



SAFETY DATA SHEET

SECTION 1 : IDENTIFICATION

Product identifier used on the label:

Product Name: **Zinc Oxide**
SDS Manufacturer Number: 78

Other means of identification:

Product Description: Used in many industries such as Paint, Rubber, Ink, Plastics, Adhesives, and Cosmetics.
Synonyms: Zinc Oxide; CR 4, CR 40, CR 41, CR 42, CR 4 USP, Westco AZO-L

Recommended use of the chemical and restrictions on use:

Product Use/Restriction: CR-4 Zinc Oxide is used in natural and synthetic rubber compounds as part of the cure system activation. It can also enhance heat aging properties of the vulcanized rubber. It is typically added at a 3.0 - 5.0 phr level early in the mixing process except with polychloroprene compounds.

Chemical distributor, or other responsible party Name, address, and telephone number:

Distributor Name: Western Reserve Chemical Corporation
Address: 4837 Darrow Road
Stow, OH 44224
USA
General Phone Number: 330 650 2244
General Fax Number: 330 650 2255

Emergency phone number:

Emergency Phone Number: Chemtrec 1 800 424 9300 USA
Website: www.wrchem.com

SECTION 2 : HAZARD(S) IDENTIFICATION

Classification of the chemical in accordance with CFR 1910.1200(d)(f):

GHS Pictograms:



Signal Word: Warning

GHS Class: OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture:
AQUATIC HAZARD (ACUTE) - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 1

Precautionary statements:
Storage: Not applicable.

Hazards not otherwise classified:
Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

Hazard Statements: Very toxic to aquatic life with long lasting effects.

Precautionary Statements: Avoid release to the environment.
Collect spillage.
Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified that have been identified during the classification process:

Route of Exposure: Eyes. Skin. Inhalation. Ingestion.

Eye: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

Skin: No known significant effects or critical hazards.

Inhalation: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

Ingestion: No known significant effects or critical hazards.

Carcinogenicity: No known significant effects or critical hazards.

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures:

Chemical Name	CAS#	Ingredient Percent	EC Num.
Zinc oxide	1314-13-2	95 - 100 %	

SECTION 4 : FIRST AID MEASURES

Description of necessary measures:

Eye Contact:	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention if irritation occurs.
Skin Contact:	Wash contaminated skin with soap and water. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Ingestion:	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed:

Other First Aid:	Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
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Indication of immediate medical attention and special treatment needed:

Note to Physicians:	Indication of immediate medical attention and special treatment needed, if necessary: Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Specific treatments: No specific treatment.
Notes :	Most important symptoms/effects, acute and delayed: Potential acute health effects: Eye contact: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes. Inhalation: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. Skin contact: No known significant effects or critical hazards. Ingestion: No known significant effects or critical hazards. Over-exposure signs/symptoms: Eye contact: Adverse symptoms may include the following: irritation redness Inhalation: Adverse symptoms may include the following: respiratory tract irritation coughing Skin contact: No known significant effects or critical hazards. Ingestion: No known significant effects or critical hazards. See toxicological information (Section 11)

SECTION 5 : FIRE FIGHTING MEASURES

Suitable and unsuitable extinguishing media:

Suitable Extinguishing Media:	Suitable: Use an extinguishing agent suitable for the surrounding fire.
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Special protective equipment and precautions for fire-fighters:

Protective Equipment:	Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. Contain fire run-off water. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Personal Precautions:

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions:

Environmental Precautions:

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up:

Spill Cleanup Measures:

Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

SECTION 7 : HANDLING and STORAGE

Precautions for safe handling:

Handling:

Protective measures: Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Hygiene Practices:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Advice on general occupational hygiene:

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities:

Storage:

Conditions for safe storage, including any incompatibilities:

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Zinc oxide :

Guideline ACGIH:

ACGIH TLV (United States, 4/2014).
* STEL: 10 mg/m³ 15 minutes. Form: Respirable fraction
* TWA: 2 mg/m³ 8 hours. Form: Respirable fraction

Guideline OSHA:

OSHA PEL (United States, 2/2013).
* TWA: 5 mg/m³ 8 hours. Form: Fume
* TWA: 5 mg/m³ 8 hours. Form: Respirable fraction
* TWA: 15 mg/m³ 8 hours. Form: Total dust

Guideline NIOSH:

NIOSH REL (United States, 10/2013).
* CEIL: 15 mg/m³ Form: Dust
* TWA: 5 mg/m³ 10 hours. Form: Dust and fumes
* STEL: 10 mg/m³ 15 minutes. Form: Fume

Appropriate engineering controls:

Engineering Controls:

Appropriate engineering controls: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures:

Eye/Face Protection:

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with sideshields. If operating conditions cause high dust concentrations to be produced, use dust goggles.

Skin Protection Description:

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Hand Protection Description:

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Respiratory Protection:

Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated

exposure levels, the hazards of the product and the safe working limits of the selected respirator.

PPE Pictograms:



Environmental exposure controls In some cases, dust collection, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9 : PHYSICAL and CHEMICAL PROPERTIES

PHYSICAL AND CHEMICAL PROPERTIES:

Physical State:	Solid. [Powder.]
Color:	white.
Odor:	Odorless.
Odor Threshold:	Not applicable.
Boiling Point:	Not available.
Melting Point:	1975 deg C (3587 deg F)
Density:	Relative: 5.61
Solubility:	Very slightly soluble in the following materials: cold water and hot water.
Vapor Density:	Not applicable.
Vapor Pressure:	Not applicable.
Percent Volatile:	Not applicable.
Evaporation Rate:	Not applicable.
pH:	Neutral.
Coefficient of Water/Oil Distribution:	Partition coefficient: n-octanol/water: Not applicable.
Flash Point:	Not applicable.
Lower Flammable/Explosive Limit:	Not applicable.
Upper Flammable/Explosive Limit:	Not applicable.
Auto Ignition Temperature:	Not applicable.

9.2. Other information:

Notes : Flammability (solid, gas): Not applicable.

SECTION 10 : STABILITY and REACTIVITY

Reactivity:

Reactivity: No specific test data related to reactivity available for this product or its ingredients.
Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

Chemical Stability:

Chemical Stability: The product is stable.

Conditions To Avoid:

Conditions to Avoid: No specific data.

Incompatible Materials:

Incompatible Materials: Chlorinated rubber: Violent reaction or explosion with zinc oxide at 215 deg C.
Flax oil: Exothermic reaction with possibility of ignition.
Magnesium: If heated: explosive reaction.
Strong bases and acids: Possibility of violent reaction.

Hazardous Decomposition Products:

Special Decomposition Products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11 : TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

Zinc oxide :

Acute Toxicity: There is no data available.
Numerical measures of toxicity:
Acute toxicity estimates: There is no data available.

Zinc oxide :

Eye: Adverse symptoms may include irritation and redness.

Inhalation:	Adverse symptoms may include respiratory tract irritation and coughing
Sensitization:	There is no data available.
Chronic Effects:	General: Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
Mutagenicity:	No known significant effects or critical hazards.
Teratogenicity:	No known significant effects or critical hazards.

SECTION 12 : ECOLOGICAL INFORMATION

Zinc oxide :

Persistence and degradability:

Biodegradation: Persistence and degradability: There is no data available.

Bioaccumulative potential:

Bioaccumulation: There is no data available.

Mobility in soil:

Mobility In Environmental Media: Mobility in soil:
Soil/water partition coefficient (KOC): There is no data available.

Other adverse effects:

Effect of Material On Aquatic Life: Result: Acute EC50 0.042 mg/L Fresh water
Species: Algae - Pseudokirchneriella subcapitata - Exponential growth phase
Exposure: 72 hours

Result: Acute LC50 98 µg/L Fresh water
Species: Daphnia - Daphnia magna - Neonate
Exposure: 48 hours

Result: Acute LC50 320 ppm Fresh water
Species: Fish - Lepomis macrochirus
Exposure: 96 hours

Result: Chronic NOEC 0.017 mg/L Fresh water
Species: Algae - Pseudokirchneriella subcapitata - Exponential growth phase
Exposure: 72 hours

SECTION 13 : DISPOSAL CONSIDERATIONS

Description of waste:

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14 : TRANSPORT INFORMATION

DOT Shipping Name:	Not Regulated.
DOT Pictograms:	
IATA Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide)
IATA UN Number:	UN3077
IATA Hazard Class:	9
IATA Packing Group:	III
IATA Pictograms:	
IMDG UN Number :	UN3077
IMDG Shipping Name :	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide).
IMDG Hazard Class :	9
IMDG Packing Group :	III
Notes :	Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not available.

SECTION 15 : REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product:

Zinc oxide :

TSCA Inventory Status: This material is listed or exempted.
SARA: Not applicable.
Section 302 EHS: Not applicable.
Section 304 RQ: Not applicable.
New Jersey: This material is listed.
Massachusetts: This material is listed.
Pennsylvania: This material is listed.
New York: This material is not listed.
Risk Phrases: * R50 - Very toxic to aquatic organisms.
Safety Phrase: * S61 - Avoid release to the environment. Refer to special instructions/safety data sheets.
* S29/35 - Do not empty into drains; dispose of this material and its container in a safe way.

SECTION 16 : ADDITIONAL INFORMATION

HMIS Ratings:

HMIS Health Hazard: 1
HMIS Fire Hazard: 0
HMIS Reactivity: 0
HMIS Personal Protection: X

Health Hazard	1
Fire Hazard	0
Reactivity	0
Personal Protection	X

SDS Revision Date: August 11, 2015

Notes : Important Note: This information relates to the specific product described herein and may not be valid for this material when used in combination with other raw materials. The information provided is without warranty regarding its accuracy or completeness. The information may not be valid under all conditions. The user has the final responsibility for determining the suitability of the product in a given application.

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