

Airborne Beryllium Exposure Standard

SF001 - Version 3, March, 2018

BERYLLIUM EXPOSURE STANDARDS

Occupational - The United States Occupational Safety and Health Administration (OSHA) has established a Beryllium Standard for General Industry (29 CFR 1910.1024) which includes Permissible Exposure Limits (PEL) of 0.2 microgram beryllium per cubic meter ($0.2 \mu\text{g}/\text{m}^3$) as an 8-hour Time Weighted Average (TWA) and $2.0 \mu\text{g}/\text{m}^3$ as a Short-Term Exposure Limit (STEL) determined over a 15-minute sampling period. The standard also includes ancillary requirements prompted at an Action Level (AL) of $0.1 \mu\text{g}/\text{m}^3$ or other specified situations.

These PELs are very low and are independent of particle size or chemical form. The small amounts of beryllium involved cannot be detected with the unaided eye. To give you an idea of how much beryllium $0.2 \mu\text{g}/\text{m}^3$ is, imagine building a box 60 feet high, the size of a football field. Take an amount of pure metallic beryllium powder about the size of a pencil tip and imagine it dispersed evenly throughout the air inside this box. This amount of beryllium in the air is so small there is no way to detect it by sight, taste or smell. Therefore, any uncontrolled visible airborne beryllium-containing dust emission does indicate a potentially serious problem and immediate corrective action must be taken. Materion Brush Inc. recommends following good industrial hygiene practice which includes reducing airborne exposures to the lowest feasible level for all product constituents. Materion Brush Inc. recommends that users of beryllium-containing materials maintain worker exposures to airborne beryllium to levels reliably below the PELs.

Users of beryllium-containing materials are encouraged to perform workplace exposure characterization, including air monitoring, to determine if conditions or situations exist which dictate the need for additional industrial hygiene and improved work practices. Through the use of the Beryllium Worker Protection Model, Materion Brush Inc. encourages those handling beryllium and beryllium-containing materials in ways which generate particulate containing beryllium to utilize engineering and work practice controls to keep beryllium work areas clean and to keep particulate containing beryllium out of the lungs, off the skin, off of clothing, in the work process, in the work area and on the plant site, and to keep beryllium workers prepared to work safely. This includes limiting the total number of persons potentially exposed by minimizing the number of persons working with beryllium and restricting the entry of persons into beryllium work areas to those who have a business need.

To assist users of beryllium-containing materials, Materion Brush Inc. has developed an "Interactive Guide to Working Safety with Beryllium and Beryllium-containing Materials" (Interactive Guide) to provide employers and employees with specific information on the elements of the Beryllium Worker Protection Model. The Interactive Guide is available on the web at www.berylliumsafety.com. The Interactive Guide provides an important foundation for the safe handling of beryllium and beryllium-containing materials in the workplace. Information about the Interactive Guide can be obtained through our website, www.materion.com, by contacting the Materion Brush Inc. Product Safety Hotline at (800) 862-4118, or by contacting a Materion Brush Inc. Sales Representative.

Environmental - The National Emission Standard for beryllium is 0.01 micrograms per cubic meter (30-day average) in ambient air for those production facilities which have been qualified to be regulated through ambient air monitoring. Other facilities must meet a 10 gram per 24-hour total site emission limit. Foundries melting alloys containing beryllium are subject to the National Emission Standard for Beryllium as promulgated by EPA (40 CFR 61, Subpart C). Facilities machining alloys containing 5% beryllium or less by weight are **not** subject to the National Emission Standard for beryllium. Most process air emission sources will require an air permit from a local and/or state air pollution control agency. The use of air cleaning equipment may be necessary to achieve the permissible emission. Tempered makeup air should be provided to prevent excessive negative pressure in a building. Direct recycling of cleaned process exhaust air is not recommended. Plant exhausts should be located so as not to re-enter the plant through makeup air or other inlets. Regular maintenance and inspection of air cleaning equipment and monitoring of operating parameters is recommended to ensure adequate efficiency is maintained.



ADDITIONAL INFORMATION

The information contained in this Safety Facts applies only to the subject referenced in the title. Read the SDS specific to the products in use at your facility for more detailed environmental, health and safety guidance. SDSs can be obtained by contacting the Materion Brush Inc. Safety Hotline at (800) 862-4118 or visit our website at www.materion.com.

Additional information can also be obtained by contacting a Materion Brush Inc. Sales Representative or:

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