limit): No OSHA PEL for this product as a whole. TLV (ACGIH Threshold Limit Value): No ACGIH TLV for this product as a whole.

Personal Protection: Engineering controls should be used whenever feasible to maintain concentrations below acceptable exposure criteria, including but not limited to enclosures, local ventilation and dilution ventilation.

Respiratory Protection: Where engineering controls are not feasible or sufficient to achieve full conformance with acceptable criteria, use NIOSH/MSHA approved respiratory protection equipment. Respirators should be selected based on the form and concentration of contaminant in the air in accordance with OSHA (29 CFR 1910.134).

Protective Clothing: Wear gloves and protective clothing which are impervious to this product for the duration of anticipated exposure if there is potential for skin contact.

Eye Protection: Wear safety goggles meeting the specifications of ANSI Standard 287.1 where no contact with the eye is anticipated.

Chemical safety goggles meeting the specifications of ANSI Standard 287.1 should be worn whenever there is a possibility of splashing or other contact with eyes.

SECTION 11 – DISPOSAL CONSIDERATIONS

All recovered material should be packaged, labeled, transported and disposed of or reclaimed in conformance with applicable laws and regulations and in conformance with good engineering practices. Reclaim where possible.
SECTION 12 – TRANSPORT INFORMATION

DEPARTMENT OF TRANSPORTATION (DOT):  
DOT Classification: Class 3- flammable liquid  
DOT Proper Shipping Name: Ethyl Alcohol  
Other DOT Information: Identification No. UN1170  
Packing Group II  
Emergency Response Guide No. 26  

For further information see Title 49, Code of Federal Regulations, parts 172 and 173.

SECTION 13 – TOXICOLOGICAL INFORMATION

TOXICITY DATA:  
Inhalation: LC50 (10 hours)=20,000ppm (rat)  
LC50 (4 hours)=39 g/m³ (mouse)  
LDLo = 21,900 ppm (guinea pig)  

Swallowing:  
Acute oral LD50= 7,060 mg/kg (rat)  
Acute oral LD50= 3,450 mg/kg (mouse)  
Acute oral LD50= 6,300 mg/kg (rabbit)  
Acute oral LD50= 5,560 mg/kg (guinea pig)  
Acute oral LDLo= 6000 mg/kg (cat)  
Acute oral LDLo= 1,400 mg/kg (human)

SECTION 14 – ECOLOGICAL INFORMATION

Avoid uncontrolled releases of this material. Where spills are possible, a comprehensive spill response plan should be developed and implemented.

SECTION 15 – REGULATORY INFORMATION

TOXIC SUBSTANCE CONTROL ACT (TSCA):  This product is (or if a mixture, the components of this product are) listed in the TSCA Inventory of Chemical Substances.

SARA TITLE III (SECTIONS 311/312) HAZARD CATEGORIES:  
Immediate/Acute Health Hazard: yes  
Delayed Chronic Health Hazard: yes  
Fire Hazard: yes  
Sudden Release of Pressure: no  
Reactive: no  

SARA TITLE III (SECTION 313):  
This product contains no SARA 313 “toxic chemicals” above threshold levels.

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS):  Ethanol is listed (threshold=0.1%)

NOTE: The regulatory information presented here should not necessarily be considered as being all-inclusive. Other local, state, federal, and international regulations may also apply.

SECTION 16 – OTHER INFORMATION

DATE OF PREPARATION: 25 October 2007  
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MATERIAL SAFETY DATA SHEET
TELEPHONE NUMBER FOR INFORMATION: +44 (0) 1223 552 882
EMERGENCY TELEPHONE NUMBER: +44 (0) 1638 552 375
DATE PREPARED: May 2012

PRODUCT NAME: MycXtra Fungal DNA Extraction Kit
DATE OF ISSUE: May 2012

SECTION 1 – MATERIAL IDENTIFICATION

CHEMICAL NAME: Aqueous solution of Tris(hydroxymethyl) aminomethane / Hydrochloride
TRADE NAME: Solution S5
Catalogue Number: 050-033

SECTION 2 – COMPOSITION/IDENTITY INFORMATION

Synonyms: Elution Buffer.
Chemical Characterization: Aqueous solution of Tris(hydroxymethyl) aminomethane / Hydrochloride
Hazardous Components: According to the OSHR 29 CFR 1910.1200, Commonwealth of Australia [NOHSC:1005, 1008(1999)] and the latest amendments to the European Union Directives 67/548/EC and 1999/45/EC, products that do not contain more than 1% of a component classified as hazardous and do not contain more than 0.1% of a component classified as carcinogenic are not considered hazardous, unless there is evidence to the contrary. We do not consider IRS Solution to be hazardous, however we recommend the use of gloves, lab coats, and eye protection when working with these or any chemical reagents.

SECTION 3 – HAZARD INFORMATION

N/A

SECTION 4 – FIRST AID MEASURES

Inhalation: Remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion: Wash out mouth with water provided person is conscious. Call a physician. Remove and wash contaminated clothing promptly.
Skin Contact: Immediately wash skin with soap and copious amounts of water.
Eye Contact: Immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing of the eyes by separating the eyelids with the fingers.

SECTION 5 - FIRE AND EXPLOSION HAZARD DATA

Extinguishing Media: Use extinguishing media appropriate to surrounding fire conditions.
Special Firefighting Procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

SECTION 6 –STABILITY AND REACTIVITY DATA

Substances to be Avoided: N/A
Hazardous, Combustion, or Decomposition Products: Toxic fumes of carbon monoxide and carbon dioxide.

SECTION 7 – PHYSICAL/CHEMICAL CHARACTERISTICS

PHYSICAL STATE / FORM: Liquid
COLOR: Colorless
ODOR: None
pH FACTOR: (20°C) 8.0-8.5
VISCOSITY: (20°C) N/A
MELTING POINT: N/A
BOILING POINT: N/A
IGNITION TEMPERATURE: N/A
FLASHPOINT: N/A
EXPLOSION LEVEL: LOWER: N/A
UPPER: N/A
VAPOR PRESSURE: (20°C) N/A
SPECIFIC GRAVITY: (20°C) 0.990 g/cm³
SOLUBILITY IN WATER: (20°C) Soluble
Precautionary Measures: Wear self-contained breathing apparatus, chemical safety goggles, rubber boots, and heavy rubber gloves.

Clean-up Procedures: Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pick-up is complete.

Storage: Store at room temperature.

Chemical safety goggles. Rubber gloves. NIOSH / MSHA-Approved respirator. Safety shower and eye bath. Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing.

All recovered material should be packaged, labeled, transported and disposed of or reclaimed in conformance with applicable laws and regulations and in conformance with good engineering practices. Reclaim where possible.

The product should be handled with the normal caution accorded chemicals. Additional harmful properties cannot be ruled out.

DATE OF PREPARATION: 25 October 2007

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