

## Section 1: Product and Company Identification:

### 1.1 Product Identifier

Product Form: Mixture  
 Identification of Substance: Yttrium Oxide  
 Product Name: NYACOL<sup>®</sup> Y2O3  
 Synonym: Colloidal Yttria, Colloidal Yttrium Oxide, Yttria, Y<sub>2</sub>O<sub>3</sub>  
 CAS Number: 1314-36-9  
 Index Number: Not available.  
 EINECS Number: 215-233-5  
 REACH Registration Number: It is not required to list the identified uses because the substance is not subject to registration according to REACH (< 1 t/a).

Formula: Y<sub>2</sub>O<sub>3</sub>  
 Nanoforms: Y2O3 exists as a nanoform  
 Unique formula identifier (UFI): Not required

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use: Ceramics. Catalysts.  
 Restrictions on Use: For industrial use only, not for food, drug or home use.

### 1.3 Details of the supplier of the safety data sheet

Company Identification: Nyacol Nano Technologies, Incorporated  
 Megunko Road, P.O. Box 349, Ashland, MA 01721 U.S.A.  
 +1 508-881-2220

Email Contact: [info@nyacol.com](mailto:info@nyacol.com)  
 Internet: [www.nyacol.com](http://www.nyacol.com)

### 1.4 Emergency telephone number

In Case of Emergency: USA/Canada CHEMTREC: +1 (703) 527-3887  
 International CHEMTREC: +1 (703) 741-5970  
 24 Hours/Day: 7 Days/Week

## Section 2: Hazard(s) Identification

### 2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)  
 Not classified.

2.1.1 Classification according to Regulation (EC) No. 1272/2008 (CLP)  
 Not classified.

### 2.2 Label Elements - Labelling according to Regulation (EC) No. 1272/2008

Not labelled.  
 Signal Word: Not applicable.  
 Hazard Pictogram: Not applicable.  
 Hazard Statement(s): Not applicable.  
 Precautionary Statement(s): Not applicable.

### 2.3 Other Hazards

Components do not meet the criteria for a PBT or vPvB substance.

### 2.4 Unknown acute toxicity (GHS US)

No further relevant information available.

## Section 3: Composition / Information on Ingredients

### 3.1 Chemical characterization: Mixtures

Description: Mixture consisting of the following components.

Component:	Product Identifier	GHS Classification	Percent By Weight	SCL, M-factor, ATE
Yttrium oxide:	CAS: 1314-36-9 EINECS: 215-233-5 Index: Not available	Not classified.	14	

Acetic acid:	CAS: 64-19-7 EINECS: 200-580-7 Index: Not available	Flam. Liq. 3, H226 Skin Corr. 1A, H314	9	Eye Irrit. 2; H319: 10 % ≤ C < 25 % Skin Corr. 1A; H314: C ≥ 90 % Skin Corr. 1B; H314: 25 % ≤ C < 90 % Skin Irrit. 2; H315: 10 % ≤ C < 25 % ATE: >2000 mg/kg (oral) 25 mg/m <sup>3</sup> (inhalation) (DNEL)
Water:	CAS: 7732-18-5 EINECS: 231-791-2 Index: Not available	Not classified.	77	

Impurities: Present at a level below that to be taken into account for classification.

Stabilizing Additives: None

The supplier currently has no knowledge on additional ingredients that are classified and that contribute to the classification of this substance.

Nanoform characteristics:

Name of nanoform: Yttrium oxide		
	Value	
Number based particle size distribution, nm	d10	1.3 - 1.7
	d50	1.2 - 5.0
	d90	1.8 - 9.0
Shape and aspect ratio	Spherical	
Crystallinity	Amorphous	
Surface functionalization	None	
Specific surface area, m <sup>2</sup> /g	15 - 60	

### Section 4: First-Aid Measures

#### 4.1 Description of first aid measures

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of the eye and lids with water. Get medical attention.
Skin Contact:	In case of contact, immediately flush skin with plenty of water for several minutes. Remove contaminated clothing. Get medical attention if skin irritation develops or persists.
Inhalation:	If inhaled, remove to fresh air; remove person from exposure source. If not breathing, clear person's airway and give artificial respiration. If breathing is difficult, qualified medical personnel may administer oxygen. Consult medical professional.
Ingestion:	If swallowed, rinse out mouth with water and seek medical attention. Never give anything by mouth to an unconscious person.

First Aid Facilities: Eye wash station.

Advice to Physicians: No further relevant information available.

#### 4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

#### 4.3 Indication of any immediate medical attention and special treatment needed.

No further relevant information available.

## Section 5: Fire-Fighting Measures

### 5.1 Extinguishing Media

Suitable Extinguishing Media: Use fire fighting measures that suit the environment. All are acceptable, cool containers with water spray.

Unsuitable extinguishing media: None known.

### 5.2 Special hazards arising from the substance or mixture

Flammability of the product: Material will not burn in a fire. Containers can build pressure if exposed to heat or fire.

Special Hazard Arising from the Chemical: No further relevant information available.

Fire Hazard: No further relevant information available.

Explosion Hazard: No further relevant information available.

Reactivity: No further relevant information available.

### 5.3 Advice for firefighters

Special Protective Equipment for Fire-fighters: Wear standard full firefighter turn-out gear (full bunker gear) and respiratory protection (SCBA).

## Section 6: Accidental Release Measures

### 6.1 Personal precautions, protective equipment and emergency procedures

#### 6.1.1 For non-emergency personnel

Personal Precautions and PPE: Wear protective equipment; eye protection and impervious gloves. Keep unprotected persons away. An approved air-purifying respirator should be worn if dust or mist is present.

### 6.2 Environmental precautions

Water contamination should be avoided.

### 6.3 Methods and material for containment and cleaning up

Ventilate area. Avoid breathing vapor, mist, or aerosol. Wear appropriate personal protective equipment, including appropriate respiratory protection. Contain spill or leak with sand, clay or absorbents. 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. Avoid contact with skin, eyes or clothing.

### 6.4 Reference to other sections

For more information on exposure controls and personal protection or disposal considerations, check section 8 and 13 of this SDS.

## Section 7: Handling and Storage

### 7.1 Precautions for safe handling

Minimum feasible handling and temperatures should be maintained. Avoid generating mist, aerosol, or dust during use. Use only in well ventilated area.

#### 7.1.1 Protective measures

Use only in well ventilated areas. As a precautionary measure, the wearing of standard work gear is suggested. Do not smoke. Protect from heat.

#### 7.1.2 Advice on general occupational hygiene

Avoid inhalation or ingestion. General occupational hygiene measures are required to ensure a safe handling of the substance. These measures involve good personal and housekeeping practices (i.e. regular cleaning with suitable cleaning devices), no eating, drinking and smoking at the workplace and wearing standard working clothes and shoes unless otherwise stated. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas. Shower and change clothes at end of work shift. Do not wear contaminated clothing at home.

### 7.2 Conditions for safe storage, including any incompatibilities

Periods of exposure to high temperatures should be minimized. Provide sufficient ventilation in storage and workrooms. Keep from freezing. Store in a cool dry area. Keep containers tightly sealed.

### 7.3 Specific end use(s)

No additional information available. Refer to Section 1.2 of this SDS.

### Section 8: Exposure Controls / Personal Protection

#### 8.1 Control Parameters

##### 8.1.1 National Limit Values

Yttrium oxide, CAS #1314-36-9

USA OSHA	OSHA PEL Ceiling (mg/M <sup>3</sup> )	1 mg/m <sup>3</sup> (Yttrium)
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Acetic acid, CAS #64-19-7

USA OSHA	OSHA PEL Ceiling (mg/M <sup>3</sup> )	10 ppm TWA
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#### 8.2 Exposure Controls

##### 8.2.1 Appropriate Engineering Controls

Use exhaust ventilation to keep airborne concentrations below exposure limits.

##### 8.2.2 Individual protective measures, such as personal protective equipment (PPE)

Hygiene Measures:

Workers should wash exposed skin several times daily with soap and water. Soiled work clothing should be laundered or dry-cleaned.

Respiratory:

Airborne concentrations should be kept to lowest levels possible. If vapor, mist, aerosols, or dust is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH or MSHA approved air purifying or air supplied respirator after determining the airborne concentration of the contaminant. Air-supplied respirators should always be worn when airborne concentrations of the contaminant or oxygen content is unknown.

Hands:

Wear impervious gloves such as neoprene.

Eyes:

Safety glasses, chemical type goggles, or face shield recommended to prevent eye contact.

Skin:

Wear clean body-covering clothing; impervious gloves such as neoprene. Workers should wash exposed skin several times daily with soap and water. Soiled work clothing should be laundered or dry-cleaned.

##### 8.2.3 Environmental Exposure Controls

Adverse effects of this material on the environment have not been evaluated. Proper disposal techniques to isolate and recover material should be implemented.

### Section 9: Physical and Chemical Properties

#### 9.1 Information on basic physical and chemical properties

Physical State:	Liquid
Color:	Translucent
Odor:	Slight vinegar
Melting point/freezing point:	0°C (32°F) water
Boiling point:	100°C (212°F) water
Flammability:	Not flammable
Lower and upper explosion limit:	Not determined
Flash point:	Not determined
Auto-ignition temperature:	Not determined
Decomposition temperature:	Not determined
pH:	6 – 7
Kinematic viscosity, mm <sup>2</sup> /s	<20 cP
Solubility:	Disperses in water, but is insoluble
Partition coefficient, n-octanol/water (log value)	Not determined
Vapor pressure	Not determined
Relative density (specific gravity)	1.2

Relative vapor density  
Particle characteristics

Not determined  
See Section 3 for nanoform characteristics

## Section 10: Stability and Reactivity

### 10.1 Reactivity

No further relevant information available.

### 10.2 Chemical Stability

Stable under normal ambient and anticipated storage and handling conditions.

### 10.3 Possibility of hazardous reactions

No further relevant information available.

### 10.4 Conditions to avoid

No further relevant information available.

### 10.5 Incompatible materials

No further relevant information available.

### 10.6 Hazardous decomposition products

Acetic acid, carbon monoxide, carbon dioxide.

## Section 11: Toxicological Information

### 11.1 Information on toxicological effects

Acute toxicity:

Acetic acid, 64-19-7 3310 mg/kg

Yttrium Oxide, 1314-23-4 >10 mg/kg

Skin Contact:

Irritant. Avoid contact with skin.

Eye Contact:

Irritant. Avoid contact with eyes.

Inhalation:

Use breathing protection when aerosol, mist or vapors are present.

Sensitization:

No further relevant information available.

Chronic Effects:

No further relevant information available.

Carcinogenicity

No data indicating any concern for carcinogenicity.

## Section 12: Ecological Information

### 12.1 Toxicity

Aquatic toxicity:

No further relevant information available.

### 12.2 Persistence and degradability

There is no data on the degradability of this product.

### 12.3 Bioaccumulative potential

No further relevant information available.

### 12.4 Mobility in soil

No further relevant information available.

### 12.5 Results of PBT and vPvB Assessment

The PBT and vPvB criteria of Annex XIII to the Regulation do not apply to this product.

### 12.6 Endocrine disrupting properties

No further relevant information available.

### 12.7 Other adverse effects

No further relevant information available.

## Section 13: Disposal Considerations

This information presented only applies to the materials as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

### 13.1 Waste treatment methods

Y2O3 disposal must be in accordance with location/national regulations.

In the United States Y203 is not a RCRA-regulated waste.

### Section 14: Transport Information

Not restricted for transportation.

#### Sections 14.1 – 14.4

##### Regulations

U.S. D.O.T.: Not regulated.

ICAO/IATA: Not regulated.

IMO/IMDG: Not regulated.

ADR: Not regulated.

#### 14.5 Environmental hazards:

No further relevant information available.

#### 14.6 Special precautions for users:

No further relevant information available.

#### 14.7 Transport bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

### Section 15: Regulatory Information

#### 15.1 Safety, health and environmental regulations/legislation specific for substance or mixture:

##### Worldwide Chemical Inventories

EINECS (EU):	All ingredients listed
TSCA (USA):	All ingredients listed
DSL (Canada):	All ingredients listed
AICS (Australia):	All ingredients listed
ENCS (Japan):	All ingredients listed
ECL (Korea):	All ingredients listed
PICCS (Philippines):	All ingredients listed
IECSC (China):	All ingredients listed
California Proposition 65:	No ingredients listed.
State Right-to-Know Laws:	Section 3 of this SDS lists all components of Y203.
California Proposition 65:	No ingredients listed.
SARA Section 311/312 (29 CFR 1910.1200) Hazards:	Not classified according to GHS.
SARA 313:	No ingredients listed.
SARA 313, 304 and CERCLA 102 (A):	Not applicable.
Controlled Products Regulations:	This SDS contains all the information items specified in Schedule 1, Column 3 of the Controlled Products Regulations in a 16-heading format.

#### 15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

### Section 16: Other Information

List of relevant phrases from section 2 and 3:

H315 – Causes skin irritation

H319 – Causes serious eye irritation

National Fire Protection Association (U.S.A.) 704

HMIS® Hazard Rating:

Health-0, Flammability-0, Reactivity-0, Special-None  
 Health-1, Flammability-0, Reactivity-0, Protective Equipment – B;  
 safety glasses, gloves.

Recommended Use:

The product is recommended for use in ceramics or catalysts. 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 NYACOL Y203 should read and understand this SDS and be trained in the proper use of this material.



# SAFETY DATA SHEET

## NYACOL® Y2O3

REVISION: May 27, 2026  
SUPERSEDES: November 7, 2014  
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Other Special Considerations:

None known.

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This SDS has been prepared with data from Nyacol Nano Technologies, Inc.'s laboratories, raw material suppliers, and government publications. Information herein is accurate to the best of our knowledge. Suggestions are made without warranty or guarantee of results. Before using, the user should determine the suitability of the products for the intended use, and the user assumes the risk and liability in connection therewith. We do not suggest violation of any existing patents or give permission to practice any patented invention without license.

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