



**MATERIAL SAFETY DATA SHEET: IC REACTION LIQUID**  
(PN: 638-60716-00)

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Approved by:

*Zoraly S. Sanchez*

July 9, 2010

## **SECTION 1. PRODUCT IDENTIFICATION**

Name: Phosphoric Acid/Silver Nitrate Solution

Synonym: IC Reaction Liquid

Manufacturer: Shimadzu Corporation

Catalog Number: 638-60716-00

Additional Information Contact: 800.477.1227

24 Hour Emergency Contact: 410-768-8155 (AIRPACK; 500 McCormick Dr.; Glen Burnie, MD 21061)

## **SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS**

~25% Phosphoric Acid (H<sub>3</sub>PO<sub>4</sub>) Cas #7664-38-2

~5% Silver Nitrate (AgNO<sub>3</sub>) Cas #7761-88-8

Balance Water

Hazardous Yes

## **SECTION 3. PRODUCT USE**

This product is specifically for use in the IC channel of the Shimadzu TOC 500 Total Organic Carbon Analyzer. Refer to the TOC-500 Instruction Manual for proper use. Keep tightly sealed in a cool, dry, well ventilated place. Store separate from flammable and combustible materials. Laboratory Protective Equipment: LAB COAT/APRON, FACE SHIELD, VENT HOOD, HEAVY RUBBER/LATEX GLOVES.

## **SECTION 4. PHYSICAL DATA**

Appearance: Clear, Viscose Liquid Odor: None

Melting Point: N/A Boiling Point: N/A

Density: N/A Vapor Pressure: N/A

Solubility: Completely Soluble (Water)

## **SECTION 5. HAZARDS IDENTIFICATION**

### **Phosphoric Acid:**

Health Risk: Severe

Flammability: None

Reactivity: Moderate

Contact Risk: Extreme (Corrosive)

Storage Risk: Corrosive

### **Silver Nitrate:**

Health Risk: Moderate (Continued, not constant, exposure could cause temporary incapacitation or possible residual injury)

Flammability: None

Reactivity: Stable

Contact Risk: Severe (Corrosive)

Storage Risk: Reactive and Corrosive

## **SECTION 6. TOXICITY DATA**

Rat/Mouse Ld50: N/A

Rtecs#: N/A

## **SECTION 7. HEALTH HAZARD DATA**

Inhalation: Inhalation is not an expected hazard unless misted or heated to high temperatures. Mist or vapor inhalation can cause irritation to the nose, throat, and upper respiratory tract. Severe exposures can lead to a chemical pneumonitis.

Ingestion: Corrosive. May cause sore throat, abdominal pain, nausea, and severe burns of the mouth, throat, and stomach. Severe exposures can lead to shock, circulatory collapse, and death.

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Skin Contact: Corrosive. May cause redness, pain, and severe skin burns.  
Eye Contact: Corrosive. May cause redness, pain, blurred vision, eye burns, and permanent eye damage.  
Existing Cond.: Persons with pre-existing skin disorders or eye problems, or impaired respiratory function may be more susceptible to the effects of the substance.

### **SECTION 8. FIRST-AID MEASURES**

Inhalation: Remove to fresh air, give oxygen. If not breathing, give artificial respiration. **GET IMMEDIATE MEDICAL ATTENTION.**

Ingestion: If swallowed, **DO NOT INDUCE VOMITING.** Give large quantities of salted water. Never give anything by mouth to an unconscious person. **GET IMMEDIATE MEDICAL ATTENTION.**

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. **GET IMMEDIATE MEDICAL ATTENTION.** Wash clothing before reuse.

Eye Contact: Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. **GET IMMEDIATE MEDICAL ATTENTION.**

### **SECTION 9. FIRE FIGHTING MEASURES**

Fire: Not considered a fire hazard. Contact with most metals causes formation of flammable and explosive hydrogen gas.

Explosion: Not considered to be an explosion hazard.

Extinguishing: Use any means suitable for extinguishing surrounding fire. Water spray may be used to keep fire exposed containers cool. If water is used, use in abundance to control heat and acid build-up.

### **SECTION 10. ACCIDENTAL RELEASE MEASURES**

Ventilate area of leak or spill. Wear appropriate personal protective equipment. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Neutralize with alkaline material (soda ash, lime), then absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! Disposal of even small quantities of silver nitrate into waste systems (especially those connected to a septic tank) is guaranteed to destroy the bacteria employed to break down the waste. Replenishment/replacement of the bio-mass is required.

**Special Note:** US Regulations (CERCLA) require reporting spills/releases of phosphoric acid to soil, water and air in excess of reportable quantities. US Coast Guard National Response Center: (800) 424-8802

### **SECTION 11. STABILITY AND REACTIVITY**

Stability: Stable under ordinary conditions of use and storage.

Incompatibles: **Phosphoric Acid**—Liberates explosive hydrogen gas when reacting with chlorides and stainless steel. Can react violently with sodium tetrahydroborate. Exothermic reactions with aldehydes, amines, amides, alcohols and glycols, azo-compounds, carbamates, esters, caustics, phenols and cresols, ketones, organophosphates, epoxides, explosives, combustible materials, unsaturated halides, and organic peroxides. Forms flammable gases with sulfides, mercaptans, cyanides and aldehydes. Forms toxic fumes with cyanides, sulfide, fluorides, organic peroxides, and halogenated organics. Mixtures with nitromethane are explosive.

**Silver Nitrate**—Ammonia—will form an explosive when dry

Hazardous Decomposition Products: Phosphorus oxides and oxides of nitrogen may form when heated to decomposition.

Hazardous Polymerization: Will not occur.

### **SECTION 12. DISPOSAL**

Dispose of container and unused contents in accordance with Federal, State, and Local requirements. State and Local disposal regulations may differ from Federal regulations and can be more stringent, but will never be less strict.

### **SECTION 13. OTHER INFORMATION**

The information provided above is believed to be correct, but does not purport to be all inclusive and it must serve only as a guide. Shimadzu shall not be held liable for any damage resulting from handling or contact with the above product. Users should make their own determinations regarding the suitability of this information for their particular purposes