

**CYANTEK CORPORATION**  
**MATERIAL SAFETY DATA SHEET**  
**Nano-Strip, Nano-Strip HP, Nano-StripK,**  
**Nano-StripP**



**1 Product and Company Identification**

**Product name:** Nano-Strip, Nano-Strip HP, Nano-StripK, Nano-StripP  
**Other product names:** None  
**Product use:** Photoresist Stripper and Cleaning Solution  
  
**Manufacturer:** OM Group Ultra Pure Chemicals  
CYANTEK CORPORATION  
3055 Osgood Court  
Fremont, CA 94538  
(510) 651-3341

**24 Hour Emergency Telephone Number:**  
CHEMTREC: (800) 424-9300 (North America): (703) 527-3887 (Int'l.)

**2 Hazards Identification**

**GHS classification:**

**Corrosive to metals:** Category 1  
**Acute toxicity (oral):** Category 4  
**Acute toxicity (inhalation):** Category 5  
**Serious eye damage/eye irritation:** Category 1  
**Skin corrosion/irritation:** Category 1A  
**Oxidizer:** Category 3  
**Acute Aquatic:** Category 3

**Signal word:** Danger

**Hazard statements:** Harmful if swallowed or inhaled. Causes skin burns and eye damage. May be corrosive to metals. May intensify fire, oxidizer. Harmful to aquatic life with long lasting effects.

**Precautionary statements:** Wear gloves, eye and face protection, and protective clothing, Avoid breathing vapors/mists. Use in a well-ventilated area. Do not eat, drink, or smoke when using this product. Wash thoroughly with water after handling. If swallowed and victim is conscious, rinse mouth and administer water. Do NOT induce vomiting. If on skin or hair, remove/take off immediately all contaminated clothing. Rinse with water/shower. 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 or doctor/physician. Absorb spillage to prevent material damage. Store in original vented container locked up and tightly capped in a well-ventilated area at 10 to 25 Degrees C. (50 to 70 Degrees F). In case of fire, use water mist or Carbon Dioxide. Use water spray to cool exposed containers and to fight larger fires. Dispose of contents/containers in accordance with applicable local, regional, national, regulations.

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**2 Hazards Identification (con't.)**

Pictograms:



**3 Composition/Information on Ingredients:**

**Chemical formula:** H<sub>2</sub>SO<sub>4</sub> + H<sub>2</sub>SO<sub>5</sub> + H<sub>2</sub>O<sub>2</sub> + H<sub>2</sub>O

**Hazardous components:**

Component	Percent by wt.	CAS Number
Sulfuric Acid	90%	7664-93-9
Peroxymonosulfuric Acid	5%	7722-86-3
Hydrogen Peroxide	<1%	7722-84-1
Water	5%	7732-18-5

**4 First Aid Measures**

**Inhalation:** Supply fresh air; consult doctor in case of complaint.  
**Skin contact:** Flush affected areas with plenty of water, remove contaminated clothing, get medical attention if irritation persists.  
**Eye contact:** Rinse opened eyes for several minutes under running water. Immediately consult a doctor.  
**Ingestion:** Give large amounts of water. Do NOT induce vomiting or aspiration into the lungs may occur and may cause permanent injury or death. Do NOT give water to an unconscious patient. Consult a doctor immediately.

**5 Fire Fighting Measures**

**Suitable extinguishing agents:** CO<sub>2</sub>, or water spray. Fight larger fires with water spray. Use water spray to cool exposed containers.  
**Specific hazards:** Avoid contact with solvents, combustible materials. Sulfur Dioxide gas may be given off if heated.  
**Protective equipment:** Wear goggles, rubber gloves and boots, self contained breathing apparatus, and acid protective clothing.

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**6 Accidental Release Measures**

**Personal precautions:** Wear goggles, rubber boots and gloves, and acid-protective clothing.  
**Environmental precautions:** Do not allow substance to enter sewage system, surface or ground water.  
**Methods for cleaning up:** Contain the spill by diking/absorbing with liquid-binding material (sand, diatomite, acid binders, universal binders). Ensure adequate ventilation. Dispose of material in accordance with local, regional, or national regulations.

**7 Handling and Storage**

Ensure good ventilation/exhaust at the workplace.  
 Store between 10 to 25 Degrees C (50 and 77 Degrees F).  
 Keep containers upright and tightly sealed.  
 Store in original containers with original vented closures.  
 Store away from strong caustics, combustible materials, easily oxidizable materials, Ammonium Hydroxide, Nitric Acid, and organic solvents.

**8 Exposure Controls and Personal Protection**

**Engineering controls and Ventilation:**  
 Use with adequate ventilation. Keep air below product exposure limits.  
**General protective and hygienic measures:**  
 Keep away from foodstuffs and beverages.  
 Immediately remove all soiled and contaminated clothing  
 Wash hands before breaks and at the end of work.  
 Avoid contact with the eyes and skin.  
**Respiratory equipment:**  
 In case of brief exposure or low pollution use SO3 respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.  
**Protection of hands:** Acid resistant gloves.  
**Eye protection:** Tightly sealed goggles or face shield.  
**Body protection:** Acid resistant protective work clothing.  
**Exposure guidelines and limits:**

Ingredient	ACGIH TLV	OSHA PEL	Other Limits
Sulfuric Acid	1 mg/m3 (TWA) 3 mg/m3 (STEL)	1 mg/m3 (TWA)	16 mg/m3 (IDLH)
Hydrogen Peroxide	1 ppm (TWA)	1 ppm (TWA)	None listed
Peroxymonosulfuric Acid	1 mg/m3 (TWA)	1 mg/m3 (TWA)	16 mg/m3 (IDLH)

TLV: Threshold limit value  
 TWA: Time weighted average (8 hours)  
 PEL: Permissible exposure limit  
 IDLH: Immediately dangerous to life and Health

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**9 Physical and Chemical Properties:**

**Physical state:** Liquid  
**Color:** Clear  
**Odor:** Faint acid odor  
**Odor threshold:** Unknown  
**pH:** <1  
**Melting point/freezing point:** Not applicable  
**Initial boiling point and boiling range:** Approximately 300 degrees C  
**Flash point:** Not applicable  
**Evaporation rate:** Unknown  
**Lower explosion limits (LEL):** Not applicable  
**Upper explosion limits (UEL):** Not applicable  
**Vapor pressure (mm Hg):** <1 (at 40 degrees C)  
**Vapor density (air = 1):** >1  
**Relative density at 20 °C (water = 1):** 1.82 g/cm<sup>3</sup>  
**Solubility in water:** 100%  
**Partition coefficient (n-Octanol/water):** Unknown  
**Auto-ignition temperature:** Not applicable  
**Decomposition temperature:** Not applicable  
**Viscosity:** Unknown

**10 Stability and Reactivity**

**Dangerous reactions:** Reacts violently with caustics and water. Avoid contact with organic materials, metal salts, Ammonia, Nitric Acid, Nitrates, reducing agents, and organic solvents.  
**Danger of explosion:** Product does not present an explosion hazard.  
**Thermal decomposition :** No decomposition  
**Dangerous products of decomposition:**  
Releases toxic gases (Sulfur Dioxide and Sulfur Trioxide) if heated to partial evaporation.  
**Hazardous polymerization:** Does not occur

**11 Toxicological Information**

**Acute toxicity:**

Sulfuric Acid

Hydrogen Peroxide

LD 50 (oral-rat) 2140 mg/kg

LD 50 (dermal-rabbit) > 6.5 g/kg

LC 50 (inhl-rat) 510 mg/m<sup>3</sup>/2 hr.

LD 50 (oral-rat) >225 mg/kg

LC 50 (inhl-mouse) 320 mg/m<sup>3</sup>/2 hr.

LD 50 (inhl-rat) > 0.17 mg/l

Peroxymonosulfuric Acid: Similar toxicity data expected as for Sulfuric Acid

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**11 Toxicological Information (con't.)**

**Potential acute and chronic side effects:**

**Eyes:** Direct contact with eyes can cause severe burns or blindness.

**Skin:** Direct contact with the skin can cause irritation or damaging burns.

**Ingestion:** Swallowing may cause severe burns to the mouth and digestive tract. May be fatal if swallowed.

**Inhalation:** Causes severe burning of mucous membranes, possible laryngeal, tracheal, bronchial, and pulmonary edema, with possible shock, collapse.

IARC lists "strong inorganic acid mists" containing Sulfuric Acid as a category 1 carcinogen.

**Medical conditions generally aggravated by exposure:** Respiratory and skin diseases may predispose one to acute and chronic effects.

**Sensitization:** No sensitizing effects known.

**12 Ecological Information:**

Sulfuric Acid

24.5 ppm/24 hr./bluegill/lethal/fresh water

42.5 ppm/48 hr./prawn/LC50/salt water

Hydrogen Peroxide

16.4 mg/l/96 hr./fathead minnow/LC50/fresh water

7.7 mg/l/24 hr./daphnia magna/EC50/fresh water

Peroxymonosulfuric Acid: Similar toxicity data expected as for Sulfuric Acid

**General notes:**

Do not allow product to reach ground water, water course or sewage system. Danger to drinking water if even small quantities leak into the ground.

**13 Disposal Considerations**

Do not allow product to reach sewage system. Dispose of product (including containers) in accordance with applicable regulations.

**14 Transportation Information**

Land (CFR 49), Maritime (IMDG), Air (ICAO)

Class: 8 (Corrosive Liquid), subsidiary risk 5.1 (Oxidizer)

UN Number: 3093

Proper Shipping Name: Corrosive liquids, oxidizing n.o.s.  
(Sulfuric Acid, Peroxymonosulfuric Acid)

Packing Group: II

Marine pollutant: No

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**15 Regulatory Information**

**CERCLA Hazardous Substances (with reportable quantity):** Sulfuric Acid (1000 #)

**Extremely Hazardous Substances (with threshold quantity):** Sulfuric Acid (1000 #), Hydrogen Peroxide (1000 #)

**Toxic Chemicals (Section 313):** Sulfuric Acid

**TSCA Inventory:** All ingredients on TSCA inventory

**Proposition 65 List:** None

**Clean Water Act Hazardous Substance List (with reportable quantity):** Sulfuric Acid (1000 #)

**Clean Air Act Synthetic Organic Chemical (CAA SOCM):** None

**Clean Air Act Accidental Release Prevention Substance, section 112 r (with threshold quantity):** None

**PSM Highly Hazardous Chemical List (with threshold quantity):** None

**16 Other Information**

**MSDS document number:** MSDS 17-139

**Current date and revision:** 5/29/08, revision F

**Supersedes date and revision:** 10/20/06, revision E

**Note:** This Material Safety Data Sheet was created using the Globally Harmonized System (GHS) format for Safety Data Sheets (SDS).

**Disclaimer:** This information is based upon information and sources available at the time of preparation. This shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. It is the obligation of the user to determine product suitability and comply with the requirements of all applicable laws regarding use and disposal of this product.