

**ZODIAC POOL CARE, INC.  
MATERIAL SAFETY DATA SHEET**

<b>PRODUCT NAME(S):</b> Nature <sup>2</sup> ® Spa Purifier	<b>OTHER DESTINATIONS:</b> Sun for the Spa™, Coleman Spa Purifier™, Sparkle Clear™, Fresh Water AG+™, ThermoClear™, Monarch™, Dimension One Vision™, Sundance SunPurity™, Jacuzzi ProClear™
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<b>MSDS:</b> 4000	<b>REVISION:</b> 03 10/22/03	<b>DATE MSDS PREPARED:</b> 03/31/99	<b>EFFECTIVE DATE:</b> 10/22/03
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**PREPARED BY:** Zodiac Pool Care, Inc., Research & Development

**SECTION 1 – GENERAL INFORMATION**

<b>MANUFACTURER:</b> Zodiac Pool Care, Inc. 2028 NW 25 <sup>th</sup> Avenue Pompano Beach, FL 33069	<b>INFORMATION TELEPHONE:</b> (954) 935-8200 <b>EMERGENCY TELEPHONE:</b> (954) 935-8200 (Mon-Fri, 9 a.m. -5p.m.)
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**SECTION 2 - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION**

<b>CAS NO.</b>	<b>IDENTITY</b>	<b>OSHA PEL</b>
7440-22-4	Silver metal	0.01 mg/ m <sup>3</sup> TWA as Silver dust or mist in air. ACGIH: TLV = 0.1 mg/ m <sup>3</sup> TWA inhalable
1344-28-1	Aluminum Oxide (non-fibrous)	15 mg/ m <sup>3</sup> TWA as total dust in air; 5mg/ m <sup>3</sup> TWA as respirable dust in air. ACGIH: TLV : 10mg/ m <sup>3</sup> TWA inhalable
7440-66-6	Zinc	None for Zinc Metal; OSHA PEL = 5 mg/m <sup>3</sup> TWA as zinc oxide fume. ACGIH TLV = 5 mg/m <sup>3</sup> TWA as zinc oxide fume

**SECTION 3 - PHYSICAL/CHEMICAL CHARACTERISTICS**

<b>APPEARANCE :</b>	Mixture of gray or black colored spheres and zinc shot
<b>ODOR:</b>	None
<b>BOILING POINT:</b>	N/A
<b>FREEZING POINT:</b>	N/A
<b>VAPOR PRESSURE (mm Hg) :</b>	N/A
<b>VAPOR DENSITY (air = 1):</b>	N/A
<b>SOLUBILITY IN WATER :</b>	< 15% by weight
<b>SPECIFIC GRAVITY (water 1) :</b>	2.4 (Aluminum Oxide), 10.5 (Silver), 7.1 (Zinc)
<b>MELTING POINT:</b>	2038°C (Aluminum Oxide), 962 °C (Silver), 420 °C (Zinc)
<b>EVAPORATION RATE:</b>	(butyl acetate = 1): N/A

**SECTION 4 – FIRE AND EXPLOSION HAZARD DATA**

<b>FLASH POINT:</b>	None
<b>TEST METHOD:</b>	Closed Cup
<b>LOWER EXPLOSIVE LIMIT:</b>	N/A
<b>UPPER EXPLOSIVE LIMIT:</b>	N/A
<b>EXTINGUISHING MEDIA:</b>	Use fire fighting measures appropriate for the surrounding fire
<b>SPECIAL FIRE FIGHTING PROCUDURES:</b>	Use NIOSH/MSHA approved SCBA and full protective equipment
<b>UNUSUAL FIRE AND EXPLOSION HAZARDS:</b>	When involved in a fire, may generate irritating fumes. Silver metal dust or powder may be flammable or explosive when dispersed in the air at high concentrations and exposed to heat and flame. Zinc may produce zinc oxide fumes when heated to over 900°C.

## SECTION 5 - REACTIVITY DATA

MATERIAL IS STABLE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR

CONDITIONS TO AVOID: None Specified

CHEMICAL INCOMPATIBILITIES: Silver reacts with acetylene, acetylene compounds, and ammonia to form explosive and shock sensitive compounds. Contact with strong hydrogen peroxide solutions will cause violent decomposition of the peroxide, releasing oxygen and increasing the fire and explosion potential. Silver is incompatible with bromine azide, chlorine trifluoride, ethyleneimine, oxalic and tartaric acids, and with nitric acid in the presence of ethanol. Contact with acids or alkaline hydroxides will generate hydrogen gas. Accumulated hydrogen gas is flammable and explosive. Zinc may react with sulfur, halogens, and strong oxidizing agents. Zinc may produce zinc oxide fumes when heated to over 900°C.

HAZARDOUS DECOMPOSITION PRODUCTS: High temperature may generate silver oxide and zinc oxide fumes of a respirable size and increase the likelihood of inhalation and deposition of the fume within the body.

## SECTION 6- HEALTH HAZARD DATA

ROUTE OF ENTRY – INHALATION: Yes

ROUTE OF ENTRY – SKIN: No

ROUTE OF ENTRY – INGESTION: Yes

HEALTH HAZARDS:

SILVER METAL (CAS 7440-22-4): LD 50/LC 50: None specified

ACUTE AND CHRONIC EFFECTS: Acute toxicity is thought to be low by ingestion, chronic absorption of Silver may cause Argyria, a bluish-grey discoloration of various tissues.

TARGET ORGANS: Skin, eyes, nails

SIGNS/SYMPTOMS OF EXPOSURE: Argyria is recognized by pigmentation of skin, eyes, nails

CARCINOGENICITY NTP: No

CARCINOGENICITY IARC: No

CARCINOGENICITY OSHA: No

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Non specified

ZINC (CAS 7440-66-6) LD50/LC50: None specified

ACUTE AND CHRONIC EFFECTS: No adverse effects expected from inhalation, but zinc dust may cause mechanical irritation. Effects may include difficulty in breathing, sneezing, coughing. When heated, zinc fumes are toxic and may cause metal fume fever. When ingested in excessive amounts, zinc can irritate the stomach resulting in nausea and vomiting.

ALUMINUM OXIDE (NON-FIBROUS)(CAS 1344-28-1): LD 50/LC 50: None specified

ACUTE AND CHRONIC EFFECTS: Desiccant properties of Aluminum Oxide dust may cause irritation to eyes and upper respiratory tract. Tract as nuisance dust (particulate not otherwise regulated) per ACGIH and OSHA. Aspiration of alumina may cause mechanical obstruction of airway.

TARGET ORGANS: Eyes, skin, respiratory tract.

SIGNS/SYMPTOMS OF EXPOSURE: Dust may irritate eyes, skin, respiratory tract.

CARCINOGENICITY NTP: No

CARCINOGENICITY IARC: No

CARCINOGENICITY OSHA: No

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Asthma, chronic lung disease, and skin rashes

EMERGENCY FIRST AID PROCEDURES:

INHALATION: Remove to fresh air; check for clear airway, breathing and pulse; if not breathing, give artificial respiration; provide CPR/oxygen if needed. Call physician.

IN CASE OF CONTACT: Immediately flush eyes or skin with plenty of water for at least 15 minutes; call a physician if irritation persists. Remove contaminated clothing and shoes; wash clothing and thoroughly clean shoes before reuse.

ORAL: If conscious, drink water; never give fluid if patient is unconscious or has convulsions; aspiration hazard if swallowed – can enter lungs and cause damage. Call a physician immediately.

## SECTION 7 – PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Wear protective clothing and NIOSH/MSHA approved respiratory protection equipment; sweep, scoop or pick up spilled material. Avoid raising dust. Spilled material can be slippery, avoid injury due to falls. Collect spilled material in container for proper reclamation or disposal. Ventilate area and wash spill site after cleanup is complete.

## SECTION 8- CONTROL MEASURES

WORKPLACE VENTILATION: Sufficient to keep below TWA limits  
RESPIRATORY PROTECTION: Use NIOSH/MSHA approved respirator.  
PROTECTIVE GLOVES: Impervious gloves  
EYE PROTECTION: Chemical workers goggles  
OTHER PROTECTIVE EQUIPMENT: Safety shower and eye bath  
WORK HYGENIC PRACTICES: Wash hands thoroughly after use and before eating, drinking, smoking, or using sanitary facilities.  
Dispose of in accordance with all applicable federal, state and local regulations (see Section 10).

## SECTION 9 ADDITIONAL INFORMATION

SPECIAL PRECAUTIONS:  
Store in cool dry area on a non-combustible surface. Keep away from organics and other easily oxidizable material.

TRANSPORTATION:

## SECTION 10- ENVIRONMENTAL

TSCA STATUS: All components of this product are listed on the TSCA inventory

CERCLA FINAL REPORTABLE QUANTITY (RQ) for Copper Sulfate (CAS No. 7758-98-7 is 10 lbs. (4.54 KG). Conservative estimates suggest the RQ for Copper Sulfate would be equaled at 1000 lbs. (454 KG) product. See: 40 C.F. R. Section 302.4.

SARA TITLE III

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES : None

SECTION 311/312 HAZARDOUS CATEGORIES : Immediate (Acute)

SECTION 313 TOXIC CATEGORIES : Silver, Zinc

RCRA : Solid wastes have the characteristics of toxicity if, using the TCLP test, the extract of a representative sample exceeds 5.0 MG/L Silver. See: 40 C.F.R. 261.24.

CLEAN WATER ACT: Silver is regulated as a priority pollutant under the Clean Water Act. See 40 C.F.R. Section 116.4; 40 C.F.R. Sections 104.15, 423.17 (Appendix A).

MASSACHUSETTS SUBSTANCE LIST : Silver, Zinc

NEW JERSEY RIGHT TO KNOW LIST : Silver, Zinc

PENNSYLVANIA HAZARDOUS SUBSTANCE LIST: Silver, Zinc

CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS): Silver

## SECTION 11 - OTHER INFORMATION

The information and recommendations set forth in this MSDS reflect our present state of knowledge as disclosed in the scientific literature and are believed to be accurate of the date hereof. Zodiac Pool Care, Inc. makes no representations or warranties, either expressed or implied, including without limitation any warranties of merchantability or fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. The MSDS has been prepared in compliance with all applicable provisions of Title 29 Code of Federal Regulations Part 1910.1200, the OSHA Hazard Communication Standard, and SARA Title III.