

## SAFETY DATA SHEET

### 1. SUBSTANCE AND SOURCE IDENTIFICATION

**Product Identifier**

**SRM Number:** 1124  
**SRM Name:** Free Cutting Brass (UNS C36000)  
**Other Means of Identification:** Not applicable.

**Recommended Use of This Material and Restrictions of Use**

This Standard Reference Material (SRM) is free cutting brass prepared using a continuous chill casting process. SRM 1124 is intended for use in the evaluation of chemical and instrumental methods of analysis. A unit of SRM 1124 consists of one disk approximately 39 mm in diameter and 19 mm thick.

**Company Information**

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 Standard Reference Materials Program  
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 Gaithersburg, Maryland 20899-2300

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### 2. HAZARDS IDENTIFICATION

**Classification**

**Physical Hazard:** Not classified.  
**Health Hazard:** Sensitization, skin Category 1  
 Carcinogenicity Category 1B  
 Reproductive Toxicity Category 1A  
 STOT, Repeated Exposure Category 2

**Label Elements**

**Symbol:**



**Signal Word:** DANGER

**Hazard Statement(s):**

H317 May cause an allergic skin reaction  
 H350 May cause cancer.  
 H360 May damage fertility or the unborn child.  
 H373 May causes damage to organs (lung, central nervous system) through prolonged or repeated exposure.

**Precautionary Statement(s):**

P260 Do not breathe dust.  
 P272 Contaminated work clothing must not be allowed out of the workplace.  
 P302 + P352 If on skin: Wash with plenty of water.  
 P333 + P313 If skin irritation or rash occurs: get medical attention.  
 P364 Wash contaminated clothing before reuse.  
 P201 Obtain special instructions before use.  
 P202 Do not handle until all safety precautions have been read and understood.  
 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.  
 P280 Wear eye protection, protective gloves and clothing.
- P405 Store locked up.  
 P501 Dispose of contents and container according to local regulations.

**Hazards Not Otherwise Classified:** Not applicable.

**Ingredients(s) with Unknown Acute Toxicity:** Not applicable.

### 3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

**Substance:** Yellow Brass

**Other Designations:** Copper and Zinc Alloy, UNS C36000.

**NOTE:** Components are listed in compliance with OSHA's 29 CFR 1910.1200. For actual values, see the NIST Certificate of Analysis.

Hazardous Component(s)	CAS Number	EC Number (EINECS)	Nominal Mass Concentration (%)
Copper	7440-50-8	231-159-6	58 - 64
Zinc	7440-66-6	231-175-3	32 - 41
Lead	7439-92-1	231-100-4	0.8 - 1.5
Tin	7440-31-5	231-141-8	0.5 - 1.5
Nickel	7440-02-0	231-111-4	0 - 1

### 4. FIRST AID MEASURES

**Description of First Aid Measures:**

**Inhalation:** In case of exposure to fumes or particulates: Get medical attention immediately.

**Skin Contact:** Wash skin with water for at least 15 minutes. Get medical attention if irritation persists after washing. In case of allergic reaction or other skin disorders: Seek medical attention and bring along these instructions.

**Eye Contact:** Do not rub eyes. Flush eyes with water for at least 15 minutes. If necessary, seek medical attention.

**Ingestion:** Rinse mouth thoroughly if dust is ingested. Only induce vomiting at the instruction of medical personnel. Get medical attention if any discomfort continues.

**Most Important Symptoms/Effects, Acute and Delayed:** May cause irritation to mucous membranes. May cause skin and eye irritation. Cough. Shortness of breath. Wheezing. Sensitization. The principal symptoms of lead poisoning are gastro-intestinal or central nervous system disturbances and anemia.

**Indication of any immediate medical attention and special treatment needed, if necessary:** If any of the above symptoms are present, seek medical attention if needed.

### 5. FIRE FIGHTING MEASURES

**Fire and Explosion Hazards:** Negligible fire and explosion hazard in bulk form. Dust/air mixtures may ignite or explode. See Section 9, "Physical and Chemical Properties" for flammability properties.

**Extinguishing Media:**

Suitable: Dolomite, dry powder for metal fires, dry sand, graphite, soda ash, sodium chloride.

Unsuitable: Do not get water directly on material.

**Specific Hazards Arising from the Chemical:** None listed.

**Special Protective Equipment and Precautions for Fire-Fighters:** Avoid inhalation of material or combustion byproducts. Wear full protective clothing and NIOSH approved self-contained breathing apparatus (SCBA).

**NFPA Ratings** (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 1                  Fire = 0                  Reactivity = 0

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal Precautions, Protective Equipment and Emergency Procedures:** Avoid dust formation. Keep unnecessary personnel away. Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection".

**Methods and Materials for Containment and Clean up:** Notify safety personnel of spills. Collect spilled material in appropriate container for disposal. Isolate hazard area and deny entry.

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## 7. HANDLING AND STORAGE

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**Safe Handling Precautions:** See Section 8, "Exposure Controls and Personal Protection".

**Storage:** Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances (see Section 10, "Stability and Reactivity").

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## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

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### Exposure Limits:

**Component:** Copper:

OSHA (TWA): 1 mg/m<sup>3</sup> (dust and mist); 0.1 mg/m<sup>3</sup> (fume)

ACGIH (TWA): 0.2 mg/m<sup>3</sup> (fume)

NIOSH (TWA): 1 mg/m<sup>3</sup> (dust and mist); 0.1 mg/m<sup>3</sup> (fume)

NIOSH (IDLH): 100 mg/m<sup>3</sup> (fume, dust, and mist)

**Component:** Zinc:

No limits established.

**Component:** Lead

OSHA (TWA): 50 µg/m<sup>3</sup>; 30 µg/m<sup>3</sup> ((Action Level. See 29 CFR 1910.1025)

NIOSH (TWA): 0.050 mg/m<sup>3</sup>

NIOSH (IDLH): 100 mg/m<sup>3</sup>

ACGIH (TWA): 0.05 mg/m<sup>3</sup>

**Component:** Tin

OSHA (TWA): 2 mg/m

ACGIH (TWA): 2 mg/m<sup>3</sup>

NIOSH (TWA): 2 mg/m<sup>3</sup>

NIOSH (IDLH): 100 mg/m<sup>3</sup>

**Component:** Nickel

OSHA (TWA): 1 mg/m<sup>3</sup>

ACGIH (TWA): 1.5 mg/m<sup>3</sup> inhalable fraction

NIOSH (TWA): 0.015 mg/m<sup>3</sup>

NIOSH (IDLH): 10 mg/m<sup>3</sup>

**Engineering Controls:** Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

**Personal Protection:** In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

**Respiratory Protection:** If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

**Eye/Face Protection:** Wear chemical resistant safety goggles. An eyewash station should be readily available near areas of use.

**Skin and Body 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. Chemical-resistant gloves should be worn at all times when handling chemicals.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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<b>Descriptive Properties</b>	
<b>Appearance (physical state, color, etc.)</b>	Yellow solid
<b>Molecular Formula</b>	not available
<b>Molar Mass (g/mol)</b>	not available
<b>Odor</b>	odorless
<b>Odor Threshold</b>	not available
<b>pH</b>	not available
<b>Evaporation Rate</b>	not available
<b>Melting Point/Freezing Point</b>	941 °C (1725.8 °F)
<b>Relative Density as specific gravity (water = 1)</b>	8.5
<b>Vapor Pressure</b>	not available
<b>Vapor Density (air = 1)</b>	not available
<b>Viscosity</b>	not available
<b>Solubility(ies)</b>	insoluble in water;
<b>Partition Coefficient (n-octanol/water)</b>	not available
<b>Particle Size</b>	not applicable
<b>Thermal Stability Properties</b>	
<b>Autoignition Temperature</b>	not applicable
<b>Thermal Decomposition</b>	not applicable
<b>Initial Boiling Point and Boiling Range</b>	not available
<b>Explosive Limits, LEL</b>	not available
<b>Explosive Limits, UEL</b>	not available
<b>Flash Point</b>	not available
<b>Flammability (solid, gas)</b>	not available

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** Stable at normal temperatures and pressure.

**Stability:**  Stable  Unstable

**Possible Hazardous Reactions:** No data available.

**Conditions to Avoid:** None reported.

**Incompatible Materials:** Acids, ammonium nitrate, fluoride, halogens, nitrates, phosphorus, strong oxidizing agents and sulfur.

**Fire/Explosion Information:** See Section 5, "Fire Fighting Measures".

**Hazardous Decomposition:** Oxides of lead.

**Hazardous Polymerization:**  Will Occur  Will Not Occur

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## 11. TOXICOLOGICAL INFORMATION

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**Route of Exposure:**      X   Inhalation              Skin                 X   Ingestion

**Symptoms Related to the Physical, Chemical and Toxicological Characteristics:** Fatigue, weakness, anorexia, anemia, jaundice, encephalopathy.

**Potential Health Effects (Acute, Chronic and Delayed):**

**Inhalation:** Dust or fumes may cause respiratory tract irritation. Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the mucous membranes and respiratory tract.

**Skin Contact:** May cause an allergic skin reaction. Hot or molten material may produce thermal burns. Workers allergic to nickel may develop eczema or rashes.

**Eye Contact:** Contact with dust may cause eye irritation.

**Ingestion:** Not relevant, due to the form of the product. However, ingestion of dusts generated during working operations may cause nausea and vomiting.

**Numerical Measures of Toxicity:**

**Acute Toxicity:** Not classified.

**Skin Corrosion/Irritation:** Not classified; no data available.

**Serious Eye damage/Eye Irritation:** Not classified; no data available.

**Respiratory Sensitization:** Not classified; no data available.

**Skin Sensitization:** Classified, Category 1.

Contains Nickel 0-1%

**Germ Cell Mutagenicity:** Not classified; no data available.

**Carcinogenicity:** Category 1B

**Listed as a Carcinogen/Potential Carcinogen**         X   Yes              No

Lead is listed as reasonably anticipated to be a human carcinogen per NTP.

IARC lists inorganic lead in Group 2A (probably carcinogenic to humans).

Nickel is listed as reasonably anticipated to be a human carcinogen per NTP.

IARC lists nickel, metallic and alloys in Group 2B (possibly carcinogenic to humans).

**Reproductive Toxicity:** Category 1A; lead crosses the placenta and may affect the fetus causing birth defects, mental retardation, behavioral disorders, and death during the first year of childhood.

**Specific Target Organ Toxicity, Single Exposure:** Not classified; no data available.

**Specific Target Organ Toxicity, Repeated Exposure:** Category 2; lead can accumulate in body tissues.

**Aspiration Hazard:** Not applicable.

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## 12. ECOLOGICAL INFORMATION

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**Ecotoxicity Data:**

**Component:** Copper

Fathead minnow (*Pimephales promelas*), LC50: 0.0068-.0156 mg/L (96 h)

**Component:** Zinc

Fathead minnow (*Pimephales promelas*), LC50: 2.16-3.05 mg/L (96 h, flow-through)

**Component:** Lead

Carp (*Cyprinus carpio*), LC50: 0.44 mg/L (96 h, semi-static)

Trout (*Oncorhynchus mykiss*), LC50: 1.17 mg/L (96 h, flow-through)

**Component:** Nickel

Carp (*Cyprinus carpio*), LC50: 1.3 mg/L (96 h, semi-static)

**Persistence and Degradability:** The product is not biodegradable.

**Bioaccumulative Potential:** The product contains potentially bioaccumulating substances.

**Mobility in Soil:** Alloys in massive forms are not mobile in the environment.

**Other Adverse effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

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### 13. DISPOSAL CONSIDERATIONS

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**Waste Disposal:** Dispose of waste in accordance with all applicable federal, state, and local regulations. Lead Hazardous Waste Number(s): D008. Lead subject to U.S. EPA 40 CFR 262 for concentrations at or above the regulatory level of 5.0 mg/L.

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### 14. TRANSPORTATION INFORMATION

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**U.S. DOT and IATA:** Not regulated by DOT or IATA.

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### 15. REGULATORY INFORMATION

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**U.S. Regulations:**

CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65):

Copper: 1% de minimis concentration.

Zinc: 1% de minimis concentration (dust or fume only)

Lead: 0.1 % Supplier notification limit; 0.1 % de minimis concentration (when contained in stainless steel, brass, or bronze).

Nickel: 0.1 % Supplier notification limit; 0.1 % de minimis.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE HEALTH: No.

CHRONIC HEALTH: Yes.

FIRE: No.

REACTIVE: No.

PRESSURE: No.

**State Regulations:**

California Proposition 65: WARNING! This product contains chemicals (lead, nickel) known to the state of California to cause cancer and reproductive/developmental effects.

**U.S. TSCA Inventory:** Copper, tin, nickel, zinc and lead are listed.

**TSCA 12(b), Export Notification:** Not listed.

**Canadian Regulations:**

WHMIS Information: Not provided for this material.

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## 16. OTHER INFORMATION

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**Issue Date:** 08 April 2015

**Sources:** ChemAdvisor, Inc., SDS *Lead*, 15 December 2014.  
ChemAdvisor, Inc., SDS *Brass*, 15 December 2014.  
ChemAdvisor, Inc., SDS *Tin*, 15 December 2014.  
ChemAdvisor, Inc., SDS *Nickel*, 15 December 2014.  
ChemAdvisor, Inc., SDS *Copper*, 15 December 2014.  
ChemAdvisor, Inc., SDS *Zinc*, 15 December 2014  
Vendor SDS, *SDS Yellow Brass Alloy C36000*, 19 November 2012.

### Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	REL	Recommended Exposure Limit
EINECS	European Inventory of Existing Commercial Chemical Substances	RQ	Reportable Quantity
EPCRA	Emergency Planning and Community Right-to-Know Act	RTECS	Registry of Toxic Effects of Chemical Substances
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act
IATA	International Air Transportation Agency	SCBA	Self-Contained Breathing Apparatus
IDLH	Immediately Dangerous to Life and Health	SRM	Standard Reference Material
LC50	Lethal Concentration	STEL	Short Term Exposure Limit
LD50	Median Lethal Dose or Lethal Dose, 50 %	STOT	Specific Target Organ Toxicity
LEL	Lower Explosive Limit	TLV	Threshold Limit Value
MSDS	Material Safety Data Sheet	TPQ	Threshold Planning Quantity
NFPA	National Fire Protection Association	TSCA	Toxic Substances Control Act
NIOSH	National Institute for Occupational Safety and Health	TWA	Time Weighted Average
NIST	National Institute of Standards and Technology	UEL	Upper Explosive Limit
n.o.s.	Not Otherwise Specified	WHMIS	Workplace Hazardous Materials Information System

**Disclaimer:** Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. The certified values for this material are given in the NIST Certificate of Analysis.

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail [srmmsds@nist.gov](mailto:srmmsds@nist.gov); or via the Internet at <http://www.nist.gov/srm>.