



# Multilayer Mono-material Packaging

## MULTILAYER POLYOLEFIN-BASED COMPOSITE PACKAGING WITH TAILORED PROPERTIES

### KEY WORDS

MONO-MATERIAL  
MULTILAYER FILMS,

RECYCLABLE,

LIGHT BARRIER  
PROPERTIES

### DESCRIPTION

Development of mono-material multilayer polypropylene films incorporating talc- and kaolinite-filled layers. The resulting films improve UV and visible light barrier performance, increase stiffness and thermal stability, while maintaining mechanical strength and gas barrier properties. Designed as a recyclable alternative to conventional multi-material packaging for photosensitive products.

### POTENTIAL BENEFITS OR IMPACTS

Compatible with conventional polyolefin processing technologies. Facilitates mechanical recycling by eliminating multi-material structures.

Reduces waste generation through design for recyclability.

Supports circular economy strategies within polyolefin value chains.

### TECHNOLOGY MATURITY LEVEL (TRL)

TRL 4: laboratory validation

### AREA OF APPLICATION

Packaging

Photosensitive products

Plastic recycling

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