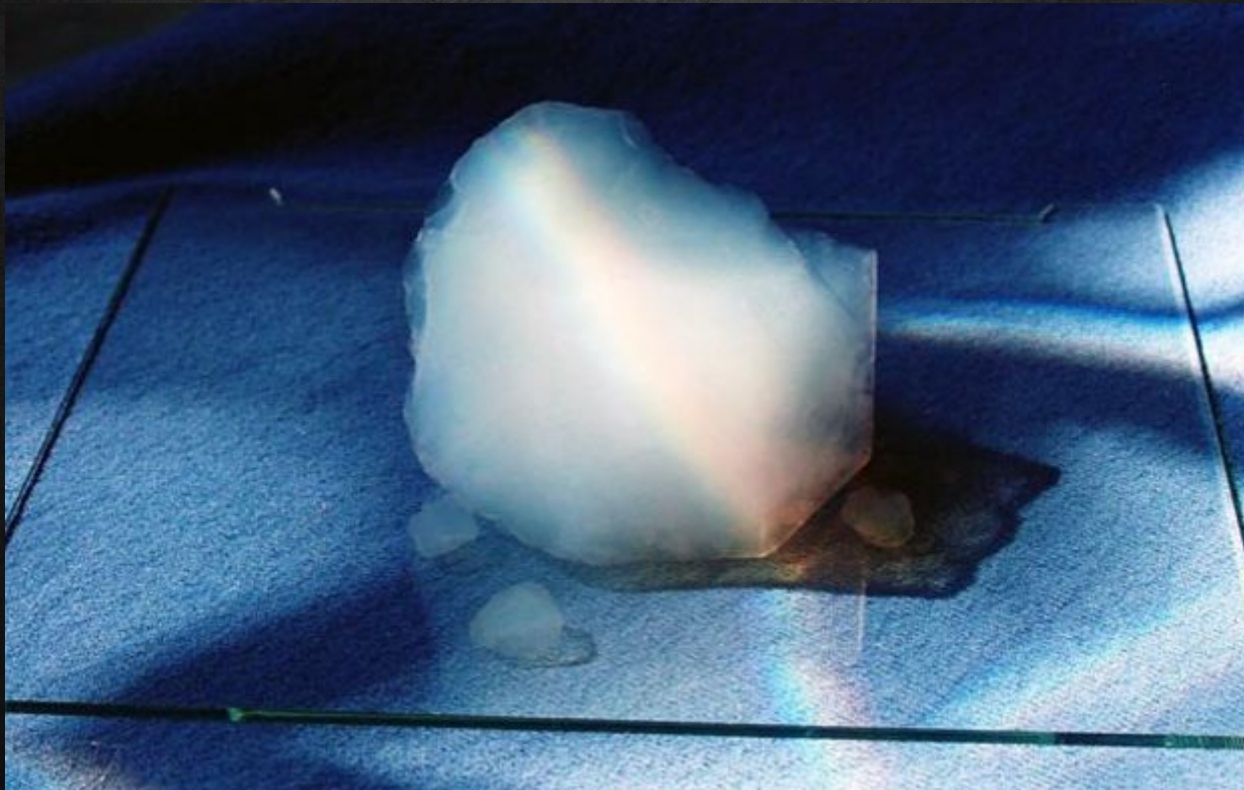


# ***AEROGEL IS THE FUTURE***



Karelin Aleksandr П-179

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# OUTLINE

- What is aerogel?
- Aerogel structure
- *Properties of aerogels*
- *Types of aerogels*
- *Manufacturing methods*
- *Application*
- the prospects

# What is aerogel?

Aerogel is a light, highly porous material with a number of exceptional and even unique physical properties that attract the attention of researchers working in various fields of science and technology.

## DRIVERS

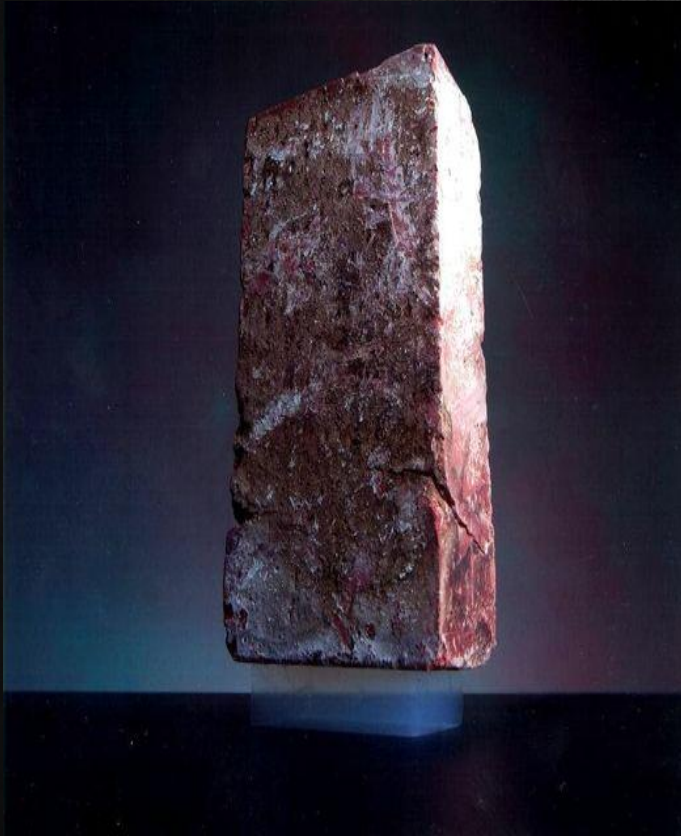
- » Environment friendly material
- » Superior thermal insulation and lighter alternative
- » Large base of end-use application

## RESTRAINTS

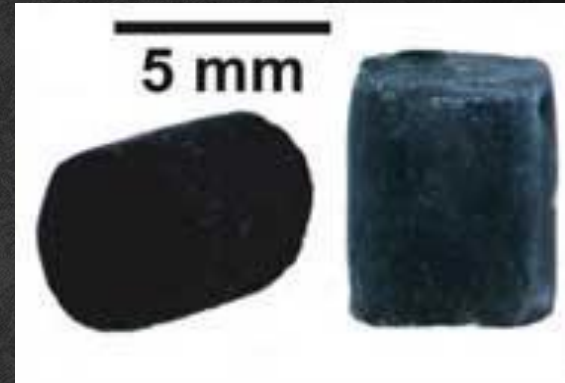
- » High manufacturing cost
- » Poor mechanical strength and associated health hazard



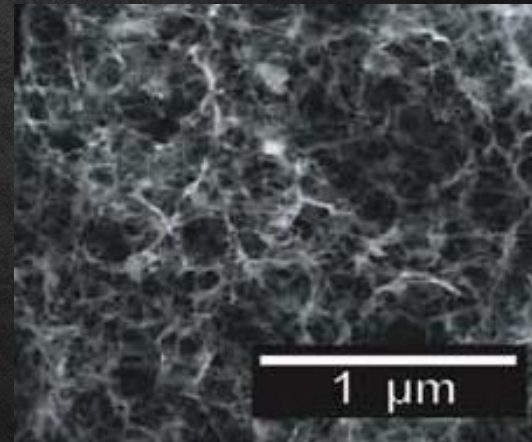
# Aerogel structure



2.5 kg brick  
supported by a  
2-gram aerogel  
plate (NASA)

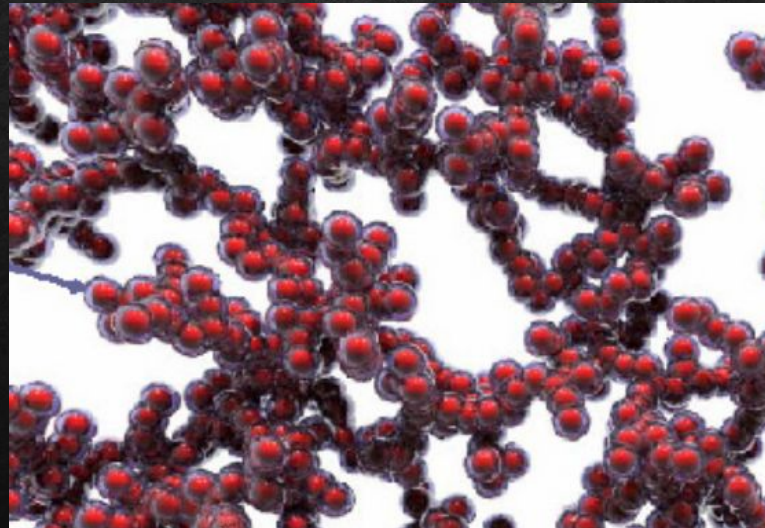
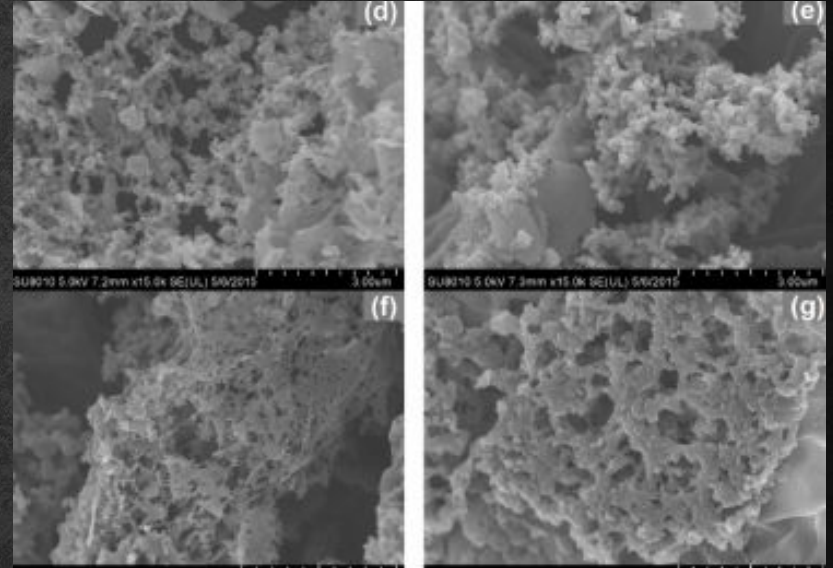


Carbon Nanotube aerogel samples

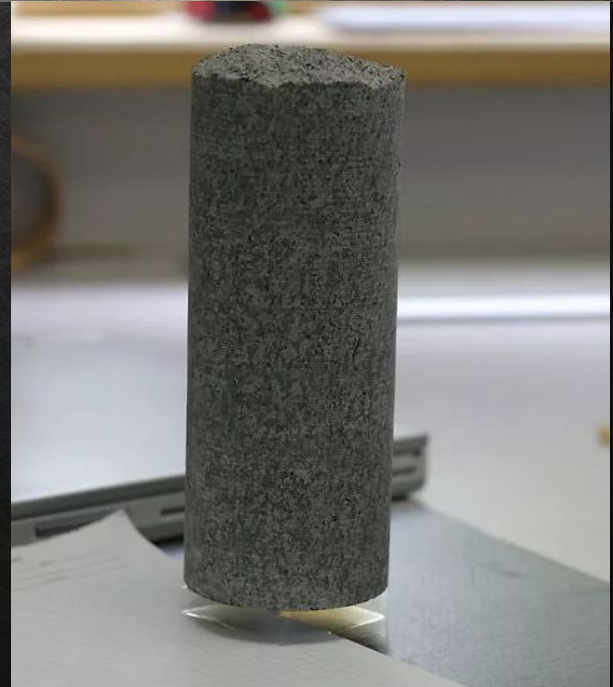


Micrography from a scanning electron microscope. The open porosity of the material is clearly visible.

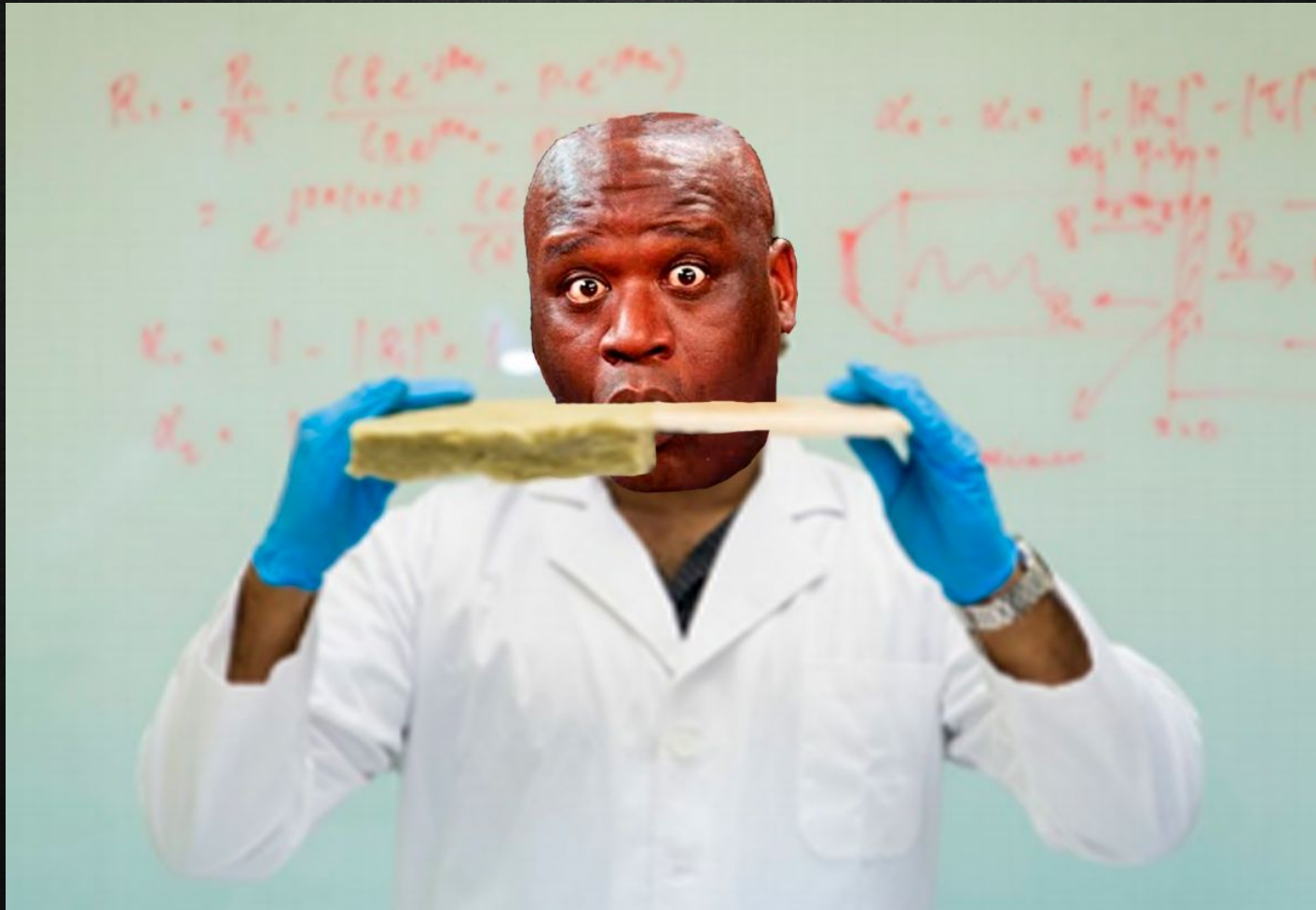
# ***PROPERTIES OF AEROGELS***



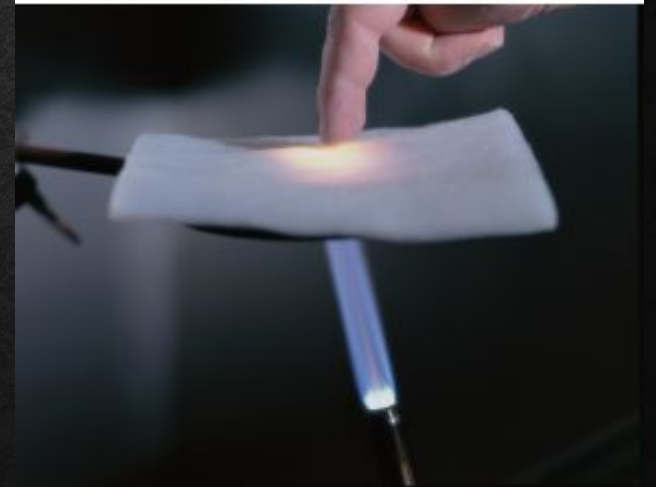
# ***TYPES OF AEROGELS***



# ***MANUFACTURING METHODS***



# ***APPLICATION***



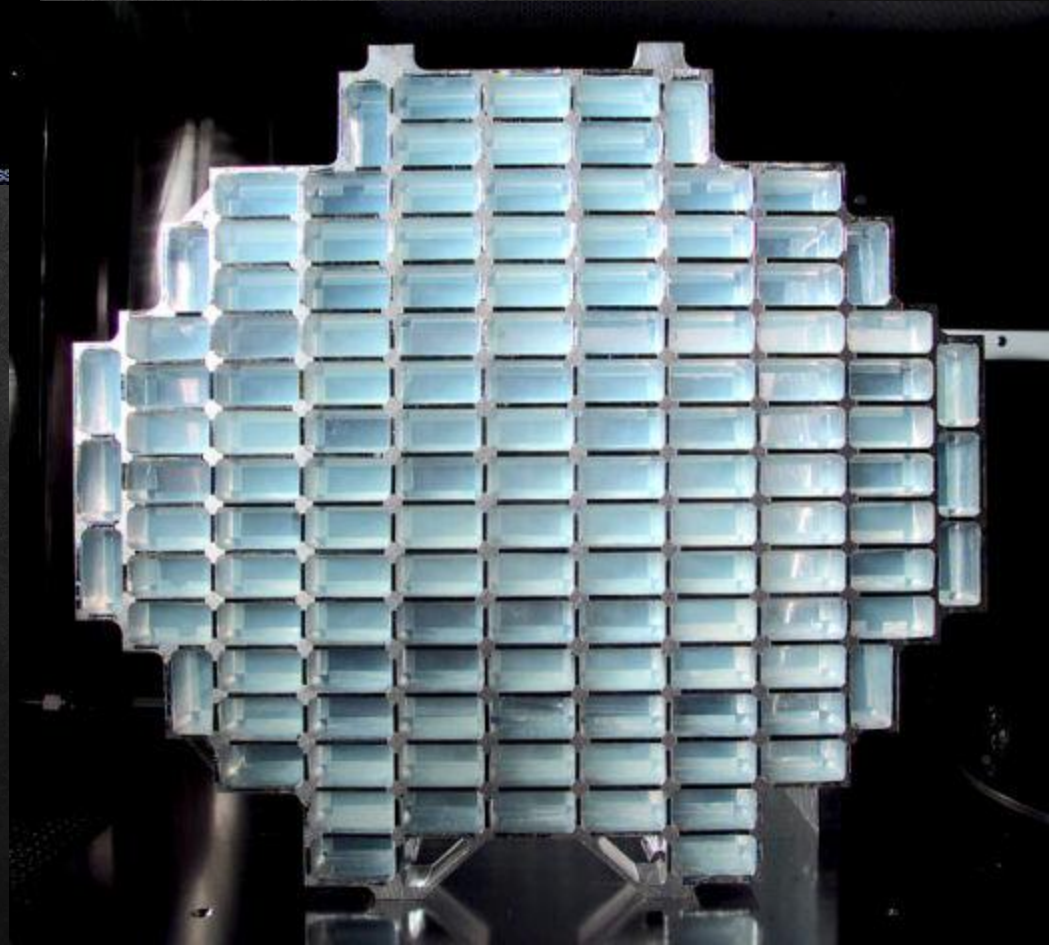


© Rasmus Gullberg AIRGLASS

Glass from "frozen smoke" - Airglass,  
invented in Sweden

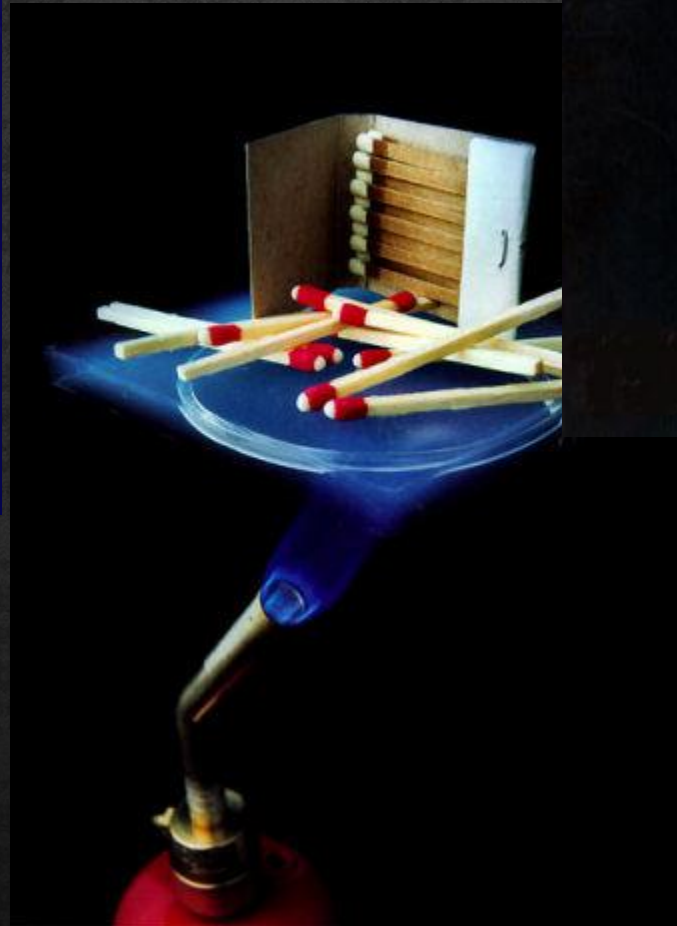
# the prospects

Stardust Probe Comet Matter Trap (NASA)





Comet matter particles trapped in the Stardust probe (NASA)



Matches on the aerogel plate and gas burner



A flower on an aerogel plate and a gas burner

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