



# SAFETY DATA SHEET

## Copper Beryllium Alloy 33-25

### Section 1. Identification

<b>GHS product identifier:</b>	<b>Copper Beryllium Alloy 33-25</b>
<b>Other means of Identification:</b>	<b>B300</b> 33-25 (C17200)
<b>Supplier/Manufacturer:</b>	NGK Metals Corporation 917 US Highway 11S Sweetwater, TN 37874 Tel: 423.337.5500 Toll Free: 800.523.8268 Fax: 423.351.0390 Email: marketing @ngkmetals.com <a href="http://www.ngkmetals.com">www.ngkmetals.com</a>
<b>Emergency phone Number:</b>	NGK Metals (800)523-8268, Chemtrec USA (800)424-9300 International +1 (703)527-3887 CCN15616 24/7

### Section 2. Hazard Identification

<b>OSHA/HCS status :</b>	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
<b>Classification of the substance or mixture:</b>	ACUTE TOXICITY (inhalation) - Category 4 RESPIRATORY SENSITIZATION - Category 1 SKIN SENSITIZATION - Category 1 CARCINOGENICITY - Category 1B TOXIC TO REPRODUCTION (Fertility) - Category 1 TOXIC TO REPRODUCTION (Unborn child) - Category 1 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

**GHS label elements**  
**Hazard pictograms**



<b>Signal word :</b>	Danger
<b>Hazard statements :</b>	H332 - Harmful if inhaled. H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled. H317 - May cause an allergic skin reaction. H350 - May cause cancer.

H360 - May damage fertility or the unborn child.  
H372 – May causes damage to organs through prolonged or repeated exposure.

**Precautionary statements**

**Prevention :**

P201 - Obtain special instructions before use.  
P202 - Do not handle until all safety precautions have been read and understood.  
P281 - Use personal protective equipment as required.  
P280 - Wear protective gloves.  
P285 - In case of inadequate ventilation wear respiratory protection.  
P271 - Use only outdoors or in a well-ventilated area.  
P260 - Do not breathe dust.  
P270 - Do not eat, drink or smoke when using this product.  
P264 - Wash hands thoroughly after handling.  
P272 - Contaminated work clothing should not be allowed out of the workplace.

**Response :**

P391 - Collect spillage.  
P314 - Get medical attention if you feel unwell.  
P308 + P313 - IF exposed or concerned: Get medical attention.  
P304 + P340 + P312 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.  
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or physician.  
P302 + P352 + P363 - IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse.  
P333 + P313 - If skin irritation or rash occurs: Get medical attention.  
P405 - Store locked up.  
P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.  
None known.

**Storage :**

**Disposal :**

**Hazards not otherwise :  
classified (HNOC)**

None known.

### Section 3. Composition/information on ingredients

**Substance/mixture:** Mixture  
**Other means of Identification:** Copper Beryllium Alloy  
**CAS number/other identifiers**  
**CAS number:** Not applicable  
**Product code:** Not applicable

Ingredient name	%	CAS number
Copper	97.6	7440-50-8
Nickel	0.25	7440-02-0
Beryllium	1.85	7440-41-7
Lead	0.3	7439-92-1

### Section 4. First aid measures

**Eye contact:** Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.

**Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or

oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

**Skin contact:** Wash with plenty of soap and water. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Get medical attention for persistent irritation. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

**Ingestion:** Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person.

#### **Most important symptoms/effects, acute and delayed**

##### **Potential acute health effects**

**Eye contact:** No known significant effects or critical hazards.

**Inhalation :** Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Skin contact :** May cause an allergic skin reaction.

**Ingestion :** No known significant effects or critical hazards.

**Eye contact :** No known significant effects or critical hazards.

##### **Over-exposure signs/symptoms**

**Eye contact :** No known significant effects or critical hazards.

**Inhalation:** Adverse symptoms may include the following: wheezing and breathing difficulties, asthma, reduced fetal weight, increase in fetal deaths skeletal malformations

**Skin contact:** Adverse symptoms may include the following: irritation, redness, reduced fetal weight, increase in fetal deaths, skeletal malformations

**Ingestion:** Adverse symptoms may include the following: reduced fetal weight, increase in fetal deaths, skeletal malformations.

#### **Indication of immediate medical attention and special treatment needed, if necessary**

**Notes to physician:** Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Airborne particles of beryllium alloys can, if inhaled to excess, cause irreversible lung damage in people who are sensitive to beryllium. Prevention of this adverse health effect (called berylliosis or, more precisely, chronic beryllium disease) lies in maintaining good air quality.

Chronic beryllium disease is a condition that primarily affects the tissue of the lungs restricting the exchange of oxygen between the lungs and the bloodstream. The disease may manifest itself in various ways; nonproductive cough, fatigue after slight exertion, and chest x-ray changes are typical. It may appear after a long period of latency, an interval sometimes lasting for years, between causative exposure and the onset of illness. There is no cure yet known, but treatment with steroid drugs has succeeded in adding to the comfort of patients and enabling them to sustain a measure of activity.

**Specific treatments:** No specific treatment.

**Protection of first-aiders:** No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

## **Section 5. Fire-fighting measures**

### **Extinguishing media**

<b>Suitable extinguishing media:</b>	Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media:</b>	None Known.
<b>Specific hazards arising from the chemical:</b>	Not applicable.
<b>Hazardous thermal decomposition products:</b>	Decomposition products may include the following materials metal oxide/oxides.
<b>Special protective actions for fire-fighters:</b>	No special measures are required.
<b>Special protective equipment for fire-fighters:</b>	Fire-fighters should wear appropriate protective equipment and self contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

<b>For non-emergency personnel:</b>	Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
<b>For emergency responders:</b>	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on unsuitable materials. See also the information "For non-emergency personnel".
<b>Environmental precautions:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Collect spillage.
<b><u>Methods and materials for containment and cleaning up</u></b>	
<b>Spill:</b>	Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

<b>Protective measures:</b>	Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Avoid exposure during pregnancy. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
<b>Advice on general occupational hygiene:</b>	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures. Remove contaminated clothing and protective equipment before entering eating areas.
<b>Conditions for safe storage including incompatibilities:</b>	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store

locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limit
Copper	<b>ACGIH TLV (United States, 4/2014).</b> TWA: 1 mg/m <sup>3</sup> , (Cu) 8 hours. Form: Dusts and mists TWA: 0.2 mg/m <sup>3</sup> 8 hours. Form: Fume <b>OSHA PEL (United States, 2/2013).</b> TWA: 1 mg/m <sup>3</sup> 8 hours. Form: Dusts and mists TWA: 0.1 mg/m <sup>3</sup> 8 hours. Form: Fume <b>NIOSH REL (United States, 10/2013).</b> TWA: 1 mg/m <sup>3</sup> , (Cu) 10 hours. Form: Dusts and mists
Nickel	<b>ACGIH TLV (United States, 4/2014).</b> TWA: 1.5 mg/m <sup>3</sup> 8 hours. Form Inhalable fraction <b>NIOSH REL (United States, 10/2013).</b> TWA: 0.015 mg/m <sup>3</sup> , (Ni) 10 hours. <b>OSHA PEL (United States, 2/2013).</b> TWA: 1 mg/m <sup>3</sup> , (Ni) 8 hours.
Lead	<b>ACGIH TLV (United States, 4/2014).</b> TWA: 0.05 mg/m <sup>3</sup> , (as Pb) 8 hours. <b>NIOSH REL (United States, 10/2013).</b> TWA: 0.05 mg/m <sup>3</sup> 10 hours. <b>OSHA PEL (United States, 2/2013).</b> TWA: 50 µg/m <sup>3</sup> , (as Pb) 8 hours.
Beryllium	<b>ACGIH TLV (United States, 4/2014). Inhalation sensitizer.</b> TWA: 0.00005 mg/m <sup>3</sup> , (as Be) 8 hours. Form: Inhalable fraction <b>OSHA PEL (United States, 5/2017).</b> STEL: 2 µg/m <sup>3</sup> 15 minutes. TWA: 0.2 µg/m <sup>3</sup> 8 hours. <b>NIOSH REL (United States, 10/2013).</b> CEIL: 0.0005 mg/m <sup>3</sup> , (as Be)

### Mexico

Ingredient name	Exposure limit
Copper	<b>NOM-010-STPS (Mexico, 9/2000).</b> LMPE-PPT: 1 mg/m <sup>3</sup> , (as Cu) 8 hours. Form: powder and fog LMPE-CT: 2 mg/m <sup>3</sup> , (as Cu) 15 minutes. Form: powder and fog LMPE-CT: 2 mg/m <sup>3</sup> , (as Cu) 15 minutes. Form: smoke LMPE-PPT: 0.2 mg/m <sup>3</sup> , (as Cu) 8 hours. Form: smoke
Beryllium	<b>NOM-010-STPS (Mexico, 9/2000).</b> LMPE-PPT: 0.002 mg/m <sup>3</sup> , (as berilium) 8 hours.

### Appropriate engineering controls:

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

### Environmental exposure controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

### Individual protection measures

#### Hygiene measures:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not

be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection:**

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

**Skin protection**

**Hand protection:**

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

**Body protection:**

Personal protective equipment for the body should be based on the task being performed and the risks involved.

**Other skin protection:**

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed.

**Respiratory protection:**

Use NIOSH approved respiratory protection as specified by an Industrial Hygienist or qualified safety professional when airborne exposures exceed or have the potential to exceed occupational exposure limits.

## Section 9. Physical and chemical properties

### Appearance

Physical state	Solid
Color	Copper
Odor	None
Odor threshold	Not applicable
pH	Not applicable
Melting point	865.56°C (1590°F)
Boiling point	Not applicable
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Not applicable
Lower and upper explosive (flammable) limits	Not applicable
Vapor pressure	Not applicable
Vapor density	Not applicable
Relative density	0.298
Solubility	Insoluble in water
Partition coefficient: n-octanol/water	Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	Not applicable
Viscosity	Not applicable
Volatility	Not applicable
VOC (w/w)	0 % (w/w)

## Section 10. Stability and reactivity

**Reactivity:**

No specific test data related to reactivity available for this product or its ingredients.

**Chemical stability:**

The product is stable.

**Possibility of hazardous reactions:** Under normal conditions of storage and use, hazardous reactions will not occur.

**Conditions to avoid:** No specific data.

**Incompatible materials:** Reactive or incompatible with the following materials: oxidizing materials, acids and alkalis.

**Hazardous decomposition Products:** Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity:

Product/ingredient name	Result	Species	Dose	Exposure
Nickel	LC50 Inhalation Dusts and mists LD50 Oral	Rat Rat	10.2 mg/L >9000 mg/kg	1 hours -

**Irritation/Corrosion:** There is no data available.

**Sensitization:** May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction.

#### Carcinogenicity Classification:

Product/ingredient name	OSHA	IARC	NTP	ACGIH	EPA	NIOSH
Beryllium	-	1	Known to be a human carcinogen.	A1	-	+
Lead	-	2B	Reasonably anticipated to be a human carcinogen.	A3	-	None.
Nickel	-	2B	Reasonably anticipated to be a human carcinogen.	A5	-	+

#### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Beryllium	Category 3	Not applicable.	Respiratory tract irritation

#### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Beryllium	Category 1	Not determined	Not determined central nervous system (CNS) and reproductive organs
Lead	Category 1	Not determined	
Nickel	Category 1	Not determined	Not determined

**Aspiration hazard:** There is no data available.

**Information on the likely routes of exposure:** Dermal contact, eye contact, inhalation

#### Potential acute health effects

**Eye contact:** No known significant effects or critical hazards.

**Inhalation:** Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Skin Contact:** May cause an allergic skin reaction.

**Ingestion:** No known significant effects or critical hazards.

#### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact:** No known significant effects or critical hazards.

**Inhalation:** Adverse symptoms may include the following: wheezing and breathing difficulties, asthma, reduced fetal weight, increase in fetal deaths, skeletal malformations

**Skin Contact:** Adverse symptoms may include the following: irritation, redness, reduced fetal weight, increase in fetal deaths, skeletal malformations

**Ingestion:** Adverse symptoms may include the following: reduced fetal weight, increase in fetal deaths, skeletal malformations

**Potential delayed effects:** Symptoms may be delayed.

**Potential chronic health effects**

**General:** May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed. See section 4.

**Carcinogenicity:** May cause cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenicity:** No known significant effects or critical hazards.

**Teratogenicity:** May damage the unborn child.

**Developmental effects:** No known significant effects or critical hazards.

**Fertility effects:** May damage fertility.

**Numerical measures of toxicity**

**Acute toxicity estimates:**

Route	ATE value
Oral	5405.4 mg/kg
Inhalation (dusts and mists)	2.703 mg/L

**Section 12. Ecological information**

**Ecotoxicity:** No ecotoxicity data noted for the ingredients in solid metal form.

**Persistence and Degradability:** No data is available on the degradability of this product.

**Bioaccumulative potential:** Not available.

**Mobility in soil:** Not available.

**Other adverse effects:** No known significant effects or critical hazards.

**Section 13. Disposal considerations**

**Disposal methods:** The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**Section 14. Transportation information**

**DOT:** Not regulated as dangerous goods.



**IATA:** Not regulated as dangerous goods.  
**IMDG:** Not regulated as dangerous goods.

**Special precautions for user: Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

## Section 15. Regulatory information

**U.S. Federal regulations:** **United States inventory (TSCA 8b):** All components are listed or exempted.

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs):**

**Clean Water Act (CWA) 307:** Copper; Nickel; Beryllium, Lead Listed

**Clean Air Act Section 602 Class I Substances:** Not listed

**Clean Air Act Section 602 Class II Substances:** Not listed

**DEA List I Chemicals (Precursor Chemicals):** Not listed

**DEA List I Chemicals (Precursor Chemicals):** Not listed

**SARA 302/304:** Not listed

**SARA 311/312**  
[Composition/information on ingredients](#)

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Nickel	0.25	No	No	No	Yes	Yes
Beryllium	1.85	No	No	No	Yes	Yes
Lead	0.3	No	No	No	No	Yes

**SARA 313**

	Product name	CAS number	%
<b>Form R Reporting requirements</b>	Copper	7440-50-8	97.6
	Nickel	7440-02-0	0.25
	Beryllium	7440-41-7	1.85
	Lead	7439-91-1	0.3
<b>Supplier notification</b>	Copper	7440-50-8	97.6
	Nickel	7440-02-0	0.25
	Beryllium	7440-41-7	1.85
	Lead	7439-91-1	0.3

**State regulation**

**Massachusetts:**

The following components are listed: Copper; Beryllium

**New York :**

The following components are listed: Copper; Nickel; Beryllium, Lead

**New Jersey :**

The following components are listed: Copper; Nickel; Beryllium, Lead

**Pennsylvania :**

The following components are listed: Copper; Nickel; Beryllium, Lead

**California Prop. 65**

**WARNING:** This product contains a chemical known to the State of California to cause cancer.

**WARNING:** This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

<b>Ingredient name</b>	<b>Cancer</b>	<b>Reproductive</b>	<b>No significant risk level</b>	<b>Maximum acceptable dosage level</b>
Beryllium	Yes.	No.	Yes.	No.
Lead	Yes.	Yes.	15 µg/day (ingestion)	Yes.
Nickel	Yes.	No.	No.	No.

**International lists**

**National inventory**

**Australia**

All components are listed or exempted.

**Canada**

All components are listed or exempted.

**China**

All components are listed or exempted.

**Europe**

All components are listed or exempted.

**Japan**

Not determined.

**Malaysia**

Not determined.

**New Zealand**

All components are listed or exempted.

**Philippines**

All components are listed or exempted.

**Republic of Korea**

All components are listed or exempted.

**Taiwan**

Not determined.

## **Section 16. Other information**

**History**

**Date of issue**

**6/1/2015**

**Version**

**1**

**Refer to attached document Speaking Out for additional beryllium safety information**

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