

1. Chemical Product and Company Identification

Trade Name: NYACOL® CEO2(AC)
Chemical Name: Ceria, Acetate Stabilized
Synonyms: None.
Product Code: CEO2(AC)
Use: Ceramics
Manufacturer: Nyacol Nano Technologies, Inc.
Megunko Road, P.O. Box 349, Ashland, MA 01721 U.S.A.
508-881-2220
Emergency Telephone: CHEMTREC 800-424-9300
E-mail Contact: info@nyacol.com

2. Composition / Information on Ingredients

<u>Component</u>	<u>CAS #</u>	<u>Exposure Limits</u>	<u>Percent By Weight</u>
Cerium Oxide:	1306-38-3	Not available.	20
Acetic Acid:	64-19-7	10 PPM	3
Water:	7732-18-5	None.	77

<u>Component</u>	<u>EINECS #</u>	<u>RTECS #</u>	<u>REACH #</u>
Cerium Oxide:	215-150-4	FK6310000	05-2117294586-27-0000
Acetic Acid:	200-580-7	AF1225000	05-2117294607-31-0000
Water:	231-791-2	ZC0110000	None.

3. Hazard Identification

Emergency Overview: Yellow liquid. Vinegar odor. Keep spills out of surface waters.
Classification: Not harmful.
Symbol: Not applicable.
Risk Phrases: Not applicable.
Safety Phrases: Not applicable.

Potential Health Effects / Health Hazard Identification

Acute Exposure:

Eye: Irritation.
Skin: Irritation.
Ingestion: Not available.
Inhalation: Not available.
Chronic Exposure: Not known.

Other Hazards

Known Synergists: Not available.
Explosion Hazard: Not available.
Fire Hazard: Not available.
Corrosion Hazard: Not available.

4. First Aid Measures

Eye Contact: Flush eyes with large quantities of water. If irritation persists get medical attention.
Skin Contact: Wash well with soap and water.
Ingestion: If swallowed seek medical attention immediately. Do not induce vomiting. Give large quantities of water with Milk of Magnesia or other medical antacid. Never give anything by mouth to an unconscious person.
Inhalation: Remove person from exposure source, seek medical professional.
First Aid Facilities: Eye wash station, Milk of Magnesia or other medical antacid.
Advice to Physicians: None available.

5. Firefighting Measures

Flammability:	Will not burn in a fire. Containers can build pressure if exposed to heat or fire.
Extinguishing Media:	All are acceptable. Cool containers with water spray.
Protective Equipment:	Wear standard full firefighter turn-out gear (full bunker gear), and respiratory protection (SCBA).
Special Exposure Hazard:	Acid fumes may be generated.

6. Accidental Release Measures

Leaks and Spills:	Contain spill or leak with sand, clay or absorbent. Recover liquid for recycle or disposal. Do not allow spills into sewers or surface waters. Place absorbents, waste products and contaminated soil into containers for disposal.
Personal Protection:	Eye protection and impervious gloves. An approved air-purifying respirator should be worn if dust or mist is present.

7. Handling and Storage

Handling:	Avoid generating mist or dust during use.
Storage:	Store in cool dry area. Do not freeze.

8. Exposure Controls / Personal Protection

Engineering Control:	Use exhaust ventilation to keep airborne concentrations below exposure limits.
Respiratory Protection:	When respiratory protection required or concentrations un-known, use approved air-purifying respirator with dust cartridge.
Skin Protection:	Clean body-covering clothing, impervious gloves such as neoprene.
Eye Protection:	Wear approved safety glasses.

9. Physical and Chemical Properties

Appearance:	Yellow liquid
Odor:	Vinegar
Physical State:	Liquid. NYACOL [®] CEO2(AC) is a water-based material.
pH:	3.0
Boiling Point:	100°C (212°F) water
Freezing Point:	0°C (32°F) water
Flash Point:	Not applicable.
Vapor Pressure:	2260 kPs (17 mm Hg) at 20°C water
Oxidizing Properties:	Not known.
Solubility in Water:	Soluble in all proportions.
Density:	1220 kg/M ³
Specific Gravity:	1.22
Volatile by Weight:	80 %
Viscosity:	<15 cP
Explosion Limits:	Not applicable.
Partition Coefficient:	Not available.
Evaporation Rate:	Slow (Butyl Acetate = 1)

10. Stability and Reactivity

Chemical Stability:	Stable.
Conditions To Avoid:	Neutralization by basic materials.
Incompatibility With Other Materials:	Not available.
Hazardous Decomposition Products:	Acetic acid, oxides of carbon.
Hazardous Polymerization:	Will not occur.

11. Toxicological Information

<u>Material</u>	<u>LD₅₀, Rat, Oral</u>
Cerium Oxide:	Greater than 5000 mg/kg
Acetic Acid:	3310 mg/kg
Water:	None reported.
Eye Effects:	Not available.
Skin Effects:	Not available.
Inhalation Effects:	Not available.
Ingestion Effects:	Not available.

12. Ecological Information

Ecotoxicity:	Not available.
Persistence:	Not available.

13. Disposal Considerations

Disposal Considerations:	CEO2(AC) should be recycled or solidified for disposal in a landfill approved for chemical waste.
United States:	CEO2(AC) is not an RCRA regulated waste.

14. Transport Information

<u>Regulations</u>	<u>Shipping Name</u>	<u>Hazard Class</u>	<u>Packing Group</u>	<u>U.N. Number</u>
U.S. D.O.T.:	Not applicable	Not applicable	Not applicable	Not applicable
ICAO / IATA:	Not applicable	Not applicable	Not applicable	Not applicable
IMO / IMDG:	Not applicable	Not applicable	Not applicable	Not applicable
ADR:	Not applicable	Not applicable	Not applicable	Not applicable

15. Regulatory Information

U.S. Federal Regulations

EPA TSCA Inventory:	All ingredients listed.
SARA Section 313:	No ingredients listed.
D.O.T. Regulations:	See Section 14.

U.S. State Regulations

California Proposition 65:	No ingredients listed.
State Right-to-Know Laws:	Section 2 of this MSDS lists all components of CEO2(AC).

Canadian Regulations

Domestic Substance List:	All ingredients listed.
WHMIS:	Acetic Acid: Disclosure 1%; CEO2(AC) percentage is below classification range.
Transportation of Dangerous Goods:	Does not meet dangerous goods criteria.

Controlled Products

Regulations:	This MSDS contains all the information items specified in Schedule 1, Column 3 of the Controlled Products Regulations in a 16-heading format.
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EC Regulations

Classification:	Not harmful.
Symbol:	Not applicable.
Risk Phrases:	Not applicable.
Safety Phrases:	Not applicable.

16. Other Information

NFPA 704 Hazard Rating: Health – 1, Flammability – 0, Reactivity – 0, Special – None
HMIS[®] Hazard Rating: Health – 1, Flammability – 0, Reactivity – 0
Protective Equipment – B; eye protection, gloves
Recommended Use: CEO2(AC) is recommended for use in ceramics. Other uses have not been investigated and may have other hazards. For industrial use only, not for food, drug or home use.
Work Alert: Workers using CEO2(AC) should read and understand this MSDS and be trained in the proper use of this material.
MSDS Prepared By: David L. Catone
Technical Service and Product Development Manager
Nyacol Nano Technologies, Inc.
R&D Department
Telephone: 508-881-2220 (U.S.A.)
Revision Date: October 4, 2010
Supersedes: December 1, 2008

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