



## **Polypropylene Masterbatch with Graphene Oxide (MB-PP/GO)**





## Description

The MB-PP/GO obtained through the extrusion process, from functionalized graphene oxide (GO) and Profax PL835N, a high-fluidity propylene homopolymer with a narrow fiber-grade molecular weight distribution, is part of a new additive Highly effective nanotechnology to improve the mechanical, thermal and antimicrobial properties of polypropylene (PP).

## Applications

MB-PP/GO is a material with great opportunities for technological application, designed for use in spundbond lines and production of low denier filaments, in fast-cycle and thin-wall injection processes.

## Advantages

The incorporation of low percentages of MB-PP/GO during the processing of virgin or recycled PP will provide important improvements in the properties of the final material. Among the benefits it offers are the following:

- Increase in elastic modulus
- Greater resistance to tension, deformation, compression and impact
- Greater thermal stability
- Increased resistance to UV rays

**Note:** The benefits described are subject to tests carried out by each user and do not depend solely on the use of MB-PP/GO, but on its correct handling, as well as the quality of the raw materials used additionally during the transformation process.



## Physical and technical properties

Property	Worth	Units
Density	0.9	g/cm <sup>3</sup>
Melt Flow Rate (MFR)	35	g/10 min
Melting temperature	180	°C
Extrusion speed	120	rpm
L/D ratio of extruder	40	

## Dosage

The recommended dose is between 1-2% by weight with respect to the base polymeric matrix of virgin or recycled PP, depending on the needs of each product.

## Appearance

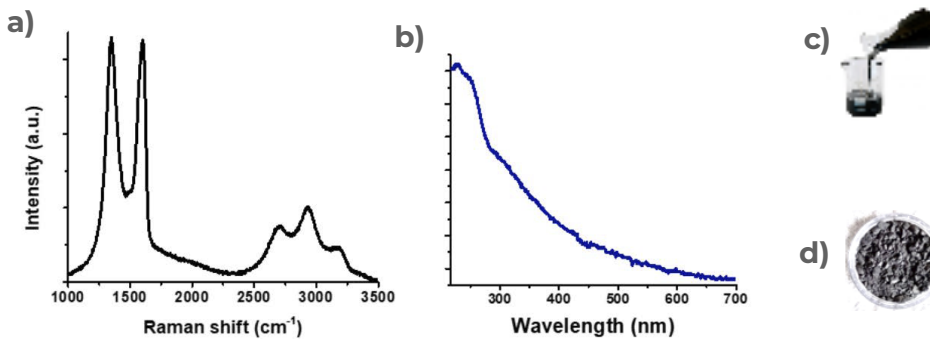
Its external appearance is of a granulated material for greater ease of dosing and processing.  
Its black color is due to the presence of graphene oxide and does not contain additional dyes.



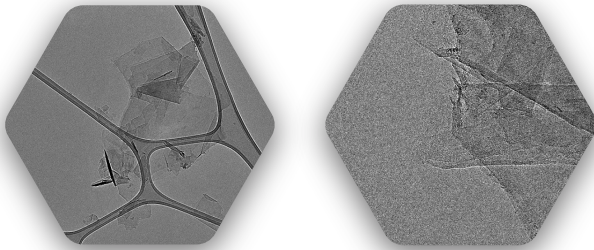
## Important aspects of use in handling and processing.

MB-PP/GO may slightly tint the final product to a smoky hue. The user is recommended to carry out tests during and after the transformation process in order to determine the appropriate dose before the complete application according to the conditions and characteristics of the final product.

## Characterization of graphene oxide present in MB-PP/GO



a) Raman spectrum of the GO. b) UV-visible spectrum of GO.  
c) GO images in dispersion and d) GO powder.



High Resolution Transmission Electron Microscopy (HRTEM) images of the GO. Characterization equipment. TEM JEOL JEM-2100. Energy Dispersive Spectroscopy (EDX/EDS), Oxford, Instruments.

## Additional information

### Security and health

Under normal handling conditions, MB-PP/GO does not present toxic hazards in contact with the skin. Contact with molten polymer should be avoided; the use of personal protective equipment such as safety glasses and gloves is a safety requirement for personnel who could come into contact with the material during its melting and processing.

## Storage

MB-PP/GO should be stored in a dry place at room temperature. Like most polymers, MB-PP/GO burns. They are difficult to ignite, but are defined as "combustible" although not as "highly flammable". Reasonable precautions must be taken to ensure the absence of strong oxidizers, as well as to avoid sources of ignition in the tanks and storage areas. If large amounts of material are to be stored, good housekeeping of the area must be adhered to including no dust, clear access routes, sprinkler system, etc.

The standards and regulations in force in the place of application in terms of Hygiene, Safety and Environment must be complied with.



## Presentation

MB-PP/GO is stored in 25 kg bags.

## Expiration

Shelf life of 5 years in good storage conditions and in its original packaging.

## Legal note

The information contained in this data sheet is provided in good faith and is valid only for the product to which it refers.

The information is not intended to be exhaustive and is based on the current knowledge and experience of Energeia Fusion, S.A. de C.V., as long as the product is properly stored, handled and applied under normal conditions and in accordance with the recommendations expressed herein. Due to the variability of materials, working conditions of each user and purpose of use, our guarantee is limited solely to the quality of the supplied product.

It is advisable to carry out the relevant tests with the product and determine its suitability before its final application. Energeia Fusion, S.A. de C.V., is not responsible for any damage that may be caused by mishandling the product. For more information contact [contact@graphenemex.com](mailto:contact@graphenemex.com).

Code	I-ENER-8.3
Version	0
Revision	03-01-22

