MSDS Number: **Z0855** * * * * * *Effective Date:* ***05/07/03*** * * * * * *Supercedes:* ***11/02/01***

MSDS Material Safety Data Sheet

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865

Mallinckrodt CHEMICALS J.T.Baker

24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

ZINC METAL GRANULAR

1. Product Identification

Synonyms: Granular zinc; mossy zinc; CI77945; CI Pigment Black 16
CAS No.: 7440-66-6
Molecular Weight: 65.37
Chemical Formula: Zn
Product Codes:
J.T. Baker: 4240, 4244, 4248, 4252, 4260, 4270, 4274
Mallinckrodt: 8693, 8701

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Zinc	7440-66-6	99 - 100%	Yes
Lead	7439-92-1	0 - 0.1%	Yes

3. Hazards Identification

Emergency Overview

WARNING! HARMFUL IF SWALLOWED OR INHALED. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. MAY FORM COMBUSTIBLE DUST CONCENTRATIONS IN AIR. WATER REACTIVE. MAY AFFECT THE GUM TISSUE, CENTRAL NERVOUS SYSTEM, KIDNEYS, BLOOD AND REPRODUCTIVE SYSTEM (lead component).

J.T. Baker SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 0 - None
Flammability Rating: 1 - Slight
Reactivity Rating: 2 - Moderate
Contact Rating: 0 - None
Lab Protective Equip: GOGGLES; LAB COAT
Storage Color Code: Orange (General Storage)

Potential Health Effects

Inhalation:
No adverse effects expected but dust may cause mechanical irritation. The effects may be expected to resemble those of inhaling an inert dust; possible difficulty in breathing, sneezing, coughing. When heated, the fumes are highly toxic and may cause fume fever.
Ingestion:
Extremely large oral dosages may produce gastrointestinal disturbances, due both to mechanical effects and the possibility of reaction with gastric juice to produce zinc chloride. Pain, stomach cramps and nausea could occur in aggravated cases.
Skin Contact:
May cause irritation.
Eye Contact:
May cause irritation.
Chronic Exposure:
No adverse health effects expected.
Aggravation of Pre-existing Conditions:
Persons with pre-existing skin disorders or impaired respiratory function may be more susceptible to the effects of the substance.

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4. First Aid Measures

Inhalation:
Remove to fresh air. Get medical attention for any breathing difficulty.
Ingestion:
Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.
Skin Contact:
Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash

clothing before reuse. Thoroughly clean shoes before reuse.
Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

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5. Fire Fighting Measures

Fire:
Autoignition temperature: ca. 460C (ca. 860F)
The listed autoignition temperature is for Zinc powder (layer); dust cloud is ca. 680C (1255F). Zinc powder is not pyrophoric but will burn in air at elevated temperatures. Bulk dust in damp state may heat spontaneously and ignite on exposure to air. Releases flammable hydrogen gas upon contact with acids or alkali hydroxides. Contact with strong oxidizers may cause fire.
Explosion:
Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
Fire Extinguishing Media:
Smother with a suitable dry powder (sodium chloride, magnesium oxide, Met-L-X).
Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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6. Accidental Release Measures

Remove all sources of ignition and provide mild ventilation in area of spill. Substance may be pyrophoric and self-ignite. Clean-up personnel require protective clothing, goggles and dust/mist respirators. Sweep or vacuum up the spill in a manner that does not disperse zinc powder in the air and place the zinc in a closed container for recovery or disposal.
US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

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7. Handling and Storage

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
None for Zinc metal.
-OSHA Permissible Exposure Limit (PEL):
10 mg/m3 (TWA), for zinc oxide fume
-ACGIH Threshold Limit Value (TLV):
10 mg/m3 (TWA), Inhalable fraction, A4 Not classifiable as a human carcinogen for zinc oxide.

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded and engineering controls are not feasible, a full facepiece particulate respirator (NIOSH type N100 filters) may be worn for up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids. glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection:
Wear protective gloves and clean body-covering clothing.
Eye Protection:
Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

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9. Physical and Chemical Properties

Appearance:
Gray-blue granular or shiny, irregular lumps.
Odor:
Odorless.
Solubility:
Insoluble in water.
Specific Gravity:
7.14
pH:
No information found.
% Volatiles by volume @ 21C (70F):
0
Boiling Point:
907C (1665F)
Melting Point:

419C (786F)
Vapor Density (Air=1):
No information found.
Vapor Pressure (mm Hg):
1 @ 487C (909F)
Evaporation Rate (BuAc=1):
No information found.

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10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. Moist zinc dust can react exothermically and ignite spontaneously in air.
Hazardous Decomposition Products:
Hydrogen in moist air, zinc oxide with oxygen at high temperature. Zinc metal, when melted, produces zinc vapor which oxidizes and condenses in air to form zinc fume.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Zinc powder can react violently with water, sulfur and halogens. Dangerous or potentially dangerous with strong oxidizing agents, lower molecular weight chlorinated hydrocarbons, strong acids and alkalis.
Conditions to Avoid:
Heat, flames, ignition sources and incompatibles.

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11. Toxicological Information

Zinc: Irritation skin, human: 300 ug/3D-I mild; investigated as a mutagen.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Zinc (7440-66-6)	No	No	None
Lead (7439-92-1)	No	No	2B

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12. Ecological Information

Environmental Fate:
No information found.
Environmental Toxicity:
No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

--------\Chemical Inventory Status - Part 1\---------------------------------

Ingredient	TSCA	EC	Japan	Australia
Zinc (7440-66-6)	Yes	Yes	No	Yes
Lead (7439-92-1)	Yes	Yes	Yes	Yes

--------\Chemical Inventory Status - Part 2\---------------------------------

Ingredient	Korea	--Canada-- DSL	NDSL	Phil.
Zinc (7440-66-6)	Yes	Yes	No	Yes
Lead (7439-92-1)	Yes	Yes	No	Yes

--------\Federal, State & International Regulations - Part 1\----------------

Ingredient	-SARA 302- RQ	TPQ	------SARA 313------ List	Chemical Catg.
Zinc (7440-66-6)	No	No	Yes	No
Lead (7439-92-1)	No	No	Yes	No

--------\Federal, State & International Regulations - Part 2\----------------

Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
Zinc (7440-66-6)	1000	No	No
Lead (7439-92-1)	10	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: No Fire: Yes Pressure: No
Reactivity: Yes (Mixture / Solid)

WARNING:
THIS PRODUCT CONTAINS CHEMICALS KNOWN TO THE STATE OF

CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

Australian Hazchem Code: None allocated.
Poison Schedule: S6
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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16. Other Information

NFPA Ratings: Health: **1** Flammability: **1** Reactivity: **1** Other: **Water reactive**
Label Hazard Warning:
WARNING! HARMFUL IF SWALLOWED OR INHALED. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. MAY FORM COMBUSTIBLE DUST CONCENTRATIONS IN AIR. WATER REACTIVE. MAY AFFECT THE GUM TISSUE, CENTRAL NERVOUS SYSTEM, KIDNEYS, BLOOD AND REPRODUCTIVE SYSTEM (lead component).
Label Precautions:
Avoid breathing dust.
Avoid contact with eyes, skin and clothing.
Keep away from heat and flame.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.
Label First Aid:
If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.
Product Use:
Laboratory Reagent.
Revision Information:
MSDS Section(s) changed since last revision of document include: 8.
Disclaimer:
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Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)