Information for the public

Classification of SiC crude and grains and SiC fibers

SiC crude and grain is not classified as a hazardous substance

EC Regulation No 1272/2008 on classification, labeling and packaging of substances and mixtures (CLP Regulation) requires that European companies classify substances placed on the market. According to the CLP Regulation and based on a continuous update of all scientific findings and discussions Silicon Carbide (SiC) crude and grains products (which are used e.g. for the production of abrasives) are classified as **non-hazardous substances.**

SiCMa members do not sell SiC fibres products

SiC occurs in several forms as particles (crude and grains), fibres, and whiskers. SiC crude and grains are manufactured intentionally with SiC fibres being unwanted by-products. SiC whiskers are intentionally produced by different processes and are used in industrial processes e.g. as durable substitutes for asbestos.

SiCMa (the "Silicon Carbide Manufacturers Association") is following up all studies and research work related to a safe production and use of SiC. In this context SiCMa realized that from time to time a discussion is coming up on SiC fibres.

Discussion on the definition of fibres

A main topic within these discussions is a proper definition of “fibres” that is still missing. The IARC Working Group on the Monograph VOLUME 111 also addressed this topic. The majority of the Working Group considered that differences in the nature of SiC fibres and SiC whiskers warranted separate evaluations[1].

Based on literature research and discussions with leading toxicologists there seems to be a suspicion that certain SiC fibres (“whiskers”) with a ratio between length and diameter >10, length > 5 µm and a diameter < 1 µm might have carcinogenic properties. Existing fibre definitions (such as the one coming from the WHO or another one coming from mineral wools) do not fit to describe whiskers.

In the opinion of SiCMa a clarification of the definition of whiskers is required. Therefore, SiCMa has elaborated the following definition for whiskers:

Definition whiskers: rod- or needle-shaped single crystals with a diameter < 1 µm a length > 5 µm and an aspect ratio length/diameter > 10.

[1] Lancet Oncol 2014, Published Online October 31, 2014 http://dx.doi.org/10.1016/S1470-2045(14)71109-X

Detection and characterization: Basic detection and characterization of fibres and whiskers needs to be done with TEM methods, but to differentiate whiskers from fibers, EDS (Energy dispersive X-ray spectroscopy) should be applied to determine the composition of a sample.

Contact details for comments:

General Secretary of SiCMa

Sonja Bauer
c/o BiPRO GmbH
Grauertstrasse 12
D - 81545 Munich, Germany

Tel: +49 89 189 790 50
Fax: +49 89 189 790 52

E-mail: sicma.secretary@sicma-siliconcarbide.org

http://www.sicma-siliconcarbide.org/