

Military Technical College
Kobry El-Kobbah,
Cairo, Egypt.



18th International Conference
on Applied Mechanics and
Mechanical Engineering.

MECHANICALLY STABLE ORGANIC-INORGANIC COMPOSITE AEROGELS

Kyu-Yeon Lee¹ and Hyung-Ho Park¹

ABSTRACT

Aerogels are promising materials due to their excellent properties such as wide surface area, low thermal conductivity, low density and high porosity, so they are known as eminent candidate for future material technology. These characteristics can be utilized for various purpose such as catalyst, ion exchange resin, filter, drug agent, heat, sound insulator and so on. However, aerogels are too fragile and brittle due to their low mechanical strength, so there are some difficulties in industrial and commercial applications. To overcome the weaknesses of aerogels, organic-inorganic composite aerogels were presented as one of the solution to improve mechanical characteristics of aerogels. The present paper focuses on the complementary enhancement of mechanical characteristics using functional, mechanically strong organic materials in the inorganic-based aerogels. In this paper, some studies of organic-inorganic composite aerogels are introduced and an improvement of aerogel characteristics is provided.

REFERENCES

- [1] I. K. Jung, J. L. Gurav, U. K. Bangi, S. Baek and H. H. Park, *J. Non-Cryst. Solids*, 358, 550-556 (2012)
- [2] D. B. Mahadik, W. Han, H. H. Cho and H. H. Park, *Compos. Sci. Technol.*, 147(1), 45-51 (2017).
- [3] V. G. Parale, H. N. R. Jung, W. Han, K. Y. Lee, D. B. Mahadik, H. H. Cho and H. H. Park, *J. Alloy. Compd.* (2017). <https://doi.org/10.1016/j.jallcom.2017.08.189>

¹ Department of Materials Science & Engineering, Yonsei University, 50 Yonsei-ro, Seodaemun-gu, Seoul 03722, Korea. Telephone number: 82-2-2123-2853, Fax number: 82-2-312-5375. E-mail (Kyu-Yeon Lee): dwrky@yonsei.ac.kr. E-mail (Hyung-Ho Park): [hnpark@yonsei.ac.kr](mailto:hypark@yonsei.ac.kr).