Breathable Films

Omya Calcium Carbonate for breathable film applications
About Omya

Omya is a leading global producer of industrial minerals – mainly mineral modifiers and pigments derived from Calcium Carbonate and dolomite – and a worldwide distributor of specialty chemicals. Founded in 1884 in Switzerland, Omya has a global presence extending to more than 175 locations in over 50 countries with 8,000 employees. The company provides a wealth of product solutions that contribute to our customers’ competitiveness and productivity in multiple industries such as Technical Polymers, Construction, Printing & Writing, Packaging, Food, Personal & Home Care, Pharmaceuticals, Agriculture, Forestry, Water and Energy.

Omyafilm® Calcium Carbonate in breathable films – excellent processing and performance

Omyafilm® Calcium Carbonates act as functional additives to provide the desired membrane properties in breathable film. Our advanced mineral processing technologies help to control the challenging process including compounding, film extrusion and further processing. We are happy to demonstrate our Carbonates’ 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 movement to lower grammage.
Benefits of Omyafilm® in microporous breathable films

Breathable films are generated by cast- or blown film, followed by stretching. Calcium carbonate initiates the formation of uniform cavities providing membrane properties. This requires high quality and well-defined Calcium Carbonates which Omya provides as Omyafilm® products.

Such films provide a cost-effective solution for moisture control in many applications such as baby diaper back-sheets, feminine hygiene, adult incontinence, roofing, house wrap and surgical gowns.

Key benefits

- Global coverage to serve all international markets
- Excellent compounding properties
- Long screen uptime
- Low die build-up
- Very low defect rates in films
- Optimized membrane function (WVTR, Hydrohead)
- High tear resistance and high puncture resistance
- High whiteness
- “State of the art” lab support
- Technical service on-site
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 adsorption as the weight increase from 8% relative humidity to 88% relative humidity at 38°C

Thermal stability measured as onset temperature TGA.
Omyafilm® features

- Tailor made 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 are crucial to achieve an optimal pore structure and hence control the breathability and ensure good mechanical properties.

The particle size distribution for Omyafilm® grades is therefore carefully engineered. A narrow diameter 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 perfect performance

Omyafilm® grades are designed to provide superior processing performance under standard manufacturing conditions and with standard formulations.

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

The 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 for creating 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.
Films made with Omyafilm® show excellent properties regarding membrane functions, mechanics, aesthetics and regarding printing and lamination even at very low grammage.
Omya Technical Assistance

Omya as the leading global producer of calcium carbonate for the plastics industry offers engineered Omyafilm grades for breathable films covering the global market. We offer solutions with proprietary Omya technology for all regions and applications. Our technical experts can support you either on site, from our regional labs or with our MDO line. We focus on breathable films by expanding our product offerings geographically as well as by developing solutions for future needs.

Household
Sanitary & Hygiene
Personal Care
Medical

Cover nonwoven or perforated film
Transfer layer
Absorbent core
Breathable sheet containing Omyafilm®
Release paper
We partner with the entire value chain to differentiate end products.
Omya Technical Polymer Applications

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