

# KOSMETIK

MED NEW BEAUTY

Nº1 2019

NANOTEKNIK  
I MAKEUP

*Nu uppmärksammas*

Psykisk  
ohälsa

STYLING & HUDVÅRD  
FÖR DAGENS MAN

VÅRENS  
TRENDER





# NANOTECHNOLOGY PAVES WAY FOR COSMETIC PRODUCT DEVELOPMENT

Seven years ago, Maria Strømme, professor of nanotechnology, and her team of researchers managed to invent what other researchers had tried to achieve for over 100 years. By coincidence they managed to produce a porous magnesium carbonate, named Upsalite, that gives hope of developing new revolutionary pharmaceutical drugs. Recently, they have also discovered that the material is perfect as an ingredient in makeup and hair products.

TEXT in Swedish: JESSICA S KEMPE, translated into English by Disruptive Materials

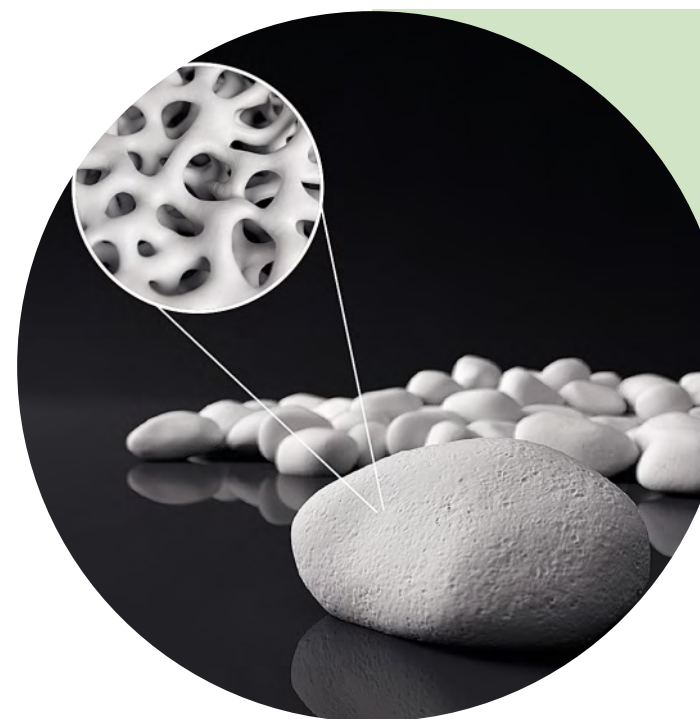
The year was 2012 when Maria Strømme and her research team at Uppsala University managed to invent the porous magnesium carbonate, Upsalite. By coincidence, a container of an experiment was left in the lab over the weekend.

- The material mixture had changed character to an off-white, jelly like substance. We realized that an unknown reaction had occurred and after dry-

ing the material, we achieved the porous material with extremely small pores we were aiming for in the first place. It was the most amazing feeling I have experienced and my best day at work to date, states Maria Strømme.

Maria Strømme and her team were ecstatic about having actually invented the material since it had been deemed the impossible material to invent going back to the early 20th century. Several scientific journals and a Russian thesis from the 1960's clearly showed and stated that it was impossible to do what Maria Strømme and her research team had achieved.

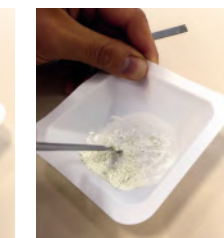
- We realized we needed to be prepared to be questioned. We worked intensively behind the scenes. We had never spent so much time to analyze and test a material as meticulously as we did. At the end of 2012 we were certain and patented the porous material which we named Upsalite. The following summer news of the invention was published in a scientific journal.



Upsalite has numerous cavities. In cosmetics the pores are used to absorb unwanted substances such as sebum and moisture.

## Upsalite

A porous magnesium carbonate material originally with 2-5 nanometer sized pores, however, the pores can be tailored by controlling the energy dispersion during development. With this, they can be up to the size of 20 nanometers. The unique aspect of the material is its record-breaking high surface area and minimal pores. With the Upsalite pores, Upsalite is like a sponge with numerous cavities. For the pharmaceutical industry these pores are used to load Upsalite with various molecules, while in cosmetics the pores are used to absorb excess sebum and moisture. The application areas are many, ranging from enhancing the effect of pharmaceutical drugs, prolonging the effect of solar cells to giving climbers a firmer grip, and in addition give a long-lasting effect and mattifying result in makeup formulations.



In these images oil has been added to Upsalite. After stirring, the result shows how the material absorbs the oil and return to its original powder form.

The revolutionary news attracted major international attention. In only three weeks, over 500 companies contacted the company requesting samples and the hits of Upsalite on Google reached over half a million searches.

- What got the most attention was the materials ability to absorb moisture, which in actuality is a positive side effect. Our initial goal was to solve an identified problem within the pharmaceutical business. In many pharmaceutical drugs, the substances have poor solubility, which make them difficult to absorb through the gastro-intestinal tract. What is unique about Upsalite is its porous nature with pores ranging between 2-5 nanometers. By controlling the addition of energy during development we can alter the pore size to ensure that the body can absorb poorly soluble drugs of varying sizes. Eventually we see the opportunity to control a drugs release rate and target area in the gastro-intestinal tract to enhance uptake of the medicine. We are in a very exciting phase by being able to optimize Upsalite as a carrier for pharmaceutical drugs explains Maria Strømme.

To drive the discovery commercially, Maria Strømme founded the company Disruptive Materials in 2013 along with 2 of the original members of the research team as well as an entrepreneur. Based on the unique qualities of Upsalite, Disruptive Materials along with Maria Strømme's research team at Uppsala University, have investigated other areas of use and found that the material is an excellent

ingredient in makeup and hair products.

- The material in a powder formulation has a fantastic ability to absorb excess production of sebum. One gram of Upsalite is equal to the inner and outer surface of a football field which gives its unique absorption capability. There is no other material on the market with the same capacity.

Upsalite is already scientifically proven for application on the skin as a result of much research and tests with several makeup artists also weighing in on the use of the material in its raw form.

- The material is safe and clean, dermatologically tested and found hypoallergenic as part of several studies conducted by external lab centers in the EU. We find Upsalite to be a perfect ingredient as it does not occlude the skin and thus allows the skin to breathe. It has a mattifying, long-lasting effect giving an all-day fresh feeling and leaving you constantly selfie-ready, says Maria and smiles. She has two teenage daughters, so she knows what she is talking about.

Maria Strømme points out that this is just the beginning with a few powder formulations at hand and stresses the potential of the material with enormous potential and development opportunities within cosmetics.

- We have initiated a partnership within cosmetics that will be announced soon. We are open for more partners and brands, both in Sweden and globally, to develop breakthrough and innovative products for the whole beauty industry.

## Disruptive Materials

**Founded:** 2013.  
**Founders:** Maria Strømme, Johan Gómez de la Torre, Sara Frykstrand and Mattias Karls.  
**CEO:** Mattias Karls.  
**Head office:** In Uppsala.  
**Employees:** 25  
 Production of Upsalite: Two facilities in Germany.  
**Research:** By Disruptive Materials R&D and Maria Strømme's research team at Uppsala University.  
[www.disruptivematerials.com](http://www.disruptivematerials.com)

## Maria Strømme

Maria Strømme is born in Norway but resides in Sweden. When in 2004, she became the first professor in nanotechnology at the Uppsala University, she also became Sweden's youngest professor in a technical subject. Today Maria Strømme is managing a research team of 35 people who research nanotechnology and functional materials at Uppsala University and is also one of the founders of the company Disruptive Materials where she sits on the board. She has additional board seats in technical companies, international universities and in national and international research advisory boards. Maria Strømme has also been acknowledged for 40 patents she has filed and 300 scientific journals she has written. 2016 she was voted Swedish Woman of the Year by Svea International.



Maria Strømme is responsible for a big breakthrough in research with the invention of Upsalite, a material giving hope for new medicines and as an ingredient in cosmetic formulations.

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Disruptive Materials is a fast growing Materials Technology Company, a spin-out derived from state-of-the-art research from the Ångström Laboratory, Uppsala University, Sweden. In addition to cosmetics Disruptive Materials develops pharmaceutical products by applying a unique drug delivery technology.

