Hamburg University of Technology (TUHH)
Institute of Thermal Separation Processes -V8-
Eissendorfer Str. 38, DE-21073 Hamburg

Please fill out the form with the corresponding data for your abstract and send it to: aerogelconference@tuhh.de

In the E-mail you may include other files (e.g. Word, PDF or images).

Abstract Formulary

Presentation type: **Oral** ☐ **Poster** ☑

Title: Multi-layered laminated aerogel blankets for military and civilian applications

Authors: Dong Jin Suh, Chun-Jae Yoo, Jae-Wook Choi, Jeong-Myeong Ha, and Young Su Cho

Presenting author: Dong Jin Suh

Institution (Presenter): Korea Institute of Science and Technology

ABSTRACT (Space limited to 2200 characters)

Silica aerogel is the best thermal insulation material to date. However, the potential applications of this lightweight material have so far been hindered by its inherent fragibility and brittleness arising from its ultra-porous nature. Silica aerogel in its most widely applied form is found in fiber-reinforced aerogel blanket, but likely to generate dust when handled. Although silica aerogel particles have been proven to be non-toxic to human body, dust formation remains the major barrier to widespread applications of silica aerogel blankets. In this study a flexible dust-free silica aerogel blanket could be produced by wrapping thin aerogel sheet with a multi-layer laminate material. By making suitable selection of laminating materials it was possible, depending on needs, to control physicochemical properties of the resulting aerogel blanket product. The product may be highly flexible, readily formable, nonflammable, and even waterproof/breathable. The thermal conductivities of waterproof/breathable resin/fiber laminated aerogel blankets were less than 20 mW/m-K. Here various types of multi-layered laminated aerogel blankets and their military and civilian applications such as boot insoles, outdoor jackets, sleeping mats, and multi-purpose ponchos will be introduced.