

Zochem



Lab.A1

The largest dedicated
producer of Zinc Oxide
in North America



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Certainty
starts *here.*



A Versatile & Vital Resource

As the largest dedicated producer of zinc oxide in North America, Zochem is not only a leading supplier—but a trusted advisor—to customers in mature and emerging industries across the U.S. and Canada.

We manufacture zinc oxide for every application—from tires and rubber to pharmaceuticals and alternative batteries—using the highly efficient, low-CO₂-emission French Process. And because Zochem is dedicated solely to the production of Zinc Oxide, the subject has our full and unwavering attention.

We think ahead. We plan proactively. We continue to invest in our technology and processes, developing new and more efficient ways to guarantee quality, consistency and supply for every customer spec and application. Through our Fluency Initiative, we offer product training and consultation to procurement, R&D, and technical experts in any field that employs Zinc Oxide—in order to elevate and advance the industry's use of this versatile and vital resource.

Find the ideal product for your application

Our Products

Zochem manufactures a full spectrum of zinc oxide powders and pellets with purities of 99.9% and beyond. With multiple surface area options, coated and uncoated, pellets, and purity options, Zochem has a product for every application.

Our Process

Using the French Process, we start with pure metallic zinc or recycled zinc. Zinc metal is vaporized and oxidized in a combustion zone, utilizing our natural gas fired muffle furnace design and yielding consistently nodular shaped crystals. Pelletized zinc oxide is an excellent option for production applications requiring high flow rates and low dusting. Products are available with surface areas of 2.5m²/g to 10.0 m²/g.

Capabilities & Specialized Expertise

- High surface area
- Low surface area
- USP API (Active Pharmaceutical Ingredient; ICHQ7 Certified)
- Pellets
- High purity
- Surface treated

Grade	Powder	Pellet	Treated	Tire & Rubber	Chemical Intermediate	Oil Additives & Lubricants	Micronutrients & Animal Nutrition	Varistors (MOV) & Soft Ferrites	Paint & Coating	Plastic PP/PE	USP	Food Contact	Tape & Adhesive
103	✓							✓	✓				
104	✓				✓	✓		✓	✓	✓	✓		
101	✓									✓			
102	✓									✓		✓	✓
400	✓			✓								✓	✓
500	✓												
103P		✓											
104P		✓											
400P		✓		✓									
500P		✓											
103T			✓										
104T			✓										
101T			✓										
102T			✓										
400T			✓	✓									
500T			✓										
500WSA	✓						✓						
800WSA	✓						✓						
103USP	✓										✓		
112USP	✓										✓		
101USP	✓										✓		
102USP	✓										✓		
103USPL	✓										✓		
112USPL	✓										✓		
101USPL	✓										✓		
102USPL	✓										✓		
112EP	✓										✓		
124G		✓						✓					

Industry Applications

Tire & Rubber Product Applications

- Truck, tractor, and passenger car tires
- Hoses, belts, and gaskets
- Automotive door and window channels
- Shoe soles, heels, and boots
- Rubber wire and cable jackets and insulation
- Inflatable boats
- Carpet backing
- Custom mixes

Benefits

- Increases effect of organic accelerators in rubber vulcanization
- Adds strength to rubber compounds, improves their resistance to heat and abrasion
- Activates cross-linking between adjacent polymer chains and effective reticulation for rubber vulcanization
- Reduces heat buildup and wear in tires
- Reduces shrinkage in manufacturing
- UV blocker helping reduce rubber degradation
- Can improve rubber-to-metal adhesion
- Higher loadings of zinc oxide can improve hot air/heat aging properties
- Too low of a concentration of zinc oxide can lead to scorching problems

Zochem Grade 400, 400P Recommended

Plastics Applications

- Plastics products
 - Polyolefins—acid scavenging in LLDPE, HDPE, and PP
 - PVC stabilizers—heat stability
 - Thin films—to provide UV light protection
 - Catalysts—various uses in plastics compounds
 - TPE's—curing and crosslinking
- Zochem Grade 102 Recommended



Chemical Applications

- Zinc Sulfate—encourages plant growth
- Zinc nitrate—corrects zinc deficiencies
- Zinc ETA—chelating agent
- Zinc Borate—smoke suppressant, flame retardant
- Zinc octoate and neodecanoate—paint driers, PVC stabilizers
- Zinc phosphate—corrosion resistance
- ZMBT, ZDMC, ZDEC, ZDBC—accelerators
- Zinc stearate—rubber activator, mold release agent
- Zinc diacrylate—golf ball centers
- Zinc bromide—oil well drilling fluids
- Zinc citrate—dental care, human nutrition
- Zinc Chloride—batteries, metallurgical fluxes
- Zinc gluconate—zinc lozenges
- Zinc resinate—printing inks

Zochem Grade 104 Recommended



Glass Product Applications

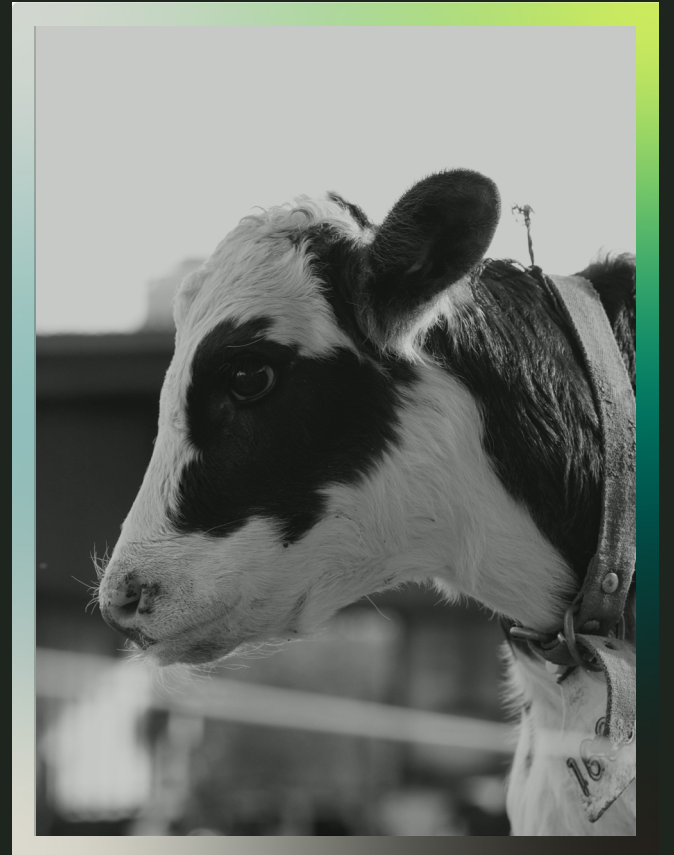
- Artisan glass products
- Windows and safety glass
- Automotive glass
- Shower and storm doors
- Decorative stained glass
- Drinking glasses and glass kitchenware
- Glass fibers

Zochem Grade 124G, 500 Recommended

Agriculture, Animal Nutrition, Micronutrition

- Zinc oxide supplies zinc nutrient as a trace element for crops. Using straight zinc oxide in fertilizers and sprays allows the crop acidity to decompose the ZnO over time, providing nutrient time-release allowing crops to grow in sub-standard soil with up to 3x bushel per acre increase.
- Animal nutrition in prepared feeds
- Forms part of enzyme systems; carbonic anhydrase (proper bone and eggshell formation), carboxypeptidase (liver function) and lactic dehydrogenase (skeletal muscle formation).

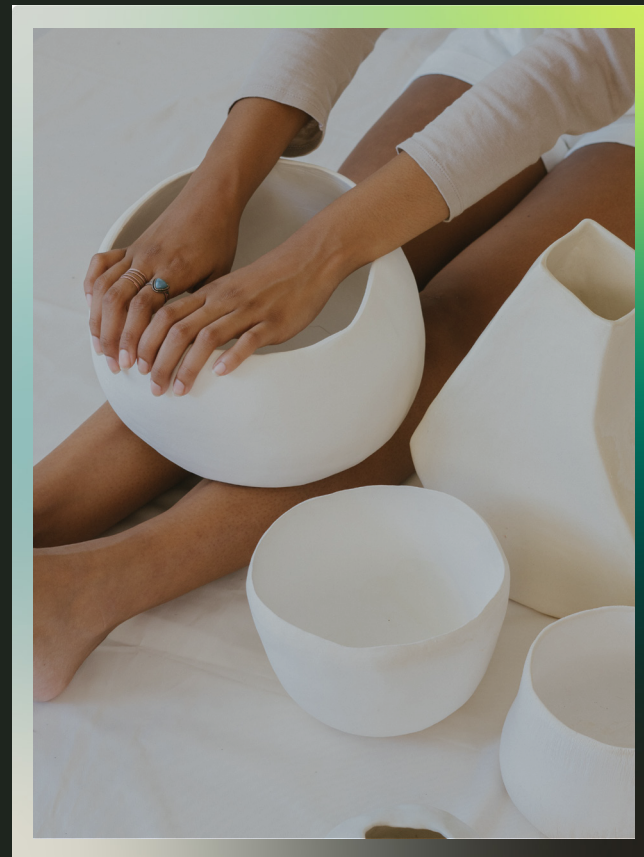
Zochem Grade 500WSA, 800WSA Recommended



Pottery, Tile & Ceramics

From mugs and dishware to electrical power insulators, ceramics are all around us. Adding zinc oxide to the manufacturing process enables greater consistency in product performance, including reduced shrinkage on cure, and reduced thermal coefficient of expansion.

Zochem Grade 500 Recommended

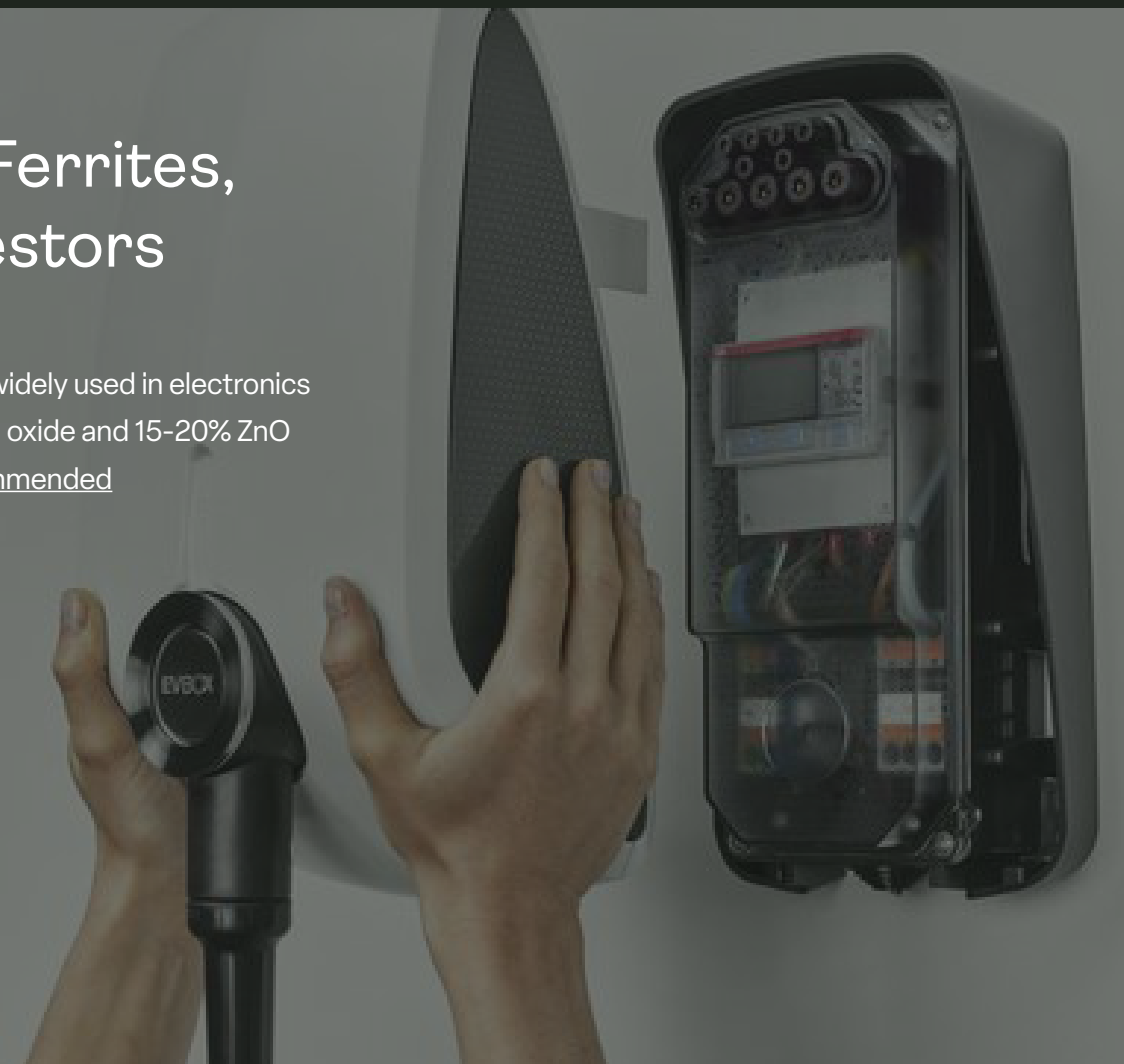


Varistors, Ferrites, Surge Arrestors

Soft Ferrite Cores

Ferromagnetic materials widely used in electronics
Composition is mainly iron oxide and 15-20% ZnO

Zochem Grade 103 Recommended



Tapes & Adhesives

Many tapes and their adhesives are rubber based, using ZnO as a cross-link cure activator.

Zocheem ZnO:

- Adds strength to rubber tapes and adhesive
 - Improves resistance to heat and abrasion
 - Helps guard against degradation from sunlight or other sources of UV
 - Is used as a catalyst or cross-linker in certain adhesive formulas
 - Imparts reinforcement
 - Reduces shrinkage in the manufacturing process
- Zochem Grade 500 Recommended



Oil Additives & Lubricants

Industry studies have demonstrated the benefits of zinc oxide power as an additive to oil and petroleum-based lubricants. For example:

- One of the main ingredients in the manufacture of ZDDP, an important anti-corrosion, anti-wear additive used in virtually all motor oils
- Improves wear resistance in solid lubricants
- Heat stabilizer for greases
- Mold release lubricant

Zochem GRade 104, 104P Recommended



MOV-Metal Oxide Varistors and Surge Arrestors

- MOVs and surge arrestors contain up to 90% ZnO
- Components are high-pressure compression molded and sintered to a dense mass
- Desired compaction density is improved with bi-model ZnO

Zochem Grade 103 Recommended



Paint & Coatings

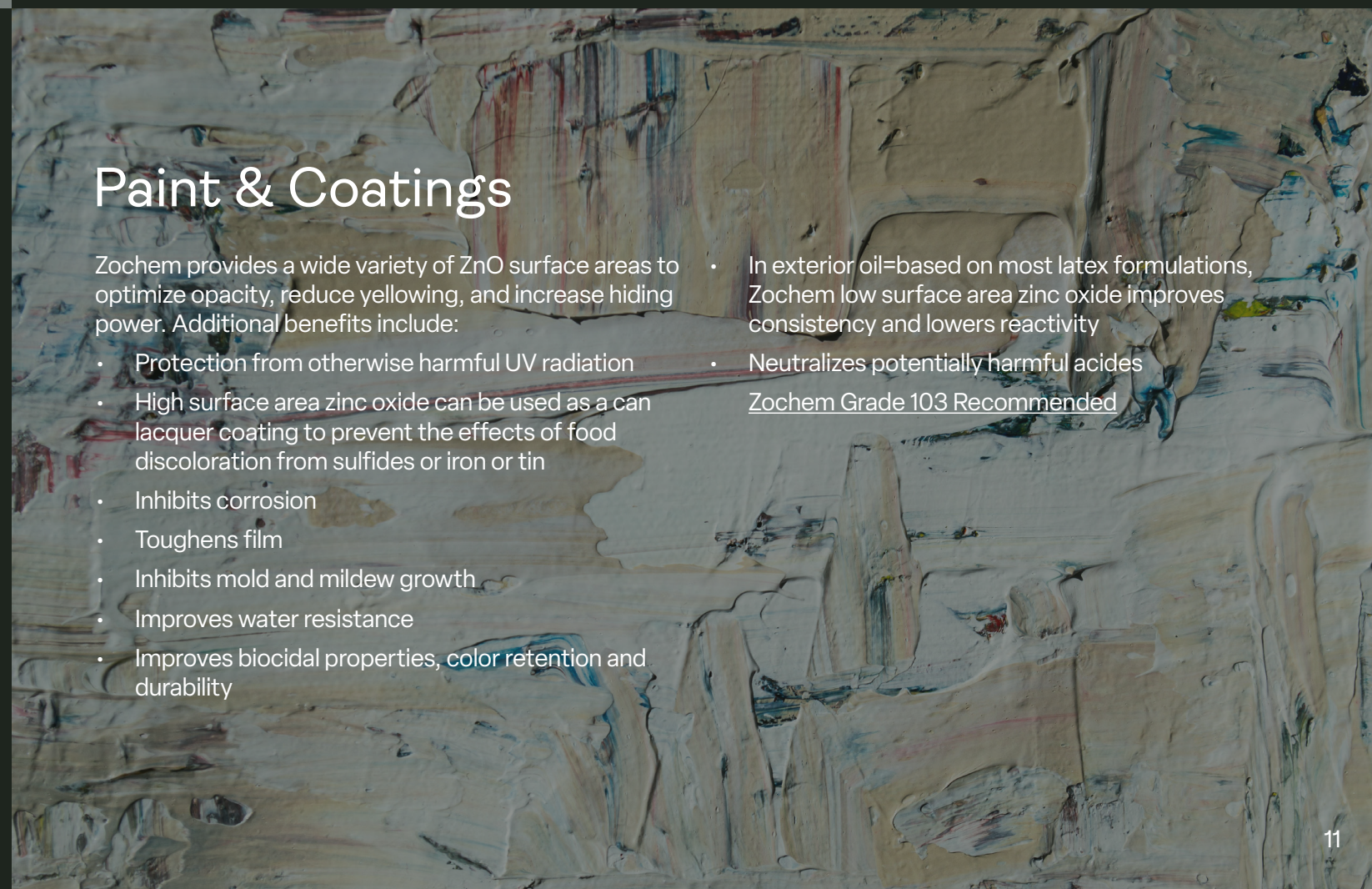
Zochem provides a wide variety of ZnO surface areas to optimize opacity, reduce yellowing, and increase hiding power. Additional benefits include:

- Protection from otherwise harmful UV radiation
- High surface area zinc oxide can be used as a can lacquer coating to prevent the effects of food discoloration from sulfides or iron or tin
- Inhibits corrosion
- Toughens film
- Inhibits mold and mildew growth
- Improves water resistance
- Improves biocidal properties, color retention and durability

• In exterior oil-based on most latex formulations, Zochem low surface area zinc oxide improves consistency and lowers reactivity

• Neutralizes potentially harmful acids

Zochem Grade 103 Recommended



United States Pharmacopeia (USP) Zinc Oxide

Zochem's USP ZnO meets the highest standards for a vast array of products and applications. We offer customers four product types:

USP

- Manufactured in an FDA-registered food manufacturing facility
- Produced by the French (indirect) Process
- Meets USP Compendium Monograph specification for zinc oxide
- Meets GMP (Good Manufacturing Practices) 21 CFR110 for food and excipients
- Meets IPEC/ANSI/NSF 363 GMP standard for excipients
- Manufactured in an FDA-registered drug establishment manufacturing facility, which has been inspected by the FDA and/or Health Canada, who have certified both Zochem facilities as compliant with ICH-Q7 GMP for API

Zochem Grade 112USP Recommended

USP API (Active Pharmaceutical Ingredient)

- Manufactured in an FDA-registered drug establishment manufacturing facility, which has been inspected by the FDA as compliant with ICH-Q8 GMP for API
- Meets ICH-Q7 GMP and 21 CFR211 cGMP for API for pharmaceutical drug product and USP (API) grade products
- Meets 21 CFR111 GMP for dietary supplements (DS)
- For use when zinc oxide is an active ingredient in a prescription-only drug, such as a high-potency prenatal vitamin.
- Available for customer API specifications
Zochem Grade 112USP Recommended

L Series (L for Ultra-low Lead)

- Available in either USP or USP (API) registrations and GMP
- Offers the lowest lead(Pb) level attainable, where clients request impurity levels better than USP monograph specification limits
- Meets FCC (Food Chemical Codex) model standards
- 10 PPM max lead

Zochem Grade 112USPL or 112USPL (API) Recommended

FDA Approved

For all Zochem zinc oxide grades, "Product is USFDA approved as GRAS (Generally Recognized as Safe) at 21 CFR182.8991, meets GMP 21 CFR110, and authorized by the FDA for use wherever GRAS is approved", including:

- Rubber articles at 21 CFR177.2600(C)(1)
- Plastics at 21 CFR177.1919(a) and 1010(b)(1)
- Food can liner and coatings at 21 CFR175.300(b)(2)
- Animal drugs, feeds, nutrient products and/or dietary supplements at 21 CFR582

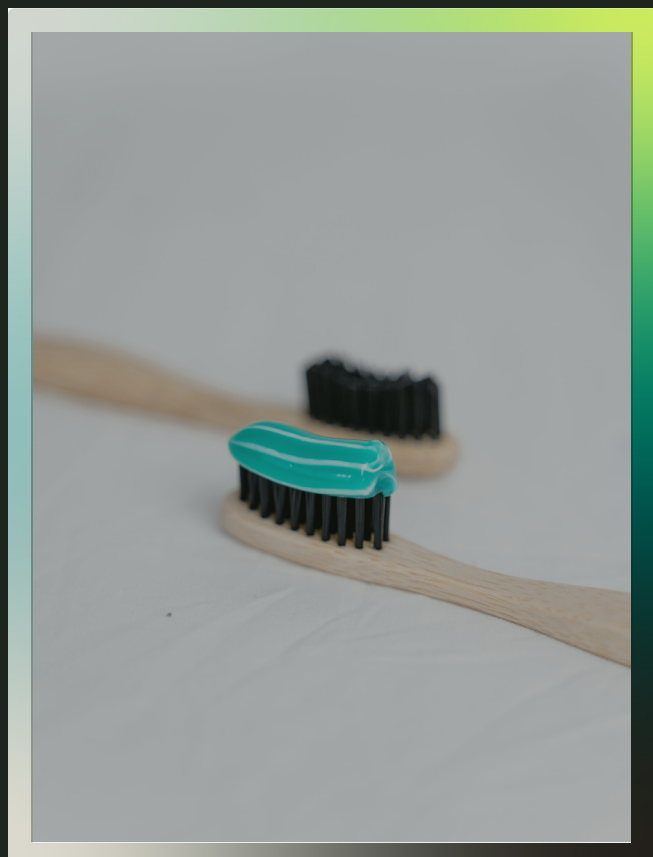
Other country USFDA GRAS equivalent regulations and approvals include:

- Canada (Zochem has received a no-objection letter from Canada)
- EU member states at EU 1-/2011 and EC 1935/1003
- Mercosur (South America) Positive List RD 39/19 Table 1
- Japan JHOSPA and MHLW meets assay requirements and impurity limits
- China GB 9685-2016

Zochem Grade 102 (plastics), 500 (coatings), 400 (rubber) Recommended

Applications

- Sunscreens—UV protection in natural formulas requiring a non-nano option
- Diaper rash creams and wound care—promotes healing
- Nutritional supplements—vitamin and mineral premixes
- Cosmetics—UV protection for outdoor applications
- Calamine, Lotions, Creams
- Dental creams
- Toothpaste
- Food and medical packaging
- Medical equipment
- Medical tapes
- Pharmaceutical (chemical intermediate)
- Vitamins
- Dog Food



Environmental *Excellence*

Zochem is committed to doing everything within our means to practice effective environmental stewardship.

Not only are zinc metal and zinc oxide environmentally safe materials, Zochem has designed all manufacturing systems for the highest efficiency, thereby minimizing waste products and power consumption from energy suppliers. Our plants meet or exceed all governmental regulations for emissions, waste, and other EPA concerns. Manufacturing equipment has been designed for the highest possible efficiency, given requirements of the processes involved. Zochem North is ISO 14001:2015 certified and Zochem South is ISO 14001:2015 compliant.

Our Values

What matters most to us.

Safety

First and always. Every minute of every day.

Investment

Ongoing. In our products, our processes, our people, and our planet.

Collaboration

With our suppliers, our customers, our communities, and each other.

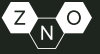
Education

Of procurement, R&D, and technical experts around the world to advance supply and utilization of ZnO in mature and emerging industries.

Grade	Lead (Pb%)	Surface Area (m2/g)	Powder Grade	Pellet Grade	Treated Grade	ZnO (&) Typical
103	0.003 max	2 to 4	103	103P	103T	99.9
104	0.003 max	4 to 6	104	104P	104T	99.9
101	0.003 max	6 to 8.5	101	-	101T	99.9
102	0.003 max	8 to 10	102	-	102T	99.9
400	0.1 max	4 to 6	400	400P	400T	99.9
500	0.05 max	4 to 6	500	500P	500T	99.9
500WSA	0.05 max	2.5 to 11	500WSA	-	-	99.9
800WSA	0.005 max	2.5 to 11	800WSA	-	-	99.9
103USP	0.002 max	2 to 4	103USP	-	-	99.9
112USP	0.002 max	3 to 6.5	112USP	-	-	99.9
101USP	0.002 max	6 to 8.5	101USP	-	-	99.9
102USP	0.002 max	8 to 10	102USP	-	-	99.9
103USPL	0.001 max	2 to 4	103USPL	-	-	99.9
112USPL	0.001 max	3 to 6.5	112USPL	-	-	99.9
101USPL	0.001 max	6 to 8.5	101USPL	-	-	99.9
102USPL	0.001 max	8 to 10	102USPL	-	-	99.9
112EP	0.005 max	3 to 6.5	112EP	-	-	99.9
124G	0.005 max	-	-	124G	-	99.9

Allergen Free Certification	Health Canada Drug Establishment License
CA Fertilizing Registration	Heavy Metal Statement
CA Livestock Drugs Registration	ISO 9001:2015 Certificate–Zochem North
Certificate of Free Sale	ISO 9001:2015 Certificate–Zochem South
Conflict Minerals (CMR) Certification	ISO 14001:2015 Certificate–Zochem North
Composition, Elemental Impurities, and INCI Statement	Kosher Certification–Zochem North
CONEG and Toxins in Packaging Certification	Kosher Certification–Zochem South
Drug Master File (DMF) Statement	K-REACH Statement
EPA FIFRA Registration Statement	Natural, Inorganic, ISO Natural Origin Index, and Eco Statement
EU REACH and SVHC Compliance Certification	Non Nano Statement
FDA and other authority approvals for food contact: FDA approved, China, Mercosur, Health Canada LONO, MHLW, JHOSPA PL	NSF–Prohibited Substances Compliant Certificate
FDA API Drug Manufacturer Registration	PPAP Part Submission Warrant
FDA Certificate of a Pharmaceutical Product (CPP) for Active Pharmaceutical Ingredient (Brazil)	Prop 65 Statement
FDA Certificate of a Pharmaceutical Product (CPP) for Active Pharmaceutical Ingredient (Germany)	REACH Compliance Certification
FDA Certificate of a Pharmaceutical Product (CPP) for Active Pharmaceutical Ingredient (Italy)	RoHS and WEEE Compliance Certification
FDA Certificate of a Pharmaceutical Product (CPP) for Active Pharmaceutical Ingredient (South Korea)	SDS's in EN English, FR French, ES Spanish, ZH Chinese, KO Korean, IT Italian, NL Dutch, PT Portuguese, SV Swedish, PL Polish, DE Germany
FDA FFR Bioterrorism Act Food Facility Registration Confirmation	Shelf Life and Stability Statement
FDA Food Packaging Statement	SVHC Compliance Certification
Foreign Material Detection-Screening Certification	TSCA et al Chemical Inventories Compliance Statement
FSVP, FSMA, HACCP, Risk Evaluation of ZnO and Plan	TRA Public Summary Report
GMO, BSE, and TSE Compliance Certification	USMCA COO–Zochem North
Halal Certification	USMCA COO–Zochem South
	USP Labeler Code Registration

Zochem



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Palmer Holland
440-686-2300
palmerholland.com

Univar Solutions
331-777-6026
univarsolutions.com

HM Royal
800-257-9452
hmroyal.com

R.E. Carroll, Inc.
609-695-6211
recarroll.com

ChemSpec (Safic Alcan)
800-200-4753
chemspecltd.com

To learn more visit

zochem.com
info@zochem.com

Zochem LLC
(Zochem South)
600 Printwood Drive
Dickson, TN 37055
USA
T: 615-375-5058
F: 615-446-8789

Zochem ULC
(Zochem North)
1 Tilbury Court
Brampton, Ontario L6T 3T4
Canada
TF: 800-324-1806
T: 905-453-4100