SECTION 1 - IDENTIFICATION

SDS REVISION #: 002

PRODUCT IDENTIFIER USED ON THE LABEL:	Hydrogen Peroxide (31%)
OTHER MEANS OF IDENTIFICATION:	Not known
CHEMICAL FORMULA:	H_2O_2

RECOMMENDED USE OF THE CHEMICAL AND RESTRICTIONS ON USE:

RELEVANT USES:	Industrial use - electronics manufacturing, bleaching agent, water treatment, odor treatment, oxidizing agent
RESTRICTONS OF USE:	Uses other than described above.

NAME, ADDRESS AND TELEPHONE NUMBER OF THE CHEMICAL MANUFACTURER, IMPORTER, OR OTHER RESPONSIBLE PARTY:

MANUFACTURED BY:

COMPANY NAME:	MGC Pure Chemicals America, Inc.
COMPANY ADDRESS:	6560 South Mountain Road Mesa, AZ 85212-9716
COMPANY PHONE:	Inquiries - (480) 987-9100
EMERGENCY PHONE NUMBER:	Transportation Emergencies U.S. (800) 424-9300 (Chemtrec) Maritime (703) 527-3887 (Chemtrec)

SECTION 2 - HAZARD(S) IDENTIFICATION

CLASSIFICATION OF THE CHEMICAL IN ACCORDANCE WITH PARAGRAPH (d) OF §1910.1200;

GHS CLASSIFICATION:

Acute Toxicity, Oral, Category 4
Serious eye damage, Category 1

SIGNAL WORD:

DANGER!

SECTION 2 - HAZARD(S) IDENTIFICATION (continued)

HAZARD STATEMENTS:

Harmful if swallowed
Causes serious eye damage.

PRECAUTIONARY STATEMENTS:

Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear eye protection/face protection.
If swallowed: Call a poison center/doctor/…/ if you feel unwell.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a poison center/doctor
Rinse mouth
Dispose of contents/container to a suitable disposal site in accordance with local/regional/national/international regulations.

HAZARDS NOT OTHERWISE CLASSIFIED:

None known.

PERCENTAGE OF INGREDIENT(S) OF UNKNOWN ACUTE TOXICITY:

Not applicable

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	**%**	**CAS No.**
Hydrogen Peroxide	31%	7722-84-1

SECTION 4 - FIRST-AID MEASURES

DESCRIPTION OF NECESSARY MEASURES, SUBDIVIDED ACCORDING TO THE DIFFERENT ROUTES OF EXPOSURE, I.E., INHALATION, SKIN AND EYE CONTACT, AND INGESTION:

IF INHALED:

If affected, move to fresh air. If breathing has stopped, give artificial respiration and call a physician.

SECTION 4 - FIRST-AID MEASURES (continued)

IN CASE OF SKIN CONTACT:

Flush with large amounts of water. If irritation persists, or open sores develop, contact a physician. Remove contaminated clothing and launder before re-use.

IN CASE OF EYE CONTACT:

Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Get immediate medical attention. Do not use chemical antidote.

IF SWALLOWED:

Immediately drink two large glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Contact a physician.

MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED:

This material causes serious eye damage. If inhaled, it may cause irritation to the respiratory tract. Contact may result in the bleaching of skin and hair. Harmful if swallowed.

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:

This product may exhibit oxidizing properties. Direct contact with the eye is likely to cause corneal damage especially if not washed immediately. Careful ophthalmologic evaluation is recommended, and the possibility of local corticosteroid therapy should be considered. Because of the likelihood of corrosive effects on the gastrointestinal tract after ingestion, and the unlikelihood of systemic effects, attempts at evacuating the stomach via emesis induction or gastric lavage should be avoided. There is a remote possibility, however, that a nasogastric or orogastric tube may be required for the reduction of severe distension due to gas formation. Pulmonary oedema may be delayed for 24-72 hours after inhalation of excessive amounts.

SECTION 5 - FIRE-FIGHTING MEASURES

SUITABLE (AND UNSUITABLE) EXTINGUISHING MEDIA:

SUITABLE EXTINGUISHING MEDIA:

Use media appropriate for other materials involved in the fire. Dilute with large amounts of water, if safe to do so, to reduce the potential for re-ignition.

UNSUITABLE EXTINGUISHING MEDIA:

Do not use organic materials which may react with the product.

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL (E.G., NATURE OF ANY HAZARDOUS COMBUSTION PRODUCTS):

This material is an oxidizer when present above 50%. Although this product will not burn, it releases large quantities of oxygen, which can intensify a fire. Contact between this product and organic liquids or vapors may result in fire or explosion.

SECTION 5 - FIRE-FIGHTING MEASURES (continued)

Hazardous combustion products may include the following substances:
Oxygen and Steam.

SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE-FIGHTERS:

Wear self-contained breathing apparatus and protective clothing. Use water spray to keep fire-exposed containers cool. Fight fire from a protected location. Wear self-contained breathing apparatus and protective clothing. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8). Equipment should be decontaminated after use.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:

No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering.

Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP:

Dike area of spill with sand or dirt to prevent spreading and prevent contact with organic materials. Pump liquid to a salvage tank for treatment and disposal. Dilute remaining liquid to 5-10% hydrogen peroxide and neutralize with sodium metabisulphite or sodium sulphite. Remaining liquid may be absorbed on vermiculite or other non-combustible material and shoveled into containers.

Caution: material absorbed on absorbent may continue liberating oxygen. Do not seal containers. Do not store containers near combustible materials.

Recommended measures are based on the most likely spillage scenarios for this material, however local conditions and regulations may influence or limit the choice of appropriate actions to be taken. See Section 13 for information on appropriate disposal.

SECTION 7 - HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING:

Use caution when handling this material; product may react explosively with organic liquids or vapors. Avoid contact with flammable or combustible materials. Avoid contamination from any source including metals, dust and organic materials. Do not return used or unused peroxide to original container; dispose of in accordance with Section 13 - Disposal Considerations. This

SECTION 7 - HANDLING AND STORAGE

product is an oxidizer, which may liberate oxygen and promote combustion of flammable materials. Avoid concentrating hydrogen peroxide by removal of water. Drying of product on combustible material may cause fire or explosion. Avoid contact with skin, eyes and clothing. Avoid inhalation of vapors. Wash thoroughly after handling.

PRECAUTIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBLES:

Store only in vented containers. Store in a cool, dry, well-ventilated area, away from flammable or combustible materials. Have a source of water available near the storage area. Check storage area periodically for bulging containers. For shelf life limitations and recommendations – contact supplier.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

OSHA PERMISSIBLE EXPOSURE LIMIT (PEL), AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH) THRESHOLD LIMIT VALUE (TLV), AND ANY OTHER EXPOSURE LIMIT USED OR RECOMMENDED BY THE CHEMICAL MANUFACTURER, IMPORTER, OR EMPLOYER PREPARING THE SAFETY DATA SHEET, WHERE AVAILABLE.

EXPOSURE GUIDELINES:

Hydrogen Peroxide	OSHA PEL (air contaminants) 1.4 mg/m^3, 1 ppm ACGIH TWA 1 ppm NIOSH TWA 1.4 mg/m^3, 1 ppm

APPROPRIATE ENGINEERING CONTROLS:

Good general ventilation (typically 10 air changes per hour indoors) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION (continued)

INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT:

EYE / FACE PROTECTION:

Chemical splash and full face-shield made of polycarbonate, acetate, polycarbonate/acetate, PETG or thermoplastic, are advised. Use equipment for eye protection tested and approved under appropriate government standards.

SKIN AND HAND PROTECTION:

For hand protection, wear approved gloves made of nitrile, PVC, or neoprene. DO NOT use cotton, wool or leather, as these materials react RAPIDLY with higher concentrations of hydrogen peroxide.

Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Always observe good personal hygiene measures, such as washing after handling the material. The selected protective gloves have to satisfy the specifications of ASTM F739.

RESPIRATORY PROTECTION:

If engineering controls do not keep airborne concentrations below established exposure limits or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Do not use an air-purifying respirator. Where risk assessment shows respirators are appropriate use a full-face respirator with multi-purpose combination or type ABEK-P2 respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH / MSHA.

GENERAL HYGIENE CONSIDERATIONS:

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Wash hands after use.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.):
Physical state: Clear, colorless liquid @ 77 °F (25 °C)
Color: Colorless
Odor: Slightly pungent, irritating
Odor Threshold: Not determined
pH: 3 - 4
Melting point/freezing point:
Melting point: Not determined
Freezing Point: -15 °F (-26 °C)
Initial Boiling Point: 223 °F (106 °C) @ 760 mm Hg
and boiling range
Flash Point: None – closed cup
Evaporation Rate: Slower (Ethyl Ether = 1)
Flammability (solid, gas): Not applicable.

Upper/lower flammability or explosive limits:
Upper Explosion Limit: Not determined
Lower Explosion Limit: Not determined
Vapor Pressure 22 @ 86 °F (30 °C)
Vapor Density (Air = 1): Not determined
Relative density (H_2O=1): ~1.11@ 68°F (20 °C)
Solubility(ies) in Water: Complete (in water)
Partition coefficient (n-octanol/water): Not determined
Autoignition Temperature: Not combustible
Decomposition temperature: Not determined
Viscosity: Not determined

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY:

Contact with organic substances may cause fire or explosion. Contact with metals, metallic ions, alkalis, reducing agents and organic matter (such as alcohols or terpenes) may produce self-accelerated thermal decomposition.

CHEMICAL STABILITY:

Stable under normal conditions; however, heat or contamination may result in decomposition, which may be violent.

POSSIBILITY OF HAZARDOUS REACTIONS:

Reacts with combustible materials or organic materials, releasing heat and oxygen. Contact with metals, metallic ions, alkalis, reducing agents and organic matter (such as alcohols or terpenes) may produce self-accelerated thermal decomposition.

CONDITIONS TO AVOID:

Heat or contamination may result in decomposition, which may be violent.

INCOMPATIBILE MATERIALS:

Avoid contact with combustible materials, copper alloys, galvanized iron, strong reducing agents, heavy metals, iron, copper alloys. Contact with metals, metallic ions, alkalis, reducing agents and organic matter (such as alcohols or terpenes) may produce self-accelerated thermal decomposition.

SECTION 10 - STABILITY AND REACTIVITY (continued)

HAZARDOUS DECOMPOSITION PRODUCTS:

Decomposition releases large quantities of oxygen and steam, which may cause containers to rupture and intensify a fire.

SECTION 11 - TOXICOLOGICAL INFORMATION

INFORMATION ON LIKELY ROUTES OF EXPOSURE:

Skin, Eyes, Ingestion, Inhalation.

SYMPTOMS RELATED TO THE PHYSICAL, CHEMICAL, AND TOXICOLOGICAL CHARACTERISTICS:

Eyes: Causes serious eye damage
Skin: May cause skin irritation.
Inhalation: If inhaled, it may cause irritation to the respiratory tract
Ingestion: Harmful if swallowed

DELAYED AND IMMEDIATE EFFECTS AND CHRONIC EFFECTS FROM SHORT OR LONG-TERM EXPOSURE:

Immediate: Causes severe eye burns
Delayed: None known
Chronic: Inhalation may cause respiratory irritation

NUMERICAL MEASURES OF TOXICITY (SUCH AS ACUTE TOXICITY ESTIMATES):

Acute oral LD_{50} (rat) 1518 mg/kg (9.6% H_2O_2)
1193 mg/kg (35% H_2O_2)

Acute dermal LD_{50} (rabbit) > 2000 mg/kg (35% H_2O_2)

Acute Inhalation LD_{50} (rat) > 2000 mg/kg (90% H_2O_2)

ACUTE TOXICITY

Acute oral LD_{50} (rat) 1518 mg/kg (9.6% H_2O_2)
1193 mg/kg (35% H_2O_2)

Acute dermal LD_{50} (rabbit) > 2000 mg/kg (35% H_2O_2)

Acute Inhalation LD_{50} (rat) > 2000 mg/kg (90% H_2O_2)

SKIN CORROSIVE/ IRRITATION

May cause skin irritation.

SECTION 11 - TOXICOLOGICAL INFORMATION (continued)

SERIOUS EYE DAMAGE/EYE IRRITATION

Can cause serious eye damage

RESPIRATORY ORGANS SENSITIZATION

Inhalation of particles may cause respiratory irritation

SKIN SENSITIZATION

Not a skin sensitizer

GERM CELL MUTAGENICITY

This product is not classified as a mutagen.
Weak mutagenicity-inducing property to salmonella and typhimurium bacteria.

CARCINOGENICITY

This product is not classified as a carcinogen.
Mice were administered water containing 0.1 and 0.4% H_2O_2 for a period of 740 days. Some mice have developed duodenal cancer. FDA and other organizations have reviewed this study and concluded that there is insufficient evidence that hydrogen peroxide is carcinogenic. Rats were administered water containing 0.3 and 0.6% H_2O_2 for a period of 78 weeks. No carcinogenic effects were noted.
The International Agency for Research on Cancer (IARC) has concluded that there is inadequate evidence for carcinogenicity of hydrogen peroxide in humans, but limited evidence in experimental animals (Group 3 - not classifiable as to its carcinogenicity to humans). The American Conference of Governmental Industrial Hygienists (ACGIH) has concluded that hydrogen peroxide is a 'Confirmed Animal Carcinogen with unknown Relevance to Humans' (A3).

REPRODUCTIVE TOXICITY

This product is not anticipated to cause reproductive toxicity.
Female rats treated with 10% H_2O_2 produced offspring of lower body weight and some structural abnormalities. These changes were attributed to maternal toxicity. Other limited animal studies demonstrate no reproductive toxicity.

SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE

This material is not expected to cause damage to organs from a single exposure.

SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE

This product is not expected to cause specific target organ toxicity after repeated exposure.

ASPIRATION HAZARD

This product is not anticipated to be an aspiration hazard if swallowed.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY (AQUATIC AND TERRESTRIAL, WHERE AVAILABLE):

Aquatic toxicity (saltwater)
24-hr. LC50 (Rabbit fish) - 224 mg/L
24-hr. LC50 (Striped triple-tooth goby) - 155 mg/L
24-hr. LC50 (Yellowfin horse mackerel) - 89 mg/L

Aquatic toxicity (fresh water)
48-hr. LC50 (Carp) - 41 mg/L
96-hr. LC50 (Catfish) - 37.4 mg/L

Algal toxicity
72-96 hr. EC50 (various species) – 3.7-160 mg/L (fresh water)
72-96 hr. EC50 (Nitzchia closterium) – 0.87 mg/L (salt water))

PERSISTENCE AND DEGRADABILITY

Hydrogen peroxide in the aquatic environment is subject to various reduction or oxidation processes and decomposes into water and oxygen. Hydrogen peroxide half-life in freshwater ranged from 8 hours to 20 days, in air from 10 - 20 hours, and in soils from minutes to hours depending upon microbiological activity and metal contamination.

BIOACCUMULATIVE POTENTIAL

Not bioaccumulative

MOBILITY IN SOIL

Will likely be mobile in the environment due to its water solubility

OTHER ADVERSE EFFECTS (SUCH AS HAZARDOUS TO THE OZONE LAYER)

Not known.

SECTION 13 - DISPOSAL CONSIDERATIONS

DESCRIPTION OF WASTE RESIDUES AND INFORMATION ON THEIR SAFE HANDLING AND METHODS OF DISPOSAL, INCLUDING THE DISPOSAL OF ANY CONTAMINATED PACKAGING.

Dispose of in accordance with all applicable local, state and federal regulations. Material should be sent to a registered hazardous waste treatment facility for disposal. Hydrogen peroxide should be treated by diluting to a concentration of 5- 10%, then reacting with a reducing agent such as sodium sulphite or sodium metabisulphite.

SECTION 13 - DISPOSAL CONSIDERATIONS (continued)

Contaminated packaging may contain traces of the product and therefore should be disposed of in the same way as product.

SECTION 14 - TRANSPORT INFORMATION

U.S. DOT, TDG (CANADIAN), IMO (WATER) AND ICAO (AIR) TRANSPORT INFORMATION:

UN 2014, HYDROGEN PEROXIDE, AQUEOUS SOLUTIONS (20-40%), 5.1 (8), II

SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:

All components in this product are in compliance with TSCA Inventory requirements or exempt from reporting.

CEPA:

All components in this product are included on the Canadian Domestic Substances List (DSL) or exempt from reporting.

SARA:

SARA 313 INFORMATION:

SARA requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372. This information must be included in all MSDS that are copied and distributed for this material.

Components present in this product at a level that could require reporting under the statute are: HYDROGEN PEROXIDE

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: MARCH 21 2020
REASON FOR REVISION: Reviewed and updated.

END OF REPORT