SAFETY DATA SHEET

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1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: **BIONIX ZP48**

Company Name: Isomeric Industries Inc.
3400 Research Forest Drive, Suite B4
The Woodlands, TX 77381

Phone Number: (678)713-4275

Web site address: www.isomericindustries.com

Email address: info@isomericindustries.com

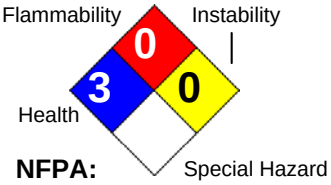
Emergency Contact: INFOTRAC United States & Canada (800)535-5053

Hazard Rating System:

HMIS:

HEALTH	3
FLAMMABILITY	0
PHYSICAL	0
PPE	H

NFPA:



2. HAZARDS IDENTIFICATION

Acute Toxicity: Inhalation, Category 4
Acute Toxicity: Oral, Category 4
Serious Eye Damage/Eye Irritation, Category 1
Aquatic Toxicity (Acute), Category 1
Aquatic Toxicity (Chronic), Category 1

GHS Signal Word: **Danger**

GHS Hazard Phrases:
H302 - Harmful if swallowed.
H318 - Causes serious eye damage.
H332 - Harmful if inhaled.
H400 - Very toxic to aquatic life.
H410 - Very toxic to aquatic life with long lasting effects.

GHS Precautionary Phrases:
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

GHS Response Phrases:
P301+312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+351+338 - 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 CENTER or doctor/physician.
P330 - Rinse mouth.
P391 - Collect spillage.

GHS Storage and Disposal Phrases: P501 - Dispose of contents/container to ...

Potential Health Effects (Acute and Chronic): May be harmful in contact with skin. Harmful if swallowed. Causes serious eye damage. Harmful if inhaled.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #	Hazardous Components (Chemical Name)	Concentration	
13463-41-7	Zinc pyrion	30.0 -50.0 %	

4. FIRST AID MEASURES

Emergency and First Aid Procedures: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

In Case of Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In Case of Skin Contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital.

In Case of Eye Contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

In Case of Ingestion: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician. Do not induce vomitting unless directed to do so by medical personnel.

Signs and Symptoms Of Exposure: The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of any immediate medical attention and special treatment needed: Consult a physician.

Note to Physician: Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Flash Pt: NA

Explosive Limits: LEL: UEL:

Autoignition Pt:

Suitable Extinguishing Media: Water mist. Dry powder. Foam. Carbon dioxide (CO2). Sand. Aqueous film forming foam (AFFF).

Unsuitable Extinguishing Media: Water spray jet.

Fire Fighting Instructions: Wear self contained breathing apparatus for fire fighting if necessary. Firefighters must wear fire resistant personal protective equipment.

Flammable Properties and Hazards: Heating can release hazardous gases.

Hazardous Combustion Products: nitrogen oxides. Carbon oxides, oxides of sulfur.

6. ACCIDENTAL RELEASE MEASURES

Protective Precautions, Protective Equipment and Emergency Procedures: Wear respiratory protection. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Steps To Be Taken In Case Material Is Released Or Spilled: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container.

7. HANDLING AND STORAGE

Precautions To Be Taken in Handling: Follow all SDS/Label precautions. Wear appropriate personal protective equipment. Avoid contact with skin and eyes.Ensure good ventilation at the workplace.

Precautions To Be Taken in Storing: Keep container tightly closed in a dry and well-ventilated place. Keep in a dry place. Keep the product in original containers. Keep away from heat and sources of ignition. Keep away from food and drink.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
13463-41-7	Zinc pyrion			

Personal Protective Equipment Symbols:

Respiratory Equipment (Specify Type): Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Eye Protection: Face shield and safety glasses.

Protective Gloves: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Full contact.
Material: Nitrile rubber, Minimum layer thickness: 0.2 mm, Break through time: 480 min.

Other Protective Clothing: Chemical resistant apron.

Engineering Controls (Ventilation etc.): Use with adequate ventilation.

Work/Hygienic/Maintenance Practices: Handle in accordance with good industrial hygiene and safety practice.

Environmental Exposure Controls: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical States:	[ ] Gas [X] Liquid [ ] Solid
Appearance and Odor:	characteristic odor. White.
pH:	
Melting Point:	
Boiling Point:	100.00 C (212.0 F)
Flash Pt:	NA
Evaporation Rate:	
Flammability (solid, gas):	
Explosive Limits:	LEL: UEL:
Vapor Pressure (vs. Air or mm Hg):	
Vapor Density (vs. Air = 1):	
Specific Gravity (Water = 1):	
Solubility in Water:	Dispersible
Octanol/Water Partition Coefficient:	
Autoignition Pt:	
Decomposition Temperature:	
Viscosity:	

10. STABILITY AND REACTIVITY

Reactivity:	No data available.
Stability:	Unstable [ ] Stable [X]
Conditions To Avoid - Instability:	To avoid thermal decomposition, do not overheat.
Incompatibility - Materials To Avoid:	No data available.
Hazardous Decomposition or Byproducts:	nitrogen oxides. Sulphur oxides, Carbon oxides.
Possibility of Hazardous Reactions:	Will occur [ ] Will not occur [X]
Conditions To Avoid - Hazardous Reactions:	No data available.

11. TOXICOLOGICAL INFORMATION

Toxicological Information: Acute toxicity.

Germ cell mutagenicity: Ames test.
GHS Classification: Genotoxicity in vitro - mouse - S.typhimurium: Host-mediated assay. Result: negative. Mouse. male.
No data available. Reproductive toxicity.
Reproductive toxicity - rabbit - Oral. Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Fetal death.
Reproductive toxicity - rat - Skin. Effects on Newborn: Weaning or lactation index (e.g., # alive at weaning per # alive at day 4).
Developmental Toxicity - rabbit - Skin. Effects on Embryo or Fetus: fetal death.
Developmental Toxicity - rat - Oral Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

CAS# 13463-41-7: Zinc pyrion: Acute toxicity, LD50, Oral, Rat, 177.0 MG/KG. Result: Kidney, Ureter, Bladder: Changes primarily in glomeruli. Nutritional and Gross Metabolic:Weight loss or decreased weight gain. Related to Chronic Data - death. ; Toxicology Annual., Vol/p/yr: 3,1, 1979
Acute toxicity, LC50, Inhalation, Rat, 140.0 MG/M3, 4 H. Result: Lungs, Thorax, or Respiration:Acute pulmonary edema. Lungs, Thorax, or Respiration:Dyspnea. Nutritional and Gross Metabolic:Weight loss or decreased weight gain. ; National Technical Information Service, Vol/p/yr: OTS0527753,
Acute toxicity, LD50, Oral, Mouse, 160.0 MG/KG. Result: Gastrointestinal:Other changes. ; Clinical Toxicology., For publisher information, see JTCTDW, New York, NY, Vol/p/yr: 13,1, 1978
Acute toxicity, LD50, Intraperitoneal, Mouse, 26800. UG/KG. Result: Skin and Appendages: Skin: After topical exposure: Dermatitis, allergic. ; Oyo Yakuri. Pharmacometrics., Oyo Yakuri Kenkyukai, CPO Box 180, Sendai 980-91 Japan, Vol/p/yr: 8,1067, 1974
Acute toxicity, LD50, Subcutaneous, Mouse, 730.0 MG/KG; Clinical Toxicology., For publisher information, see JTCTDW, New York, NY, Vol/p/yr: 13,1, 1978
Acute toxicity, LD50, Oral, Dog, 600.0 MG/KG; Clinical Toxicology., For publisher information, see JTCTDW, New York, NY, Vol/p/yr: 13,1, 1978
Acute toxicity, LD50, Skin, Species: Rabbit, 100.0 MG/KG; Yakkyoku. Pharmacy., Nanzando, Tokyo Japan, Vol/p/yr: 32,965, 1981
Acute toxicity, LD50, Oral, Species: Guinea pig, > 2.000 GM/KG; Toxicology and Applied Pharmacology, Academic Press, Inc., 1 E. First St., Duluth, MN 55802, Vol/p/yr: 7,425, 1965
Acute toxicity, LC50, Inhalation, Species: unspecified., 140.0 MG/M3, 4 H. Result: Skin and Appendages: Skin: After systemic exposure: Dermatitis, other. ; United States Environmental Protection Agency, Office of Pesticides and Toxic Substances., U.S. Environmental Protection Agency, Office of Pesticides and Toxic Substances, 401 M St., SW, Washington, DC 20460, Vol/p/yr: 8EHQ-0790-,
Standard Draize Test, Eyes, Species: Rabbit, 1.000 MG, 48 H. Result: Gastrointestinal: Changes in structure or function of salivary glands. Gastrointestinal:Ulceration or bleeding from stomach. Kidney, Ureter, Bladder:Hematuria. ; Journal of the Association

of Official Analytical Chemists., Assoc. of Official Analytical Chemists, 1111 N. 19th St., Suite 210, Arlington, VA 22209, Vol/p/yr: 56,905, 1973

Irritation or Corrosion: Skin corrosion/irritation. Skin: Rabbit.
Risk of serious damage to eyes.

Sensitization: Maximisation Test. Species: Guinea pig.
(OECD Test Guideline 406))
Result: Does not cause skin sensitisation.

Chronic Toxicological Effects: Specific target organ toxicity - single exposure: No data available.
Specific target organ toxicity -repeated exposure: no data available.

Carcinogenicity/Other Information: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

12. ECOLOGICAL INFORMATION

General Ecological Information: This product is extremely toxic to fish and other aquatic organisms.
CAS# 13463-41-7: Zinc pyrion: LC50, Water Flea (Daphnia magna), nauplii, 145.0 UG/L, 24 H, Mortality, Water temperature: 22.00 C (71.6 F) C, pH: 7.83; Influence of Light in Acute Toxicity Bioassays of Imidacloprid and Zinc Pyrithione to Zooplankton Crustaceans, Sanchez-Bayo, F., and K. Goka, 2006
LC50, Water Flea (Daphnia magna), nauplii, 106.0 UG/L, 24 H, Mortality, Water temperature: 22.00 C (71.6 F) C, pH: 7.83; Influence of Light in Acute Toxicity Bioassays of Imidacloprid and Zinc Pyrithione to Zooplankton Crustaceans, Sanchez-Bayo, F., and K. Goka, 2006
LC50, Water Flea (Chydorus sphaericus), 407.0 UG/L, 24 H, Mortality, Water temperature: 22.00 C (71.6 F) C, pH: 7.83; Influence of Light in Acute Toxicity Bioassays of Imidacloprid and Zinc Pyrithione to Zooplankton Crustaceans, Sanchez-Bayo, F., and K. Goka, 2006
LC50, Water Flea (Chydorus sphaericus), 197.0 UG/L, 48 H, Mortality, Water temperature: 22.00 C (71.6 F) C, pH: 7.83; Influence of Light in Acute Toxicity Bioassays of Imidacloprid and Zinc Pyrithione to Zooplankton Crustaceans, Sanchez-Bayo, F., and K. Goka, 2006
LC50, Ostracod (Ilyocypris dentifera), 4000. UG/L, 24 H, Mortality, Water temperature: 22.00 C (71.6 F) C, pH: 7.83; Influence of Light in Acute Toxicity Bioassays of Imidacloprid and Zinc Pyrithione to Zooplankton Crustaceans, Sanchez-Bayo, F., and K. Goka, 2006
LC50, Ostracod (Ilyocypris dentifera), 291.0 UG/L, 48 H, Mortality, Water temperature: 22.00 C (71.6 F) C, pH: 7.83; Influence of Light in Acute Toxicity Bioassays of Imidacloprid and Zinc Pyrithione to Zooplankton Crustaceans, Sanchez-Bayo, F., and K. Goka, 2006
LC50, Ostracod (Cypretta seurati), 2415. UG/L, 24 H, Mortality, Water temperature: 22.00 C (71.6 F) C, pH: 7.83. Result: No loss of equilibrium observed. ; Influence of Light in Acute Toxicity Bioassays of Imidacloprid and Zinc Pyrithione to Zooplankton Crustaceans, Sanchez-Bayo, F., and K. Goka, 2006

LC50, Ostracod (Cypretta seurati), 524.0 UG/L, 48 H, Mortality, Water temperature: 22.00 C (71.6 F) C, pH: 7.83. Result: No loss of equilibrium observed. ; Influence of Light in Acute Toxicity Bioassays of Imidacloprid and Zinc Pyrithione to Zooplankton Crustaceans, Sanchez-Bayo, F., and K. Goka, 2006

Results of PBT and vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

Persistence and Degradability: Biodegradability: aerobic -Exposure time 28. Result: 39 % -Not readily biodegradable.

Bioaccumulative Potential: Bioaccumulation: Cyprinus carpio (Carp): -56 Bioconcentration factor (BCF): < 50

Mobility in Soil: No data available.

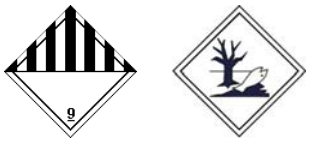
13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Product:
If this product becomes a waste, it meets the criteria of a hazardous waste under 40CFR 261and would have the following EPA hazardous waste designation D002. Also, it will be subject to the land disposal restrictions under 40CFR268 and must be managed accordingly. As a hazardous liquid, it must be disposed of in accordance with local, state and federal regulations in a permitted hazardous waste facility.

14. TRANSPORT INFORMATION

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s.(Zinc Pyrithione)
DOT Hazard Class: 9 CLASS 9
UN/NA Number: UN3082 **Packing Group:** III



MARINE TRANSPORT (IMDG/IMO):

IMDG/IMO Shipping Name: Environmentally hazardous substance, liquid, n.o.s.(Zinc Pyrithione)
UN Number: 3082 **Packing Group:** III
Hazard Class: 9 - CLASS 9
IMDG EMS Number: F-A, S-F **IMDG MFAG Number:**
IMDG EMS Page: **Marine Pollutant:** Yes

AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Environmentally hazardous substance, liquid, n.o.s.(Zinc Pyrithione)

15. REGULATORY INFORMATION

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
13463-41-7	Zinc pyrion	No	No	Yes-Cat. N982

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
13463-41-7	Zinc pyrion	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; FIFRA: Yes - Active - 088002: Am/CC; FDA/DEA CSA: No; CA PROP.65: No; MA Oil/HazMat: Yes - Cat.; MI CMR, Part 5: Yes - Cat.; NJ EHS: Yes - Cat.; PA HSL: No

CAS #	Hazardous Components (Chemical Name)	International Regulatory Lists
13463-41-7	Zinc pyrion	Canadian DSL: Yes; Canadian NDSL: No

16. OTHER INFORMATION

Revision Date: 09/11/2018

Additional Information About This Product:

Company Policy or Disclaimer: Notice to Reader: The information herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. ISOMERIC INDUSTRIES INC. assumes no responsibility for personal or property damage to vendors, users, or third parties caused by the material. Such vendors or users assume all risks associated with the use of the material.