



# Material Safety Data Sheet Gold Based Products

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## Section 1: Product and Company Identification

PRODUCT NAME: Gold Based Products  
CHEMICAL FAMILY: Metal  
CHEMICAL NAME: Alloy  
MANUFACTURER: Williams Advanced Materials  
2978 Main Street  
Buffalo, NY 14214

EMERGENCY TELEPHONE: 716-837-1000 716-838-1129 (24 hour)

## Section 2: Composition/Ingredients

MATERIAL	CAS No.	% wt.	* TLV, ACGIH	* PEL, OSHA	
Gold	7440-57-5	99 - 40	N/A		N/A
Indium	7440-74-6	32 - <1	0.1		0.1
Tin	7440-31-5	20 - 2	2	2	
Nickel	7440-02-0	18 - 2	1	1	
Zinc	7440-66-6	15 - 1	5	(Oxide Fumes)	5
Copper	7440-50-8	10 - 1	0.2	(Fume)	0.1
			1	(Dust)	1
Cobalt	7440-48-4	10 - <1	0.05		0.05
Platinum	7440-06-4	6 - <1	1		1
Silver	7440-22-4	5 - 3	0.1		0.01
Manganese	7439-96-5	5 - <1	5		5

\*All exposure limits are in milligram per cubic meter of air (mg/m<sup>3</sup>)

The main content of these products is Gold. Additional components may include one or more of the above.

## Section 3: Hazard Identification

**EMERGENCY OVERVIEW:** The alloys as sold in solid form are generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulates could be generated.

**PRIMARY ROUTES OF ENTRY:** Inhalation, Skin contact.

**TARGET ORGANS:** Respiratory tract, skin

**HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:** Listed below are certain potential health hazards, which apply to the hazardous ingredients, found in the subject alloy(s).

**GOLD:** Generally none toxic. Skin; may cause contact dermatitis.

**INDIUM:** Inhalation; dust and fumes may cause lung irritation and chemical pneumonitis. Chronic; degenerative changes in the liver, kidney and blood changes may occur from chronic overexposure.

**TIN:** Inhalation; dust or fumes may cause a benign pneumoconiosis called stannosis.

**COPPER:** Metal Fume Fever is possible by inhalation of fumes.

- NICKEL:** Inhalation; fumes are a respiratory irritant and may cause pulmonary asthma. Skin; hypersensitivity is common and may cause allergic contact dermatitis. Ingestion; poison by ingestion. Chronic; nickel and its compounds have been reported to cause cancer of the lungs and sinuses.
- ZINC:** Inhalation; dust or fume is relatively non toxic to humans Oxidation of zinc fumes prior to inhalation may cause throat dryness, headache, nausea, general aches and fever. Skin; prolonged contact may cause dermatitis.
- COBALT:** Inhalation; dust may cause pulmonary damage. Skin; powder may cause dermatitis.
- PLATINUM:** Inhalation; may cause irritation to nose and respiratory tract, if exposure is excessive or prolonged
- SILVER:** Excessive or chronic exposure, skin contact or inhalation, may lead to a condition called Argyrosis. A local or generalized discoloration of the eyes, skin and mucous membrane, where gray/blue patches of pigmentation are formed.
- MANGANESE:** Inhalation; may cause degenerative brain changes, change in motor activity and muscle weakness. Skin/eye irritant
- MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Individuals who may have had allergic reactions to metals or sensitivity, may encounter skin rash or dermatitis, if skin contact with this product occurs. Persons with impaired pulmonary functions, may incur further impairment if dust or fumes are inhaled
- CARCINOGENIC REFERENCES:** Nickel and Cobalt are listed in the Annual Report on Carcinogens as prepared by the National Toxicology Program, as well as the International Agency for Research on Cancer Monograph Series.

#### **Section 4: First Aid Measures**

- FIRST AID FOR EYES:** Dust or powder should be flushed from the eyes with running water for 15 minutes. If irritation persists obtain medical assistance.
- FIRST AID FOR SKIN:** Skin cuts and abrasions can be treated by standard first aid. Skin contamination with dust or powder can be removed with soap and water. If irritation persists obtain medical assistance.
- FIRST AID FOR INHALATION:** Breathing difficulty, caused by inhalation of dust or fume requires removal to fresh air. If breathing has stopped perform artificial respiration and seek medical assistance at once.
- FIRST AID FOR INGESTION:** Obtain medical assistance at once.

#### **Section 5: Fire Fighting Measures**

- FLASH POINT:** Non-flammable as a solid
- EXTINGUISHING MEDIA:** This material is non-combustible. Use appropriate extinguishing agent for surrounding fires. Do not use water to extinguish fires around operations involving molten metal, due to the potential for steam explosion.
- SPECIAL FIRE FIGHTING PROCEDURES:** Self-contained breathing apparatus should be worn when fighting metal dust fires. High levels of dust or fine particles in the air may ignite or explode.



### Section 6: Accidental Release Measures

**SPILL OR LEAK PROCEDURES:** In solid form this material poses no special clean-up problems. Use normal clean up procedures; wet sweeping or HEPA vacuum, for clean up of dust or powder. Do not use compressed air for cleaning.

### Section 7: Storage and Handling

In solid form this material poses no special problems. Store metal in a dry area. Do not store adjacent to acids.

### Section 8: Exposure Control/Personal Protection

**EYE PROTECTION REQUIREMENTS:** Safety glasses are recommended.

**SKIN PROTECTION REQUIREMENTS:** Protective gloves are recommended, to prevent mechanical irritation.

**RESPIRATORY PROTECTION:** Not normally required. Use an appropriate NIOSH approved respirator if airborne dust concentration exceed the OSHA, PEL or ACGIH , TLV

**OTHER PROTECTIVE EQUIPMENT:** Eye wash fountain should be readily available in areas of use or handling.

**EXPOSURE LIMITS:** Not established for product as whole. Refer to Section 2.

**VENTILATION REQUIREMENTS:**

**LOCAL EXHAUST:** Recommended, when cutting, grinding or melting or any other operation where dust or fumes are created

**GENERAL:** Recommended

**ENVIRONMENTAL SURVEILLANCE:** If the operation generates dust or fumes, exposure to airborne materials should be determined by having air samples taken in the employees breathing zone and work area.

### Section 9: Physical and Chemical Properties

<b>PHYSICAL FORM:</b>	Solid metal	<b>COLOR:</b>	Gold yellow to Silver/gray		
<b>ODOR:</b>	None	<b>MELT POINT:</b>	1063° C (100% Gold)		
<b>SOLUBILITY IN WATER:</b>	Insoluble	<b>SPECIFIC GRAVITY:</b>	Varies		
<b>VOLATILE BY WEIGHT:</b>	Essentially zero	<b>VAPOR PRESSURE:</b>	N/A	<b>VAPOR DENSITY:</b>	N/A

### Section 10: Reactivity

**STABILITY:** This is a stable material. **HAZARDOUS POLYMERIZATION:** Will not occur.

**INCOMPATIBILITIES:** Acetylene, Ammonia, Acids and Strong Oxidizers.

**DECOMPOSITION PRODUCTS:** None under proper usage conditions.

**CONDITIONS TO AVOID:** Conditions which create dust or fumes.

### Section 11: Toxicological Information

There is no information on the toxicity of this alloy. Under normal use of the solid form of this material there are few health hazards. Welding, cutting grinding or any process creating dust, fume or oxide may cause hazardous levels of certain elements, as addressed in Section 2.



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### Section 12: Ecological Information

In solid form this material poses no special environmental problems. Metal powder or dust may have significant impact on air and water quality. Emissions, spills and releases to the environment should be controlled immediately.

### Section 13: Disposal Considerations

Because of its high intrinsic value this material should be reclaimed. Dispose of in accordance with all applicable Federal, State and Local Regulations.

### Section 14: Transportation Information

D.O.T. SHIPPING NAME:	Not regulated	TECHNICAL SHIPPING NAME:	Metal Alloy
D.O.T. HAZARD CLASS:	None	UN/NA NUMBER:	None
PRODUCT RQ:	None		

IATA, Dangerous Goods Regulations: Not Regulated, in solid form

### Section 15: Regulatory Information

OSHA STATUS: No specific regulations. The Hazard Communication Standard of the Occupational Safety and Health Administration, 29 CFR 1910.1200, considers components of this product a Hazardous Substance..

TSCA STATUS: These products are a mixture. Components of these products are listed on the TSCA Chemical Substance Inventory of Existing Chemical Substances.

RCRA STATUS: Not regulated, in solid form

SARA TITLE III: The constituents of this alloy contain hazardous substances, above one(1) percent, and are subject to the reporting requirements under SARA Title III Section 313.

SUBSTANCE	CAS No.	PERCENT MAXIMUM
Silver	7440-22-4	5
Copper	7440-50-8	10
Nickel	7440-02-1	18
Cobalt	7440-48-4	10
Manganese	7439-96-5	5

### Section 16: Other Information

PREPARED BY: Lee Oman, CECM  
DATE OF REVISION: February 2000

This MSDS has been revised following the guidelines outlined in the American National Standard for Hazardous Materials Z400.1.1393 "Material Safety Data Sheets – Preparation"

DISCLAIMER: The information and recommendations are taken from sources believed to be accurate. Williams Advanced Materials makes no warranty with respect of the accuracy of the information or the suitability of the recommendations, and assumes no liability to any user thereof.