

Passivation of Laboratory Equipment for Hydrogen Peroxide Service

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Technical Data Sheet

Principle

Peroxygens are destabilized by the presence of trace contaminants, such as metal ions. This contamination affects both the long-term stability of peroxygens and the efficiency of peroxygens in various applications. In this passivation procedure, the surface is degreased with detergent, rinsed, treated with nitric acid to remove metals and oxidize the surface, and finally rinsed to remove all residues.

This method is suitable for the passivation of laboratory equipment that will come in contact with peroxygens. It is most applicable to glass containers used to hold mixtures containing peroxygens or substances that will come in contact with mixtures containing peroxygens.

Reagents

1. **Nitric Acid** - Add one part by volume of concentrated (70%) nitric acid to one part by volume of demineralized water (or water of equivalent purity).

Caution - Safety goggles must be worn when using this method.

Caution - Always add acid to water, never the reverse.

2. **Detergent** - any common detergent for cleaning glassware.
3. **Demineralized water** or water of equivalent purity.

Procedure

1. Wash the inside of the container with detergent.
2. Rinse the detergent residues from the container thoroughly with demineralized water.
3. Store 1:1 nitric acid in the container for at least 24 hours at ambient temperature.
4. Just prior to using the container, remove the 1:1 nitric acid solution and thoroughly rinse away all residues with demineralized water.



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Storage and Handling

- Store hydrogen peroxide in the original vented container, upright, in a cool, ventilated area where it is protected from damage, or in bulk storage tanks made from approved alloys of aluminum or stainless steel.
- Do not store other chemicals, fuels, or combustible materials near hydrogen peroxide.
- Never return unused hydrogen peroxide to the storage container.
- When empty, rinse all peroxide containers thoroughly with clean water before discarding.
- Use only approved material for pumps, piping, and hoses.

Safety

- Persons working with hydrogen peroxide should be familiar with personal protective equipment, first aid measures and the proper safety and handling procedures. Consult the Material Safety Data Sheet (MSDS) for appropriate information.
- Prevent accidental decomposition by keeping the product free of contaminants.
- Prevent fires by avoiding accidental spills. Water is the preferred method for extinguishing fires in which hydrogen peroxide is present.
- Spills and leaks should be contained, diluted with copious amounts of water and disposed of in compliance with local regulations.
- Hydrogen peroxide storage or handling areas should be equipped with a safety shower, an eyewash station, and a water hose.

First Aid

In case of product splashing into the eyes and face, treat eyes first.

- **Eye contact:** Flush eyes immediately with water for at least 15 minutes. Call a physician.
- **Skin contact:** Immediately flush skin with water while removing contaminated clothing and shoes. Call a physician if irritation persists.
- **Inhalation:** Remove the victim from the contaminated area to fresh air. Call a physician in case of respiratory symptoms.
- **Ingestion:** Consult with a physician immediately in all cases. DO NOT induce vomiting. If victim is conscious, rinse mouth and give fresh water.

Danger: Hydrogen Peroxide solutions are strong oxidizers and corrosive to the eyes, mucous membranes and skin. Consult the MSDS for the appropriate Personal Protective Equipment to wear when handling hydrogen peroxide. In case of contact with the eyes, skin or clothing, flush with large amounts of water for 15 minutes. In case of ingestion, sit upright, drink large quantities of water to dilute the stomach contents and seek immediate medical attention. Product in contact with combustible materials may cause fires.

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Before using, read Material Safety Data Sheet (MSDS) for this chemical.

Solvay Chemicals, Inc.

24 hour Emergency Phone Number - 1-800-424-9300 (CHEMTREC®)

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