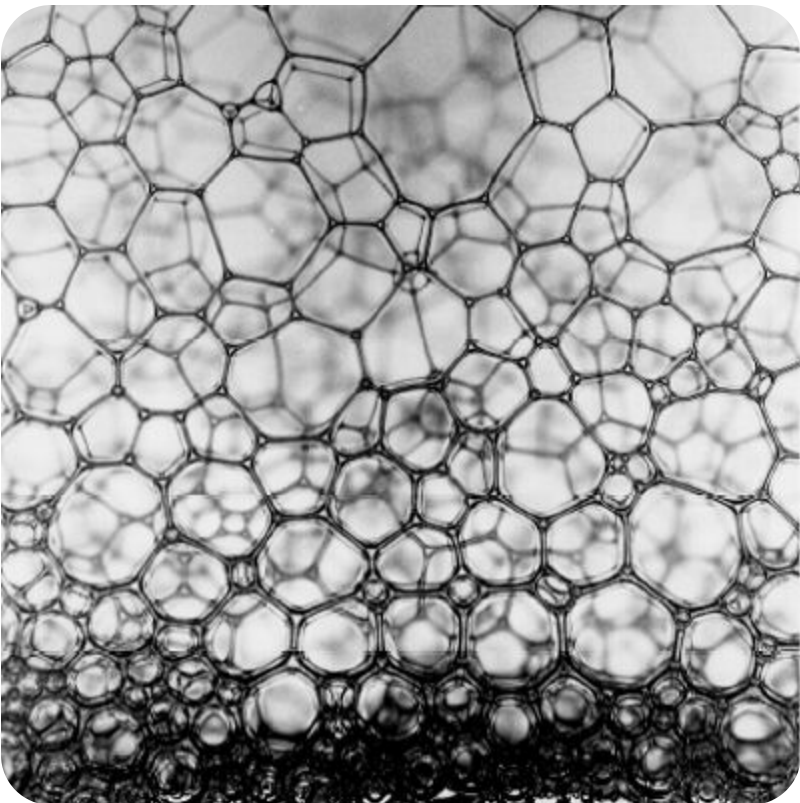


Froth and fizz: creating the perfect foam in space



Foam viewed close-up can look very strange! Copyright: SSC
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Do you like to play with bubbles in your bath? When there are lots of bubbles together it is known as a foam, and many foams are useful in our daily lives. Some foods and drinks are improved with foams, like the froth on top of coffee or in a milkshake. Lots of cleaning products and medicines use foams as well.

However, creating the perfect bubbles for different foams is tricky! On Earth, the mixture of gas and liquid that makes up a foam quickly starts to change. Gravity pulls the liquid between the bubbles downwards, and the small bubbles shrink while the larger ones often grow. Before long, foams break down and become liquid. That is why the bubbles in your bath eventually pop, even if you do not poke them with your finger!



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ESA astronaut Frank De Winne with the Foam Stability experiment. Copyright: NASA
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What if you could study foams without gravity destroying the bubbles? That is exactly what scientists are doing onboard the International Space Station! The weightless conditions onboard mimic having no gravity, so bubbles do not burst as quickly, and foams stay wet for longer. In 2009, ESA astronaut Frank De Winne ran the Foam Stability experiment on the International Space Station. He found that it was possible to create super stable foams when weightless in space!



Foam research has improved our food production. Cécile Gehin-Delval is senior Research and Development specialist from the Nestlé research laboratories in Switzerland. She says, “The stability of foam bubbles can enhance the quality, texture, taste and shelf-life of some foods and drinks. This study helped us to create near-to-perfect air bubbles for our dairy, ice cream and pet food products.”

So, the next time you have a bubble bath, take a moment to think about the foam and how even astronauts in space like to play with bubbles!

Cool fact: Foams can even be made from metal. Aluminium foam is as strong as pure metal but much lighter!