

## Safety Practices for Precision Stamping Copper Beryllium Alloys




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Copper beryllium alloys are stamped into a variety of shapes, sizes and designs for use in electrical and electronic equipment. The manufacturing operations commonly associated with precision stamping can safely process copper beryllium alloys. The latest scientific evidence indicates that airborne beryllium exposure levels experienced at precision stamping operations are not sufficient to adversely affect health. Special controls are not required during the precision stamping, die repair, and inert atmosphere heat treating of copper beryllium alloys.

In an effort to quantify the potential for worker exposure to airborne beryllium, a case study was conducted at four precision stamping facilities processing copper beryllium. These facilities performed a variety of mechanical and thermal activities during the manufacture of copper beryllium containing components for the electronic industry. The study found that one hundred percent (100%) of the 145 samples obtained from mechanical, thermal and support operations were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 2.0 micrograms of beryllium per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ), measured as an 8-hour time weighted average (TWA), as well as below the California OSHA PEL of  $0.2 \mu\text{g}/\text{m}^3$ . The following is a summary of the results:

PRECISION STAMPING CASE STUDY SUMMARY OF AIRBORNE BERYLLIUM EXPOSURES			
Process Category	Number of Sample Observations	Number of Samples Greater than 2.0 $\mu\text{g}/\text{m}^3$	Number of Samples Greater than 0.2 $\mu\text{g}/\text{m}^3$
<b>Mechanical</b>			
• Stamping Press Operators	49	0	0
• Die Repair	27	0	0
• Assembly	14	0	0
• Dry Tumble Deburr	4	0	0
<b>Thermal</b>			
• Heat Treating (inert atmosphere)	9	0	0
• Resistance Welding	8	0	0
<b>Support</b>			
• Inspection	17	0	0
• Shipping/Packing	17	0	0

### WORK PRACTICES & CONTROL MEASURES

	<b>Housekeeping</b>	<ul style="list-style-type: none"> <li>No special controls are required for stamping copper beryllium under typical manufacturing conditions.</li> </ul>
	<b>Maintenance</b>	<ul style="list-style-type: none"> <li>No special controls are required during common maintenance activities. Stamping dies should be wet wiped to remove any visible particulate prior to servicing.</li> </ul>
	<b>Workplace Exposure Characterization</b>	<ul style="list-style-type: none"> <li>In accordance with good industrial hygiene practice, a characterization of worker exposure, including air monitoring, should be conducted for operations where a potential for beryllium exposure exists.</li> </ul>



### Recycling

- Copper beryllium scrap should be kept segregated from other metals to retain its higher value as a recyclable material.
- Materion Brush Inc. purchases clean, segregated copper beryllium scrap. **Call 800-Buy-BeCu (800-289-2328) to discuss the sale of copper beryllium scrap.**



### Disposal

- Copper beryllium wastes are not considered hazardous under federal regulations.
- Some copper beryllium alloy products may contain regulated substances such as lead or may be coated or plated with metals that could cause the scrap to be regulated as hazardous waste when disposed.
- When spent products are declared solid wastes (no longer recyclable), they must be labeled, managed and disposed of in accordance with federal, state and local requirements.



## ADDITIONAL INFORMATION

Handling copper beryllium in solid form poses no special health risk. Like many industrial materials, beryllium-containing materials may pose a health risk if recommended safe handling practices are not followed. Inhalation of airborne beryllium may cause a serious lung disorder in susceptible individuals. The Occupational Safety and Health Administration (OSHA) has set mandatory limits on occupational respiratory exposures. Read and follow the guidance in the Material Safety Data Sheet (MSDS) before working with this material.

In assessing the need for controls at your facility, you should not rely solely on the information presented in this Safety Facts since conditions may differ between precision stamping operations. If you have concerns about conditions in your work area, contact a qualified industrial hygienist to perform a process evaluation. Materion Brush Inc. has provided training to nearly 100 industrial hygiene consultants across the U.S. in hazard recognition and control of beryllium manufacturing operations. To obtain a list of consultants nearest you, call the Materion Brush Inc. Product Safety Hotline listed below or access our web site at [www.materion.com](http://www.materion.com).

If chemical processing operations are performed, refer to Safety Facts SF104, "Safety Practices for the Chemical Processing of Small Copper Beryllium Alloy Parts".

The information contained in this Safety Facts applies only to the subject referenced in the title. Health and safety hazards associated with stamping equipment, lubricants or other materials used in stamping copper beryllium parts are not addressed as part of this Safety Facts. You must read the Material Safety Data Sheet (MSDS) specific to the products in use at your facility for more detailed environmental, health and safety guidance. Material Safety Data Sheets for Materion Brush Inc. products can be obtained by calling the Product Safety Hotline listed below or by accessing our web site at [www.materion.com](http://www.materion.com). If you need more information, contact your local Materion Brush Inc. representative or the Product Stewardship Department at:

Materion Brush Inc.  
6070 Parkland Boulevard  
Mayfield Heights, OH 44124  
Product Safety Hotline - 800-862-4118 (24-hour Service)