

<b>INSTRUCTIONS</b>	Supersedes: FORM 155.17-N3 (494)	694	FORM 155.17-N3
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**SERVICE INSTRUCTIONS**

A. Scope - The test kit can be used for the following:

1. Determines solution alkalinity (LiOH content).
2. Determines ammonia content of refrigerant.
3. Filters are provided for obtaining small amounts of filtered solution for subsequent lab analysis of dissolved copper.

B. Refer to ParaFlow Solution Side Maintenance Manual Form 155.00-CH1 (194) for sampling procedures.

**C. PROCEDURE FOR TESTING ALKALINITY (LiOH CONTENT)**

*NOTE: Clean all apparatus thoroughly with deionized water before and after use.*

1. Fill the 0 - 50 ml vial to the 10 ml mark with deionized water. (Replace water bottle cap with spout for best delivery).
2. Fold a circle of #610 filter paper in quarters and place in the plastic funnel. Filter a small amount of lithium bromide solution into the 125 ml flask provided. Using the calibrated 1 ml pipet, add 1.0 ml of the filtered solution to the water in the vial.
3. Add four drops of 160125, Phenolphthalein Indicator solution to the vial. Cap and swirl to mix. If the solution turns red, go to the next step. If it remains colorless, a possible acid condition is indicated. CONTACT YORK INTERNATIONAL IMMEDIATELY.
4. Add 080300-02, Hydrochloric Acid 0.25N one drop at a time, swirling after each drop, until the solution remains colorless. For best accuracy and consistency, hold the dropper bottle in a fully inverted position and squeeze lightly. Record the number of drops required.

5. Calculate the alkalinity (LiOH content) as follows:

Number of drops of acid x 0.01 = LiOH, Normality (N)

Refer to "Lithium Hydroxide Replenishment Procedure" for additional instructions (APPENDIX II).

**D. INSTRUCTIONS FOR DETERMINING AMMONIA CONTENT OF REFRIGERANT SOLUTION**

*NOTE: Lithium Bromide content of sample must be less than 5%.*

1. Using the calibrated syringe, add 0.5 cc of refrigerant to the glass color comparator tube.

*NOTE: When using the syringe, first fill past the mark desired, invert, tap out air bubbles, and then position plunger at the desired measurement before dispensing.*

2. Fill the tube with deionized water to the mark (5 ml). Cap and mix well.
3. Add 4 drops of Ammonia Nitrogen Reagent #1. Cap and mix.
4. Add 8 drops of Ammonia Nitrogen Reagent #2. Cap and mix.
5. Insert tube in the comparator block. Match color as closely as possible to a ppm standard. Use subdued light for observation.
6. The amount of refrigerant used in step 1 (0.5 cc) is equivalent to a 10:1 dilution ratio. The color standards are therefore equivalent to 10, 20, 30, 40 and 50 ppm respectively.

*NOTE: If the color remains out of range greater dilutions may be made. Follow the chart below for quick reference.*

Amount of Refrigerant Used in Step 1	Comparator Block Reading vs Actual Value ppm							
	1	2	3	4	5	6	7	8
5 cc. (NO DILUTION)	1	2	3	4	5	6	7	8
0.5 cc. (10:1)	10	20	30	40	50	60	70	80
0.25 cc. (20:1)	20	40	60	80	100	120	140	160
0.10 cc. (50:1)	50	100	150	200	250	300	350	400

## E. Replacement Parts

1 - FL1400-IN Plastic carrying case with handle & insert  
1 - INST / MSDS Instruction sheet with MSDS's  
1 - 040100-09, Deionized water, 16 oz.  
1 - 080300-02, Hydrochloric acid, 2 oz.  
1 - 160125-02, Phenolphthalein 1%, 2 oz.  
2 - 822000-EA, Vial with cap, 0 - 50 ml  
1 - 515120-125, Filter Paper #610, 12.5 cm  
1 - 109561-EA, Funnel, plastic, 75 mm

1 - 516110-EA, Flask, 125 ml  
1 - LA0354-EA, Pipet, calibrated, 1 ml  
1 - 262247-EA, Syringe, 1.0 cc  
1 - 051268-EA, Squirt bottle for DI water  
1 - LA-4796-EA, Ammonia Nitrogen Color Block  
1 - 010189-01, Ammonia Nitrogen Reagent #1, 1 oz.  
1 - 140100-01, Ammonia Nitrogen Reagent #2, 1 oz.  
2 - LA-0230-EA, Color comparator tube w/cap

## MATERIAL SAFETY DATA SHEET

### HAWK CREEK LABORATORY, INC.

RD 1 BOX 686 SIMPSON RD. • GLEN ROCK • PA • 17327  
TELEPHONE # 717-235-3849

NFPA HAZARD RATING: HEALTH - 1  
FLAMMABILITY - 0  
REACTIVITY - 0

### I • GENERAL INFORMATION

*Trade Name:* Ammonia Nitrogen Rgt. 1

*Code #:* 010189

*Chemical Name:* Potassium Sodium Tartrate in Water

*Chemical Family:* Organic Salt

### II • HAZARDOUS INGREDIENTS

#### POTASSIUM SODIUM TARTRATE

*CAS #6381-59-5* 50% W/W

*TLV/PEL:* Not Established

*TXDS:* N/A

*Carcinogenicity:* Not Listed (IARC)

### III • HEALTH HAZARD DATA

To the best of our knowledge the toxic properties have not been thoroughly investigated. Ingestion and skin absorption may be harmful. Contact may cause irritation.

#### FIRST AID:

*Eyes:* Flush with water for at least 15 min.; get immediate medical assistance.

*Skin:* Remove contaminated clothing and wash with soap and water.

*Inhalation:* Move to fresh air & give artificial respiration if breathing has stopped.

*Ingestion:* Induce vomiting if conscious.

**GET MEDICAL ASSISTANCE  
FOR ALL CASES OF OVEREXPOSURE!**

### IV • PHYSICAL DATA

*Appearance:* Colorless Solution *Odor:* None

*Vapor Density:* N/A *Specific Gravity:* N/A

*Water Solubility:* Miscible *Boiling Point:* N/A

### V • FIRE & EXPLOSION HAZARD DATA

*Flash point:* N/A

*Extinguishing Media:* Foam, CO<sub>2</sub>, Dry Chemical

*Special Procedures:* Wear self-contained breathing apparatus and protective clothing if necessary.

*Unusual Fire & Explosion Hazards:* None Indicated

### VI • REACTIVITY DATA

*Conditions to Avoid:* Extreme Heat

*Hazardous Combustion & Decomposition Products:* Na<sub>2</sub>O, CO<sub>x</sub>, K<sub>2</sub>O

### VII • SPECIAL PROTECTION

Provide adequate general and local exhaust ventilation. Protect eyes and skin with safety goggles and gloves. Do not get in eyes, on skin or clothing. Wear self-contained breathing apparatus in high vapor areas. Do not breathe vapors or mists.

### VIII • HANDLING AND STORAGE PRECAUTIONS

Keep container tightly closed. Store in cool, dry, well ventilated area. Keep away from ignition source. Wash thoroughly after handling. Empty containers may be hazardous due to retained residue.

DOT - Not Regulated

### IX • ENVIRONMENTAL PROTECTION

*Spill Response:* Absorb with sand or vermiculite and scoop up and containerize for proper disposal.

*Waste Disposal:* Comply with all local, state and federal regulations.

*The above information is to be used as a guide, and does not profess to be all inclusive. Hawk Creek Laboratory shall not be held liable for any damage resulting from the handling or contact with the above product.*

**MATERIAL SAFETY DATA SHEET****HAWK CREEK LABORATORY, INC.**RD 1 BOX 686 SIMPSON RD. • GLEN ROCK • PA • 17327  
TELEPHONE # 717-235-3849NFPA HAZARD RATING: HEALTH - 3  
FLAMMABILITY - 0  
REACTIVITY - 0**I • GENERAL INFORMATION***Trade Name:* Ammonia Nitrogen Rgt. 2 or  
Nessler Reagent*Code #:* 140100*Chemical Name:* Sodium Hydroxide / Mercuric Iodide /  
Potassium Iodide in Water*Chemical Family:* Inorganic Base & Salts in Solution**II • HAZARDOUS INGREDIENTS****SODIUM HYDROXIDE***CAS #1310-73-2* 16% W/V*TLV/PEL:* 2 mg/m3*TXDS:* orl-rbt LDLo: 500 mg/kg*Carcinogenicity:* Not Listed (IARC)**MERCURIC IODIDE***CAS #7774-29-0* 8% W/V*TLV/PEL:* .01 mg/m3 (as Hg)*TXDS:* orl-man LDLo: 357 mg/kg*Carcinogenicity:* Not Listed (IARC)**POTASSIUM IODIDE***CAS #7861-11-0* 6% W/V*TLV/PEL:* Not Established*TXDS:* orl-mus LDLo: 1862 mg/kg*Carcinogenicity:* Not Listed (IARC)**III • HEALTH HAZARD DATA**

Harmful if swallowed or inhaled. Burns eyes, skin, nasal and respiratory passages on contact. Vapor irritates eyes and respiratory passages. Severe eye hazard! Toxic by ingestion and inhalation.

**FIRST AID:**

*Eyes:* Flush with water for at least 15 min.; get immediate medical assistance.

*Skin:* Remove contaminated clothing and wash with soap and water.

*Inhalation:* Move to fresh air & give artificial respiration if breathing has stopped.

*Ingestion:* Do not induce vomiting, if conscious give water and get immediate medical attention.

**GET MEDICAL ASSISTANCE  
FOR ALL CASES OF OVEREXPOSURE!**

**IV • PHYSICAL DATA***Appearance:* Light yellow liquid *Odor:* None*Vapor Density:* N/A *Specific Gravity:* 1.20*Water Solubility:* Miscible *Boiling Point:* N/A**V • FIRE & EXPLOSION HAZARD DATA***Flash point:* Nonflammable*Extinguishing Media:* Media suitable for surrounding material*Special Procedures:* Wear self-contained breathing apparatus and protective clothing if necessary.*Unusual Fire & Explosion Hazards:* Can react with certain metals (Al, Zn, Sn) to form explosive hydrogen gas.**VI • REACTIVITY DATA***Conditions to Avoid:* Strong acids, Aluminum, Tin, Zinc, Organic Halogens & Nitro Compounds*Hazardous Combustion & Decomposition Products:* Na<sub>2</sub>O, Mercury & Iodine Compounds.**VII • SPECIAL PROTECTION**

Provide adequate general and local exhaust ventilation.

Protect eyes and skin with safety goggles and gloves.

Do not get in eyes, on skin or clothing.

Wear self-contained breathing apparatus in high vapor areas.

Do not breathe vapors or mists.

**VIII • HANDLING AND STORAGE PRECAUTIONS**

Keep container tightly closed.

Store in cool, dry, well ventilated area.

Keep away from ignition source, acids, oxidizers.

Wash thoroughly after handling.

Empty containers may be hazardous due to retained residue.

DOT - Poisonous Liquid, Corrosive, N.O.S., UN2927

**IX • ENVIRONMENTAL PROTECTION***Spill Response:* Absorb with sand or vermiculite and scoop up and containerize for proper disposal.*Waste Disposal:* Comply with all local, state and federal regulations.

\* Toxic chemical or chemicals subject to the reporting requirements of Section 313, SARA Title III.

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# MATERIAL SAFETY DATA SHEET

HAWK CREEK LABORATORY, INC.

RD 1 BOX 686 SIMPSON RD. • GLEN ROCK • PA • 17327

TELEPHONE # 717-235-3849

NFPA HAZARD RATING: HEALTH - 0  
FLAMMABILITY - 0  
REACTIVITY - 0

## I • GENERAL INFORMATION

*Trade Name:* Deionized Water

*Code #:* 040100

*Chemical Name:* Dihydrogen Oxide

*Chemical Family:* Inorganic Compound

## II • HAZARDOUS INGREDIENTS

DIHYDROGEN OXIDE, PURIFIED

*CAS #*7732-18-5

*100% W/V*

*TLV/PEL:* Not Established

*TXDS:* N/A

*Carcinogenicity:* Not listed as cancer causing (IARC)

## III • HEALTH HAZARD DATA

Over exposure can lead to excessive hydration and death by drowning.

*FIRST AID:*

*Eyes:* Dry with soft cloth or tissue.

*Skin:* Remove wet clothing and dry.

*Inhalation:* Move to fresh air & give artificial respiration if breathing has stopped.

*Ingestion:* N/A

**GET MEDICAL ASSISTANCE  
FOR ALL CASES OF OVEREXPOSURE!**

## IV • PHYSICAL DATA

*Appearance:* Clear, Colorless Liquid

*Odor:* None

*Specific Gravity:* 1.00

*Boiling Point:* N/A

*Vapor Density:* N/A

*Water Solubility:* Soluble

## V • FIRE & EXPLOSION HAZARD DATA

*Flash point:* Nonflammable

*Extinguishing Media:* Use media compatible with surrounding material.

*Special Procedures:* Wear self-contained breathing apparatus and protective clothing if necessary.

*Unusual Fire & Explosion Hazards:* None Indicated. Electrolysis can lead to explosive concentrations of hydrogen and oxygen.

## VI • REACTIVITY DATA

*Conditions to Avoid:* None Indicated.

*Hazardous Combustion & Decomposition Products:* Hydrogen & Oxygen

## VII • SPECIAL PROTECTION

Provide adequate general and local exhaust ventilation.

Protect eyes and skin with safety goggles and gloves.

Do not get in eyes, on skin or clothing.

Wear self-contained breathing apparatus in high vapor areas.

Do not breathe vapors or dust.

## VIII • HANDLING AND STORAGE PRECAUTIONS

Keep container tightly closed.

Store in cool, dry, well ventilated area.

Keep away from ignition source, acids, oxidizers.

Wash thoroughly after handling.

Empty containers may be hazardous due to retained residue.

DOT - Not Regulated

## IX • ENVIRONMENTAL PROTECTION

*Spill Response:* Mop up or flush to drain.

*Waste Disposal:* Comply with all local, state and federal regulations.

*The above information is to be used as a guide, and does not profess to be all inclusive. Hawk Creek Laboratory shall not be held liable for any damage resulting from the handling or contact with the above product.*

