



MATERIAL SAFETY DATA SHEET  
COMPLIES WITH 29 CFR 1910.1200.  
OSHA HAZARD COMMUNICATION RULE

DATE OF LAST REVISION: 12-06-93

---

## CHEMICAL IDENTITY

---

LABEL IDENTITY	<b>Gold Zinc Alloy</b>	
FORMULA	<b>Au/Zn (99/1)</b>	
CHEMICAL FAMILY	<b>Metallic Element</b>	
CAS REGISTRY NUMBER	<b>Au: 7440-57-5</b>	<b>Zn: 7440-66-6</b>
MOLECULAR WEIGHT	<b>Au: 196.96654</b>	<b>Zn: 65.39</b>
IS IT LISTED IN EPA TSCA INVENTORY	<b>Yes</b>	

**\*The data that follows is for the individual elements and not the mixture as a whole\***

---

## PHYSICAL AND CHEMICAL PROPERTIES

---

COLOR, FORM AND ODOR	<b>Yellow to silver, no odor</b>
BOILING POINT	<b>Unknown</b>
DENSITY (gm/cc)	<b>NA</b>
VAPOR PRESSURE @ 20°	<b>Unknown</b>
% VOLATILE BY VOLUME (%)	<b>NA</b>
REACTION WITH WATER	<b>ND</b>
EVAPORATION RATE (H <sub>2</sub> O=1)	<b>0</b>
SOLUBILITY IN WATER	<b>Insoluble</b>
MELTING POINT	<b>Unknown</b>

---

## FIRE AND EXPLOSION HAZARD DATA

---

FLASH POINT	<b>NA</b>
AUTOIGNITION TEMPERATURE (°C)	<b>NA</b>
FLAMMABILITY	<b>ND</b>
EXTINGUISHING MEDIA	<b>Non-flammable. If involved in a fire do not use water or halogenated extinguishers. Use dry chemical extinguishing agents, dry sand, dry ground dolomite.</b>
SPECIAL FIRE FIGHTING PROCEDURES	<b>No special fire fighting procedures needed, use normal procedures which include wearing NIOSH/MSHA approved self-contained breathing apparatus, flame and chemical resistant clothing; hats, boots and gloves. If without risk remove material from fire area.</b>



## GOLD ZINC ALLOY MATERIAL SAFETY DATA SHEET

### HEALTH HAZARD INFORMATION

ANIMAL TOXICITY DATA:	LD50	LC50	Other
<b>Gold</b>	<b>No data</b>	<b>No data</b>	<b>imp-rat TDLO: 200mg/kg</b> <b>imp-mse TDLO: 21gm/kg</b>
<b>Zinc</b>	<b>No data</b>	<b>No Data</b>	<b>int-rat LDLO: 58mg/kg</b> <b>inh-hmn TCLO: 124mg/kg/</b> <b>50minutes</b>

#### HMIS RATING:

HEALTH: **0** FLAMMABILITY: **0** REACTIVITY: **0** PERSONAL PROTECTION: **0**

#### ACUTE EFFECTS:

##### Gold:

*Ingestion:* none known      *Skin:* powder may cause irritation      *Eyes:* powder may cause irritation  
*Inhalation:* may cause irritation      *Medical conditions, if any, aggravated by Gold:* none known  
*Other likely hazards:* effects of overexposure unlikely with solid forms  
*Most likely routes of entry:* Ingestion

##### Zinc:

*Ingestion:* may cause nausea, vomiting, purging      *Skin:* none known  
*Eyes:* powder may be irritating      *Inhalation:* may cause metal fume fever. Symptoms include metallic taste, throat irritation, muscular aches, weakness, fever, nausea, vomiting and chills, may cause lung irritation, chest pain and edema.  
*Medical conditions, if any, aggravated by Germanium:* none known  
*Other likely hazards:* none known      *Most likely route of entry:* Ingestion

#### CHRONIC AFFECTS:

##### Gold:

*Ingestion:* none known      *Skin:* may cause dermatitis      *Eyes:* none known  
*Inhalation:* none known      *Other:* Aplastic anemia has been reported as an overexposure effect

##### Zinc:

*Ingestion:* none known      *Skin:* none known      *Eyes:* none known  
*Inhalation:* none known      *Other:* chromosomal anomalies in leukocytes reported. Arthritic lameness and inflammation of the gastrointestinal tract reported from animal studies.

#### EMERGENCY AND FIRST AID PROCEDURES:

##### Gold:

*Ingestion:* no data available but one should obtain medical assistance  
*Skin:* remove contaminated clothing, flood skin with large amounts of water  
*Eyes:* immediately flush eyes, including under eyelids, with large amounts of water for at least 15 minutes. Call a physician  
*Inhalation:* no specific information available, one should obtain medical attention



## GOLD ZINC ALLOY MATERIAL SAFETY DATA SHEET

---

### HEALTH HAZARD INFORMATION CONTINUED

---

#### EMERGENCY AND FIRST AID PROCEDURES (CONTINUED):

**Zinc:**

*Ingestion:* no data available but one should obtain medical assistance

*Skin:* remove contaminated clothing, flood skin with large amounts of water, if irritation persists seek medical attention

*Eyes:* immediately flush eyes, including under eyelids, with large amounts of water for at least 15 minutes. Call a physician

*Inhalation:* no specific information available, one should obtain medical attention

---

### REACTIVITY DATA

---

**Gold:**

*Incompatibility:* NH<sub>3</sub>, NH<sub>4</sub>OH + aqua regia, H<sub>2</sub>O<sub>2</sub>, aqua regia with mixtures containing chlorides, bromides or iodides, oxidizing agents especially those containing halogens, alkali cyanides, solutions of thiocyanates and double cyanides.

*Hazardous Decomposition Products:* no data

*Conditions to avoid:* Incompatibilities

*Stability:* Stable

*Hazardous Polymerization:* will not occur

*Other:* can form explosive compounds with NH<sub>3</sub>, NH<sub>4</sub>OH + aqua regia, H<sub>2</sub>O<sub>2</sub>

**Zinc:**

*Incompatibility:* Amines, cadmium, chlorinated solvents, sulfur, strong acids, strong bases, fluorine, carbon disulfide, selenium, magnesium, tellurium, chlorates sodium peroxide, moisture, oxidizing agents.

*Hazardous Decomposition Products:* Thermal decomposition may release toxic and/or hazardous gases.

*Conditions to Avoid:* Incompatibilities

*Stability:* Stable

*Hazardous Polymerization:* will not occur

*Other:* unknown

---

### ENVIRONMENTAL INFORMATION

---

RCRA CODE: **none**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: **Wearing full protective equipment, cover spill with dry sand or vermiculite. Mix well & carefully transfer to container.**

WASTE DISPOSAL METHOD: **Consult federal, state and local regulations for disposal.**

---

### PROTECTION INFORMATION

---

Ventilation Requirements: **laboratory fume hood**

Respiratory Protection: **high efficiency particle respirator**

Protective Gloves: **rubber**

Eye/Face Protection: **ANSI approved safety goggles**



## GOLD ZINC ALLOY MATERIAL SAFETY DATA SHEET

---

### SPECIAL PRECAUTIONS

---

PRECAUTIONS TO BE TAKEN IN HANDLING/STORAGE: **Keep container tightly closed. Store in a cool, dry, well-ventilated area. Wash thoroughly after use.**

OTHER PRECAUTIONS: **Lab coat and apron, flame and chemical resistant coveralls, eyewash capable of sustained flushing, safety drench shower and hygienic facilities for washing.**

Per 49CFR 172.101

PROPER SHIPPING NAME: **Not regulated**

HAZARDOUS CLASSIFICATION: **None**

UN#: **None**

---

### COMMENTS

---

**NO TOXIC EFFECTS KNOWN**

---

THE ABOVE INFORMATION IS ACCURATE TO THE BEST OF OUR KNOWLEDGE. HOWEVER, SINCE DATA, SAFETY STANDARDS AND GOVERNMENT REGULATIONS ARE SUBJECT TO CHANGE THE CONDITIONS OF HANDLING AND USE, OR MISUSE ARE BEYOND OUR CONTROL, **ANGSTROM SCIENCES** MAKE NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR THE RELIANCE THEREON. USER SHOULD SATISFY HIMSELF THAT HE HAS ALL CURRENT DATA RELEVANT TO HIS PARTICULAR USE.

**NA= NOT APPLICABLE ND= NO DATA FOUND NR=NOT REGULATED**