MATERIAL SAFETY DATA SHEET

IDENTITY *(as Used on Label and List)*	CHEMICAL NAME
Zinpro 4-Plex	**Zinc methionine/copper lysine/ manganese methionine/cobalt glucoheptonate**

Section I

Manufacturer's name **Zinpro Corporation**	Emergency Telephone Number CHEMTREC 800-424-9300
Address *(Number, Street, City, State and ZIP Code)*	Telephone Number for Information 952-944-2736
10400 Viking Drive, Suite 240 Eden Prairie, MN 55344-7265	Date Prepared January 2006
	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	7440-48-4	[a]0.1 mg/m^3	[a]0.05 mg/m^3	0.18% (Co)	[e]Y	[f]Y
copper	7440-50-8	[b]1.0 mg/m^3	[b]1.0 mg/m^3	0.90% (Cu)	N	[f]Y
manganese	7439-96-5	[c]5.0 mg/m^3	[c]5.0 mg/m^3	1.43% (Mn)	[e]Y	[f]Y
zinc	7440-66-6	[d]15 mg/m^3	[d]10 mg/m^3	2.58% (Zn)	N	[f]Y

[a] Permissible exposure level (PEL) and threshold limit value (TLV) are set for cobalt as "metal fumes and dust."

[b] Permissible exposure level (PEL) and threshold limit value (TLV) are set for copperas "dusts and mists."

[c] Permissible exposure level (PEL) and threshold limit value (TLV) are set for manganese as "dust and compounds."

[d] Permissible exposure level (PEL) and threshold limit value (TLV) are set for "particulates not otherwise classified" and are not specific to this compound. No specific values are published.

[e] 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.

[f] 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	NA	Specific Gravity (H_20 = 1)	1.79
Vapor Pressure (mm Hg)	NA	Melting Point	decomposition >500°F
Vapor Density (AIR = 1)	NA	Evaporation Rate (Butyl Acetate = 1)	NA
Solubility in Water	soluble (carrier is insoluble)		
Appearance and Odor	light brown granular powder, distinctive methionine 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			Conditions to Avoid
	Unstable		
	Stable	X	acids or caustics

Incompatibility *(Materials to Avoid)*	Metal compounds: do not mix with acids or caustics unless under controlled conditions
Hazardous Decomposition or Byproducts	None

Hazardous Polymerization			Conditions to Avoid
	May Occur		
	Will Not Occur	X	

Section VI—Health Hazard Data

Route(s) of Entry	Inhalation? Yes	Skin? Yes	Ingestion? Yes

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? No	IARC Monographs? No	OSHA Regulated? No

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. Vacuum or sweep remaining waste, keeping dust to a minimum. Place in covered container for transport.

Waste Disposal Method

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 dust mask, goggles, and chemical resistant gloves to avoid inhalation or contact.

Other Precautions	None

Section VII—Control Measures

Respiratory Protection *(Specify Type)*

Ventilation	Local Exhaust X	Special	dust mask if prolonged contact
	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.		