Safety Data Sheet

For Compliance with OSHA 29 CFR 1910.1200 and ANSI Z400.1-1998

1. Product and Company Identification	
Product Name	Image Intensifier
Manufacturer's name	Horizons Incorporated
Address	18531 South Miles Road Cleveland, Ohio 44128
Emergency Telephone Number	(216) 475-0555
Information Telephone Number	(216) 475-0555

2. Hazards Identification

Ammonium Thiocyanate component

GHS Classification	
H302	Acute toxicity, Oral – Category 4
H332	Acute toxicity, Inhalation – Category 4
H312	Acute toxicity, Dermal – Category 4
H318	Serious eye damage/eye irritation – Category 1
H400	Hazardous to the aquatic environment, Acute – Category 1
H410	Hazardous to the aquatic environment, Chronic – Category 1
GHS Label Elements	
Hazard Pictogram	
Signal Word	Danger
Hazard Statements	
H302+H312	Harmful if swallowed or in contact with skin
H318	Causes serious eye damage
H332	Harmful if inhaled
H410	Very toxic to aquatic life with long lasting effects
Precautionary Statements	
P261	Avoid breathing dust, mists, vapors, & spray
P271	Use only in a well-ventilated area
P264	Wash thoroughly after handling
P270	Do not eat, drink, or smoke when using this product
P280	Wear protective gloves & clothing, and eye & face protection
P273	Avoid release into environment
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338+P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor
P362+P364	Take off contaminated clothing and wash before reuse
P312	Call a poison center/doctor if you feel unwell

Gold Chloride Component	
GHS Classification	
H303 H333 H313 H315 H319 H317	Acute toxicity, Oral – Category 5 Acute toxicity, Inhalation – Category 5 Acute toxicity, Dermal – Category 5 Skin corrosion/irritation – Category 2 Serious eye damage/eye irritation – Category 2A Skin sensitization – Category 1B
GHS Label Elements	
Hazard Pictogram	
Signal Word	Warning
Hazard Statements	
H303+H333 H313 H315 H319 H317	May be harmful if swallowed or inhaled May be harmful in contact with skin Causes skin irritation Causes serious eye irritation May cause an allergic skin reaction
Precautionary Statements	
P261 P264 P272 P280 P305+P351+P338 P337+P313 P302+P352 P333+P313 P312 P362+P364	Avoid breathing dust, mists, vapors, & spray Wash thoroughly after handling Contaminated work clothing should not be allowed out of the workplace Wear protective gloves & clothing, and eye & face protection IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing If eye irritation persists, get medical attention IF ON SKIN , wash with plenty of water If skin irritation or rash occurs, get medical attention Call a poison center/doctor if you feel unwell Take off contaminated clothing and wash before reuse

3. Composition/Information on Ingredients

Components/ Materials	CAS Number	%
Ammonium Thiocyanate Component		
Ammonium Thiocyanate	1762-95-4	100
Gold Chloride Component		
Chloroauric acid hydrate	16903-35-8	1 - 5
Note: This product consists of two individually labeled components		

4. First Aid Measures

Inhalation	Promptly remove to fresh air. If irritation occurs or breathing is difficult, administer oxygen. If not breathing, give artificial respiration. Get medical attention.
Skin Contact	Flush skin with water after contact. Wash contaminated clothing before reuse.
Eye Contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids open during this flushing with water. Call a physician.
Ingestion	Give large amounts of water to dilute. Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.

5. Fire Fighting Measures

Flammable Properties		Flash point – non-flammable
Flammable Limits		
	Lower Flammable Limit	Not applicable
	Upper Flammable Limit	Not applicable
Hazardous Combustion Products		Carbon monoxide, hydrogen chloride, ammonia, sulfur dioxide, hydrogen cyanide, hydrogen sulfide, carbon disulfide & oxides of nitrogen.
Unusual Fire/Explosion Hazards		None
Extinguishing Media		Use that of surrounding fire
Special Firefighting Procedures		Wear self-contained breathing apparatus & protective clothing to prevent contact with skin and eyes.

6. Accidental Release Measures

Small Spill	Absorb spill with an inert material and place solids in a chemical waste container
Large Spill	Contain spilled liquid with sand or earth. Absorb spill with an inert material and shovel solids into a chemical waste container. Prevent runoff from entering into sewers and ditches which lead into natural waterways.

7. Handling and Storage

Handling	Avoid contact with eyes. Keep container closed. Use only in a well ventilated area. Wash thoroughly after handling. Avoid prolonged or repeated breathing of mists and vapors. Avoid prolonged or repeated contact with skin.
Storage	Store between 65-85ºF. Keep containers sealed when not in use. Avoid prolonged exposure of gold chloride to light. Do not store gold chloride in metal containers

8. Exposure Control/Personal Protection

Exposure Limits

Chemical Name	CAS No.	OSHA	ACGIH	NIOSH
Chloroauric acid hydrate	16903-35-8	ND	ND	ND
Ammonium Thiocyanate	1762-95-4	15 mg/m^3 (total dust) PEL 5 mg/m^3 (resp. fract.) PEL	ND	ND

ND – Not Determined

Engineering Controls	Use only with adequate ventilation. Local exhaust ventilation may be necessary to control dust, mist, vapor, or fumes. Keep components or their mixture covered whenever possible.
Respiratory Protection	When respiratory protection is required, use a NIOSH approved air-purifying respirator equipped with a combination high efficiency filter and acid gas canister. For emergency and other conditions where exposure limits may be greatly exceeded, use an approved positive-pressure, self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply.
Skin Protection	For brief contact, no precautions other than clean body-covering clothing should be needed. Use chemical resistant gloves, such as nitrile or polychloroprene, when handling chemical products.
Eye Protection	Use safety glasses with side shields or, preferably, chemical goggles.

9. Physical and Chemical Properties

	Ammonium Thiocyanate Component	Gold Chloride Component
Boiling Point	Not determined	100°C
Specific Gravity	1.31 g/cm^3	Approx. 1.01 g/cm^3
% Volatiles	None	95 – 99%
Solubility in Water	128g/100ml water	Complete
pH	4.5 – 6.0	Approx. 1.5
Odor	None	None
Form	Crystals	Liquid
Color	White	Yellow
VOC	None	None

10. Stability and Reactivity

Chemical Stability	Stable under normal storage conditions
Conditions to Avoid	Avoid prolonged exposure of gold chloride to light. Contact with other metals will cause gold chloride to precipitate as a fine black powder of metallic gold.
Incompatibility	Strong acids & oxidizing agents (ammonium thiocyanate component). Reducing agents (gold chloride component).
Hazardous Decomposition Products	Under fire conditions, components may decompose to form carbon monoxide, hydrogen chloride, ammonia, sulfur dioxide, hydrogen cyanide, hydrogen sulfide, carbon disulfide & oxides of nitrogen.
Hazardous Polymerization	Will not occur

11. Toxicological Information

Results of component toxicity test performed:

Data for Chloroauric acid hydrate (CAS 16903-35-8)	Acute Toxicity Data: Oral LD50: >464 mg/kg (rat). Chronic effects on humans: None known Carcinogenic effects: None known Other toxic effects on humans: Inhalation**:** Causes respiratory tract irritation. May result in burning sensation, coughing, & wheezing. Overexposure may result in pulmonary edema. Skin**:** Causes severe skin irritation. May cause dermatitis. May cause skin burns. Eyes: Causes severe eye irritation. May cause eye burns. Ingestion**:** Harmful if swallowed. Causes burns of the mouth, throat, & stomach. May cause pain, nausea, vomiting, & diarrhea.
Data for Ammonium Thiocyanate (CAS 1762-95-4)	Acute Toxicity Data: Oral LD50: 750 mg/kg (rat). Chronic effects on humans: Causes damage to the following organ: central nervous system, thyroid. Carcinogenic effects: None known. Other toxic effects on humans: Inhalation**:** May be harmful if inhaled. May cause respiratory tract irritation. Skin**:** May be harmful if absorbed through skin. May cause skin irritation. Not sensitive to guinea pig skin in the maximization test. Eyes: May cause eye irritation. Ingestion**:** Harmful if swallowed. May cause vomiting, disorientation, weakness, low blood pressure, convulsions and death which may be delayed. The probable lethal dose is between 15-30 grams (214-429 mg/kg).

12. Ecological Information

The following properties are ESTIMATED from the components of the preparations.

Potential Toxicity:

Toxicity to fish (Oncohynchus mykiss)	LC_{50} = 65 mg/l/96 hr.
Toxicity to fish (Brachydanio rerio)	LC_{50} > 100 mg/l/96 hr.
Toxicity to daphnia magna	EC_{50} = 3.56 mg/l/48 hr.
Toxicity to bacteria (Pseudomonas putida)	EC_{10} = 8 g/l
Toxicity to Selenastrum capricornutum	EbC_{50} = 116 mg/l/72 hr; ErC_{50} = 444 mg/l/72 hr.

Persistence and degradability	ND
Chemical Oxygen Demand (COD)	ND
Biochemical Oxygen Demand (BOD)	ND
Chemical Fate Information	ND
	Readily biodegradable in the closed bottle test.

13. Disposal Considerations

Small quantities may be flushed to drain connected to a publicly owned water treatment system. Note that Federal, State and local laws governing disposal of materials can differ. Ensure proper disposal compliance with proper authorities before disposal.
Contact a licensed professional waste disposal service to dispose of large quantities of this material

14. Transport Information

Proper Shipping Name	Chemicals, N.O.S., Not D.O.T. Regulated
UN No.	None
IATA Class	Not Regulated
Packing Group	Not applicable

15. Regulatory Information

U.S. Federal Regulations	
TSCA Section 8 (b) Inventory	All components are listed on the TSCA Chemical Inventory
OSHA	Hazardous by definition of Hazard Communications Standard (29CFR1910.1200)
SARA Hazard Category	
SARA 302 Components	None
SARA 313 Components	Ammonium Thiocyanate (notification requirements under the “Ammonia Compounds” category).
SARA 311/312 Hazards	Acute health Hazard, Chronic Health Hazard
Clean Water Act (CWA) 307	None

State Regulations	
Massachusetts Right To Know Components	None
Pennsylvania Right To Know Components	None
New Jersey Right To Know Components	None
California Proposition 65 Components	This product does not contain any chemicals known to the State of California to cause cancer.

16. Other Information

	Ammonium Thiocyanate Component	Gold Chloride Component
HMIS		
H	**1***	**1**
F	**1**	**0**
R	**1**	**0**
PPE	**B**	**B**

The information in this material safety data sheet should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product. This information has been prepared for the guidance of plant engineering, operations & management, and for persons working with or handling this product. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions but does not purport to be all inclusive. Horizons Incorporated shall not be held liable for any damage resulting from handling or from contact with the above product.