

PRESS INFORMATION

EMS system solutions for cost and weight savings in flexible films

EMS-GRIVORY, the leading specialist for high-performance polymers, is leader not only in the development and production of these polymers, but also in the development of innovative system solutions with customers throughout the world. Focus is on reducing costs and weight, usually through metal replacement. EMS-GRIVORY also offers unique solutions in the packaging sector.

The foil industry is under considerable pressure from high raw material costs, increasing environmental regulations and high energy prices. A key strategy to overcome these challenges is to reduce film thickness while maintaining or improving its performance. Grivory G21 from EMS-GRIVORY provides a way to reduce raw material quantities and production costs while contributing to environmental sustainability.

Grivory G21 is a highly viscous, amorphous copolymer with a high oxygen barrier that satisfies the requirements for direct food contact in the EU, USA and Asia. It is used for both mono and multilayer films. EMS-GRIVORY is the world leader with this specialty polyamide.

The following shows the potential cost savings and performance advantages that can be achieved through use of PA6 / Grivory G21 blends compared to PA6 or CoPA 6/66 in the production of flexible films.

Cost saving potential:

Using PA6 / Grivory G21 blends, the PA layer in a composite film can be reduced from 20 micrometers to 15 micrometers without compromising the barrier and thermoforming properties. As a result, costs can be reduced by up to 40% compared to films made using CoPA 6/66.

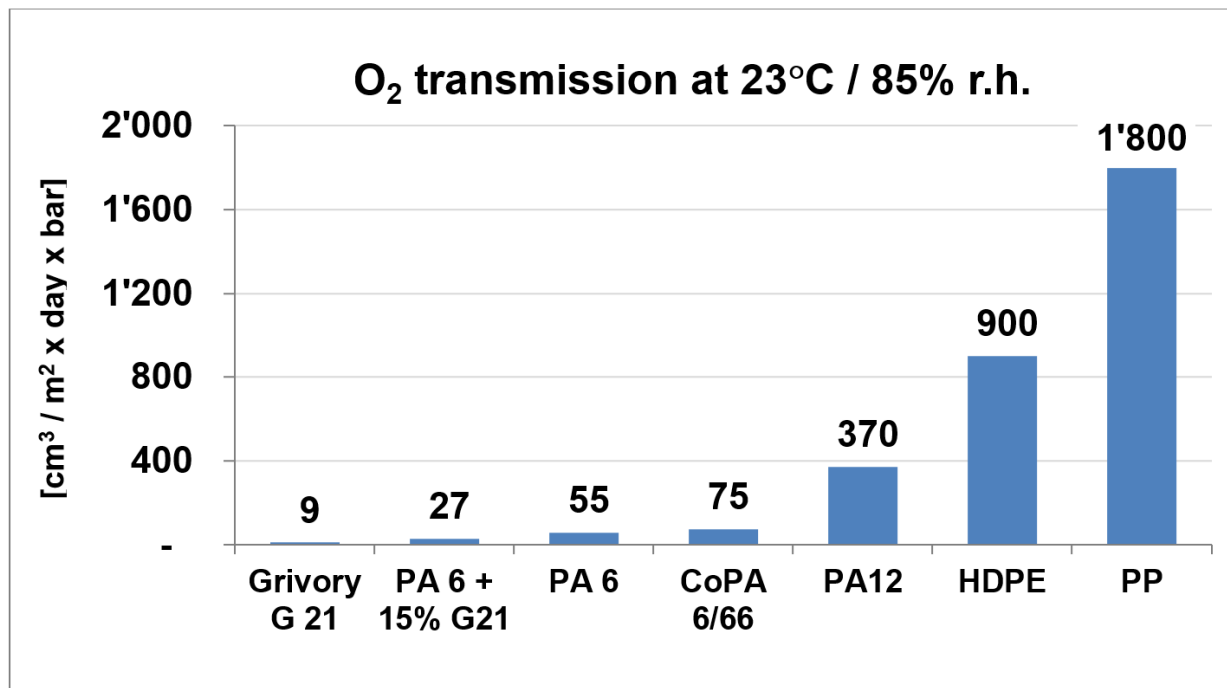
PA layer	PA layer thickness	Density	Weight / m ²	Price / m ²	Oxygen transmission 23°C/85% r.h. [cm ³ /m ² *day*bar]	
					50 mic	gem. PA Schichtdicke
PA6	20	1.14	22.8	65	55	135
CoPA 6/66	20	1.14	22.8	100	75	185
PA6 + Grivory G21 (85/15%)	15	1.15	17.2	60	27	90

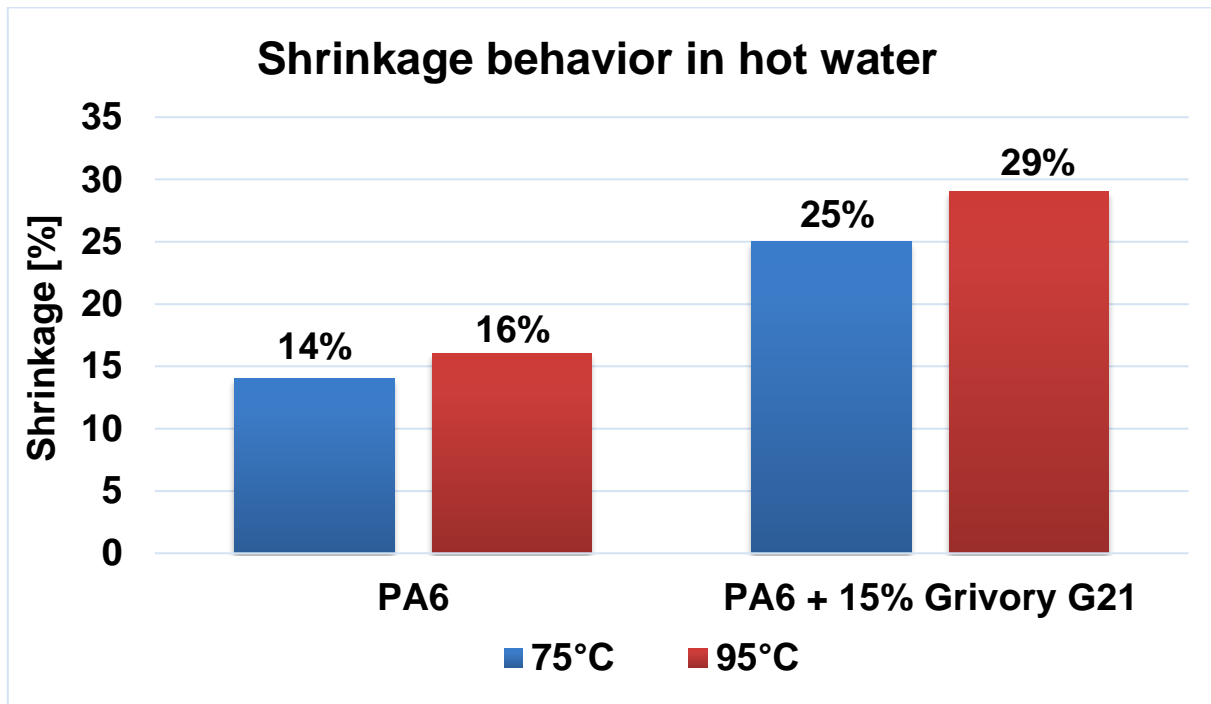
Performance advantages of PA6 / Grivory G21 blends:

- **Thermoforming:** Compared to PA6, PA6 / Grivory G21 blends enable an up to 30% less film thickness with the same corner thickness, which indicates optimized material distribution in the thermoforming process.
- **Shrink force:** By adding Grivory G21, the shrink performance can be increased by up to 80%. As a result, thinner PA6 / Grivory G21 blends can achieve the same shrink force as thicker PA6 films (see graph 1).
- **Oxygen and aroma barrier:** Compared to CoPA 6/66, PA6 / Grivory G21 blends have a higher oxygen barrier (see graph 2) and aroma barrier, which is critical for applications where product shelf life and product integrity are important.
- **Gloss and transparency:** Films made from PA6 / Grivory G 21 blends offer 20% higher gloss and 25% higher transparency - ideal for consumer-oriented packaging where appearance is important.
- **CO₂ footprint and waste reduction:** Use of PA6 / Grivory G21 blends reduces CO₂ emissions from the PA layer by up to 25% and reduces waste, supporting the industry trend towards sustainability.

Summary:

Reducing film thickness with PA6 / Grivory G21 blends provides a significant opportunity to achieve cost savings and improved performance in flexible films. In the current market environment, the combination of reduced material costs, improved thermoforming, shrink and barrier properties as well as increased sustainability, make this an extremely attractive approach. As the industry evolves, introduction of advanced material systems such as PA6 / Grivory G 21 blends will be critical for maintaining competitiveness and satisfying growing demand for environmentally compatible packaging solutions.





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