

1. PRODUCT & COMPANY IDENTIFICATION

1.1	Product Name:	STARKLE MILDEW CLEAN
1.2	Chemical Name:	Sodium Hypochlorite Aqueous Solution
1.3	Synonyms:	Mildew Remover
1.4	Trade Names:	Starke Mildew Clean
1.5	Product Use:	Mildew Remover
1.6	Distributor's Name:	Starke Yacht Surface Technologies
1.7	Distributor's Address:	17000 Alico Commerce Ct., Suite 101, Fort Myers, FL 33912
1.8	Emergency Phone:	John Watkins +1 (239) 851-6030
1.9	Business Phone / Fax:	+1 (800) 203-5315

2. HAZARDS IDENTIFICATION

2.1	Hazard Identification:	Prepared in accordance with UN Globally Harmonized standards. Intended to comply with OSHA 29 CFR 1910.1200. Canadian WHMIS and Australian Work Health and Safety. DANGER! CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. VERY TOXIC TO AQUATIC LIFE. Classification: Skin Corr. 1B, Aquatic Acute 1; EUH031
2.2	Label Elements:	<p>Hazard Statements (H): H314 – Causes severe skin burns and eye damage. EUH031 – Contact with acids liberates toxic gas</p> <p>Precautionary Statements (P): P260 – Do not breathe dust or mist. P264 – Wash thoroughly with soap and water after handling. P273 – Avoid release to the environment. P280 – Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331 – IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353 – IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. P263 – Wash contaminated clothing before reuse. P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310 – immediately call a POISON CENTER/doctor. P321 – Specific treatment see section 4 of this SDS. P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P333 + P313 – If skin irritation or rash occurs: Get medical advice/attention. P337+P313 – If eye irritation persists: Get medical advice/attention. P391 – Collect spillage. P405 – Store locked up. P501 – Dispose of contents/container to a licensed treatment, storage or disposal facility (TSDF).</p>
2.3	Other Warnings:	KEEP OUT OF REACH OF CHILDREN



3. COMPOSITION & INGREDIENT INFORMATION

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m ³)									OTHER
					ACGIH		NOHSC			OSHA				
					TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH		
PROPRIETARY	NA	NA	NA	50 -100	NA	NA	NF	NF	NF	NA	NA	NA		
SODIUM HYPOCHLORITE (25-50%)	7681-52-9	NH3486300	231-668-3	20-30	NA	NA	NF	NF	NF	NA	NA	NA	Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 1; Aquatic Chronic 1; H314, H318, H400, H410; EUH031	


4. FIRST AID MEASURES

4.1	First Aid:	<p>Ingestion: If ingested, do not induce vomiting. If product has been swallowed, drink plenty of water or milk IMMEDIATELY. If the patient is vomiting, continue to offer water or milk. Never give water or milk to an unconscious person. Contact the nearest Poison Control Center or local emergency number. Provide an estimate of the time at which the material was ingested and the amount of the substance that was swallowed.</p> <p>Eyes: If product gets in the eyes, flush with copious amounts of lukewarm water for at least 15 minutes. If irritation occurs, contact a physician.</p> <p>Skin: If irritation occurs and product is on the skin, rinse thoroughly with lukewarm water, followed by a thorough washing of the affected area with soap and water. If irritation, redness or swelling persists, contact a physician immediately.</p> <p>Inhalation: Remove victim to fresh air at once.</p>
4.2	Effects of Exposure:	<p>Ingestion: Abdominal pain, stomach upset, nausea, vomiting and diarrhea.</p> <p>Eyes: Irritating to the eyes.</p> <p>Skin: Contact with the skin during product use is not expected to result in significant irritation. However, may cause an allergic reaction in some sensitive individuals.</p> <p>Inhalation: Irritation to the nose, throat and other tissues of the respiratory system.</p>

4. FIRST AID MEASURES – cont'd

4.3	Symptoms of Overexposure:	<p><u>Ingestion:</u> Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.</p> <p><u>Eyes:</u> Irritating to the eyes. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.</p> <p><u>Skin:</u> Contact with the skin during product use is not expected to result in significant irritation. Signs/symptoms may include localized redness, itching, drying and cracking of skin. However, may cause an allergic reaction in some sensitive individuals. Allergic skin reaction (non-photo induced) signs/symptoms may include redness, swelling, blistering, and itching.</p> <p><u>Inhalation:</u> Vapors of this product may be slightly irritating to the nose, throat and other tissues of the respiratory system. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness</p>															
4.4	Acute Health Effects:	Mild to moderate irritation to eyes and skin near affected areas. Additionally, high concentrations of vapors can cause drowsiness, dizziness, headaches and nausea.															
4.5	Chronic Health Effects:	None known.															
4.6	Target Organs:	Eyes, Skin, Respiratory System, Central Nervous System (CNS).															
4.7	Medical Conditions Aggravated by Exposure:	<p>Pre-existing dermatitis, other skin conditions, and disorders of the target organs (eyes, skin, and respiratory system).</p> <table border="1"> <tr> <td colspan="2">HEALTH</td> <td>1</td> </tr> <tr> <td colspan="2">FLAMMABILITY</td> <td>0</td> </tr> <tr> <td colspan="2">PHYSICAL HAZARDS</td> <td>0</td> </tr> <tr> <td colspan="2">PROTECTIVE EQUIPMENT</td> <td>B</td> </tr> <tr> <td>EYES</td> <td>SKIN</td> <td></td> </tr> </table>	HEALTH		1	FLAMMABILITY		0	PHYSICAL HAZARDS		0	PROTECTIVE EQUIPMENT		B	EYES	SKIN	
HEALTH		1															
FLAMMABILITY		0															
PHYSICAL HAZARDS		0															
PROTECTIVE EQUIPMENT		B															
EYES	SKIN																

5. FIREFIGHTING MEASURES

5.1	Fire & Explosion Hazards:	Non-flammable. Use media as appropriate for surrounding fire.	
5.2	Extinguishing Methods:	Carbon dioxide, foam, water spray, Halon (if permitted), dry chemical extinguisher.	
5.3	Firefighting Procedures:	<p>As with any fire, firefighters should wear appropriate protective equipment including a MSHA/NIOSH approved or equivalent self-contained breathing apparatus (SCBA) and protective clothing. Hazardous decomposition products may be released. Thermal degradation may produce oxides of carbon, and/or nitrogen, hydrocarbons and/or derivatives. Fire should be fought from a safe distance. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway.</p>	



6. ACCIDENTAL RELEASE MEASURES

6.1	Spills:	<p>Before cleaning any spill or leak, individuals involved in spill cleanup must wear appropriate Personal Protective Equipment. CAUTION – may be slippery if spilled.</p> <p>For <u>small spills</u> (e.g., < 1 gallon (3.8 L)) wear appropriate personal protective equipment (e.g., goggles, gloves). Maximize ventilation (open doors and windows) and secure all sources of ignition. Remove spilled material with absorbent material and place into appropriate closed container(s) for disposal. Dispose of properly in accordance with local, state and federal regulations. Wash all affected areas and outside of container with plenty of warm water and soap. Remove any contaminated clothing and wash thoroughly before reuse.</p> <p>For <u>large spills</u> (e.g., ≥ 1 gallon (3.8 L)), deny entry to all unprotected individuals. Dike and contain spill with inert material (e.g., sand or earth). Use ONLY non-sparking tools for recovery and cleanup. Transfer liquid to containers for recovery or disposal and solid diking material to separate containers for proper disposal. Remove contaminated clothing promptly and wash affected skin areas with soap and water. Keep spills and cleaning runoffs out of municipal sewers and open bodies of water.</p>
-----	---------	---

7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices:	Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Avoid breathing of vapors, mists or spray. Avoid prolonged or repeated skin contact. Wash hands after handling, and before eating. Avoid breathing of dust created by sanding, grinding or machining. When polishing with product, keep moist to avoid dust.
7.2	Storage & Handling:	Keep containers sealed at all times, store in well-ventilated area. Store away from areas where product may come into contact with food or pharmaceuticals. Store away from oxidizing agents.
7.3	Special Precautions:	Open containers slowly on a stable surface. Keep container tightly closed when not in use. Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Exposure Limits: ppm (mg/m ³)	CHEMICAL NAME(S)	ACGIH		NOHSC			OSHA			OTHER
			TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH	
		NA	NA	NA	NF	NF	NF	NA	NA	NA	
8.2	Ventilation & Engineering Controls:	Provide appropriate local exhaust ventilation on open containers. When using keep the product moist at all times. Use in an enclosed process area is recommended. Use in a well-ventilated area. Do not use in a confined area or areas with little or no air movement.									
8.3	Respiratory Protection:	Avoid breathing of vapors, mists or spray. No special respiratory protection is required under typical circumstances of use or handling. If necessary, use only respiratory protection authorized per U.S. OSHA's requirement in 29 CFR §1910.134, or applicable U.S. state regulations, or the appropriate standards of Canada, its provinces, E.C. member states, or Australia.									
8.4	Eye Protection:	AVOID EYE CONTACT. Wear safety glasses. If necessary, refer to U.S. OSHA 29 CFR §1910.133, Canadian standards, or the European Standard EN166.									
8.5	Hand Protection:	AVOID SKIN CONTACT. Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials. Gloves made from the following material(s) are recommended: Nitrile Rubber. If necessary, refer to U.S. OSHA 29 CFR §1910.138, the appropriate standards of Canada, of the E.C. member states.									
8.6	Body Protection:	No special body protection is required under typical circumstances of use and handling. If necessary, refer to appropriate standards of Canada, the E.C. member states, or U.S. OSHA.									

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Appearance:	Light green liquid
9.2	Odor:	Slight chlorine like
9.3	Odor Threshold:	NA
9.4	pH:	NA
9.5	Melting Point/Freezing Point:	NA
9.6	Initial Boiling Point/Boiling Range:	NA
9.7	Flashpoint:	107°C (225°F)
9.8	Upper/Lower Flammability Limits:	NA
9.9	Vapor Pressure:	NA
9.10	Vapor Density:	NA
9.11	Relative Density:	1
9.12	Solubility:	Soluble
9.13	Partition Coefficient (log P _{ow}):	NA
9.14	Autoignition Temperature:	NA
9.15	Decomposition Temperature:	NA
9.16	Viscosity:	NA
9.17	Other Information:	NA

10. STABILITY & REACTIVITY

10.1	Stability:	Stable under ambient conditions when stored properly (see section 7, Storage and Handling)
10.2	Hazardous Decomposition Products:	If exposed to extremely high temperatures, the products of thermal decomposition may include irritation vapors and chlorine gas.
10.3	Hazardous Polymerization:	Hazardous polymerization will not occur.
10.4	Conditions to Avoid:	High temperatures and incompatible substances. If heated to decomposition it emits toxic fumes of Na ₂ O and hydrogen chloride.
10.5	Incompatible Substances:	Strong oxidizing agents and acids.

11. TOXICOLOGICAL INFORMATION

11.1	Routes of Entry:	Inhalation: YES	Absorption: YES	Ingestion: YES
11.2	Toxicity Data:	This product has NOT been tested on animals to obtain toxicology data. Toxicology data, found in scientific literature, is available for some of the components of the product.		
11.3	Acute Toxicity:	See Section 4.4		
11.4	Chronic Toxicity:	See Section 4.5		
11.5	Suspected Carcinogen:	No.		
11.6	Reproductive Toxicity:	This product is not reported to cause reproductive toxicity in humans.		
	Mutagenicity:	This product is not reported to cause mutagenic effects in humans.		
	Embryotoxicity:	This product is not reported to cause embryotoxic effects in humans.		
	Teratogenicity:	This product is not reported to cause teratogenic effects in humans.		

11. TOXICOLOGICAL INFORMATION – cont'd

	Reproductive Toxicity:	This product is not reported to cause reproductive effects in humans.
11.7	Irritancy of Product:	The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) upon prolonged or repeated exposure.
11.8	Biological Exposure Indices:	NA
11.9	Physician Recommendations:	Treat symptomatically.

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability:	The components of this product will slowly degrade over time into a variety of organic compounds.
12.2	Effects on Plants & Animals:	There are no specific data available for this product.
12.3	Effects on Aquatic Life:	Product is expected to rapidly disperse in the aquatic environment.

13. DISPOSAL CONSIDERATIONS


13.1	Waste Disposal:	Review current local, state, and federal laws, codes, statutes and regulations to determine current status and appropriate disposal method for the ingredients listed in Section 2. Any disposal practice must be in compliance with local, state, and federal laws and regulations. California State Waste Code: 331
13.2	Special Considerations:	Contact the federal, state, or provincial environmental authority to determine suitability for recycling and or proper disposal requirements.

14. TRANSPORTATION INFORMATION



The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

14.1	49 CFR (GND):	NOT REGULATED	
14.2	IATA (AIR):	NOT REGULATED	
14.3	IMDG (OCN):	NOT REGULATED	
14.4	TDGR (Canadian GND):	NOT REGULATED	
14.5	ADR/RID (EU):	NOT REGULATED	
14.6	SCT (MEXICO):	NOT REGULATED	
14.7	ADGC (AUS):	NOT REGULATED	

15. REGULATORY INFORMATION

15.1	SARA Reporting Requirements:	This product does not contain any substances subject to SARA Title III, Section 313 reporting requirements.	
15.2	SARA Threshold Planning Quantity:	There are no specific Threshold Planning Quantities for the components of this product.	
15.3	TSCA Inventory Status:	The components of this product are listed on the TSCA Inventory.	
15.4	CERCLA Reportable Quantity (RQ):	Sodium Hypochlorite 45.4 kg (100 lbs.)	
15.5	Other Federal Requirements:	This product does not contain any substances identified as Hazardous Air Pollutants (HAPs).	
15.6	Other Canadian Regulations:	This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDSL. None of the components of this product are listed on the Priorities Substances List. WHMIS Class D2B (Other Toxic Effects)	
15.7	State Regulatory Information:	No ingredients in this product, present in a concentration of 1.0% or greater, are listed on any of the following state criteria lists: California Proposition 65 (CA65), Delaware Air Quality Management List (DE), Florida Toxic Substances List (FL), Massachusetts Hazardous Substances List (MA), Michigan Critical Substances List (MI), Minnesota Hazardous Substances List (MN), New Jersey Right-to-Know List (NJ), New York Hazardous Substances List (NY), Pennsylvania Right-to-Know List (PA), Washington Permissible Exposures List (WA), Wisconsin Hazardous Substances List (WI). This product does not contain any chemicals known to the State of California to cause cancer or other reproductive harm. For more information go to www.P65Warnings.ca.gov .	
15.8	Other Requirements:	This product is found on the following inventory lists: Australia - AICS, China – IECSC, Europe – ELINCS/EINEC, Japan – ENCS; Korea – KECl; New Zealand – NZIoC; {Philippines – PICCS; USA – TSCA.	

16. OTHER INFORMATION

16.1	Other Information:	<p>DANGER! CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. VERY TOXIC TO AQUATIC LIFE Read instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust or mist. Wash thoroughly with soap and water after handling. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. Specific treatment see section 4 of this SDS. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Collect spillage. Store locked up. KEEP OUT OF REACH OF CHILDREN.</p>	
16.2	Terms & Definitions:	See last page of this Safety Data Sheet.	
16.3	Disclaimer:	<p>This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR §1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of ShipMate's & Starke Yacht Care's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness is not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product(s). If this product(s) is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.</p>	
16.4	Prepared for:	<p>STARKE YACHT CARE 17000 Alico Commerce Ct. Suite 101 Fort Myers, FL 33912 Tel: +1 (800) 203-5315 http://www.starkeyachtcare.com</p>	
16.5	Prepared by:	<p>ShipMate, Inc. P.O. Box 787 Sisters, Oregon 97759-0787 USA Tel: +1 (310) 370-3600 Fax: +1 (310) 370-5700 http://www.shipmate.com</p>	

DEFINITION OF TERMS

A large number of abbreviations and acronyms appear on a SDS. Some of these that are commonly used include the following:

GENERAL INFORMATION:

CAS No.	Chemical Abstract Service Number
RTECS No.	Registry of Toxic Effects of Chemical Substances Number
EINECS No.	European Inventory of Existing Commercial Chemical Substances Number

EXPOSURE LIMITS IN AIR:

ACGIH	American Conference on Governmental Industrial Hygienists
IDLH	Immediately Dangerous to Life and Health
NOHSC	National Occupational Health and Safety Commission (Australia)
OSHA	U.S. Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weighted Average

FIRST AID MEASURES:

CPR	Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.
------------	--

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard

HEALTH
FLAMMABILITY
PHYSICAL HAZARDS
PERSONAL PROTECTION

PERSONAL PROTECTION RATINGS:

A		G	
B		H	
C		I	
D		J	
E		K	
F		X	Consult your supervisor or SOPs for special handling directions.

Safety Glasses	Splash Goggles	Face Shield & Protective Eyewear	Gloves
Boots	Protective Apron	Protective Clothing & Full Suit	Dust Respirator
Full Face Respirator	Dust & Vapor Half-Mask Respirator	Full Face Respirator	Airline Hood/Mask or SCBA

OTHER STANDARD ABBREVIATIONS:

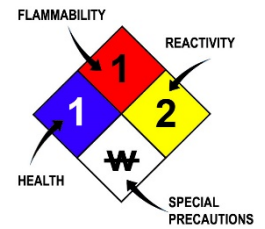
Carc	Carcinogenic
Irrit	Irritant
NA	Not Available
NR	No Results
ND	Not Determined
NE	Not Established
NF	Not Found
SCBA	Self-Contained Breathing Apparatus
Sens	Sensitization
STOT RE	Specific Target Organ Toxicity – Repeat Exposure
STOT SE	Specific Target Organ Toxicity – Single Exposure

NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

FLAMMABILITY LIMITS IN AIR:	
Autoignition Temperature	Minimum temperature required to initiate combustion in air with no other source of ignition
LEL	Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source
UEL	Upper Explosive Limit - highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source

HAZARD RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard
ACD	Acidic
ALK	Alkaline
COR	Corrosive
W	Use No Water
OX	Oxidizer
TREFOIL	Radioactive



TOXICOLOGICAL INFORMATION:

LD₅₀	Lethal Dose (solids & liquids) which kills 50% of the exposed animals
LC₅₀	Lethal concentration (gases) which kills 50% of the exposed animal
ppm	Concentration expressed in parts of material per million parts
TD₁₀	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD₁₀, LD₁₀, & LD₅₀ or TC, TC₀, LC₁₀, & LC₅₀	Lowest dose (or concentration) to cause lethal or toxic effects
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances
BCF	Bioconcentration Factor
TL_m	Median threshold limit
log K_{ow} or log K_{oc}	Coefficient of Oil/Water Distribution

REGULATORY INFORMATION:

WHMIS	Canadian Workplace Hazardous Material Information System
DOT	U.S. Department of Transportation
TC	Transport Canada
EPA	U.S. Environmental Protection Agency
DSL	Canadian Domestic Substance List
NDSL	Canadian Non-Domestic Substance List
PSL	Canadian Priority Substances List
TSCA	U.S. Toxic Substance Control Act
EU	European Union (European Union Directive 67/548/EEC)
WGK	Wassergefährdungsklassen (German Water Hazard Class)

WORKPLACE HAZARDOUS MATERIALS IDENTIFICATION (WHMIS) SYSTEM:

Class A	Class B	Class C	Class D1	Class D2	Class D3	Class E	Class F
Compressed	Flammable	Oxidizing	Toxic	Irritation	Infectious	Corrosive	Reactive

CLP/GHS (1272/2008/EC) PICTOGRAMS:

GHS01	GHS02	GHS03	GHS04	GHS05	GHS06	GHS07	GHS08	GHS09
Explosive	Flammable	Oxidizer	Pressurized	Corrosive	Toxic	Harmful Irritating	Health Hazard	Environment