SAFETY DATA SHEET - Bio-San C-500

1. Identification of the Substance / Mixture and of the Company

1.1 PRODUCT IDENTIFICATION

Bio-San C-500

1.2 PRODUCT USE

Waterproofing and protection of concrete

1.3 COMPANY IDENTIFICATION

Xypex Chemical Corporation
13731 Mayfield Place,
Richmond, B.C. Canada

TEL: 800-961-4477
FAX: 604-270-0451
E-mail: info@xypex.com
Web: www.xypex.com

1.4 EMERGENCY TELEPHONE NUMBERS

During normal Pacific Standard Time (PST)
800-961-4477 or 604-273-5265
All other times, and in times of unavailability, contact your local emergency services.

2. Hazards Identification

2.1 CLASSIFICATION OF THE MIXTURE

2.1.1 Classification in accordance with GHS (5th edition)

H302 Acute toxicity Oral 4 Harmful if swallowed

Skin Irrit 2: H315	**Causes skin irritation.**
Eye Dam 1: H318	**Causes serious eye damage.**
Skin Sens I: H317	**May cause an allergic skin reaction.**
STOT SE3: H335	**May cause respiratory irritation.**
STOT RE 2: H373	**May cause damage to respiratory organs through prolonged or repeated exposure.**
H401	**Toxic to aquatic life**

2.2 LABEL ELEMENTS: in accordance with GHS (5th edition)

Danger

2.3 HAZARD STATEMENTS

WARNING. Causes substantial but temporary eye injury. Harmful if swallowed, absorbed through the skin, or inhaled. Do not get in eyes or on clothing. Avoid contact with skin. Avoid breathing dust. Wear appropriate protective eyewear such as goggles, face shield, or safety glasses. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

Environmental Hazards

(*For container > 5 gallons*) This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State or Provincial Water Board or Regional Office of the EPA.

(*For containers ≤ 5 gallons 20 liters*) This product is toxic to fish and aquatic invertebrates.

2.4 PRECAUTIONARY STATEMENTS

P280	**Wear protective gloves / protective clothing / eye protection / face protection & approved duct masks.**
P260	**Do not breathe dust.**
P264	**Wash thoroughly after handling.**
P280	**Wear protective gloves/protective clothing/eye protection/face protection.**
P305 + P351 + P338	**IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**
P310	**Immediately call a POISON CENTRE or doctor/physician.**
P273	**Avoid release to the environment**
P304 + P340	**IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.**

2.6 OTHER HAZARDS Alkaline when wet.

3. Composition / Information on Ingredients

Hazardous Ingredients	%	CAS. No.
Iron Oxide Pigments	45 – 55%	1317-37-1 1317-61-9
Portland Cement	10 – 15%	65997-15-1
Copper	5 – 6 %	7440-50-8
Silver	<0.15%	7440-22-4

4. First Aid Measures

4.1 DESCRIPTION OF FIRST AID MEASURES

When seeking medical advice take this safety data sheet with you or have the label available to provide information.

INHALATION:
Remove victim to fresh air and keep at rest in a position comfortable for breathing. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advise.
Dust in throat and nasal passages should clear spontaneously. If not, irrigate nose and throat with clean water for at least 20 minutes. Seek immediate professional medical attention.

EYE CONTACT: IF IN EYES: Hold eye open and rinse slowly and gently blot away any dry powder and irrigate cautiously with water for at least 15- 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Do not rub eyes as this may cause addition irritation or damage. Seek immediate professional medical attention if irritation persists.

SKIN CONTACT:
Take off contaminated clothing. Quickly and gently blot away any dry powder and rinse skin immediately with plenty of water for 15-20 minutes.. If skin irritation or rash occurs, seek medical advice/ attention.

INGESTION:
Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting, unless told to by a poison control center or doctor. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. If conscious, wash out mouth with clean water. Do not give anything by mouth if victim is rapidly losing consciousness, unconscious or convulsing.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

ACUTE: Irritation to skin and mucous membranes
DELAYED: Precautions should be taken to ensure that dust is not inhaled; however, long-term exposure to high levels of dust may result in damage to the lungs.

4.3 IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT

Move person to fresh air and away from exposure. Wash and clean eyes or skin as described in 4.1. Ensure eyewash facilities are available.

5. Firefighting Measures

5.1 EXTINGUISHING MEDIA
Xypex Cementitious Admix Products are not flammable and are not subject to explosion.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE
No hazardous combustion products.

5.3 ADVICE FOR FIREFIGHTERS
No need for specialist protective equipment for firefighters. Prior to using the product liaise with local fire authority for confirmation of best and most current form of firefighting equipment for the product.

6. Accidental Release Measures

6.1 PERSONAL PROTECTIVE MEASURES

Always wear full protective equipment as referred to under Section 8.2.2 to prevent any contamination of skin, eyes, respiratory system and personal clothing. Ensure have adequate measures are in place to prevent airborne dust. Avoid airborne dust generation.

6.2 ENVIRONMENT PROTECTION MEASURES

Do not allow product into drains or water courses. Any spillages into watercourses must be alerted to the Environment Agency or other regulatory body.

6.3 METHODS FOR CLEANING UP

At all times avoid inhalation of product and contact with skin and eyes. Contain the spillage. Keep the material dry if possible. Wear full personal protective equipment when cleaning up, whatever method is chosen. When the product is in a dry state, avoid airborne dust generation when cleaning up. Avoid dry sweeping. Examples of cleanup methods when in dry state are:

(A) Using a vacuum cleaner (Industrial portable units), equipped with high efficiency particulate filters (HEPA filter) or equivalent technique. (B) Wipe up the dust by mopping, wet brushing or water sprays or hoses with a fine mist to avoid the dust becoming airborne and remove slurry. Ensure drains are covered.

If the product has become wet, clean up and place in watertight container. Allow material to dry and solidify before disposal. Check current regulations before disposing of spillage, whether in dry state or not.

7. Handling and Storage

7.1 HANDLING

Avoid all types of dust generation; particularly the creation of respirable dust. At all times avoid inhalation of product and contact with skin and eyes. Carrying the product may cause back injuries, strains, sprains or the like. Use correct handling techniques to avoid injury. Use handling equipment and controls if necessary to avoid injury. If in doubt, contact your local health and safety body for further guidance on annual handling. Always wear sufficient and full protective equipment and suitable clothing when handling the product. General – During work avoid kneeling in the product. If kneeling is absolutely necessary then appropriate impervious waterproof personal protective equipment must be worn.

Ensure adequate ventilation and have ventilation equipment available if required due to possibility of generation of airborne dust.

Do not eat, drink or smoke when handling or applying product. Remove contaminated clothing and protective equipment before entering eating areas.

Avoid mishandling of pails of bags so as to prevent accidental bursting and creation of dust.

7.2 STORAGE

Store in a dry place. Protect from moisture. Keep container tightly closed. Store this product in a draught free environment, clear of the ground, avoiding humid conditions and extremes of temperature (minimum lower temperature of 7°C (45°F). The product should be used within 12 months of the date of production; product should not have been exposed to the atmosphere prior to use.
Any product that is stacked should be done so in a stable manner, and to a safe height. The stacking of product should be done in such a manner that it does not create any risk of product falling and accidentally bursting the packaging open.

8. Exposure Controls / Personal Protection

8.1 CONTROL PARAMETERS

Hazardous Ingredients	CAS. No.	Exposure Limits
Portland Cement	65997-15-1	OSHA PEL – 15 mg/m3 8-hr TWA (ST) STE © Ceiling - 10 mg/m3 NIOSH REL - 10 mg/m3
Copper	7440-50-8	OSHA PEL 1 mg mg/m3
Iron Oxide Pigments	1317-37-1 1317-61-9	ACGIH (1997) TLV TWA - 5 mg/m3 as Fe OSHA (1994) PEL: - 10 mg/m3 as Fe2O3

Please refer to OSHA website for additional information

8.2 EXPOSURE CONTROLS

8.2.1 Appropriate engineering controls

Provide adequate and suitable ventilation / ventilation equipment when handling product, to maintain dust below OES. All ventilation systems should be filtered before discharge to atmosphere. Isolate personnel from dusty areas.

Do not eat, drink or smoke when working with the product to avoid contact with skin or mouth. Immediately after working with the product, workers should wash or shower or use skin moisturizers. Remove contaminated clothing, footwear, watches, etc… and clean thoroughly before re-using.

8.2.2 Personal protection equipment

P280 Wear protective gloves/protective clothing/eye protection/face protection.
P264 Wash hands thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.

Skin Protection – Use impervious, abrasion and alkali resistant gloves, enclosed rubber boots that resist powder and liquid penetration, closed long-sleeved impervious protective clothing that protects skin from contact. Close all fittings at opening.

Eye Protection – Wear safety goggles/glasses at all times when handling the product. Ensure the goggles/glasses have suitable side protection, are wide vision, and that there is no risk of product particles being able to enter the eye(s).

Respiratory Protection - Always use respiratory protection. Inhalation of product dust must be avoided at all times. Use an APPROVED NIOSH dust mask. Respiratory protective equipment must be in compliance with relevant national legislation. It is good practice to conduct fit-testing when selecting respiratory protective equipment.

Additional safety precautions may include the provision a shower facility.

8.2.3 Environmental exposure controls.
According to available technology that limit dust dispersion into the environment.

9. Physical and Chemical Properties

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Appearance	**Brown particulate powder**
Odour	**None**
pH	**pH 9.1 – 9.8 (EPA method 2 parts water to 1 part powder by volume weight)**
Melting/freezing point	**Not applicable**
Initial boiling point and range	**Not applicable**
Flash point	**Not applicable**
Evaporation rate	**Not applicable**
Flammability Upper/lower flammability/explosive limits	**Not applicable**
Vapour pressure	**Not applicable**
Vapour density	**Not applicable**
Solubility	**Powder forms slurry with water, hardens over time**
Auto-ignition temperature	**Not applicable**
Decomposition temperature	**Alkaline earth compounds: 580 ^{0}C**
Viscosity	**Not applicable**
Explosive properties	**Not applicable**
Oxidizing properties	**Not applicable**
Specific Gravity	**3.64 (water=1)**

10. Stability and Reactivity

10.1 REACTIVITY

None known.

10.2 CHEMICAL STABILITY

The product is chemically stable. When mixed with water it will harden, with time, into a stable mass. Products may liberate Carbon Monoxide or Carbon Dioxide.

10.3 POSSIBILITY OF HAZARDOUS REACTIONS

None known.

10.4 CONDITIONS TO AVOID

Avoid humid and drafty environments during storage. Also avoid storage temperatures below 7°C.

10.5 INCOMPATIBLE MATERIALS

None known.

It should be noted that the uncontrolled use of aluminum powder in wet cement should be avoided as hydrogen is produced.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS

None known.

11. Toxicological Information

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS

Acute dermal toxicity: The cement incorporated with the other ingredients in this product has been subject to a Limit test. (Limit test, rabbit, 24 hours contact, 2,000 mg/kg body weight – no lethality.)

Acute oral toxicity: No data available.

Acute inhalation toxicity: The product may irritate the throat and respiratory tract. Inhalation may lead to irritation, inflammation or burns. Coughing, sneezing and shortness of breath may occur following exposures in excess of occupational exposure limits.

Skin corrosion/irritation: When skin is exposed to the product in its dry or wet state, thickening, cracking or fissuring of the skin may occur. Prolonged contact in combination with abrasion can cause severe burns. Portland cement is an irritant to skin. Ingredients are dermal irritants and dermatitis may develop following exposure. Cement may have an irritating effect on moist skin (due to transpiration of humidity) after prolonged contact. Prolonged skin contact with wet cement or fresh concrete may cause serious burns because they develop without pain being felt. Repeated skin contact with wet cement may cause dermatitis.

This mixture contains <2ppm Chromium (VI) in the Portland cement component, which is a skin irritant.

Serious eye damage/irritation: Direct contact with product may cause corneal damage by mechanical stress, immediate or delayed irritation or inflammation. Direct contact either in dry or wet form may cause effects ranging from moderate eye irritation (eg conjunctivitis or blepharitis) to chemical burns or blindness.

Skin sensitization: This product contains Portland cement which is classified as a skin sensitizer. Contact dermatitis/Sensitizing effects. Some individuals may exhibit eczema upon exposure to wet cementitious products, caused either by the high pH which induces irritant contact dermatitis, or by an immunological reaction to soluble Cr (VI) which elicits allergic contact dermatitis. The response may appear in a variety of forms ranging from a mild rash to severe dermatitis and is a combination of those two mechanisms. An exact diagnosis is often difficult to assess.

Germ cell mutagnicity: With the exception of Chromium (VI) (<2 ppm) IN THE Portland cement, none of the individual substances in this mixture are classified as mutagenic

Carcinogenicity: No data available

Reproductive toxicity: None of the individual substances in this mixture are classified as reproductive toxicants

Specific target organ toxicity – single exposure: Inhalation of dust can result in damage to the respiratory tract.

Specific target organ toxicity – repeat exposure: Prolonged or repeated inhalation exposure may cause damage to the lungs, including chronic obstructive pulmonary disease (COPD). Certain ingredients within these products do give potential for generation of respirable dust during handling and use. The dust may contain respirable crystalline silica. Prolonged or frequent or excessive exposure to respirable crystalline silica dust and cement dust materials may cause respiratory disease, lung disease, lung and respiratory tract damage, ulceration and perforation of the nasal septum, pneumonitis and other serious bad health effects. The excessive inhalation of crystalline silica dust may result in respiratory disease, including silicosis, pneumoconiosis and pulmonary fibrosis.

11.2 ASPIRATION HAZARD

No data available

11.3 LIKELY ROUTES OF EXPOSURE

Inhalation: YES
Skin – eyes: YES
Ingestion: NO – except in accidental cases

11.4 POTENTIAL HEALTH EFFECTS

The product may irritate and burn the throat and respiratory tract. Coughing, sneezing and shortness of breath may occur following exposures in excess of occupational exposure limits. Causes skin irritation and is a severe eye irritant

Chronic exposure to respirable dust in excess of occupational exposure limits may cause coughing, shortness of breath and may cause chronic obstructive lung disease (COPD)

11.5 MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Inhaling dust may aggravate existing respiratory system disease(s) and/or medical conditions such as emphysema or asthma and/or existing skin and/or eye conditions.

12. Ecological Information

12.1 ECOTOXICITY

Do not allow the material to enter water course. If water is contaminated inform the relevant authorities immediately. The addition of a significant amount of cementitious products to water may cause a rise in the pH value and therefore may be toxic to aquatic life under certain circumstances.

Alkaline conditions may also have effects on vegetation.
Acute hazardous to the aquatic environment – Rainbow trout: LC50 (96 hrs.) 0.0207 mg/L and Water Flea: LC50 (48 hrs.) 0.45 mg/L.

12.2 PERSISTENCE AND DEGRADABILITY

Alkaline earth material is non bio-degradable; it reacts with atmosphere and dissolved carbon dioxide to form calcium carbonate (chalk).

12.3 BIO ACCUMULATIVE POTENTIAL

None of the substances in this mixture are known to bioaccumulate

12.4 MOBILITY IN SOIL

Not known

12.5 RESULTS OF PBT AND VPVB ASSESSMENT

This mixture does not contain any substances that are assessed to be PBT or vPvB

13. Disposal Considerations

13.1 WASTE TREATMENT METHODS

Avoid creation of airborne and respirable dust when disposing of product.

PRODUCT – UNUSED RESIDUE OR DRY SPILLAGE
Pick up dry and put in containers. Mark container clearly. In case of disposal, harden with water to avoid dust creation. Dispose of at a licensed waste facility. Dispose of all materials in accordance with current local regulations /legislation.

PRODUCT - SLURRIES
Allow to harden. Avoid entry into sewage and drainage systems or into bodies of water and dispose of as indicated for hardened product

PRODUCT – AFTER ADDITION OF WATER, HARDENED
Dispose of at a licensed waste facility accepting cementitious and alkaline earth based waste. Dispose of all materials in accordance with current regulations / legislation. Avoid entry into sewage and drainage systems or into bodies of water

13.2 PACKAGING

Completely empty packaging and process it according to current regulations / legislation. Do not reuse or refill container. Offer for recycling if available or reconditioning if appropriate or place in trash.

14. Transportation Information

14.1 LABELS REQUIRED None

14.2 LAND TRANSPORT (TDG)

UN Number: Not regulated

Proper Shipping name: Not regulated for transport (DOT/TDG/IMDG/IATA) unless otherwise required due to active ingredient concentration

Transportation hazard class: Not regulated
Packing group: Not applicable
Environmental hazards: Not applicable
Special precautions for user: None required

14.3 AIR TRANSPORT: Not regulated

14.4 SEA TRANSPORT: Not regulated

14.5 Transport in bulk according to Annex II of MARPOL and the IBC code: N/A

14.6 Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code: N/A

14.7 Transport in bulk in accordance with the IGC Code

15. Regulatory Information

GHS
WHMIS
OSHA
EPA

16. Other Information

ABBREVIATIONS:

ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Service Number
OSHA: Occupational Safety & Health Administration
OEL: Occupational Exposure Limit
TWA: Time Weighted Averages
PEL: Permissible Exposure Limit
MEL: Maximum Exposure Limit
LC: Lethal Concentration
LD: Lethal Dose
UEL: Upper Explosion Limit
LEL: Lower Explosion Limit
PPE: Personal Protective Equipment
EC_{50}: Median effective concentration
LC_{50}: Median lethal concentration
LD_{50}: Median lethal dose
NOEC: No observable effect concentration
WHMIS: Workplace Hazardous Materials Information System

HAZARD STATEMENTS IN FULL:

H315 Causes skin irritation.
H318 Causes serious eye damage.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation
H373 May cause damage to respiratory organs through prolonged or repeated exposure

PRECAUTIONARY STATEMENTS IN FULL:

P260 Do not breathe dust
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P272 Contaminated work clothing should not be allowed out of the workplace.
P264 Wash thoroughly after handling.

RESPONSIVE PRECAUTIONARY STATEMENTS

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTRE or doctor/physician.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P332+ P313 If skin irritation or rash occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P501 Dispose of contents/container in accordance with appropriate regulations
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P314 Get medical advice/attention if you feel unwell.

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Disclaimer:

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