

Summary to Customers on the European Union RoHS Directive as it relates to Beryllium and Beryllium-containing Materials
December 12, 2008

Beryllium is **not** included or restricted in the final European Union (EU) Directive on the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment (RoHS). The RoHS Directive currently restricts the use of lead, cadmium, hexavalent chromium, mercury, PBB and PBDE in electrical and electronic equipment (EEE). Therefore, beryllium (Be), copper beryllium (CuBe) and nickel beryllium (NiBe) alloys and beryllium oxide (BeO) ceramic are acceptable for use in electrical and electronic equipment and are in conformance with the RoHS Directive.

Article 6 of the RoHS Directive requires the European Commission (EC) to periodically evaluate the need to revise the list of substances covered by the RoHS Directive. The EC initiated a project in 2007 to evaluate other substances and contracted with the Öko-Institut e.V. to conduct the evaluation. We learned that beryllium and beryllium oxide were being evaluated along with 44 other substances including antimony trioxide, antimony compounds, arsenic and compounds, cobalt, cobalt oxide, gallium arsenide, nickel and selenium.

We prepared and submitted a document to Öko-Institut e.V. entitled "A Qualitative Overview of the Use of Beryllium, Beryllium-Containing Alloys and Beryllium oxide Ceramic in Electrical and Electronic Equipment (EEE)". The document provided information about beryllium metal, beryllium-containing alloys and beryllium oxide ceramics as it relates to use of these materials in EEE and the potential health and environmental risks.

We requested and were granted a meeting with representatives of the Öko-Institut e.V. The purpose of the meeting was to provide Öko-Institut e.V. with scientific and technical information on the safe use of beryllium, copper beryllium and nickel beryllium alloys and beryllium oxide ceramic in EEE to aid them in their evaluation of these materials per the established criteria used during the process of exploring the need to revise the list of restricted materials covered by the RoHS Directive. During our March 5, 2008 meeting with the Öko-Institut e.V., we discussed and clarified the important uses of beryllium, copper beryllium and nickel beryllium alloys and beryllium oxide ceramic in EEE, the relatively small use of beryllium (including in alloys) and beryllium oxide ceramic in EEE, the evidence of safe handling during use, disposal and recycling, and the studies which indicate that beryllium is incorrectly classified as a carcinogen.

In its' final report of the "Study on Hazardous Substances in Electrical and Electronic Equipment, Not Regulated by the RoHS Directive" issued to the EC on October 17, 2008, the Öko-Institut e.V. concluded that beryllium and beryllium oxide ceramic, and therefore copper beryllium and nickel beryllium alloys, did **not** "constitute significant health and environmental risks when used in electrical and electronic equipment" and therefore did **not** recommend these materials as potential candidates for inclusion into RoHS.

In early December 2008, the EC issued its' proposal for revisions to the RoHS Directive (COM (2008) 809/4) and the proposal does not include the addition of beryllium or beryllium oxide to the list of restricted substances in EEE nor does it include any requirements related to beryllium or beryllium oxide in EEE. This proposal is expected to be approved by the European Parliament and Council in the near future and become effective shortly thereafter. Based on the above, beryllium and beryllium oxide, as well as copper beryllium and nickel beryllium alloys, will continue to be available for use in EEE.

If you have any questions regarding the information provided above, would like a copy of any of the documents described in this summary or wish to provide feedback, please contact Ted Knudson, Director of Product Stewardship via phone at +1 (216) 383-4040 or e mail at theodore_knudson@brushwellman.com, or call the Product Safety Hotline at (800) 862-4118.