MATERIAL SAFETY DATA SHEET

MultiTest: Nitrite & Nitrate

Section I: MANUFACTURER'S NAME, ADDRESS, AND CONTACT INFORMATION

Seachem Laboratories, Inc.
1000 Seachem Drive
Madison, GA 30650

Emergency Telephone Number: 706-343-6060
Telephone Number for Information: 706-343-6060
Date Prepared: 24 April 2007

MultiTest: Nitrite & Nitrate contains nitrite reagent 1, nitrate reagent 2, and nitrate reference solution. The MSDS for these three products are attached.

MATERIAL SAFETY DATA SHEET

Nitrite Reagent 1 for MultiTest: Nitrite & Nitrate

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SECTION II: CHEMICAL INGREDIENTS/IDENTITY INFORMATION

Components (Chemical Identity; Common Names(s))	OSHA PEL	ACGIH TLV	Other Limits
Aromatic organic acids in acidified methanol.	200 ppm (TWA)	200 ppm (TWA)	NA

SECTION III: PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point	ND	Specific Gravity (H_2O = 1)	0.82
Vapor Pressure (mm Hg)	97@20 ^oC	Melting Point	NA
Vapor Density (AIR = 1)	1.1	Evaporation Rate (Butyl Acetate = 1)	5.9
Solubility in Water	Miscible in water	Appearance and Odor	Peach color, methanol odor, clear solution

SECTION IV: FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used)	12 ^oC (closed cup)
Flammable Limits	LEL, UEL
LEL	6.0% by volume
UEL	36.0% by volume
Extinguishing Media	Alcohol foam, dry chemical, carbon dioxide
Special Fire Fighting Procedures	Wear full protective clothing and NIOSH-approved self contained breathing apparatus with full facepiece operated in pressure demand or positive pressure mode.
Unusual Fire and Explosion Hazards	Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Avoid heat, sparks, flames, static discharge.

SECTION V: REACTIVITY DATA

Stability	Stable under normal conditions of use
Conditions to Avoid	Heat, flames, ignition sources, incompatibles
Incompatibility (Materials to Avoid)	Strong oxidizers, aluminum
Hazardous Decomposition or Byproducts	Carbon monoxide, carbon dioxide, nitrogen oxides, arsenic oxides, formaldehyde, hydrogen chloride
Hazardous Polymerization	Will Not Occur
Polymerization Conditions to Avoid	None

SECTION VI: HEALTH HAZARD DATA

Route(s) of Entry: Inhalation, ingestion, skin, eyes
Health Hazards (Acute): Inhalation-Corrosive! Irritant to mucous membranes and upper respiratory tract, and toxic to optic nerve. Symptoms may include headache, nausea, inflammation of the nose, throat, or upper respiratory tract, drowsiness, blurred vision, blindness, coma, death. Ingestion-Corrosive! Symptoms parallel inhalation. Can intoxicate and cause blindness. Skin-Corrosive! Contact with skin can cause irritation or severe burns, dry, cracked or discolored skin. Can be absorbed through the skin. Eyes-Corrosive! Causes irritation of eyes, and with greater exposures it can cause burns that may result in permanent impairment of vision, even blindness.
Carcinogenicity: NA
Signs and Symptoms of Exposure: See health hazards above.
Medical Conditions Generally Aggravated by Exposure: Persons with pre-existing skin disorders, eye problems, or impaired liver or kidney function may be more susceptible to the effects of this mixture.
Emergency and First Aid Procedures: Inhalation-Remove to fresh air, if not breathing give artificial respiration. If breathing is difficult, give oxygen. Call a physician. Ingestion-DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Get medical attention immediately. Skin-Flush immediately with water and continue for at least 15 minutes while removing contaminated clothing and shoes. Call a physician immediately. Wash clothing before reuse. Eyes-Immediately flush eyes with water and continue for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

SECTION VII: PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to Be Taken in Case Material is Released or Spilled: Ventilate area, remove sources of ignition, contain and recover liquid where possible. Collect liquid in an appropriate container or absorb with inert material (e.g., vermiculite, dry sand, earth). Do not absorb with flammable material, like sawdust.
Waste Disposal Method: No special disposal method required, except that it be in accordance with current local authority regulations.
Precautions to Be Taken in Handling and Storing: Do not introduce to drinking water or foodstuffs. Store tightly sealed.
Other Precautions: All materials should be handled under good housekeeping practices.

SECTION VIII: CONTROL MEASURES

Respiratory Protection	Recommended
Ventilation	Local or general exhaust
Protective Gloves	Recommended
Eye Protection	Recommended
Other Protective Clothing or Equipment	None
Work/Hygienic Practices	Good housekeeping practices

ABBREVIATIONS

ACGIH: The American Conference of Governmental Industrial Hygienists, Inc.
IARC: The International Agency for Research on Cancer
LEL: Lower Explosive Limit (or Lower Flammable Limit)
NA: Not Applicable
ND: Not Determined
NTP: The National Toxicology Program
OSHA: The Occupational Health and Safety Administration
PEL: Permissible Exposure Limit
PPM: Parts Per Million
TLV: Threshold Limit Value
TWA: Time Weighted Average
UEL: Upper Explosive Limit (or Upper Flammable Limit)

MATERIAL SAFETY DATA SHEET

Nitrate Reagent 2 for MultiTest: Nitrite & Nitrate

Section I: MANUFACTURER'S NAME, ADDRESS, AND CONTACT INFORMATION

Seachem Laboratories, Inc.
1000 Seachem Drive
Madison, GA 30650

Emergency Telephone Number: 706-343-6060
Telephone Number for Information: 706-343-6060
Date Prepared: 24 April 2007

SECTION II: CHEMICAL INGREDIENTS/IDENTITY INFORMATION

Components (Chemical Identity; Common Names(s))	OSHA PEL	ACGIH TLV	Other Limits
Zinc metal powder in an inert carrier	NA	NA	NA

SECTION III: PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point	ND	Specific Gravity (H_2O = 1)	ND
Vapor Pressure (mm Hg)	NA	Melting Point	ND
Vapor Density (AIR = 1)	NA	Evaporation Rate (Butyl Acetate = 1)	NA
Solubility in Water	Insoluble	Appearance and Odor	Gray-white powder, slightly sweet odor

SECTION IV: FIRE AND EXPLOSION HAZARD DATA

Autoignition temperature	460° C
Flammable Limits	ND
LEL	ND
UEL	ND
Extinguishing Media	Dry powder (sodium chloride, magnesium oxide, etc.)
Special Fire Fighting Procedures	Wear full protective clothing and NIOSH-approved self contained breathing apparatus with full facepiece operated in pressure demand or positive pressure mode.
Unusual Fire and Explosion Hazards	Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source, is a potential dust explosion hazard.

SECTION V: REACTIVITY DATA

Stability	Stable under normal conditions of use
Conditions to Avoid	Heat, flames, ignition sources, incompatibles
Incompatibility (Materials to Avoid)	Strong oxidizing agents
Hazardous Decomposition or Byproducts	Hydrogen gas, zinc oxide
Hazardous Polymerization	Will Not Occur
Polymerization Conditions to Avoid	None

SECTION VI: HEALTH HAZARD DATA

Route(s) of Entry: Inhalation, ingestion, skin, eyes
Health Hazards (Acute): Inhalation-Irritation of mucous membranes. Symptoms may include sneezing, coughing. Ingestion-Large oral doses my produce gastrointestinal disturbances. Pain, stomach cramps, and nausea could occur in aggravated cases. Skin-May cause irritation. Eyes- May cause irritation.
Carcinogenicity: NA
Signs and Symptoms of Exposure: See health hazards above.
Medical Conditions Generally Aggravated by Exposure: Persons with pre-existing skin disorders or impaired respiratory function may be more susceptible to the effects of this substance.
Emergency and First Aid Procedures: Inhalation-Remove to fresh air, seek medical attention if there is difficulty in breathing. Ingestion-Induce vomiting immediately as directed by medical personnel. Skin-Flush immediately with water and continue for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Eyes-Immediately flush eyes with water and continue for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention if irritation persists.

SECTION VII: PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to Be Taken in Case Material is Released or Spilled: Remove ignitions sources, and with water flush to drain.
Waste Disposal Method: No special disposal method required, except that it be in accordance with current local authority regulations.
Precautions to Be Taken in Handling and Storing: Store in a cool, dry place.
Other Precautions: All materials should be handled under good housekeeping practices.

SECTION VIII: CONTROL MEASURES

Respiratory Protection	Not required
Ventilation	Local exhaust
Protective Gloves	Recommended
Eye Protection	Recommended
Other Protective Clothing or Equipment	None
Work/Hygienic Practices	Good housekeeping practices

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NA: Not Applicable
ND: Not Determined
NTP: The National Toxicology Program
OSHA: The Occupational Health and Safety Administration
PEL: Permissible Exposure Limit
TLV: Threshold Limit Value
UEL: Upper Explosive Limit (or Upper Flammable Limit)

MATERIAL SAFETY DATA SHEET

Nitrate Reference Solution for MultiTest: Nitrite & Nitrate

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Date Prepared: 24 April 2007

SECTION II: CHEMICAL INGREDIENTS/IDENTITY INFORMATION

Components (Chemical Identity; Common Names(s))	OSHA PEL	ACGIH TLV	Other Limits
Proprietary aqueous solution of a nitrate salt.	NA	NA	NA

SECTION III: PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point	ND	Specific Gravity (H_2O = 1)	0.99
Vapor Pressure (mm Hg)	23.8@25 ^{o} C	Melting Point	NA
Vapor Density (AIR = 1)	<1 H_2O	Evaporation Rate (Butyl Acetate = 1)	0.3
Solubility in Water	Soluble	Appearance and Odor	Clear odorless liquid

SECTION IV: FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used)	NA
Flammable Limits	NA
LEL	NA
UEL	NA
Extinguishing Media	NA
Special Fire Fighting Procedures	NA
Unusual Fire and Explosion Hazards	NA

SECTION V: REACTIVITY DATA

Stability	Stable under normal conditions of use
Conditions to Avoid	Excessive heat
Incompatibility (Materials to Avoid)	None
Hazardous Decomposition or Byproducts	None
Hazardous Polymerization	Will Not Occur
Polymerization Conditions to Avoid	None

SECTION VI: HEALTH HAZARD DATA

Route(s) of Entry: Ingestion, skin, eyes
Health Hazards (Acute): Large oral doses my cause irritation to the gastrointestinal tract. Symptoms may include abdominal pains. It presents little toxicity unless large amounts are ingested, in which case, vomiting and diarrhea are likely. May irritate skin and eyes, with redness, itching, and pain as symptoms. No information found on hazards of chronic exposure.
Carcinogenicity: NA
Signs and Symptoms of Exposure: See health hazards above.
Medical Conditions Generally Aggravated by Exposure: No information found
Emergency and First Aid Procedures: Ingestion-induce vomiting immediately as directed by medical personnel. Seek medical attention. Skin-Flush with water for at least 15 minutes, while removing contaminated clothing and shoes. Wash clothing and clean shoes thoroughly before reuse. Eyes-Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention.

SECTION VII: PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to Be Taken in Case Material is Released or Spilled: Dilute with water and flush to drain.
Waste Disposal Method: No special disposal method required, except that it be in accordance with current local authority regulations.
Precautions to Be Taken in Handling and Storing: Do not introduce to drinking water or foodstuffs. Wash hands after use, wear gloves if exposure is prolonged.
Other Precautions: All materials should be handled under good housekeeping practices.

SECTION VIII: CONTROL MEASURES

Respiratory Protection	Not required
Ventilation	Not required
Protective Gloves	Recommended
Eye Protection	Recommended
Other Protective Clothing or Equipment	None
Work/Hygienic Practices	Good housekeeping practices

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