Polymers

Breathable Films

Engineered for excellence in breathable film performance

THINKING OF TOMORROW

About Omya

Making life better
Our company purpose, "Making life better through our passion for minerals and chemistry," unites our 9,000 employees around the world. From the scientists in our innovation labs to the engineers overseeing our production plants and the teams working with customers day in and day out, we are always Thinking of Tomorrow and how we can improve life for current and future generations.

This often means finding ways of helping our customers become more sustainable - by reducing their carbon footprint, optimizing their use of resources, minimizing waste, improving circularity, or protecting the environment.

Sustainability is key
As a global business operating in more than 50 countries, we recognize the substantial impact of our operations on the diverse communities and economies in which we operate, and on the environment.

Omya is committed to balancing economic success with environmental stewardship and social equity, and helping our customers meet their own sustainability goals through the use of our mineral expertise.
Resource efficiency and material optimization contribute to the high performance and cost-effectiveness of breathable films, whilst reducing environmental impact and enhancing long-term value.

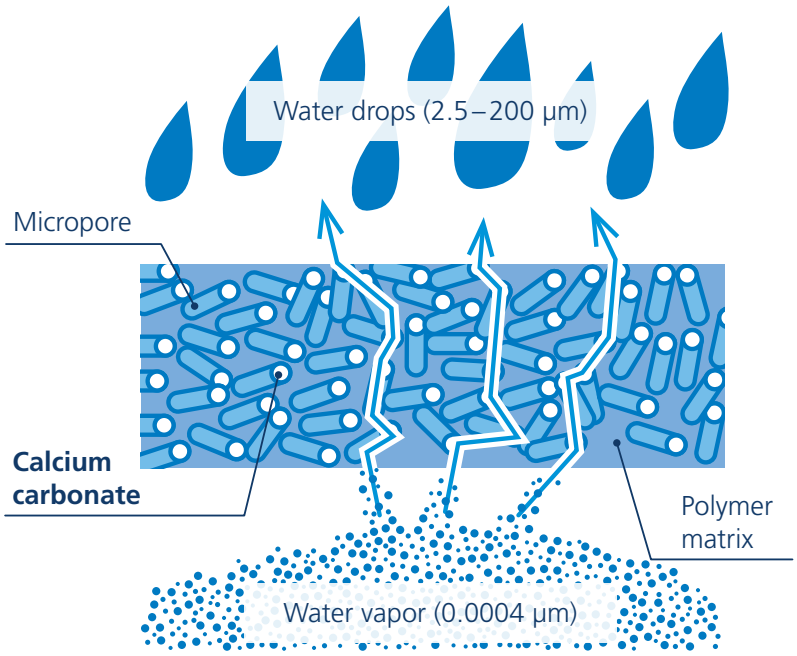
Omyafilm calcium carbonate in breathable films – excellent processing and performance

Omyafilm calcium carbonates act as a functional additive to provide the desired membrane properties in breathable film. Our advanced mineral processing technologies help to control challenging processes including compounding, film extrusion and further processing. We are happy to demonstrate our Omyafilm benefits on our pilot cast, blown and stretching film lines.

Well-controlled particle size distribution and excellent coating properties lead to improved process control, low defect rates and balanced membrane properties. This supports the trend for lower grammage film.

Benefits of Omyafilm in microporous breathable films

Breathable films are generated by cast or blown film extrusion, followed by stretching. Calcium carbonate initiates the formation of uniform cavities providing membrane properties. Films made with Omyafilm calcium carbonate provide a cost-effective solution for moisture control in many applications such as baby diaper back-sheets, feminine hygiene, adult incontinence, packaging, roofing, house wrap and surgical gowns.



Key Benefits

- ✓ Excellent compounding properties
- ✓ Long screen uptime
- ✓ Low die build-up
- ✓ Very low defect rates in films
- ✓ Optimized membrane function (WVTR, Hydrohead)
- ✓ High tear and puncture resistance
- ✓ High purity and whiteness
- ✓ Non skin irritant/ non skin sensitizing
- ✓ State of the art lab support
- ✓ Technical service on-site
- ✓ Global coverage to serve all international markets

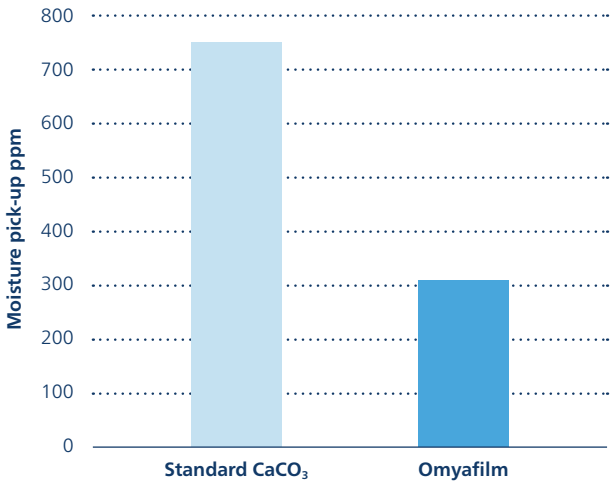
Excellent surface coating

As calcium carbonate acts as an additive to enable the formation of voids in breathable films, the features of the calcium carbonate grade are crucial to achieve optimal film properties.

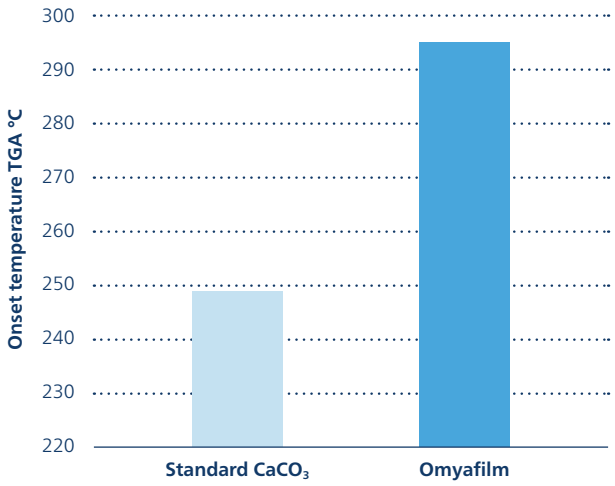
Omyafilm calcium carbonates for breathable films are tailor-made grades, especially developed and produced for this application.

The superior treatment technologies provide high quality features, such as:

- **Optimal dispersion**
- **Excellent thermal stability**
- **Perfect hydrophobicity**



Moisture absorption as the weight increases from 8% relative humidity to 88% relative humidity at 38°C.



Thermal stability measured as onset temperature TGA.

Carbon footprint of $CaCO_3$

300 kg of CO_2 equivalents per ton of surface treated natural ground calcium carbonate (GCC)

SOURCE:
IMA EU27 energy mix; based on production capacity mix

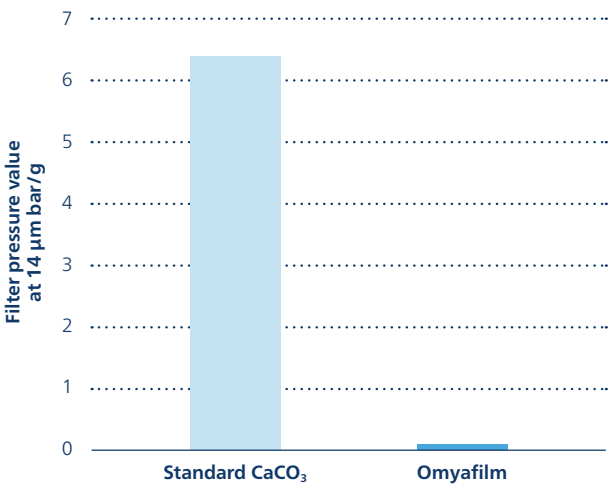
Omyafilm features

- ✓ Tailored particle size distribution
- ✓ Minimized retains
- ✓ Low specific surface
- ✓ Optimized surface coating
- ✓ High temperature stability
- ✓ Very low moisture content

Tailored particle size distribution

The size of the calcium carbonate particles is crucial to achieve an optimal pore structure, control breathability, and ensure good mechanical properties.

The particle size distribution for Omyafilm grades is carefully engineered. A narrow particles size distribution guarantees an optimal cavitation effect resulting in high water vapor transmission rates.



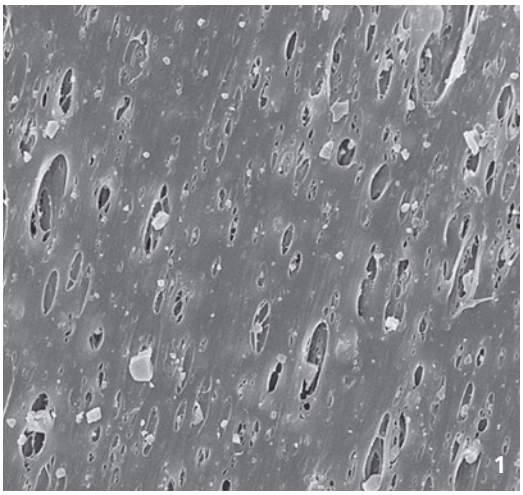
The controlled particle size is equally important to ensure low film defect rates and optimal compounding performance which can be seen by low filter pressure values.

Omyafilm grades for breathable films – designed to provide optimal performance

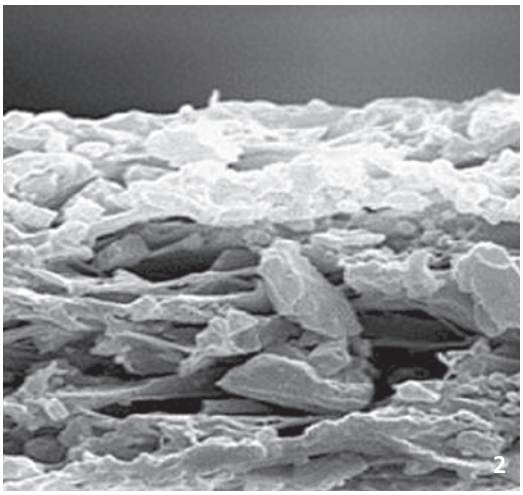
Omyafilm grades are designed to provide optimal processing performance under a range of manufacturing conditions and in various formulations.

Film extrusion can be performed as a cast or blown process. The formulation must be adapted to the selected process and to the required film properties.

Stretching can be done in line with the film extrusion but can also be performed off line. Often a machine direction orientation (MDO) line is used to create the micro voids. An alternative is intermeshing or interdigitation stretching (ring rolling).



SEM- micro-graph of a breathable film in top view.

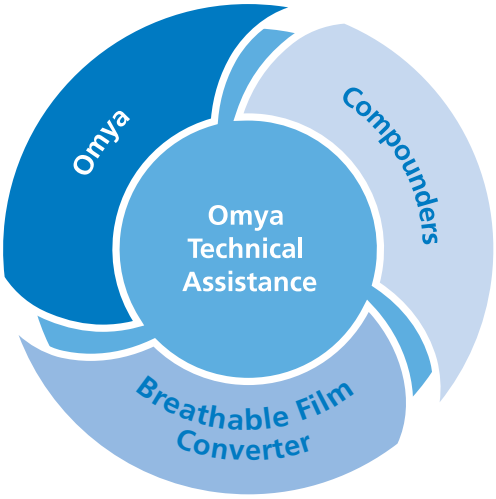


SEM- micro-graph of a breathable film in cross section.

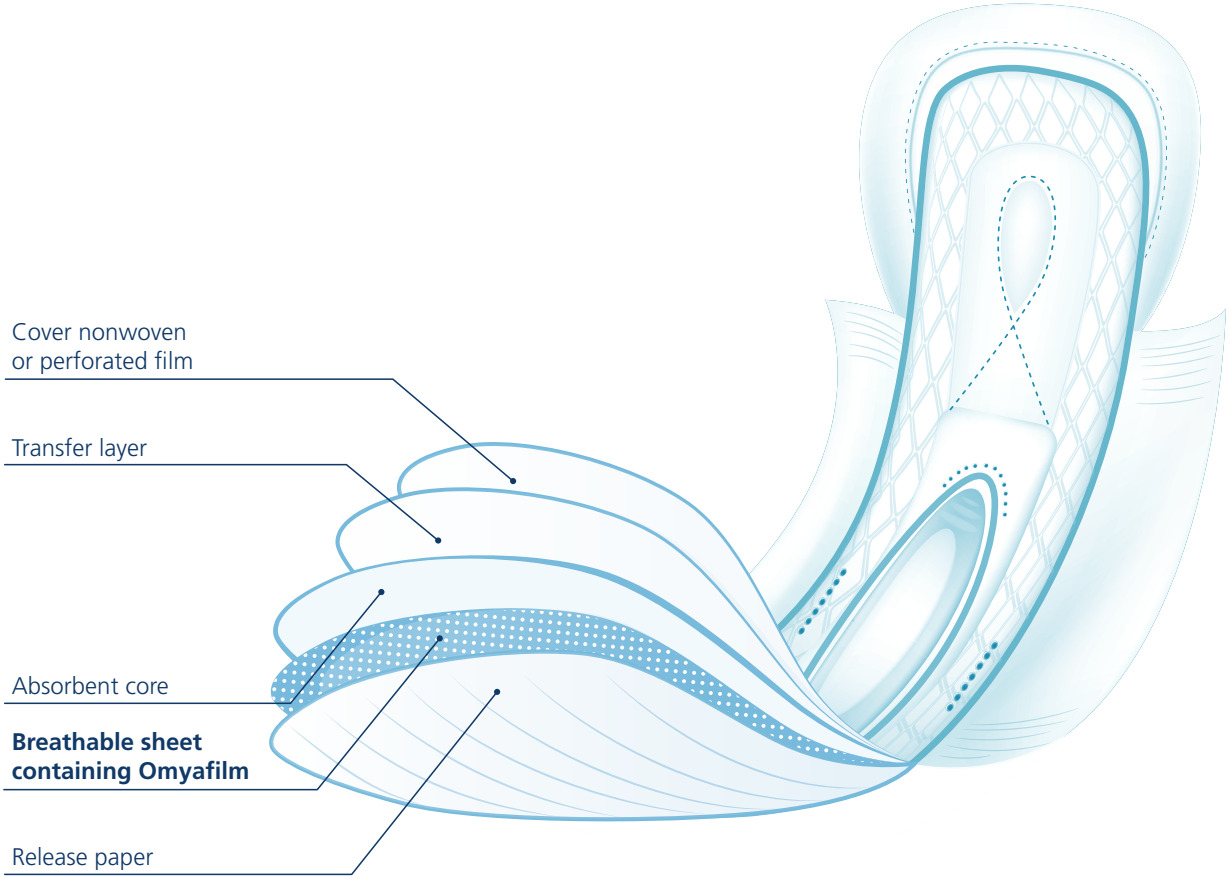
Omyafilm provides good dispersion and a homogeneous pore structure in breathable films.

Omya technical assistance

As the leading global producer of calcium carbonate for the polymer industry, Omya offers tailored made Omyafilm grades for breathable films covering the global market. We provide solutions with proprietary Omya technology for all regions and applications. Our technical experts support your development either on site, from our regional labs or with our MDO line. We focus on breathable film market growth by expanding our product offerings geographically as well as by developing solutions for future needs.



Films made with Omyafilm show excellent properties in membrane functions, mechanical properties, aesthetics and lamination even at very low grammage.



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