1. Product and Company Identifaction

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Product Name	: Sodium Chlorite Solution 31%
Part Number	: RXSOL-19-1977-040

Company Details:
RX MARINE INTERNATIONAL
105, A wing , BSEL , TECH PARK.
VASHI ,NEW BOMBAY 400703 INDIA

Branch : Kandla, Mumbai , Chennai, Vizag, Kolkata, UAE , OMAN and CANADA

Phone	+91 22 20871200 - 1400
Fax	+91 22 2761 2100 :::AOH :0091 9821214367
Email	123@rxmarine.com
Website	www.rxmarine.com

2. Composition / Information on ingredients

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Name of Substance	Cas Number	Wt.%	Symbol
Sodium Chlorite	7758-19-2	31.00 %	Xi
Sodium Hydroxide	1310-73-2	0.5-1.0 %	C
Sodium Carbonate	497-19-8	0.5-1.0 %	Xn
Non Hazardous Compound	Proprietory	60 - 70%	---

3. Hazards Identification

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Signal Word	Danger
Hazard Statements	H302 Harmful if swallowed. H311 Toxic in contact with skin. H314 Causes severe skin burns and eye damage. H373 May cause damage to organs through prolonged or repeated exposure. H400 Very toxic to aquatic life. H412 Harmful to aquatic life with long lasting effects. EUH032 Contact with acids liberates very toxic gas.
Precautionary statements - prevention	P260 Do not breathe vapour/spray. P273 Avoid release to the environment. P280 Wear protective gloves/protective clothing/eye protection/face protection
Precautionary statements - response	P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor. P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P391 Collect spillage. P405 Store locked up.

P501 Dispose of contents/container in accordance with national regulations.

4. First Aid Measures

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Eye Contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Get immediate medical attention.
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation persists.
Inhalation:	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Ingestion:	If swallowed, call a poison control center or doctor immediately. Do NOT induce vomiting. If conscious, drink plenty of water.
General Advice	Chlorine dioxide vapors are emitted when this product contacts acids or chlorine. If these vapors are inhaled, monitor patient closely for delayed development of pulmonary edema which may occur up to 48-72 hours post inhalation. See Section 11 for Toxicological Information

5. Fire-fighting Measures

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Flamibility / Flash point	Not Applicable
Suitable extinguishing media	Extinguish with carbon dioxide, dry chemical, foam or waterspray.
Protective Equipment	Use personal protective equipment.
Hazardous combustion products	Disodium oxide. Hydrogen chloride. Oxygen. Contact with acids, organic materials, reducing agents or chlorine donors will produce chlorine dioxide gas and heat. Ventilate area with large amounts of air to keep the chlorine dioxide concentration low.
Advice for firefighters	As in any fire, wear self-contained breathing apparatus and full protective gear.
Specific extinguishing methods	Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Use flooding quantities of water as fog or spray. This product becomes a fire or explosion hazard if allowed to dry, so use water spray to keep fire-exposed containers cool. Extinguish fire using agent suitable for surrounding fire. Firefighters should wear full protective clothing (chemically impermeable, full encapsulated suit) and positive pressure self-contained breathing apparatus.

6. Accidental Release Measures

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Personal precautions, protective equipment and emergency procedures	Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS. DO NOT USE RAGS, SAWDUST OR OTHER COMBUSTIBLE ABSORBENTS.
Enviromental Precaution	Avoid release to the environment. Avoid discharge into drains, water courses or onto the ground. Contact local authorities in case of spillage to drain/aquatic environment.
Methods and materials for containment and cleaning up	Isolate spill area and deny entry to unnecessary or unprotected personnel. Remove all sources of ignition, such as flames, hot glowing surfaces or electric arcs. Stop source of spill as soon as possible and notify

appropriate personnel. Cleanup personnel must wear proper protective equipment (refer to Section 8). Notify all downstream water users of possible contamination.

7. Handling and Storage

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Advice on safe handling	Use only in a well-ventilated area. Wear chemically resistant protective equipment during handling. Do not breathe mist or vapor. Do not taste or swallow. Keep away from heat. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not let the product dry. When using, do not eat, drink or smoke. Keep away from clothing and other combustible materials. Observe good industrial hygiene practices. Avoid release to the environment.
Storage	Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Store away from incompatible materials (see Section 10 of the SDS). Store in original tightly closed container. Do not store near combustible materials. Do not handle or store near an open flame, heat or other sources of ignition.
Advice on general occupational hygiene	Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands before eating, drinking or smoking Remove contaminated clothing

8. Exposure controls and personal protection

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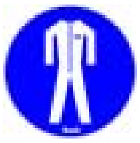
Engineering Controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Use separate, corrosion-resistant ventilation system to capture mist or fume. Do not use wood or other combustibles to construct vent system. Prevent entry into bearings or gear boxes, which could cause an explosion. Provide eyewash station.
Personal Protection	Eye/face protection : Wear safety glasses with side shields (or goggles) and a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. Skin protection: Hand protection Gloves impervious to the material are recommended, such as butyl rubber or neoprene gloves. Advice should be sought from glove suppliers. Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment. A NIOSH/MSHA approved air-purifying respirator with the appropriate chemical cartridges or a positive-pressure, air-supplied respirator may be used to reduce exposure. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where airpurifying respirators may not provide adequate protection. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134). Seek advice from respiratory protection specialists.
Exposure Conrol	All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Hygiene measures	Keep from contact with clothing and other combustible materials. Remove and wash contaminated clothing promptly. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Gloves



Suit

9. Physical and chemical properties

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Form	Liquid
Apperance	Clear, water white to slightly yellow
Odour	Faint bleach-like odour
Odor threshold	Not applicable
Flash Point	Not Determine
Boiling Point	106 °C (1013 hPa)
Freezing Point	3°C (37.4°F)
pH	11-13
Evaporation rate	No information available
Flammability (solid, gas)	No data available
Upper explosion limit	No data available
Lower explosion limit	No data available
Explosive properties	No data available
Vapor pressure	19.87 hPa (20?)
Vapor density	No information available
Specific gravity	1.28 - 1.31 @ 20`C
Relative density	Not Availabe
Water solubility	Miscible in water
Solubility in other solvents	No data available
Partition coefficient: octanol	No data available
Autoignition temperature	No data available
Thermal decomposition	No data available
Viscosity, kinematic	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Dynamic viscosity	No data available
Formula	NaClO2
Molecular Weight	90.45

10. Stability and reactivity

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Recativity	Not reactive under normal temperatures and pressures

Stability	Stable in itself, but reactive as detailed below.
Possibility of hazardous reactions	Avoid heat, flames, sparks and other sources of ignition. Avoid evaporation to dryness. Dried material can ignite uponcontact with combustibles. Avoid contamination with foreign materials. Avoid exposure to sunlight or ultraviolet light.
Incompatible materials	acids. reducing agents. combustible material. oxidizing agents. hypochlorite. organic solvents and compounds.garbage. dirt. organic materials. household products. chemicals. soap products. paint products. vinegar, beverages,oils, pine oil, dirty rags, sulfur-containing rubber, or any other foreign matter.
Hazardous Decomposition	Chlorine dioxide is formed on contact with acids, Thermal decompositionproducts include chlorine and oxides of sodium
Condition to Avoid	Keep away from heat, sparks and open flame. Keep away from direct sunlight and contact with incompatible materials. This product may react with reducing agents.
Polymerization	Hazardous polymerization does not occur.

11. Toxicological information

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Acute toxicity	INHALATION Inhalation may cause irritation of the mucous membranes and respiratory tract. Symptoms may include coughing, bloody nose, and sneezing. Severe overexposures may cause lung damage. ANIMAL TOXICOLOGY Inhalation LC50: No available data Dermal LD50: > 2 g/kg (rabbit) Oral LD50: 165 mg/kg (rat)
CHRONIC TOXICITY	INHALATION There is no available data on the chronic effects of inhaling sodium chlorite. SKIN There are no studies or reports on the repeated effects of dermal exposure to sodium chlorite. Because of the acute effects, repeated direct contact may be unlikely INGESTION The chronic ingestion of low concentrations of this product has been studied in laboratory animals. Concentrations in the drinking water of 100 ppm and higher have been shown to cause mild anemia and a minor suppression of thyroid functions in laboratory animals. All effects were reversible after cessation of treatment. Clinical studies of communities using sodium chlorite as a disinfectant found no adverse effects in the human population studied. However, other studies have suggested that those individuals deficient in an enzyme (G6PD) utilized in hemoglobin synthesis might be susceptible to the development of anemia if exposed repeatedly. Repeated exposures to solutions of chlorine dioxide at concentrations of 10-100 ppm have produced slight effects upon the thyroid in younger animals and the hematologic system. Exposures to these concentration can reduce the cellular and blood levels of glutathione, an agent which is protective against the oxidizing effect of this chemical. Exposure of laboratory animals above 100 ppm in the drinking water have shown a decrease in blood cell glutathione, red blood cell count and hemoglobin. In some studies these levels also caused a slight decrease in thyroid hormones,especially in younger animals. CARCINOGENICITY Sodium chlorite is not listed by NTP, IARC, OSHA, EPA, or any other authority as a carcinogen. Carcinogenicity studies conducted in mice and rats did not show an increase in tumors in animals exposed to sodium chlorite in their drinking water. MUTAGENICITY Sodium chlorite has been evaluated for possible mutagenic effects in several laboratory tests. Sodium chlorite tested positive in the Ames Salmonella reverse mutation assay without metabolic activators and caused chromosomal aberrations in an in vitro Chinese hamster fibroblast

	cell line without metabolic activators. Sodium chlorite also tested positive in the mouse micronucleus assay when administered intraperitoneally (directly into the body cavity), but was not mutagenic when administered orally. The significance of these test results for human health is unclear because the oxidizing effects of the chlorite or salting effects of sodium may significantly affect the ability of the tests to accurately detect mutagens.
Reproductive Toxicity	Sodium chlorite has not been found to be teratogenic in studies in which animals have been exposed up to 100 ppm in the drinking water. Male rats repeatedly exposed to concentrations of 100 ppm or greater in the drinking water have shown slight effects on sperm motility. No effects were observed at 10 ppm and no effects were observed on fertility rate, histology of the male reproductive system or conception rate of animals exposed at 10 ppm or higher. The CMA conducted a two-generation reproductive rat study with developmental neurotoxicity to evaluate the effects of sodium chlorite on reproduction and pre- and postnatal development when administered orally via drinking water for two successive generations. Sodium chlorite was administered at 0, 35, 70, and 300 ppm in drinking water to male and female Sprague Dawley rats for ten weeks prior to mating. Dosing continued during the mating period, pregnancy and lactation. The final report concluded that there were no meaningful treatment related effects at any dose level for systemic, reproductive/ developmental, and developmental neurological end points. Hematological effects and reduced body weight gains were observed in some treatment groups.
Aspiration hazard	Not applicable.
Other information	Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

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Toxicity	This product is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to the discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority.
Aquatic Toxicity	LC50 rainbow trout = 290 mg/l as 80% NaClO2 (96 hour); bluegill = 265-310 mg/l as 80% NaClO2 (96 hour); Sheepshead minnow = 62-90 ppm (96 hour).
Invertebrate Toxicity	LC50 Daphnia Magna = 0.29 mg/L as 80% NaClO2 (48 hour)
Other Toxicity	Acute TL50 for Rainbow Trout: 50.6 mg/l (as 80% NaClO2) Acute LC50 (96 Hours) for Rainbow Trout: 290 mg/l (as 80% NaClO2) Acute TL50 for Bluegill: 208 mg/l (as 80% NaClO2) Acute LC50 (96 Hours) for Bluegill: 265-310 mg/l (as 80% NaClO2) Acute LD50 Mallard Ducks: 0.49-1.00 g/kg (gavage) (as 80% NaClO2) Acute LD50 Bobwhite Quail: 0.66 g/kg (gavage) (as 80% NaClO2) Acute LC50 (48 Hours) for Daphnia Magna: 0.29 mg/l (as 80% NaClO2) Sodium chlorite in the diet of birds was not acutely toxic. Eight-day dietary LC50's in mallard ducks and bobwhite quail were both greater than 10,000 ppm in the diet
Biodegradatio	This material is inorganic and not subject to biodegradation; however, chlorite ions arereduced by some bacteria under anaerobic conditions. This material will eventually degrade to sodium chloride.
Persistence	This material will eventually degrade to sodium chloride.

13. Disposal considerations

Remarks	Dispose in accordance with all applicable regulations. Do not put product, spilled product, or filled or partially filledcontainers into the trash or waste compactor. Contact with incompatible materials could cause a reaction and fire. Contact Technical Service to obtain neutralization instructions. Keep out of water supplies and sewers. May be subject to disposal regulations.
Waste Disposal	The product should not be allowed to enter drains, water courses or the soil. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility

14. Transport information

Regulatory Information	UN Number	Proper Shipping Name	Classes	Packing Group	Other Information
DOT Classification	UN1908	Chlorite solution	8	II	Marine Pollutant A3, A6, A7, B2, IB2, N34, T7, TP2, TP24
IMDG Class	UN1908	Chlorite solution	8	II	Marine Pollutant Emergency schedules (EmS) F-A, S-B
IATA-DGR Class	UN1908	Chlorite solution	8	II	Marine Pollutant Passenger aircraft 851: 1 L Cargo aircraft 855: 30 L

15. Regulatory information

Regulations	OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated. SARA EHS Chemical (40 CFR 355.30) Not regulated EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10): Acute Health Hazard EPCRA SECTION 313 (40 CFR 372.65): Not regulated. OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119): Not regulated
International inventories	WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) CLASSIFICATION WHMIS Classifications applicable to this product: E (Corrosive Material) based on assignment to TDG Class 8 CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) All components of this product are on the Domestic Substances List (DSL). HAZARDOUS PRODUCTS ACT This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR)
Europe	EINECS No.: 231-836-6

STATE REGULATIONS
CALIFORNIA PROPOSITION 65
Sodium Chlorite does not appear on the California Proposition 65 list

16. Other information

Other Information	The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Rx Marine International has been advised of the possibility of such damages. DISCLAIMER OF LIABILITY :The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable.