Material Safety Data Sheet

Product name: Phosphatase Inhibitor Cocktail
Product code: I208052
Supplier:
ZmTech Scientific (scientifique)
5020 Fairway street, Suit 224, Montreal, QC, Canada H8T 1B8
Tel: 514-702 7702; Fax: 514-254 5356
Emergency Tel: 1-800-424-9300 (Transportation Spill Response 24 hours)
1-613-996-6666 (National Response in Canada)

Revision date: 12/20/2010

For research use only, not for drug, household and other uses.

1. Hazards identification

Physical state: Liquid.

Active ingredients and hazardous components:

CAS-No.	Einecs-No.	Name	Contents	Classification (Europe)
67-68-5	2006643	Dimethyl sulfoxide	2-5%	--
13721-39-6	2372879	Sodium Orthovanadate	1-2 %	Xn; R22 Xi;R36/37/38
9087-70-1	---	Aprotinin	1-3 %	--
30827-99-7	---	AEBSF	1-3 %	--
103476-87-7	---	Leupeptin	1-3%	--
7732-18-5	---	Water	>75 %	--

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview:

WARNING ! HARMFUL IF SWALLOWED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. SUSPECT CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER.
Toxic if swallowed. Harmful in contact with skin. Irritating to eyes, respiratory system and skin. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Do not get in eyes. Avoid contact with skin and clothing. Contains material that can cause target organ damage. Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use.

Potential acute health effects:

Harmful in case of skin contact (irritant), of eye contact (irritant), of inhalation (irritant), of ingestion (toxic if swallowed),

Potential Chronic Health Effects:

CHRONIC EFFECTS: Contains material that can cause target organ damage.
CARCINOGENIC EFFECTS: Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
TARGET ORGANS: Contains material which causes damage to the following organs: heart, bones, teeth. Contains material which may cause damage to the following organs: kidneys, gastrointestinal tract, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

Over-exposure signs/symptoms:

Ingestion : No specific data.
Skin : Adverse symptoms may include the following: irritation redness
Eyes : Adverse symptoms may include the following: pain or irritation watering redness
Inhalation : Adverse symptoms may include the following: respiratory tract irritation coughing

Medical conditions aggravated by overexposure:

Pre-existing skin and digestive disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

The preparation is classified as dangerous according to Directive 1999/45/EC and its amendments.
Classification : Xn; R20/22
Human health hazards : Harmful by inhalation and if swallowed.

2. First aid measures

Eye Contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Get medical attention.

Skin Contact: Get medical attention immediately. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing or wear gloves. Continue to rinse for at least 10 minutes. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhalation: Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the

rescuer should wear an appropriate mask or selfcontained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-tomouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband..

Ingestion: Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband..

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing or wear gloves

3. Fire-fighting measures

Flammability of the Product: In a fire or if heated, a pressure increase will occur and the container may burst.

Extinguishing media:

Suitable: Use an extinguishing agent suitable for the surrounding fire.

Not suitable: None known.

Hazardous combustion products: Decomposition products may include the following materials:
carbon oxide, phosphorus oxides, halogenated compounds, metal oxide/oxides.

Special exposure hazards: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

4. Accidental release measures

Small Spill: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large Spill: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

5. Handling and storage

Precautions:

Put on appropriate personal protective equipment (see section 6). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage:

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 8) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination..

6. Exposure controls/personal protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.. Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Environmental exposure controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

7. Physical and chemical properties

Physical state and appearance: Liquid
Odor: Odorless
Color: Colorless
pH: 7-8
Solubility: Easily soluble in the following materials: cold water and hot water.

8. Stability and reactivity

Stability: The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
Materials to avoid: No information available
Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Polymerization: Hazardous polymerization does not occur.

9. Toxicological information

United States

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Sodium orthovanadate	LD50	Oral Rat	330 mg/kg	-
	LD50 Subcutaneous	Rat	50 mg/kg	-
	TDLo Intraperitoneal	Rat	4.6 mg/kg	-
	TDLo Intraperitoneal	Rat	4.6 ug/kg	-
1,2,3-propanetriol, 2-(dihydrogen phosphate), disodium salt	LD50 Unreported	Rat	3400 mg/kg	-
diphosphoric acid, disodium salt	LD Dermal	Rabbit	>300 mg/kg	-
	LD50 Oral	Rat	1800 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>0.58 mg/L	4 hours

Chronic toxicity: Not available.
Carcinogenicity: Not available.
Mutagenicity: Not available.
Teratogenicity: Not available.
Reproductive toxicity: Not available.
Classification:

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Sodium orthovanadate	-	-	-	None.	-	None.

Europe

Chronic effects : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity No known significant effects or critical hazards.
Teratogenicity No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

10. Ecological information

United States

Environmental effects : No known significant effects or critical hazards.
Aquatic ecotoxicity
Conclusion/Summary : Not available.
Other adverse effects : No known significant effects or critical hazards.

11. Disposal considerations

Dispose of in accordance with local regulations. The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

12. Transport information

Regulatory information:	UN number	Proper shipping name	Classes	Packing group
DOT Classification	Not regulated.	-	-	-

IATA-DGR Class	Not available.	Not available.	Not available.	-

13. Regulatory information

United States

HCS Classification: Toxic material
Irritating material
Carcinogen
Target organ effects

U.S. Federal regulations TSCA 8(a) PAIR: sodium orthovanadate
United States inventory (TSCA 8b): All components are listed or exempted.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Sodium orthovanadate;
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Sodium orthovanadate: Delayed (chronic) health hazard;
Clean Water Act (CWA) 307: No products were found.
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

WHMIS (Canada):

Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists : **Canadian ARET**: None of the components are listed.
Canadian NPRI: None of the components are listed.
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.
Canada inventory : Canada inventory: All components are listed or exempted.

EU regulations:

Hazard symbol or symbols

Risk phrases: R20/22- Harmful by inhalation and if swallowed.

International regulations:

International lists Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Korea inventory (KECI): All components are listed or exempted.
Philippines inventory (PICCS): Not determined.
Japan inventory (ENCS): All components are listed or exempted.

14. Other information

Label requirements :. HARMFUL IF SWALLOWED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. SUSPECT CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER.

HMIS (U.S.A.)

Health Hazard: 3
Fire Hazard: 0
Physical Hazard: 0

National Fire Protection Association (U.S.A.)

Health: 3
Flammability: 0
Instability: 0

Notice to reader

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