

**Comments from the U.S. Government to the Ministry of Economy Trade and Industry  
on Proposed Changes to the Japanese Method  
for Determination of Asbestos in Building Materials  
April 21, 2008\***

*\*(These comments have been amended to include new information. This new information relates to the development of a new standard in the International Organization for Standardization (ISO) for the determination of asbestos in bulk materials. See paragraph 5.)*

The United States Government welcomes this opportunity to comment on proposed changes to the Japanese Method for Determination of Asbestos in Building Materials, as defined by Japanese Industrial Standard (JIS) A 1481:2006.

The U.S. Government (USG) recognizes the most recent changes to Japanese asbestos regulations to protect both human health and the environment. The adoption in Japan of the 0.1% asbestos content definition of asbestos-containing material is highly protective and is one of the most demanding standards used in the world today. The USG supports the Japanese government in its effort to develop and implement an asbestos policy that takes full consideration of the potentially deadly nature of asbestos fibers, which have been scientifically linked to the cause of certain types of cancer in humans.

However, the USG is concerned that the proposed changes to the JIS A 1481:2006 analytical method for the determination of asbestos in building materials will result in a method that is incapable of detecting and quantifying the full range of asbestos fibers commonly found in building materials or manufactured building products. Moreover, we do not believe the methodology outlined in the revised JIS A 1481:2006 is capable of meeting the 0.1% asbestos content definition currently defined by Japanese law.

*Analysis:*

The analytical techniques used for identification and quantification of asbestos fibers have been researched and refined internationally over the past fifty years. The results of this intensive effort have concluded that the most accurate and effective analytical method for identification of asbestos fibers is Polarized Light Microscopy (PLM). Based on historic PLM analyses of bulk building materials, the PLM method can effectively and accurately estimate concentrations in the great majority of building materials without the need for supplemental analyses. PLM may be supplemented with the use of Transmission Electron Microscopy (TEM), X-ray Diffraction (XRD) and Scanning Electron Microscopy (SEM) methods to be used as necessary for more detailed or more critical quantification analyses.

\* It is important to note that a working group (TC 146/SC 3/WG 1) under the International Organization for Standardization (ISO) is currently developing a new standard for the determination of asbestos in bulk materials. According to the ISO Central Secretariat, a new project has been registered in the technical program under ISO/NP 22262 (Air Quality – Determination of Asbestos in Bulk Materials). According to the ISO Secretariat, this document is at the early stages of development and has to evolve further before it is registered as a Draft International Standard or DIS, and finally published as an International Standard. Further

information about the development of this standard can be obtained by contacting the Secretariat of ISO Technical Committee 146/SC 3.

According to proposed revisions to JIS A 1481:2006, references to the PLM analytical method have been reduced to a single footnote, effectively eliminating PLM from the standard. (Please see footnote to 7.2.2 in JIS draft revision page 11.) Moreover, the footnote to section 7.2.2 in the JIS draft revision references the existence of PLM and other methodologies, but does not qualify the merits or necessity of using those analytical techniques to identify and quantify asbestos in bulk building materials. We believe this runs counter to the large body of world scientific opinion that has identified PLM as the single most effective analytical method for identification of asbestos fiber morphology (fibers and fiber bundles) and the specific optical properties of each of the six regulated asbestos minerals (chrysotile, amosite, crocidolite, tremolite, anthophyllite and actinolite). We understand the XRD analytical method is widely recognized to be incapable of distinguishing the fibrous nature of asbestos materials, which is critical to the proper identification of asbestos. In addition, XRD usually does not have a sufficiently low detection limit to reach the proposed 0.1% level. The detection level is usually taken to be about 1% at best. Also, XRD is highly sensitive to sample preparation technique, which may lead to analytical uncertainty.

Consequently, we believe that removal of the PLM methodology from the JIS will significantly weaken the Japanese standard for asbestos identification and may lead to the misidentification and misquantification of asbestos content in building materials, which could lead to unanticipated economic, environmental and public health costs. We do not believe the methodology outlined in the revised JIS A 1481:2006 is capable of meeting the 0.1% asbestos content definition of asbestos-containing material, as currently defined by Japanese law.

#### *Conclusions:*

The numerous health risks associated with asbestos exposure include mesothelioma, asbestosis, lung cancer, and other lung diseases. The diseases associated with asbestos can lay dormant in humans for 20-50 years, and symptoms of asbestos exposure may not show up until decades after original exposure. Proper identification of deadly asbestos fibers in building materials is a critical first step in working to safeguard human health. The United States has a long history of dealing with asbestos remediation and the threat asbestos poses to public health. The USG understands the need to adopt robust standards for the identification of asbestos in bulk building materials and we support the government of Japan's efforts in this regard.

The overwhelming body of world scientific research has concluded that the PLM method is the single most effective means of identifying and quantifying asbestos fibers in bulk materials. The proposed changes to the JIS Method A 1481:2006 lead the reader to conclude that XRD is the method of choice for identifying asbestos content in bulk materials. Based on the body of world research which concludes that XRD analysis is ineffective in (1) identifying the different forms of asbestos and (2) quantifying the percent of asbestos in bulk materials, the USG is concerned that reliance on the XRD method as stipulated in the revised JIS A 1481:2006 may lead to the misidentification and misquantification of asbestos as a component in typical commercial building materials and manufactured building products.

More specifically, the USG is concerned that the JIS specification of the XRD method as the primary asbestos analytical tool may lead to increased risks to the public health, including an increase of public exposure to potential airborne concentrations of asbestos in Japan.

We urge the Government of Japan, in the interest of protecting public health, to adopt a standard for asbestos identification that in addition to XRD, recognizes and accepts the use of other scientifically established and internationally recognized methodologies, such as PLM, SEM, TEM and others. Further, we urge the Government of Japan to notify the draft standard to the WTO, as it has done with previous requirements for asbestos-containing products, most recently in G/TBT/N/JPN/198 of 27 March 2007.