

Australian statement of hazardous nature : Classified as hazardous according to criteria of Safe Work Australia

## Section 1 - Identification

**Product Name** Zinc oxide based sulfur removal material, HiFUEL® A310

<b>Product Code</b>	<b>45469</b>
<b>Address</b>	ThermoFisher Scientific Australia Pty Ltd 5 Caribbean Drive, Scoresby VICTORIA 3179, Australia
<b>Emergency Tel.</b>	<b>CHEMTREC®</b> <b>03 9757 4559 or +613 9757 4559</b>
<b>Telephone / Fax Numbers</b>	Tel: 1300 735 292 Fax: 1800 067 639
<b>E-mail address</b>	ANZinfo@thermofisher.com

**Recommended Use** Laboratory chemicals.

**Uses advised against** This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list. This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction. This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern.

## Section 2 - Hazard(s) Identification

### Classification under Safe Work Australia

Classified as hazardous according to criteria of Safe Work Australia

#### Physical hazards

No hazards identified

#### Health hazards

No hazards identified

#### Environmental hazards

Acute aquatic toxicity  
Chronic aquatic toxicity

Category 1  
Category 1

### Label Elements



Environment

**Signal Word**

**Danger**

**Hazard Statements**

H410 - Very toxic to aquatic life with long lasting effects

**Precautionary Statements**

P403 - Store in a well-ventilated place

P501 - Dispose of contents/ container to an approved waste disposal plant

**Other information**

Toxic to terrestrial vertebrates

## Section 3 - Composition and Information on Ingredients

Component	CAS No	Weight %
Zinc oxide	1314-13-2	90.0
Cement, alumina, chemicals	65997-16-2	10.0

## Section 4 - First Aid Measures

<b>Inhalation</b>	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
<b>General Advice</b>	If symptoms persist, call a physician.
<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
<b>First Aid Facilities</b>	Eyewash, safety shower and washroom.
<b>Most important symptoms and effects</b>	None reasonably foreseeable.
<b>Notes to Physician</b>	Treat symptomatically.

## Section 5 - Fire Fighting Measures

**Suitable Extinguishing Media**

Not combustible.

**Extinguishing media which must not be used for safety reasons**

No information available.

**Hazardous Decomposition Products**

Calcium oxides, Fumes of aluminum or aluminum oxide, Zinc oxide.

#### Specific Hazards Arising from the Chemical

Do not allow run-off from fire-fighting to enter drains or water courses.

#### Special protective equipment and precautions for fire fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## Section 6 - Accidental Release Measures

#### Emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

#### Environmental Precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Should not be released into the environment.

#### Methods for Containment and Clean Up

##### Clean-up methods - small spillage

Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

##### Clean-up methods - large spillage

Typically only supplied in small quantities as packaged goods.

If extremely toxic or used in larger quantities ensure a spillage action plan is in place. Evacuate area. Control the source and/or contain the spill if safe and able to do so. Use temporary diking, sand bags, dry sand, earth or proprietary booms/absorbent pads if available. Obtain advice on containment, neutralisation and clean-up from local emergency responders.

#### Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

## Section 7 - Handling and Storage

#### Precautions for Safe Handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

#### Conditions for Safe Storage, Including any Incompatibilities

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

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals

## Section 8 - Exposure Controls and Personal Protection

#### Exposure limits

**AUS** - Exposure Standards for Atmospheric Contaminants in the Occupational Environment - Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008(1995)]

Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)]

updated in August, 2005. Safe Work Australia **ACGIH** - Threshold Limit Values - Ceiling (TLV-C) guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) for controlling worker exposure to airborne chemical concentrations in the workplace. **DE** - MAK and BAT values of Hazardous Chemical Compounds in the Work Area. Published by German Research Foundation on July 1, 2011

Component	Australia	New Zealand WEL	ACGIH TLV	The United Kingdom	Germany
Zinc oxide	STEL: 10 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	TWA: 0.1 mg/m <sup>3</sup> TWA: 2 mg/m <sup>3</sup> STEL: 0.5 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>		TWA: 0.1 mg/m <sup>3</sup> (8 Stunden). MAK TWA: 2 mg/m <sup>3</sup> (8

		STEL: 5 mg/m <sup>3</sup>			Stunden). MAK Höhepunkt: 0.4 mg/m <sup>3</sup> Höhepunkt: 4 mg/m <sup>3</sup>
--	--	---------------------------	--	--	---

#### **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

#### **Exposure Controls**

##### **Engineering Measures**

Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

#### **Personal protective equipment**

##### **Eye Protection**

Wear safety glasses with side shields (or goggles) (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial applications)

##### **Hand Protection**

Protective gloves

Glove material	Breakthrough time	Glove thickness	AUS/NZ Standard	Glove comments
Natural rubber	See manufacturers	-	AS/NZS 2161	(minimum requirement)
Nitrile rubber	recommendations			
Neoprene				
PVC				

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

##### **Skin and body protection**

Long sleeved clothing

##### **Respiratory Protection**

Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use and maintenance of respiratory protective devices

##### **Recommended Filter type: Recommended half mask:-**

Particle filter Particulates filter conforming to EN 143 (or AUS/NZ equivalent)  
Particle filtering: EN149:2001 (or AUS/NZ equivalent)  
When RPE is used a face piece Fit Test should be conducted

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

#### **Environmental exposure controls**

Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

## **Section 9 - Physical and Chemical Properties**

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

##### **Appearance**

##### **Physical State**

Solid Spheres

##### **Odor**

No information available

##### **Odor Threshold**

No data available

##### **pH**

No information available

<b>Melting Point/Range</b>	No data available	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	No information available	
<b>Flash Point</b>	No information available	<b>Method -</b> No information available
<b>Evaporation Rate</b>	Not applicable	Solid
<b>Flammability (solid,gas)</b>	No information available	
<b>Explosion Limits</b>	No data available	
<b>Vapor Pressure</b>	No data available	
<b>Vapor Density</b>	Not applicable	Solid
<b>Specific Gravity / Density</b>	No data available	
<b>Bulk Density</b>	No data available	
<b>Water Solubility</b>	Insoluble in water	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Autoignition Temperature</b>	No data available	
<b>Decomposition Temperature</b>	No data available	
<b>Viscosity</b>	Not applicable	Solid
<b>Explosive Properties</b>	No information available	
<b>Oxidizing Properties</b>	No information available	

Other information

## Section 10 - Stability and Reactivity

<b>Reactivity</b>	None known, based on information available
<b>Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	Heat, flames and sparks.
<b>Incompatible Materials</b>	Oxidizing agent.
<b>Hazardous Decomposition Products</b>	Calcium oxides. Fumes of aluminum or aluminum oxide. Zinc oxide.
<b>Hazardous Polymerization</b>	No information available.

## Section 11 - Toxicological Information

**Information on Toxicological Effects**

**Product Information**

<b>(a) acute toxicity;</b>	
<b>Oral</b>	Based on available data, the classification criteria are not met
<b>Dermal</b>	No data available
<b>Inhalation</b>	No data available

**Toxicology data for the components**

<b>Component</b>	<b>LD50 Oral</b>	<b>LD50 Dermal</b>	<b>LC50 Inhalation</b>
Zinc oxide	LD50 > 5000 mg/kg ( Rat )	LD50 > 2000 mg/kg, 24h (Rat)	LC50 > 5.7 mg/L, 4h (Rat)

**(b) skin corrosion/irritation;** No data available

**(c) serious eye damage/irritation;** No data available

**(d) respiratory or skin sensitization;**

**Respiratory**

No data available

**Skin**

No data available

Component	Test method	Test species	Study result
Zinc oxide 1314-13-2 ( 90.0 )	in vivo OECD Test Guideline 406 Test method B.6	guinea pig	non-sensitising

**(e) germ cell mutagenicity;**

No data available

Component	Test method	Test species	Study result
Zinc oxide 1314-13-2 ( 90.0 )	in vitro OECD Test Guideline 471 Bacterial Reverse Mutation Test	in vitro: Bacteria	negative
	in vivo OECD Test Guideline 474 Mammalian	in vivo Mammalian	negative

**(f) carcinogenicity;**

No data available

There are no known carcinogenic chemicals in this product

**(g) reproductive toxicity;**

No data available

**(h) STOT-single exposure;**

No data available

**(i) STOT-repeated exposure;**

No data available

**Target Organs**

No information available.

**(j) aspiration hazard;**

Not applicable

Solid

**Symptoms / effects, both acute and delayed** No information available

## Section 12 - Ecological Information

**Ecotoxicity effects**

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Zinc oxide	LC50: = 1.55 mg/L, 96h static (Danio rerio)			

**Persistence and Degradability**

Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary

**Persistence**

Insoluble in water, May persist.

**Degradability**

Not relevant for inorganic substances.

**Degradation in sewage treatment plant**

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

**Bioaccumulative Potential**

May have some potential to bioaccumulate Product has a high potential to bioconcentrate

**Mobility**

Spillage unlikely to penetrate soil. Is not likely mobile in the environment due its low water solubility

**Endocrine Disruptor Information**

This product does not contain any known or suspected endocrine disruptors

**Persistent Organic Pollutant**

This product does not contain any known or suspected substance

**Ozone Depletion Potential**

This product does not contain any known or suspected substance

## Section 13 - Disposal Considerations

<b>Waste from Residues/Unused Products</b>	Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations.
<b>Contaminated Packaging</b>	Dispose of this container to hazardous or special waste collection point.
<b>Other Information</b>	Chemical wastes should be disposed through a licensed commercial waste collection service. Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

## Section 14 - Transport Information

### IMDG/IMO

<b>UN-No</b>	UN3077
<b>Proper Shipping Name</b>	Environmentally hazardous substances, solid, n.o.s.
<b>Technical Shipping Name</b>	(Zinc oxide)
<b>Hazard Class</b>	9
<b>Packing Group</b>	III

### ADG

<b>UN-No</b>	UN3077
<b>Proper Shipping Name</b>	Environmentally hazardous substances, solid, n.o.s.
<b>Technical Shipping Name</b>	(Zinc oxide)
<b>Hazard Class</b>	9
<b>Packing Group</b>	III

### IATA

<b>UN-No</b>	UN3077
<b>Proper Shipping Name</b>	Environmentally hazardous substances, solid, n.o.s.
<b>Technical Shipping Name</b>	(Zinc oxide)
<b>Hazard Class</b>	9
<b>Packing Group</b>	III

<b>Environmental hazards</b>	Dangerous for the environment Product is a marine pollutant according to the criteria set by IMDG/IMO
<b>Special Precautions</b>	No special precautions required
<b>Additional information</b>	None known

## Section 15 - Regulatory Information

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

#### National Regulations      **Australia**

See section 8 for national exposure control parameters.

## Standard for the Uniform Scheduling of Medicines and Poisons

Classified as a scheduled poison according to the Standard for Uniform Scheduling of Medicines and Poisons.

Component	Standard for the Uniform Scheduling of Medicines and Poisons
Zinc oxide - 1314-13-2	Schedule 4 listed - for human internal use except in preparations with a recommended daily dose of $\leq 25$ mg of Zinc, or in preparations with a recommended daily dose of between 25-50 mg of Zinc when compliant with the requirements of the Required Advisory Statements for Medicine Labels
Cement, alumina, chemicals - 65997-16-2	Schedule 2 listed Schedule 4 listed - in injectable preparations for human use Schedule 5 listed - for the treatment of animals except up to 1% of Iron oxides when present as an excipient; in preparations for injection except in preparations containing $\leq 0.1\%$ of Iron Schedule 5 listed - for the treatment of animals except up to 1% of Iron oxides when present as an excipient; in other preparations except in liquid or gel preparations containing $\leq 0.1\%$ of Iron, or in animal feeds or feed premixes Schedule 5 listed - for use as agricultural chemicals except in preparations containing $\leq 4\%$ of Iron Schedule 6 listed - except up to 1% of Iron oxides when present as an excipient. For the treatment of animals except: when included in Schedule 5, in liquid or gel preparations containing $\leq 0.1\%$ of Iron, or in animal feeds or feed premixes

## Australian Industrial Chemicals Introduction Scheme (AICIS)

Component	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information
Zinc oxide - 1314-13-2	Present	-
Cement, alumina, chemicals - 65997-16-2	Present	-

## Australian - Illicit Drug Precursors/Reagents Substance List

This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

## Chemicals of Security Concern

This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern

**National pollutant inventory** Not applicable

## Prohibition or notification/licensing requirements

Shown below are details of specific prohibition/notifications or licensing requirements when they apply.

This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction.

## International Inventories

Component	AICS	NZIoC	EINECS	ELINCS	TSCA	DSL	NDSL	PICCS	ENCS	ISHL	IECSC	KECL
Zinc oxide	X	X	215-222-5	-	X	X	-	X	X	X	X	KE-35565
Cement, alumina, chemicals	X	X	266-045-5	-	X	X	-	-	-		X	KE-00880

**Legend:** X - Listed. '-' - Not Listed. **KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

## International Regulations

**Ozone Depletion Potential** This product does not contain any known or suspected substance

**Persistent Organic Pollutant** This product does not contain any known or suspected substance



Rotterdam Convention (PIC) Not applicable

**Basel convention on the control of transboundary movements of hazardous wastes and their disposal**

Take note that wastes may be subject to export, import, or transit controls pursuant to the Basel convention and/or local regulations implementing the Basel convention.

Component	Basel Convention (Hazardous Waste)	Australian Hazardous Waste Act - Categories of Wastes to Be Controlled
Zinc oxide - 1314-13-2	Annex I - Y23	Y23

Component	CAS No	OECD HPV	Restriction of Hazardous Substances (RoHS)	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Zinc oxide	1314-13-2	Listed	Not applicable	Not applicable	Not applicable
Cement, alumina, chemicals	65997-16-2	Listed	Not applicable	Not applicable	Not applicable

**Authorisation/Restrictions according to EU REACH**

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Zinc oxide	-	Use restricted. See item 75. (see link for restriction details)	-

<https://echa.europa.eu/substances-restricted-under-reach>

## Section 16 - Other Information

**Legend**

**AICS** - Australian Inventory of Chemical Substances  
**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**IECSC** - Chinese Inventory of Existing Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**TWA** - Time Weighted Average  
**IARC** - International Agency for Research on Cancer  
**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association  
**MARPOL** - International Convention for the Prevention of Pollution from Ships  
**NZS 5433:2012** - Transport of Dangerous Goods on Land  
**LD50** - Lethal Dose 50%  
**EC50** - Effective Concentration 50%  
**WEL** - Workplace Exposure Limit  
**DNEL** - Derived No Effect Level  
**POW** - Partition coefficient Octanol:Water  
**vPvB** - very Persistent, very Bioaccumulative  
**VOC** - (Volatile Organic Compound)

**NZIoC** - New Zealand Inventory of Chemicals  
**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances  
**ENCS** - Japanese Existing and New Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances  
**CAS** - Chemical Abstracts Service  
**ACGIH** - American Conference of Governmental Industrial Hygienists Predicted No Effect Concentration (PNEC)  
**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code  
**ADG** Australian Code for the Transport of Dangerous Goods by Road and Rail  
**OECD** - Organisation for Economic Co-operation and Development  
**LC50** - Lethal Concentration 50%  
**ATE** - Acute Toxicity Estimate  
**RPE** - Respiratory Protective Equipment  
**NOEC** - No Observed Effect Concentration  
**BCF** - Bioconcentration factor  
**PBT** - Persistent, Bioaccumulative, Toxic

**Key literature references and sources for data**

<https://echa.europa.eu/information-on-chemicals>  
 Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:**  
**Physical hazards** On basis of test data

---

Health Hazards	Calculation method
Environmental hazards	Calculation method

## Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

Revision Date	19-Nov-2022
Revision Summary	Not applicable.

**This Safety Data Sheet (SDS) is prepared in accordance to and complies with the requirements of Safe Work Australia - Work Health and Safety Regulations (WHS Regulations).**

## 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