



## Results of the human toxicological safety assessment and material analysis of Fixit 222 Aerogel High-performance Insulating Plaster

The NanoCASE company, St.Gallerstr. 58 in 9032 Engelburg, has investigated and clarified the following questions, among others, regarding this product on behalf of Fixit AG.

### Does the Aerogel granulate in Fixit 222 contain nanoparticles?

No, the aerogel granulate contained in Fixit 222 does not belong to the class of nano-objects, meaning that the particles it contains have dimensions larger than 100 nm. The size distribution of the aerogel granulate used in Fixit 222 is in the high micron to millimeter range. According to the definition as given in ISO-Definition ISO/TS 80004-1:2010, the aerogel itself is a nanomaterial. Although the material does have a nanoporous structure, meaning that the aerogel contains pores whose diameters lay within the nanometre range, that is less than 100 nm. The effectiveness of aerogels as highly efficient insulating materials is derived from this characteristic, since the major part of the material are pores, more than 90% filled with air.

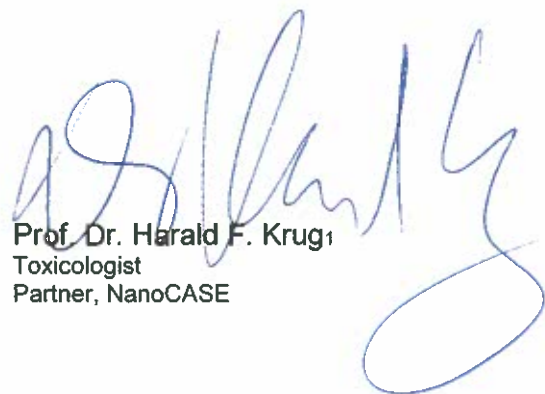
No special additional safety measures are necessary for handling and using aerogel granulates. The material is generally regarded as harmless (SUVA, MWC Commission of the DFG, EU). However, as for all mortar products, the legally prescribed maximal workplace concentration for inert dust is valid (3 mg/m<sup>3</sup>), and in particular for amorphous silica/aerogels the maximum permissible concentration is 4 mg/m<sup>3</sup>.

### Are there any health risks associated with Fixit 222?

No, Fixit 222 is a mineral-based insulating plaster made from natural hydraulic lime with aerogel granulate as an aggregate. The outstanding insulating properties of Fixit 222, which consists primarily of amorphous silicon dioxide, are due to its extremely high porosity. This material is harmless to humans, as indicated by the fact, that it is used as a food additive (E 551).

No additional risk factor is created by the addition of Aerogel to the product mixture, for which reason no other safety measures are in force in addition to those already in existence for this class of products . All commercially available plaster mixtures, lime and cement products contain substances which irritate the skin and eyes. Most of these products are therefore appropriately labelled (R37/38), and the necessary safety measures to protect the skin and eyes have to be enforced (see lines 2, 22, 24, 26, 37/39, 46) Fixit 222 Aerogel High-performance Insulating Plaster complies fully with the safety requirements of the Swiss chemical safety regulations.

  
Severin Hartmeier  
Product Management Fixit AG  
Plasters/Restoration/Renovation

  
Prof. Dr. Harald F. Krug  
Toxicologist  
Partner, NanoCASE

<sup>1</sup> This summary is valid solely for the identical product formulation to which the main report applies.