



# Polyethylene Metallocene

## Film for Deep Freeze Packaging

Even at low temperature Total Petrochemicals Metallocene M 2710 EP allows down-gauging while keeping outstanding properties



Total Petrochemicals metallocene grades M 2710 EP and M 3410 EP allow down-gauging while fulfilling all the technical requirements of Deep-freeze packaging:

- Outstanding Shock absorption at low temperatures (-18°C to -40°C)
- High sealing force
- Very Glossy films
- Excellent Organoleptics (no odour, no taste)
- Best toughness / stiffness balance



Moreover Total Petrochemicals offers a range of products to find the best combination of properties in monolayer or co-extrusion

- Metallocene PE (mPE)
- EVA
- LDPE
- MDPE & HDPE

# Food cold chain

Deep freeze packaging technical requirements are critical to ensure an optimum process in the food cold chain. Specifically, packaging must be designed to resist to impact at temperature as low as  $-40^{\circ}\text{C}$ . The low temperatures ensure optimum food preservation and longer food shelf life.

## Testing method

At Total Petrochemicals R&D facilities specific test based on Falling Weight impact (ISO 7765) has been adapted to PE film needs for Deep Freeze requirements.

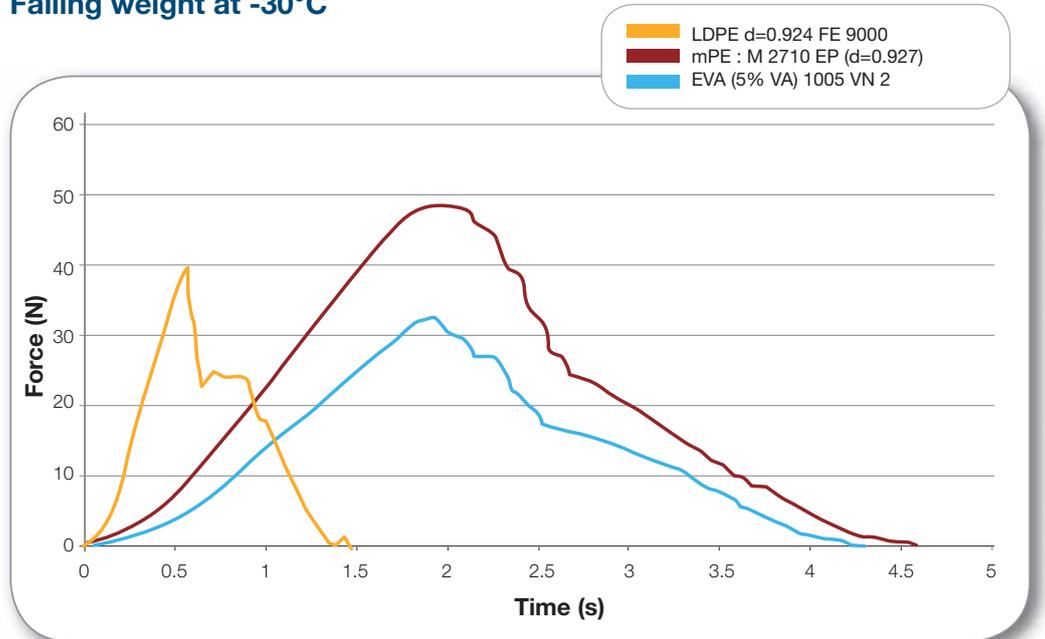


## Metalocene Performance

Metalocene grade M 2710 EP shows better shock absorption compared to EVA 5% VA or LDPE at lower densities. This feature is the key starting point to down-gauge your film while:

- Optimising film cost
- Fine-tuning film performance
- Bringing innovation and differentiation
- Reducing carbon footprint - compared to thicker LDPE films

### Falling weight at $-30^{\circ}\text{C}$



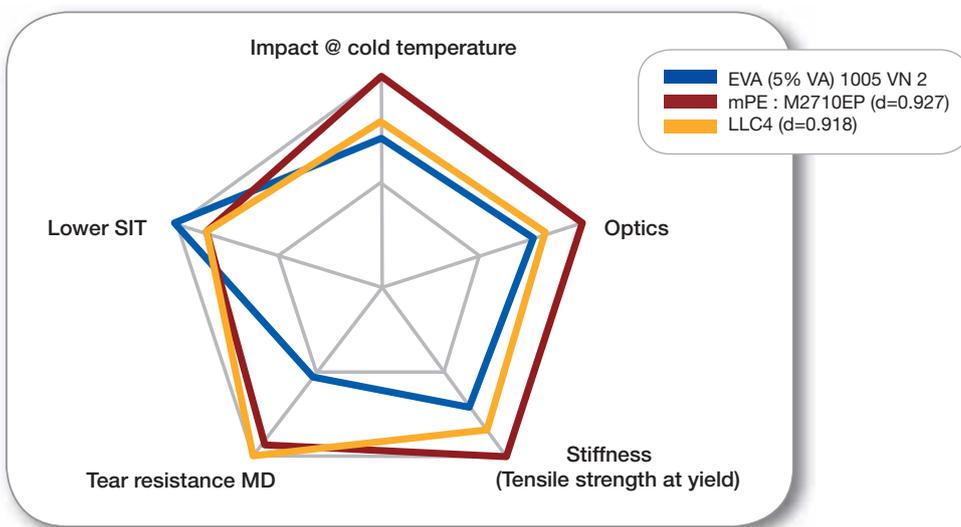
40  $\mu\text{m}$  blown film



## Combination of properties thanks to Total Petrochemicals product portfolio

Total Petrochemicals offers a range of products to be used in household and automatic deep-freeze markets.

Compared to traditional EVA / LDPE films, metallocene grade M 2710 EP brings higher stiffness and better gloss while upgrading low temperature shock absorption performance. Metallocene M 2710 EP is the ideal blending partner while EVA ensure low sealing initiation temperature to maintain high converting speed in the automatic packaging process.



In the future deep freeze market will continue to grow because it is perceived as a convenient and healthy meal solution. Major players on Deep Freeze Food consider flexible plastic packaging as the most innovative solution that brings greater possibilities to consumers. Total Petrochemicals plays an important role in this market with metallocene PE grades.

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