



PERFORMANCE MINERALS™

**MATERIAL SAFETY DATA SHEET**

IDENTITY (as Used on Label and List) <b>AVAILA - 4</b>	CHEMICAL NAME <b>Zinc/copper/manganese amino acid complexes plus cobalt glucoheptonate</b>
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**Section I**

Manufacturer's name <b>Zinpro Corporation</b>	Emergency Telephone Number <b>CHEMTREC 800-424-9300</b>
Address (Number, Street, City, State and ZIP Code)  10400 Viking Drive, Suite 240 Eden Prairie, MN 55344-7265	Telephone Number for Information <b>952-944-2736</b>
	Date Prepared <b>January 2007</b>
	Signature of Preparer (optional)

**Section II—Hazardous Ingredients/Identity Information**

Hazardous Components (Specific chemical identity, common names, CAS #)	OSHA PEL	ACGIH TLV	wght %	HAP (Y/N)	SARA313 (Y/N)
cobalt	<sup>a</sup> 0.1 mg/m <sup>3</sup>	<sup>a</sup> 0.05 mg/m <sup>3</sup>	0.18% (Co)	<sup>e</sup> Y	<sup>f</sup> Y
copper	<sup>b</sup> 1.0 mg/m <sup>3</sup>	<sup>b</sup> 1.0 mg/m <sup>3</sup>	1.80% (Cu)	N	<sup>f</sup> Y
manganese	<sup>c</sup> 5.0 mg/m <sup>3</sup>	<sup>c</sup> 5.0 mg/m <sup>3</sup>	2.86% (Mn)	<sup>e</sup> Y	<sup>f</sup> Y
zinc	<sup>d</sup> 15 mg/m <sup>3</sup>	<sup>d</sup> 10 mg/m <sup>3</sup>	5.15% (Zn)	N	<sup>f</sup> Y

<sup>a</sup> Permissible exposure level (PEL) and threshold limit value (TLV) for cobalt are set for “metal fumes and dust.”

<sup>b</sup> Permissible exposure level (PEL) and threshold limit value (TLV) are set for copper as “dusts and mists.”

<sup>c</sup> Permissible exposure level (PEL) and threshold limit value (TLV) are set for manganese as “dust and compounds.”

<sup>d</sup> Permissible exposure level (PEL) and threshold limit value (TLV) are set for “particulates not otherwise classified” and are not specific for this compound. No specific values are published.

<sup>e</sup> These metal compounds are listed as Hazardous Air Pollutants in Section 112 of the Clean Air Act Amendment and may be subject to regulation if emitted to the air.

<sup>f</sup> These metals: manganese (7439-96-5), cobalt (7440-48-4), copper (7440-50-8) and zinc (as zinc fumes or dust 7440-66-6) are subject to the reporting requirements of SARA Title III Section 313 (Emergency Planning and Community Right to Know) and of 40 CFR Part 372.

**Section III—Physical/Chemical Characteristics**

Boiling Point	100.2°C	Specific Gravity (H <sub>2</sub> O = 1)	1.29
Vapor Pressure (mm Hg)	NA	Melting Point	NA
Vapor Density (AIR = 1)	NA	Evaporation Rate (Butyl Acetate = 1)	not volatile
Solubility in Water	soluble (carrier is insoluble)		
Appearance and Odor	dark brown/green granular powder, sweet organic odor		

**Section IV—Fire and Explosion Hazard Data**

Flash Point (Method Used)	non-flammable	Flammable Limits	NA	LEL	NA	UEL	NA
Extinguishing Media	as appropriate for surrounding materials						
Special Fire Fighting Procedures	respiratory protection against potential for metal fumes; prevent product and water from entering navigable or fish-						

bearing streams

Unusual Fire and Explosion Hazards **none**

**Section V—Reactivity Data**

Stability	Unstable		Conditions to Avoid acids or caustics
	Stable	<b>X</b>	

Incompatibility (*Materials to Avoid*) **Metal compounds: do not mix with acids or caustics unless under controlled conditions**

Hazardous Decomposition or Byproducts **None**

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	<b>X</b>	

**Section VI—Health Hazard Data**

Route(s) of Entry	Inhalation? <b>No</b>	Skin? <b>Yes</b>	Ingestion? <b>Yes</b>
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Health Hazards (*Acute and Chronic*)

May irritate skin, eyes, and mucous membranes. Essential trace minerals in safe concentrations are not health hazards. Excessive ingestion of cobalt may depress red blood cell production and cause nervous system effects. Excessive ingestion or inhalation of manganese may produce nervous system effects.

Carcinogenicity	NTP? <b>No</b>	IARC Monographs? <b>No</b>	OSHA Regulated? <b>No</b>
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Signs and Symptoms of Exposure

Prolonged contact may irritate (mild pain and redness) skin, eyes, and mucous membranes. Prolonged inhalation may cause irritation of nose, mouth, & throat Excessive inhalation or ingestion of trace minerals may lead to nausea and vomiting, nerve deafness, thyroid hyperplasia, chest pains, congestive heart failure (cobalt) and drowsiness, muscle weakness, emotional disturbances, or paralysis (manganese).

Medical Conditions Generally Aggravated by Exposure

**Respiratory problems, existing dermatitis**

Emergency and First Aid Procedures

Wash skin and eyes with copious amounts of water. Rinse mouth and throat with water repeatedly without swallowing. Seek medical attention if necessary.

**Section VII—Precautions for Safe Handling and Use**

Steps to Be Taken in Case Material Is Released or Spilled

Recover uncontaminated material for reuse. Remove residue with detergent and water, or use dry, granular absorbent and vacuum or sweep absorbed liquid. Rinse cleaning materials well. Place solids in covered container for transport.

Waste Disposal Method

Discharge liquids or rinsate to sanitary sewer. For solids, dispose as nonhazardous solid waste at a facility licensed to receive municipal/industrial waste. Cover or contain material during transport.

Precautions to Be Taken in Handling and Storing

**Store in dry location. Wear goggles and chemical resistant gloves to avoid contact.**

Other Precautions **None**

**Section VII—Control Measures**

Respiratory Protection (*Specify Type*)

Ventilation	Local Exhaust <b>X</b>	Special
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	Mechanical (General)	Other
Protective Gloves	chemical-resistant gloves	Eye Protection goggles
Other Protective Clothing or Equipment	none	
Work/Hygienic Practices	Use of protective gear and good personal hygiene will reduce the possibility of contact irritation. Wash with soap and water after handling.	