

KENDALL AND SON LTD.

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MATERIAL SAFETY DATA SHEET

MANUFACTURED FOR: K & K Chemical Co.
TELEPHONE NO.: (800) 327-0646
ADDRESS: 1303 Industrial Drive, Royse City, TX 75189

PRODUCT: RESTORE™
PART NUMBER: K-691

MSDS Prepared By: J. Austin Maglothin, Ph.D.
Revision Date: April 13, 2010

SECTION 1 - GENERAL

Chemical Name & Synonym	Not Applicable
Trade Name	RESTORE™
Chemical Family	Inorganic peroxide, aqueous solution
DOT Basic Description	Oxidizing liquid, corrosive, n.o.s.(hydrogen peroxide), 5.1, UN3098, II
Formula	Proprietary

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredient Name	CAS Registry Number
Hydrogen peroxide	7722-84-1

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview

Water white liquid with slightly sharp odor.

DANGER!

CAUSES EYE BURNS. MAY CAUSE BLINDNESS.

CAUSES SKIN BURNS.

CAUSES RESPIRATORY TRACT BURNS.

HARMFUL IF SWALLOWED.

STRONG OXIDIZER.

CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE OR EXPLOSIVE DECOMPOSITION.

Potential Health Effects

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Based on single exposure animal tests, it is considered to be moderately toxic if swallowed, practically non-toxic if absorbed through skin, slightly toxic if inhaled, and corrosive to eyes and skin. Inhalation of high concentrations of vapor or mist may cause severe irritation of the eyes, nose and upper respiratory tract with cough, chest discomfort and, in severe cases, pulmonary edema (accumulation of fluid in the lungs). Skin contact with concentrated liquid for a short period of time may cause a temporary whitening or bleaching of the skin. Prolonged or repeated contact with skin may cause severe irritation or burns characterized by a tingling sensation, redness, swelling and possible destruction of the dermis with ulceration. If swallowed, this material may cause irritation, burns or perforation of the gastrointestinal tract including the stomach and intestines. Symptoms of injury may include nausea, vomiting, diarrhea, abdominal pain, bleeding or tissue ulceration.

SECTION 4 - FIRST AID MEASURES

IF IN EYES, immediately flush with plenty of water for at least 15 minutes. Get medical attention.

IF ON SKIN, immediately flush with plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Destroy contaminated shoes.

IF SWALLOWED, do NOT induce vomiting. Give water to drink. Get medical attention immediately. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

IF INHALED, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

SECTION 5 - FIRE FIGHTING MEASURES

Fire and Explosive Properties

Auto-Ignition Temperature	NA
Flash Point	None
Flammable Limits- Upper	NA
Lower	NA

Extinguishing Media

Use water spray, water fog.

Fire Fighting Instructions

Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Stop the leak, if possible. Ventilate the space involved. Flush with plenty of water. Combustible materials exposed to hydrogen peroxide should be rinsed immediately with large amounts of water to ensure that all the hydrogen peroxide is removed. Residual hydrogen peroxide which is allowed to dry on organic materials such as paper, fabrics, cotton, leather, wood, or other combustibles can cause the material to ignite and result in a fire.

Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

SECTION 7 - HANDLING AND STORAGE

Handling

Do not get in eyes, on skin or on clothing. Do not breathe mist. Do not taste or swallow. Wash thoroughly after handling. Use only with adequate

ventilation. Avoid contamination. Keep container closed.

Storage

Store separate from acids, alkalies, reducing agents, combustibles.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Investigate engineering techniques to reduce exposures below airborne exposure limits. Provide ventilation if necessary to control exposure levels below airborne exposure limits (see below). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

Eye / Face Protection

Where there is potential for eye contact, wear a face shield, chemical goggles, and have eye flushing equipment immediately available.

Skin Protection

Neoprene, polyvinyl chloride, or butyl rubber gloves should be worn when handling this material. Wear chemical goggles, a face shield, and chemical resistant clothing such as a rubber apron when splashing may occur. Rinse immediately if skin is contaminated. Remove contaminated clothing promptly and wash before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash skin thoroughly after handling.

Respiratory Protection

Avoid breathing vapor or mist. When airborne exposure limits are exceeded (see below), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR 1910.134.

Other Protective Equipment

Rubber boots with neoprene or PVC soles. Do NOT wear leather boots. Note:

As the water content of hydrogen peroxide evaporates, cotton, rayon, and wool fibers are particularly subject to spontaneous combustion. Where there is significant risk of sudden splash or spray, it is advised that an apron or rubber suit be worn. Any contaminated clothing, including gloves, shoes, aprons, coveralls, etc., should be removed immediately and thoroughly flushed with water to eliminate any traces of hydrogen peroxide before cleaning and reuse.

Airborne Exposure Guidelines for Hydrogen Peroxide

Exposure Limit	Value
ACGIH TWA -	1 ppm 1.4 mg/m ³
OSHA TWA PEL -	1 ppm 1.4 mg/m ³

Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Odor	Water white liquid with slightly sharp odor.
pH	NE
Specific Gravity	1.13 @ 20 C
Vapor Pressure	24 @ 20 C
Vapor Density	1.0
Melting Point	NE
Freezing Point	-33 C (-27 F)
Boiling Point	108 C (226 F)
Solubility In Water	Complete
Percent Volatile	100%
Molecular Weight	34.01

SECTION 10 - STABILITY AND REACTIVITY

Stability

This material is chemically stable under normal and anticipated storage and handling conditions.

Incompatibility

Material decomposes with the potential to produce a rupture of unvented closed containers. Contact with metals, metal ions, organics, wood, dust, shavings, dry vegetables may cause decomposition.

Hazardous Decomposition Products

This material decomposes if contaminated, causing fire and possible explosions. Oxygen can be liberated at temperatures above ambient.

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicological Information

Single exposure (acute) studies indicate that this material is moderately toxic if swallowed (rat LD50 805 mg/kg; 70% solution), practically non-toxic if absorbed through skin (rabbit LD50 >6,500 mg/kg; 70% solution), slightly toxic if inhaled (no mortality in rats at 170 mg/m³ for 4 hours), and corrosive to rabbit eyes and skin. No skin allergy was observed in guinea pigs following repeated exposure. Solutions are commonly used for disinfecting wounds, bleaching hair or as a mouth wash and generally do not show adverse skin reactions. Accidental ingestion by children has resulted in death from lung edema, stomach erosions and gas distention and burns to the throat and esophagus. Eye and throat irritation and bleaching of hair have been reported by workers exposed to this material in the atmosphere.

Several studies have been conducted by administering material in the drinking water of mice and rats. The primary findings were irritation of the gastric mucous. Repeated inhalation exposure of rats and mice caused nasal irritation without notable adverse effects on the lining of the upper respiratory system. Repeated inhalation exposure of dogs resulted in upper respiratory tract irritation and emphysematous changes in the lungs. Generally, long-term oral dosing caused no adverse effects other than erosion of the stomach lining from direct application of the test material. Several studies have shown an increase in gastrointestinal tract tumors in mice and rats following long-term exposure in the drinking water. Concentrations less than 11% do not promote gastrointestinal tumors. The U.S. Federal Drug Administration has concluded that there is insufficient evidence of carcinogenicity and the International Agency for Research on Cancer (IARC) has concluded that this chemical is not classifiable as to its carcinogenicity to humans (Group 3). Genetic changes were observed in tests using bacteria and animal cells, but not in animals.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicological Information

This material is highly toxic to marine algae (LC50 0.85 mg/l), moderately toxic to Daphnia magna (EC50 7.7 mg/l) and Daphnia pulex (LC50 2.4 mg/l). It is slightly toxic to coho salmon (LC50 10 mg/l), channel catfish (LC50 37.4 mg/l), golden orfe (LC50 35 mg/l), fathead minnow (LC50 16.4 mg/l), snail (LC50 17.7 mg/l) and bacteria (EC50 30 mg/l).

Chemical Fate Information

No data are available.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal

Consult with environmental engineer or professional to determine if neutralization is appropriate and for handling procedures for residual

materials. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

SECTION 14 - TRANSPORT INFORMATION

DOT Name Oxidizing liquid, corrosive, n.o.s.
DOT Technical Name Hydrogen peroxide
DOT Hazard Class 5.1
UN Number UN 3098
DOT Packing Group PG II
RQ
DOT Special Information Subsidiary (8)
Non-Bulk packages must have Class 5.1 and Class 8 labels.
Bulk packages require Class 5.1 Oxidizer placards.

SECTION 15 - REGULATORY INFORMATION

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370)
Immediate (Acute) Health Y Fire Y
Delayed (Chronic) Health N Reactive Y
Sudden Release of Pressure N

The components of this product are all on the TSCA Inventory list.

Ingredient Related Regulatory Information:
SARA Reportable Quantities CERCLA RQ SARA TPQ
Hydrogen peroxide NE 1000 LBS
Water NE

SARA Title III, Section 302
This product does contain chemical(s), as indicated below, currently on the Extremely Hazardous Substance List, Section 302, SARA Title III. See Section 2 for further details regarding concentrations and registry numbers.
Hydrogen peroxide

Massachusetts Right to Know
This product does contain the following chemical(s), as indicated below, currently on the Massachusetts Right to Know Substance List.
Hydrogen peroxide

New Jersey Right to Know
This product does contain the following chemical(s), as indicated below, currently on the New Jersey Right-to-Know Substances List.
Hydrogen peroxide

Pennsylvania Environmental Hazard
This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Environmental Hazard List.
Hydrogen peroxide

Pennsylvania Right to Know
This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Hazardous Substance List.
Hydrogen peroxide

SECTION 16 - OTHER INFORMATION

Key
NE= Not Established NA= Not Applicable (R) = Registered Trademark

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