

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

PRODUCT NAME(S): Nature ² [®] A30 Cartridge Nature ² [®] VPG	OTHER DESTINATIONS: EPA Reg. Number 67712-5 Nature ² [®] AG [™]
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MSDS: 3000	REVISION: 02 10/22/03	DATE MSDS PREPARED: 03/31/99	EFFECTIVE DATE: 10/22/03
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PREPARED BY: Zodiac Pool Care, Inc., Research & Development

SECTION 1 – GENERAL INFORMATION

MANUFACTURER: Zodiac Pool Care, Inc.
2028 NW 25th Avenue
Pompano Beach, FL 33069

INFORMATION TELEPHONE: (954) 935-8200
EMERGENCY TELEPHONE: (954) 935-8200 (Mon-Fri, 9 a.m. -5p.m.)

SECTION 2 - HARZADOUS INGREDIENTS/IDENTITY INFORMATION

CAS NO.	IDENTITY	OSHA PEL
7758-99-8	Copper sulfate pentahydrate (CuSO ₄ *5H ₂ O), (Cupric sulfate)	1.0 mg/m ³ TWA as Copper or mist in air. ACGIH: TLV = 1.0mg/ m ³ TWA inhalable
7440-22-4	Silver metal	0.01 mg/ m ³ TWA as Silver dust or mist in air. ACGIH: TLV = 0.1 mg/ m ³ TWA inhalable
1344-28-1	Aluminum Oxide (non-fibrous)	15 mg/ m ³ TWA as total dust in air; 5mg/ m ³ TWA as respirable dust in air. ACGIH: TLV : 10mg/ m ³ TWA inhalable

SECTION 3 - PHYSICAL/CHEMICAL CHARACTERISTICS

APPEARANCE : Mixture of gray and blue-colored spheres or granules
ODOR: None
BOILING POINT: N/A
FREEZING POINT: N/A
VAPOR PRESSURE (mm Hg) : N/A
VAPOR DENSITY (air = 1): N/A
SOLUBILITY IN WATER : 316 g/l @ 0° C (Copper Sulfate Pentahydrate)
SPECIFIC GRAVITY (water 1) : 2.4 (Aluminum Oxide), 10.5 (Silver)
MELTING POINT: 2038° C (Aluminum Oxide), 962° C (Silver)
EVAPORATION RATE: (butyl acetate = 1): N/A

SECTION 4 – FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: None
TEST METHOD: Closed Cup
LOWER EXPLOSIVE LIMIT: N/A
UPPER EXPLOSIVE LIMIT: N/A
EXTINGUISHING MEDIA: Use fire fighting measures appropriate for the surrounding fire
SPECIAL FIRE FIGHTING PROCUDURES: Use NIOSH/MSHA approved SCBA and full protective equipment
UNUSUAL FIRE AND EXPLOSION HAZARDS: Anhydrous copper sulfate formed on water loss. Anhydrous salt ignite Hydroxylamine. Sealed containers may rupture when heated due to release of water. At temperatures above 600°C, copper sulfate will decompose into cupric oxide and sulfur dioxide. Silver metal dust or powder may be flammable or explosive when dispersed in the air at high concentrations and exposed to heat and flame.

SECTION 5 - REACTIVITY DATA

MATERIAL IS STABLE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR

CONDITIONS TO AVOID: None Specified

CHEMICAL INCOMPATIBILITIES: Copper Sulfate Pentahydrate is incompatible with hydroxylamine, nitromethane, sodium hypobromite, magnesium; Silver is incompatible with Acetylene, Ammonia, Hydrogen Peroxide and Ethylene Imine.

HAZARDOUS DECOMPOSITION PRODUCTS: Sulfur Dioxide

SECTION 6- HEALTH HAZARD DATA

ROUTE OF ENTRY – INHALATION: Yes

ROUTE OF ENTRY – SKIN: No

ROUTE OF ENTRY – INGESTION: Yes

HEALTH HAZARDS:

COPPER SULFATE PENTAHYDRATE (CAS 7758-99-8): LD 50/LC 50 (ORAL, RAT) 472.5 MG/KG

ACUTE AND CHRONIC EFFECTS: Irritation

TARGET ORGANS: Eyes, skin, respiratory and gastrointestinal tracts

SIGNS/SYMPTOMS OF EXPOSURE: Irritation, discomfort, pain, tearing, nausea, vomiting, diarrhea, coughing, shortness of breath

CARCINOGENICITY NTP: No

CARCINOGENICITY IARC: No

CARCINOGENICITY OSHA: No

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Respiratory disorders; liver and kidney disorders; skin diseases; hematopoietic disorders; Wilson's disease

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

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 HYGIENIC 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:

Copper Sulfate Pentahydrate : D.O.T. Class: 9 UN Register: UN-3077 Packing Group: III

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 : Copper compounds ; Silver

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: Copper and Silver are 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 : Copper Sulfate; Silver

NEW JERSEY RIGHT TO KNOW LIST : Copper Sulfate; Silver

PENNSYLVANIA HAZARDOUS SUBSTANCE LIST: Copper Sulfate; Silver

CANSDIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS): Copper Sulfate, 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.