

Appendix B
Material Safety
Data Sheets

NITRATES TEST KIT (1 OF 2)

I. Product Identification: Nitri Ver -- 3 Nitrite Reagent

IV. Fire, Explosion Hazard and Reactivity Data

- May emit toxic fumes.
- Toxic fumes of phosphorus oxides (hazardous decomposition).
- Avoid heat, moisture.

V. Health Hazard Data

- May be corrosive to eyes, irritating to skin and respiratory tract.
- Causes burns to eyes. May be irritating to skin and respiratory tract. May cause stomach disturbances, heart problems, central nervous system depression and kidney damage.
- Medical conditions aggravated by exposure: pre-existing eye, skin, heart and kidney conditions.

VI. Precautionary Measures

- Avoid contact with eyes and skin.
- Do not breathe dust.
- Wash thoroughly after handling.
- Protective equipment: adequate ventilation, lab grade goggles, disposable gloves.

VII. First Aid

- Eye and skin contact: immediately flush eyes with water for 15 minutes. Call a physician. Flush skins with plenty of water.
- Ingestion: do NOT induce vomiting. Give 1-2 glasses of water. Call physician immediately. Never give anything by mouth to an unconscious person.
- Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

VIII. Spill and Disposal Procedures

Scoop spilled material into a beaker and dissolve with water. Neutralize to a pH between 6 and 9 with an alkali such as soda ash. Flush neutralized waste to the drain with an excess of water.

NITRATES TEST KIT (2 OF 2)

I. Product Identification: Nitri Ver -- 6 Nitrite Reagent

IV. Fire, Explosion Hazard and Reactivity Data

- May emit toxic fumes in fire.
- Toxic fumes of cadmium oxide, nitrogen oxides, sulfur oxides in fire (hazardous decomposition).
- Avoid unnecessary exposure to moisture. Avoid creation of dust. Avoid contact with hydrazoic acid, aluminum, sulfur, selenium, tellurium, ammonium nitrate or oxidizers.

V. Health Hazard Data

- May be corrosive to eyes, irritating to skin and respiratory tract.
- Causes burn to eyes. May cause skin and respiratory irritation, shortness of breath, weakness, chest pain, stomach disturbances, central nervous system depression, lung tissue destruction, liver and kidney damage.
- Medical conditions aggravated by exposure: Respiratory conditions, kidney disease. Persons with impaired kidney function may be more susceptible to the effects of the product.

VI. Precautionary Measures

- Avoid contact with eyes and skin.
- Do not breath dust.
- Wash thoroughly after handling.
- Protective equipment: adequate ventilation, lab grade goggles, disposable gloves, lab coat.

VII. First Aid

- Eye and skin contact: immediately flush eyes with water for 15 minutes. Call a physician. Wash skin with soap and plenty of water.
- Ingestion: administer milk or beaten egg whites at frequent intervals. Induce vomiting. Never give anything by mouth to an unconscious person. Call physician.
- Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

VIII. Spill and Disposal Procedures

Scoop up material. Decontaminate site. Dispose of the material in a EPA-approved hazardous waste site.

SULFATES TEST KIT (1 OF 1)

I. Product Identification: Sulfa Ver - 4 Sulfate Reagent

IV. Fire, Explosion Hazard and Reactivity Data

- May react with oxidizers; may emit toxic fumes.
- Toxic fumes of hydrogen chloride, carbon monoxide in fire (hazardous decomposition).
- Avoid contact with oxidizers, bromine trifluoride, 2-furan percarboxylic acid, metal nitrates, extreme temperatures, or excess moisture.

V. Health Hazard Data

- Contact may cause irritation to eyes, skin, or respiratory tract.
- If swallowed, may cause ulcers and inflammation of stomach and intestines, sedation.

VI. Precautionary Measures

- Avoid contact with eyes and skin.
- Do not breathe dust.
- Wash thoroughly after handling.
- Protective equipment: adequate ventilation, lab grade goggles, disposable gloves.

VII. First Aid

- Eye and skin contact: immediately flush eyes with water for 15 minutes. Call a physician. Flush skin with plenty of water.
- Ingestion: induce vomiting by sticking finger down throat, then give 1 tablespoon of epsom salt in a glass of water. Call physician immediately. Never give anything by mouth to an unconscious person.
- Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

VIII. Spill and Disposal Procedures

Scoop up material. Decontaminate site. Dispose of the material in an EPA-approved hazardous waste site.

ALKALINITY TEST KIT (1 OF 3)

I. Product Identification: Phenolphthalein Indicator

IV. Fire, Explosion Hazard and Reactivity Data

- May emit acrid smoke and fumes in fire.
- Toxic fumes of chloride and sodium oxide in fire (hazardous decomposition).
- Avoid heat, moisture, contact with bromine trifluoride, lithium.

V. Health Hazard Data

- May cause moderate eye and mild skin irritation.
- Produces dehydration and irritates the stomach if ingested in large quantities, causing vomiting, diarrhea, muscular twitching and rigidity, collapse, death. May cause blood pressure problems.
- Medical conditions aggravated by exposure: pre-existing eye conditions.

VI. Precautionary Measures

- Avoid contact with eyes and skin.
- Wash thoroughly after handling.
- Protective equipment: adequate ventilation, lab grade goggles.

VII. First Aid

- Eye and skin contact: flush with plenty of water.
- Ingestion: give large quantities of water. Call physician immediately.
- Inhalation: Remove to fresh air.

VIII. Spill and Disposal Procedures

Sweep up powder. Avoid breathing material. Dissolve in water. Flush down the drain with excess water.

ALKALINITY TEST KIT (2 OF 3)

I. Product Identification: Bromocresol Green-Methyl Red

IV. Fire, Explosion Hazard and Reactivity Data

- May emit toxic fumes in fire.
- Toxic fumes of chloride in fire (hazardous decomposition).
- Avoid extreme heat, contact with acids.

V. Health Hazard Data

- May cause eye, skin and respiratory tract irritation.
- May cause stomach disturbances, weakness, circulatory and heart problems.
- Persons with impaired kidney function may be more susceptible to the effects of potassium chloride.

VI. Precautionary Measures

- Avoid contact with eyes and skin.
- Do not breathe dust.
- Wash thoroughly after handling.
- Protective equipment: adequate ventilation, lab grade goggles, disposable gloves.

VII. First Aid

- Eye and skin contact: immediately flush eyes with water for 15 minutes. Call physician. Flush skin with plenty of water.
- Ingestion: give large quantities of water. Call physician immediately.
- Inhalation: Remove to fresh air.

VIII. Spill and Disposal Procedures

Sweep up powder. Avoid breathing material. Dissolve in water. Flush down the drain with excess water.

ALKALINITY TEST KIT (3 OF 3)

I. Product Identification: Sulfuric Acid Standard Solution 0.035N

IV. Fire, Explosion Hazard and Reactivity Data

- May emit toxic fumes in fire.
- Toxic fumes of carbon monoxide, carbon dioxide and sulfur oxides in fire (hazardous decomposition).
- Avoid heat, flame, oxidizers.

V. Health Hazard Data

- May cause eye irritation
- May cause headache, weakness, drowsiness, lightheadedness, nausea and vomiting.
- Pre-existing skin disorders, impaired pulmonary function such as obstructive airway diseases may be aggravated.

VI. Precautionary Measures

- Avoid contact with eyes, skin and clothing.
- Do not breathe mist or vapor.
- Wash thoroughly after handling.
- Protective equipment: adequate ventilation, lab grade goggles, disposable gloves, lab coat.

VII. First Aid

- Eye and skin contact: immediately flush eyes with water for 15 minutes. Call physician. Flush skin with plenty of water.
- Ingestion: give large quantities of water. Call physician immediately.
- Inhalation: Not applicable.

VIII. Spill and Disposal Procedures

Cover the spill with excess soda ash or sodium bicarbonate. Scoop slurry to beaker. Adjust pH to between 6 and 9. Flush to the drain with excess water. Wash site with an alkali solution.

TOTAL PHOSPHATE TEST KIT (1 OF 6)

I. Product Identification: Filtration Aid Solution

IV. Fire, Explosion Hazard and Reactivity Data

- Avoid heat, evaporation

V. Health Hazard Data

- No effects anticipated

VI. Precautionary Measures

- Avoid contact with eyes and skin.
- Wash thoroughly after handling.
- Protective equipment: lab grade goggles.

VII. First Aid

- Eye and skin contact: flush with plenty of water
- Ingestion: give large quantities of water. Call physician immediately.
- Inhalation: not applicable

VIII. Spill and Disposal Procedures

Dilute with water. Pour down the drain with excess water.

TOTAL PHOSPHATE KIT (2 OF 6)

I. Product Identification: PhosVer 3 Phosphate Reagent

IV. Fire, Explosion Hazard and Reactivity Data

- May emit toxic fumes of sulfur oxides in fire.
- Avoid heat, flames, exposure to light or moisture, contamination with phosphates. Contact with oxidizers, dyes, alkalies, copper or iron.

V. Health Hazard Data

- May cause eye burns and respiratory tract irritation.
- May affect enzyme activity, induce copper deficiency, may cause anemia, gout or liver damage. May cause loss of coordination and appetite, listlessness, or diarrhea.
- Medical conditions aggravated by exposure: pre-existing eye, and respiratory tract conditions, blood disease gout may be aggravated by exposure to molybdenum compounds.

VI. Precautionary Measures

- Avoid contact with eyes, skin and clothing.
- Do not breathe dust.
- Wash thoroughly after handling.
- Protective equipment: adequate ventilation, lab grade goggles, disposable gloves.

VII. First Aid

- Eye and skin contact: immediately flush eyes with water for 15 minutes. Remove contaminated clothing. Call a physician.
- Ingestion: do NOT induce vomiting. Give 1-2 glasses of water. Call a physician immediately. Never give anything by mouth to an unconscious person.
- Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

VIII. Spill and Disposal Procedures

Scoop spilled material into a beaker and dissolve with water. Neutralize to a pH between 6 and 9 with an alkali such as soda ash. Flush neutralized waste to the drain with an excess of water.

TOTAL PHOSPHATE KIT (3 OF 6)

I. Product Identification: Dry Fuel Tablets

IV. Fire, Explosion Hazard and Reactivity Data

- When exposed to heat, flame or oxidizers, may emit toxic fumes.
- React with acid to form formaldehyde; formaldehyde, ammonia, NO_x and CO in fire.
- Avoid contact with oxidizers, Na₂O, acids, heat and open flames.

V. Health Hazard Data

- May be irritating to eyes, skin, respiratory tract, and may cause allergic skin reaction.
- If swallowed, may cause gastrointestinal irritation, kidney damage. If inhaled, may act as a nuisance dust, causing reversible lung damage.
- Medical conditions aggravated by exposure: allergies or sensitivity to hexmethylenetetramine or formaldehyde.

VI. Precautionary Measures

- Avoid contact with eyes, skin and clothing.
- Do not breathe chemicals
- Keep away from oxidizers.
- Keep away from acids.
- Protective equipment: adequate ventilation, lab grade goggles, disposable gloves.

VII. First Aid

- Eye and skin contact: immediately flush eyes with water for 15 minutes. Call a physician. Flush skin with plenty of water.
- Ingestion: give large quantities of water. Call physician immediately.
- Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

VIII. Spill and Disposal Procedures

Dissolve or mix the material with a combustible solvent. Burn in an EPA-approved hazardous waste incinerator.

TOTAL PHOSPHATE TEST KIT (4 OF 6)

I. Product Identification: Sulfuric Acid Standard Solution 5.25 N

IV. Fire, Explosion Hazard and Reactivity Data

- May emit toxic fumes of sulfur oxides in fire.
- Avoid contact with oxidizable materials, reducers, strong caustics, combustibles.

V. Health Hazard Data

- May be corrosive to eyes, skin and respiratory tract.
- Severely burns any tissue contacted. Breathing in the mist or vapor may cause erosion of teeth, mouth soreness, difficulty in breathing. Inhalation of concentrated sulfuric acid mist or vapor can cause cancer of the nasal tissue, lungs and larynx.
- Medical conditions aggravated by exposure: pre-existing eye, skin and respiratory conditions.

VI. Precautionary Measures

- Avoid contact with eyes, skin and clothing.
- Do not breathe mist or vapor.
- Wash thoroughly after handling.
- Protective equipment: adequate ventilation, lab grade goggles, rubber gloves.

VII. First Aid

- Eye and skin contact: immediately flush eyes with water for 15 minutes. Remove contaminated clothing. Call a physician.
- Ingestion: do NOT induce vomiting. Give 1-2 glasses of water. Call a physician immediately. Never give anything by mouth to an unconscious person.
- Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call a physician.

VIII. Spill and Disposal Procedures

Cover the spill with excess soda ash or sodium bicarbonate. Scoop slurry to beaker. Adjust pH to between 6 and 9. Flush to the drain with excess water. Wash site with an alkali solution.

TOTAL PHOSPHATE TEST KIT (5 OF 6)

I. Product Identification: Sodium Hydroxide Solution 5.0N

IV. Fire, Explosion Hazard and Reactivity Data

- Avoid heat, evaporation, contact with acids.

V. Health Hazard Data

- May be corrosive to eyes and skin.
- Overexposure causes burns and scarring. Can cause serious damage to all body tissues contacted.
- Medical conditions aggravated by exposure: chronic eye or skin conditions.

VI. Precautionary Measures

- Avoid contact with eyes, skin and clothing.
- Do not breathe mist or vapor.
- Wash thoroughly after handling.
- Protective equipment: adequate ventilation, lab grade goggles, disposable gloves, lab coat.

VII. First Aid

- Eye and skin contact: immediately flush eyes and skin with water for 15 minutes. Remove contaminated clothing. Call a physician.
- Ingestion: do NOT induce vomiting. Give 1-2 glasses of water. Call a physician immediately. Never give anything by mouth to an unconscious person.
- Inhalation: Remove to fresh air.

VIII. Spill and Disposal Procedures

Cover spill with citric acid or another solid acidic material. Scoop slurry to beaker. Add water and neutralize liquid to a pH between 6 and 9. Flush neutralized waste to the drain with excess water.

TOTAL PHOSPHATE TEST KIT (6 OF 6)

I. Product Identification: Potassium Persulfate Powder Pillows

IV. Fire, Explosion Hazard and Reactivity Data

- Strong oxidizer, fire risk in contact with organic materials.
- May emit toxic fumes of sulfur oxides in fire. Decomposes in air at <100 degrees C.
- Avoid heat, flames, excess moisture; contact with reducers, oxidizable or combustible materials.

V. Health Hazard Data

- May be irritating to eyes and respiratory tract and may cause allergic skin and respiratory reactions.
- Overexposure causes eye and respiratory tract irritation. May cause allergic skin and respiratory tract reactions.
- Medical conditions aggravated by exposure: allergies or sensitivity to potassium persulfate.

VI. Precautionary Measures

- Avoid contact with eyes and skin.
- Do not breathe dust.
- Wash thoroughly after handling.
- Protective equipment: adequate ventilation, lab grade goggles, disposable gloves, lab coat.

VII. First Aid

- Eye and skin contact: immediately flush eyes and skin with water for 15 minutes. Remove contaminated clothing. Call a physician.
- Ingestion: DO NOT induce vomiting. Give 1-2 glasses of water. Call a physician immediately. Never give anything by mouth to an unconscious person.
- Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

VIII. Spill and Disposal Procedures

In small batches, dilute with excess water in beaker. Neutralize to a pH between 6 and 9 with soda ash. Flush to drain with excess water.

DISSOLVED OXYGEN TEST KIT (1 OF 5)

I. Product Identification: Dissolved Oxygen 1 Reagent

IV. Fire, Explosion Hazard and Reactivity Data

- May emit toxic fumes of sulfur oxides and manganese oxides in fire (hazardous decomposition).
- Avoid extreme temperatures; contact with oxidizers or powdered metals.

V. Health Hazard Data

- May be irritating to eyes, skin and respiratory tract.
- Chronic inhalation may cause psychiatric disorders characterized by irritability, difficulty walking, speech disturbances and compulsive behavior. May also cause mask-like facial expression, cirrhosis of the liver, and Parkinson's-like symptoms.
- Medical conditions aggravated by exposure: persons with pre-existing respiratory, liver, or central nervous systems conditions may be more susceptible to the effects of manganese poisoning.

VI. Precautionary Measures

- Avoid contact with eyes and skin.
- Do not breathe dust.
- Wash thoroughly after handling.
- Protective equipment: adequate ventilation, lab grade goggles, disposable gloves.

VII. First Aid

- Eye and skin contact: immediately flush eyes with water for 15 minutes. Call physician. Flush skin with plenty of water.
- Ingestion: give large quantities of water or milk. Induce vomiting by sticking finger down throat. Never give anything by mouth to an unconscious person. Call physician.

VIII. Spill and Disposal Procedures

Sweep up powder. Avoid breathing material. Dissolve in water. Flush down the drain with excess water.

DISSOLVED OXYGEN TEST KIT (2 OF 5)

I. Product Identification: Dissolved Oxygen 2 Reagent

IV. Fire, Explosion Hazard and Reactivity Data

- Contact with metals gives off flammable hydrogen gas.
- Toxic fumes of potassium oxides, NO_x, sodium oxides, and iodine & iodine compounds (hazardous decomposition).
- Avoid exposure to heat or flames, excess moisture; contact with acids or oxidizers.

V. Health Hazard Data

- May be corrosive to eyes, skin and respiratory tract.
- Causes severe burns, hypotension. May cause respiratory stimulation then depression, nausea, central nervous system depression, coma, death. Chronic iodide overdose may cause skin rash, runny nose, headaches, fever and irritation of mucous membranes.
- Medical conditions aggravated by exposure: pre-existing eye, skin, kidney, liver, or respiratory conditions; may cause a larger drop in blood pressure in hypotensive persons than in normotensive persons.

VI. Precautionary Measures

- Avoid contact with eyes, skin and clothing.
- Do not breathe dust.
- Wash thoroughly after handling.
- Protective equipment: adequate ventilation, lab grade goggles, rubber gloves, lab coat.

VII. First Aid

- Eye and skin contact: immediately flush eyes and skin with water for 15 minutes. Remove contaminated clothing. Call a physician.
- Ingestion: do NOT induce vomiting. Give 1-2 glasses of water. Call physician immediately. Never give anything by mouth to an unconscious person.
- Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

VIII. Spill and Disposal Procedures

Scoop spilled material into a beaker and dissolve with water. Neutralize to a pH between 6 and 9 with an acid such as hydrochloric acid. Flush neutralized waste to the drain with an excess of water.

DISSOLVED OXYGEN TEST KIT (3 OF 5)

I. Product Identification: Dissolved Oxygen 3 Reagent Powder Pillows

IV. Fire, Explosion Hazard and Reactivity Data

- Reacts violently with chlorine, fuming nitric acid, metal nitrates, metal nitrites.
- Toxic fumes of sulfur oxides, nitrogen oxides, ammonia in fire (hazardous decomposition).
- Avoid contact with chlorine or fuming nitric acid, metal nitrates, metal nitrites, oxidizers, bases; extreme heat or flame; excess moisture.

V. Health Hazard Data

- May be corrosive to eyes, irritating to skin and respiratory tract.
- Causes burns to eyes. May cause irritation of the skin, respiratory tract, mouth, esophagus and gastrointestinal tract.
- Medical conditions aggravated by exposure: pre-existing eye, skin, and respiratory tract conditions.

VI. Precautionary Measures

- Avoid contact with eyes, skin and clothing.
- Do not breathe dust.
- Wash thoroughly after handling.
- Keep away from heat, sparks and open flame.
- Protective equipment: adequate ventilation, lab grade goggles, rubber gloves, lab coat.

VII. First Aid

- Eye and skin contact: immediately flush eyes and skin with water for 15 minutes. Remove contaminated clothing. Call a physician.
- Ingestion: do NOT induce vomiting. Give 1-2 glasses of water. Call a physician immediately. Never give anything by mouth to an unconscious person.
- Inhalation: Remove to fresh air.

VIII. Spill and Disposal Procedures

Cover contaminated surfaces with soda ash or sodium bicarbonate. Mix and add water if necessary. Use litmus paper to make sure pH of slurry is neutral or add neutralizer until mixture stops bubbling. Scoop up the slurry and wash the neutral waste down the drain with excess water. Wash the site with soda ash solution.

DISSOLVED OXYGEN TEST KIT (4 OF 5)

I. Product Identification: Dissolved Oxygen Reagent – High Range

IV. Fire, Explosion Hazard and Reactivity Data

- Can burn in fire, releasing toxic vapors.
- Toxic fumes of nitrogen oxides, carbon monoxide, carbon dioxide.
- May react violently with: strong oxidizers.

V. Health Hazard Data

- Harmful if absorbed through the skin. Effects similar to those of ingestion (target organs – kidneys, liver, blood)
- Harmful if ingested. May cause: abdominal pain, diarrhea, nausea, vomiting, muscular twitching, dizziness, stupor, thirst, ringing in ears, rapid pulse and respirations, blood pressure changes, headache cyanosis, collapse, calcium deficiency in the blood, death.
- Harmful if inhaled. May cause respiratory tract irritation, pneumonitis.
- Medical Conditions Aggravated: Allergies or sensitivity to hydroquinone. Pre-existing: eye conditions, skin conditions, respiratory conditions, central nervous diseases, kidney conditions.

VI. Precautionary Measures

- Avoid contact with eyes, skin and clothing.
- Do not breathe dust.
- Wash thoroughly after handling.
- Maintain general industrial hygiene practices when using this product.
- Protect from heat moisture.
- Keep away from oxidizers.

VII. First Aid

- Eye: immediately flush eyes with water for 15 minutes. Call a physician. Wash skin with soap and plenty of water.
Skin contact: Wash skin with soap and plenty of water. Call physician if irritation develops.
- Ingestion: Give large quantities of water. Call a physician immediately.
- Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

VIII. Spill and Disposal Procedures

Dilute material with excess water making a weaker than 5% solution. Adjust to a pH between 6 and 9 with an acid, such as sulfuric or citric. Open cold water tap completely, slowly pour the reacted material to the drain. Allow cold water to run for 5 minutes to completely flush the system. For empty containers, rinse three times with an appropriate solvent. Dispose of empty container as normal trash.

DISSOLVED OXYGEN TEST KIT (5 OF 5)

I. Product Identification: Sodium Thiosulfate Standard Solution, Stabilized, 0.0109N

IV. Fire, Explosion Hazard and Reactivity Data

- May emit toxic fumes of carbon oxides and sodium oxides in fire (hazardous decomposition).
- Avoid excessive heat, contact with oxidizers.

V. Health Hazard Data

- May be irritating to eyes and skin.
- May cause eye and skin irritation.
- Medical conditions aggravated by exposure: none reported.

VI. Precautionary Measures

- Avoid contact with eyes, skin and clothing.
- Do not breathe mist or vapor.
- Wash thoroughly after handling.
- Protective equipment: adequate ventilation, lab grade goggles, disposable gloves.

VII. First Aid

- Eye and skin contact: immediately flush eyes with water for 15 minutes. Call a physician. Wash skin with soap and plenty of water.
- Ingestion: give large quantities of water. Call physician immediately.
- Inhalation: Remove to fresh air.

VIII. Spill and Disposal Procedures

Dilute with water. Pour down the drain with excess water.