Safety Data Sheet

Issue Date: 03-Dec-2014

Revision Date: 01-Oct-2015

Version 1

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product Identifier

Product Name	Yttria Stabilized Zirconia
Synonyms	YSZ, Yttrium stabilized zirconium oxide, Zirconium(IV) oxide - yttria stabilized
1.2. Relevant Identified Uses of the	Substance or Mixture and Uses Advised Against
Recommended Use	Laboratory chemicals and manufacture of substances
1.3. Details of the Supplier of the Sa	afety Data Sheet
Supplier Nexceris, LLC 404 Enterprise Dr. Lewis Center, OH 43035 www.nexceris.com	
For further information, please con	tact
Contact Point	Non-emergency calls/questions: 1-614-842-6606 Fax: 1-614-842-6607
Email Address	info@nexceris.com
1.4. Emergency telephone number	
Emergency Telephone (24 hr)	INFOTRAC 1-352-323-3500 (International) 1-800-535-5053 (North America)
	Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Regulation (EC) No 1272/2008

Not classified as dangerous according to Regulation (EC) No. 1272/2008.

Classification according to 67/548/EEC

Full text of R-phrases: see section 16

Hazard Symbols

Not dangerous

2.2. Label Elements

Not classified as dangerous according to Regulation (EC) No. 1272/2008.

Signal Word

None

EUH210 - Safety data sheet available on request

2.3. Other Hazards

General Hazards None known

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Chemical Name	EC No	CAS No	Weight-%	Classification according to 67/548/EEC	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH Registration Number
Zirconium Oxide	Present	1314-23-4	78-94	-	Not determined	Not determined
Yttrium Oxide	Present	1314-36-9	4-20	-	Not determined	Not determined
Hafnium Oxide	Present	12055-23-1	1-2	-	Not determined	Not determined
Aluminum Oxide	Present	1344-28-1	0-3	-	Not determined	Not determined

Full text of R-phrases: see section 16

Full text of H- and EUH-phrases: see section 16

Additional Information

Substances without a classification are included, because they have established occupational exposure limits

Section 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

Eye Contact	Rinse immediately with plenty of water and seek medical advice.		
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.		
Inhalation	Remove to fresh air.		
Ingestion	Clean mouth with water and drink afterwards plenty of water.		
4.2. Most Important Symptoms and Effects, Both Acute and Delayed			
Symptoms	None known.		
4.3. Indication of any Immediate Medical Attention and Special Treatment Needed			
Notes to Physician	Treat symptomatically.		

Section 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

Not determined.

5.2. Special Hazards Arising from the Substance or Mixture

Product is not flammable.

5.3. Advice for Firefighters

Wear self-contained breathing apparatus and protective suit. Use personal protective equipment as required.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions

Use personal protective equipment as required. Avoid creating dust.

For Emergency Responders

Use personal protection recommended in Section 8.

6.2. Environmental Precautions

Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

6.3. Methods and Material for Containment and Cleaning Up

Methods for ContainmentPrevent further leakage or spillage if safe to do so.Methods for Clean-UpPlace in appropriate containers for disposal.

6.4. Reference to Other Sections

See Section 13: DISPOSAL CONSIDERATIONS.

Section 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Advice on Safe Handling

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Avoid generation of dust.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions

Keep container tightly closed and store in a cool, dry and well-ventilated place.

7.3. Specific End Use(s)

Specific Use(s) Laboratory chemicals and Manufacture of substances.

Risk Management Methods (RMM)

The information required is contained in this Safety Data Sheet.

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Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

Exposure Limits

Chemical Name	European Union	United Kingdom	France	Spain	Germany
Zirconium Oxide		TWA: 5 mg/m ³		STEL: 10 mg/m ³	
1314-23-4				TWA: 5 mg/m ³	
Yttrium Oxide				TWA: 1 mg/m ³	
1314-36-9				-	
Hafnium Oxide				TWA: 0.5 mg/m ³	
12055-23-1				-	
Aluminum Oxide		TWA: 10 mg/m ³	TWA: 10 mg/m ³	TWA: 10 mg/m ³	TWA: 4 mg/m ³
1344-28-1		TWA: 4 mg/m ³	-	•	TWA: 1.5 mg/m
					Skin
Component	Italy	Portugal	Netherlands	Finland	Denmark
Zirconium Oxide		STEL: 10 mg/m ³		TWA: 1 mg/m ³	TWA: 5 mg/m ³
1314-23-4 (78-94)		TWA: 5 mg/m ³			
Yttrium Oxide		TWA: 1 mg/m ³		TWA: 1 mg/m ³	TWA: 1 mg/m ³
1314-36-9 (4-20)					
Hafnium Oxide		TWA: 0.5 mg/m ³		TWA: 0.5 mg/m ³	
12055-23-1 (1-2)		Ū		Ū	
Aluminum Oxide		TWA: 10 mg/m ³	TWA: 0.05 mg/m ³		TWA: 5 mg/m ³
1344-28-1 (0-3)		U U	Ŭ		TWA: 2 mg/m ³
Chemical Name	Austria	Switzerland	Poland	Norway	Ireland
Zirconium Oxide	TWA: 5 mg/m ³	TWA: 5 mg/m ³	STEL: 10 mg/m ³	TWA: 5 mg/m ³	TWA: 5 mg/m ³
1314-23-4			TWA: 5 mg/m ³	STEL: 10 mg/m ³	STEL: 10 mg/m
Yttrium Oxide			TWA: 1 mg/m ³	~	
1314-36-9			°,		
Hafnium Oxide	TWA: 0.5 mg/m ³		TWA: 0.5 mg/m ³		
12055-23-1	J J		Ŭ		
Aluminum Oxide	STEL 10 mg/m ³	STEL: 24 mg/m ³	TWA: 2.5 mg/m ³	TWA: 10 mg/m ³	TWA: 10 mg/m
1344-28-1	TWA: 5 mg/m ³	TWA: 3 mg/m ³	TWA: 1.2 mg/m ³	STEL: 20 mg/m ³	TWA: 4 mg/m ³

8.2. Exposure Controls

Engineering Controls

Apply technical measures to comply with the occupational exposure limits.

Personal Protective Equipment

Eye/Face Protection	Avoid contact with eyes.
Hand Protection	Gloves are not required for normal use.
Skin and Body Protection	Suitable protective clothing.
Respiratory Protection	Ensure adequate ventilation, especially in confined areas. In case of inadequate ventilation wear respiratory protection.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State Appearance Colour	Solid White solid White	Odour Odour Threshold	None Not determined
<u>Property</u> pH Melting Point/Freezing Point Boiling Point/Boiling Range Flash Point Evaporation Rate Flammability (Solid, Gas) Flammability Limits in Air	Values Not determined ~ 2500 °C / ~4530 °F ~ 3800 °C / ~6870 Not determined Not determined Not flammable	<u>Remarks • Method</u>	

- Upper Flammability Limits Lower Flammability Limit Vapour Pressure Vapour Density Relative Density Water Solubility Solubility(ies) Partition Coefficient Auto-ignition Temperature Decomposition Temperature Kinematic Viscosity Dynamic Viscosity Explosive Properties Oxidizing Properties
 - Not determined Not determined Not determined Not determined Practically insoluble Not determined Not determined

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

Not reactive under normal conditions.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of Hazardous Reactions

Possibility of Hazardous Reactions

None under normal processing.

10.4. Conditions to Avoid

Keep out of reach of children. Avoid generation of dust.

10.5. Incompatible Materials

None known based on information supplied.

10.6. Hazardous Decomposition Products

None under normal use conditions.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects

Acute Toxicity

Product Information

Eye Contact	Avoid contact with eyes.
Skin Contact	Avoid contact with skin.
Inhalation	Avoid inhalation of dust.
Ingestion	Do not ingest.

Unknown Acute Toxicity

100% of the mixture consists of ingredient(s) of unknown toxicity.

The following values are calculated based on chapter 3.1 of the GHS document:

Oral LD50	99,999.00
Units	mg/kg
Dermal LD50	99,999.00
Units	mg/kg
Inhalation	
Gas	99,999.00
Units	mg/L
Mist	99,999.00
Units	mg/L
Vapor	99,999.00
Units	mg/L

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50	
Aluminum Oxide	> 5000 mg/kg (Rat)			
Skin corrosion/irritation	Not classified.			
Serious eye damage/eye irritatio	on Not classified.			
Sensitization	Not classified.			
Germ cell mutagenicity	Not classified.			
Carcinogenicity	None known based on info	None known based on information supplied.		
Reproductive toxicity	Not classified.			
STOT - single exposure	Not classified.			
STOT - repeated exposure	Not classified.			
Aspiration hazard	Not classified.			
Symptoms	Please see section 4 of the	is SDS for symptoms.		

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Not determined.

12.2. Persistence and Degradability

Not determined.

12.3. Bioaccumulative Potential

Not determined.

12.4. Mobility in Soil

Mobility Not determined.

12.5. Results of PBT and vPvB Assessment

Not determined.

12.6. Other Adverse Effects

Not determined.

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste Treatment Methods

Waste from Residues / Unused Products	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated Packaging	Improper disposal or reuse of this container may be dangerous and illegal.

Section 14: TRANSPORT INFORMATION

IMDG 14.2 Proper Shipping Name	Not regulated
<u>RID</u> 14.2 Proper Shipping Name	Not regulated
ADR_ 14.2 Proper Shipping Name	Not regulated
ICAO (air) 14.2 Proper Shipping Name	Not regulated
IATA 14.2 Proper Shipping Name	Not regulated

Section 15: REGULATORY INFORMATION

15.1. Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

International Inventories

Not determined.

TSCA	-
EINECS/ELINCS	-
DSL/NDSL	-
PICCS	-
ENCS	-
IECSC	-
AICS	-
KECL	-

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List PICCS - Philippines Inventory of Chemicals and Chemical Substances ENCS - Japan Existing and New Chemical Substances IECSC - China Inventory of Existing Chemical Substances AICS - Australian Inventory of Chemical Substances KECL - Korean Existing and Evaluated Chemical Substances

15.2. Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

Section 16: OTHER INFORMATION

Full text of R-phrases referred to under sections 2 and 3 Not applicable

Full text of H-Statements referred to under sections 2 and 3

Not applicable

Classification Procedure Calculation method

Issue Date:	03-Dec-2014
Revision Date:	01-Oct-2015
Revision Note:	Company name change

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended by Regulation (EU) No. 453/2010

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet