

Aerogel Video List and Teacher Notes:

Emulsion

- Good—straightforward/clear info on emulsions and everyday examples are provided. 2017. https://www.youtube.com/watch?v=bC_czAL24zY (3:07 min)

One Means of Aerogel Synthesis

- **Agnello Polyimide Aerogels -- Weight Savers for Aircraft Antennae.** A good summary of the work being done at NASA. An undergrad shares her NASA aerogel internship experience which mirrors that being done by Dr. Sadhan Jana's research group at the University Akron. Highlights the work of a young female engineer. 2013. <https://www.youtube.com/watch?v=DgkogPXG134> (2:16 min)

Videos that highlight a specific property of Aerogels

Thermal Insulative:

- **Penn and Teller Tell a Lie: Aerogel Vs Flame Thrower.** Slightly comical Penn and Teller video showing thermal insulative property. 2011. <https://www.youtube.com/watch?v=MCVw9PSDQRw&feature=youtu.be> (1:11 min)
- Aerogels used in sheets for various shown and suggested uses including clothing, insoles, etc from a commercial company. Dry ice is used in this video. 2018. <https://www.youtube.com/watch?v=HITtcncWOJ4> (2:52 min)
- Aerogels used in coats--Video in the middle of the KickStarter page; best if shown just before or just after a liquid nitrogen demo. 2015. https://www.kickstarter.com/projects/1338531979/lukla-endeavour-outerwear-for-the-21st-century-adv?ref=category_location (3:15 min) Note: Lukla apparel may no longer be available but orosapparel.com has winter clothing made from aerogels. This is best shown after the 'Why Airloys and Aerogels are the Next Supermaterial' (See below.)

Hydrophobicity:

- Aerogel Powder—Superhydrophobic “Never Wet” Coating. 2012. <https://www.youtube.com/watch?v=sSUuUwS5rsU> (0:59 min)
- **Hydrophobic Aerogel Makes Hands Waterproof.** Chemistry structure explained--OK--c. 2012. <https://www.youtube.com/watch?v=12QJKET1Dq8> (2:15 min)
- Airloys--Improved Aerogels. c. 2012. <https://www.youtube.com/watch?v=k8OhJKR3AA4>

Overview of Properties

- **Quest Lab: Aerogel KQED Quest.** Pretty Good Aerogel Video. Older Video. Dust Collection on space satellite shown. Good to segue into clothing filtration goal. 2009. <https://www.youtube.com/watch?v=kHnen2nSmDY> (2:15 min)
- **Why Airloys and Aerogels are the Next Supermaterial.** A very good summary including the problem of cost of production. 2017. <https://www.youtube.com/watch?v=ZY5qy1gIF1s> (3:35 min)
- **Advanced Materials by Green Earth Aerogel Technologies.** Environmentally friendly aerogel; properties shown but not uses; good showing of fireproof. 2014. <https://www.youtube.com/watch?v=4k91URjFNgY> (4:45 min)

The Aerogel Synthesis Process

- **How It's Made—1336 Aerogel.** A thorough summary though somewhat boring. 2017.
<https://www.youtube.com/watch?v=AlohrrK6u4k> (5:60 min)