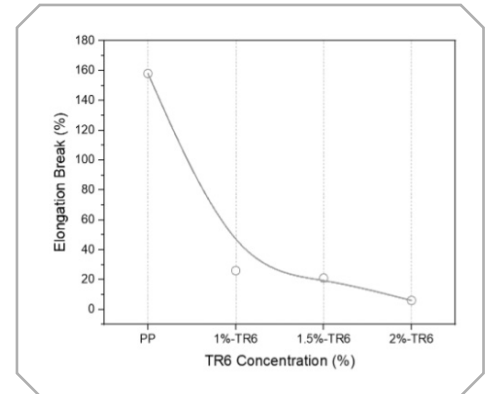
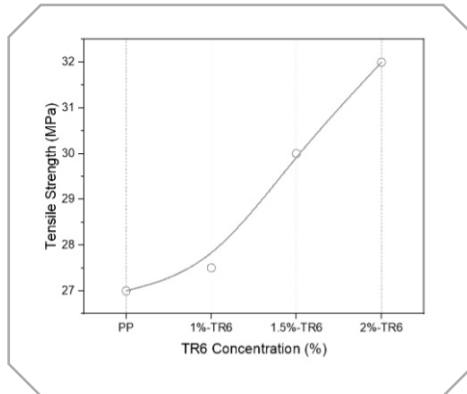
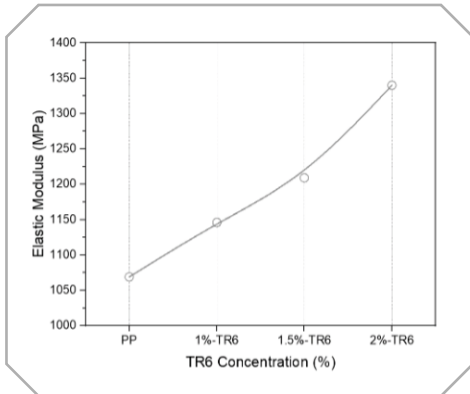


## General Description

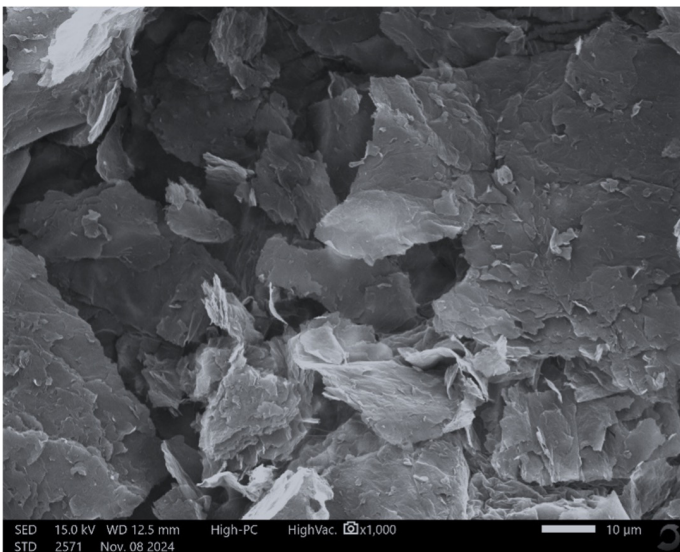
AeroPowder-TR6 is a graphene-based powder with high surface area. This material is specifically engineered to enhance dielectric properties, mechanical strength, and thermal properties in various polymer applications. AeroPowder -TR6 can be utilized in different concentrations depending on the specific application requirements.

## Physical Properties

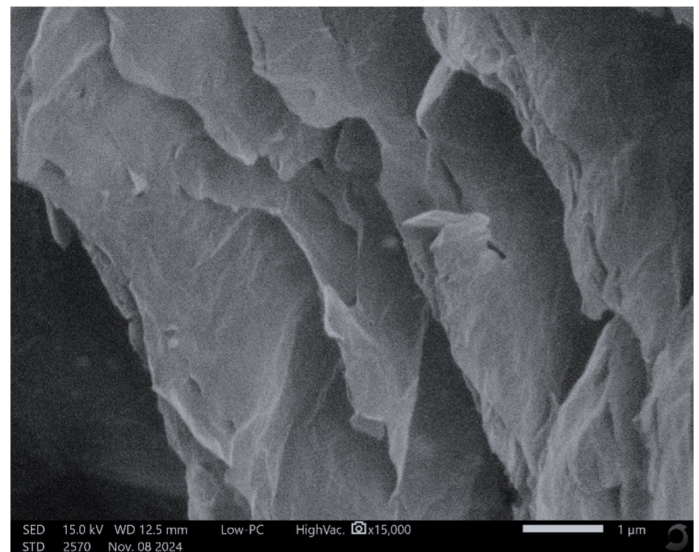
**Particle Size:** 14,1  $\mu\text{m}$   
**Physical Appearance:** Black-colored powder



## SEM IMAGES



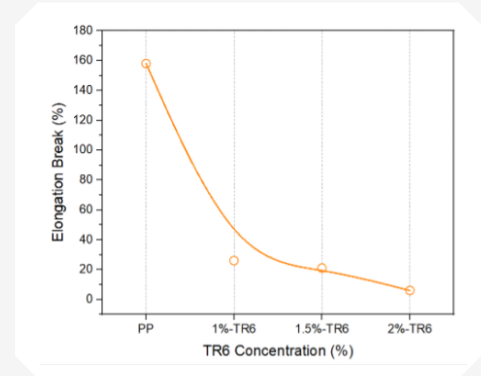
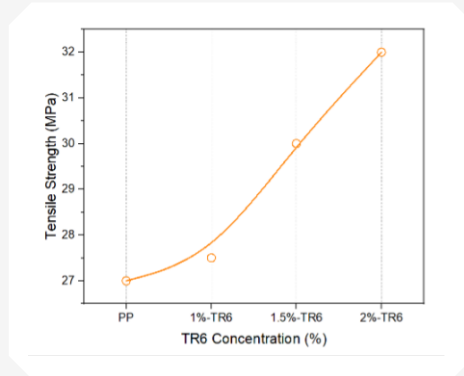
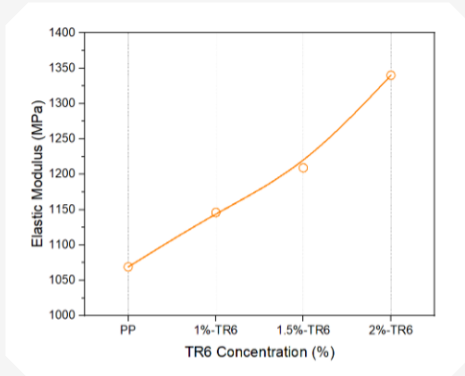
SEM Image of Sample AeroPowder- TR6.  
Magnification: 1000x, Scale bar: 10  $\mu\text{m}$



SEM Image of Sample AeroPowder- TR6.  
Magnification: 1500x, Scale bar: 10  $\mu\text{m}$

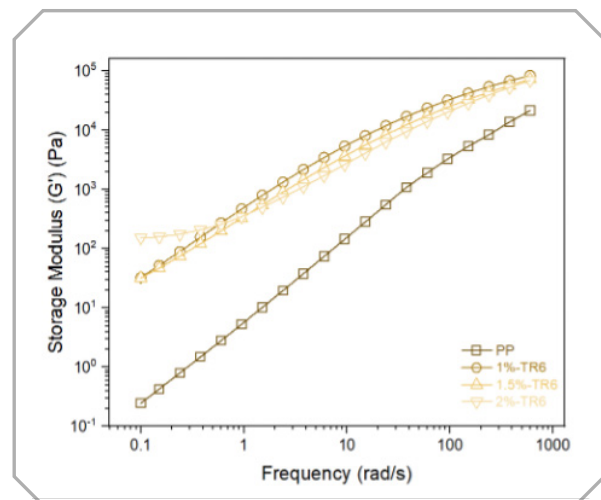
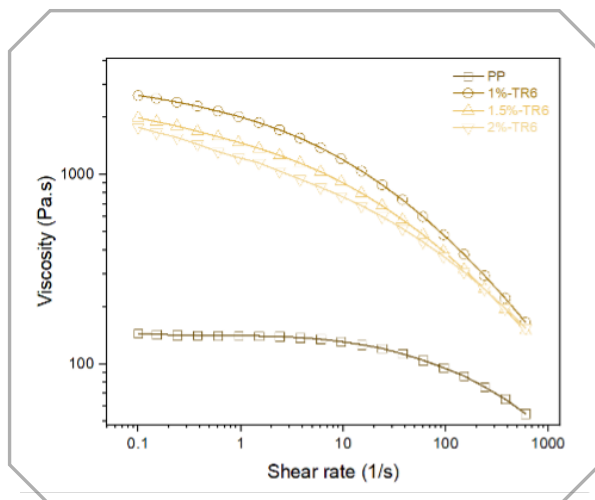
### Effect of AeroPowder-TR6 on Mechanical Properties

AeroBlend-TR6 can be used as a functional filler to improve mechanical performance of the polymers. The tensile test results of PP samples containing AeroPowder-TR6 at different concentrations are presented below. Even at a usage level of only 2%, an increase of approximately 30% in the elastic modulus has been observed. It is expected that increasing this concentration will result in an even more significant improvement.



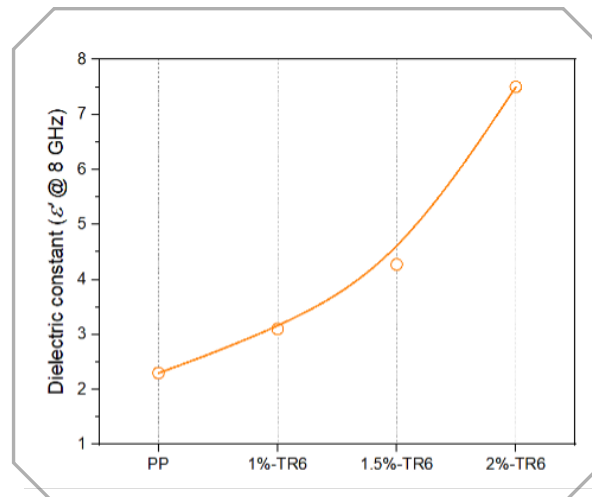
### Effect of AeroPowder-TR6 on Rheological Properties

- AeroPowder-TR6 is a functional additive with a high surface area.
- While a high surface area often increases viscosity, this effect remains lower compared to other nano-carbons due to its unique layered structure, which acts as an external lubricant.
- Thanks to this layered structure, it can be processed efficiently in extrusion or injection molding systems without generating significant torque.
- Rheological percolation is achieved at approximately 2%, making this an ideal concentration for many applications.



## Effect of AeroPowder-TR6 on Dielectric Properties

- Due to its highly porous structure and unique characteristics, AeroPowder-TR6 forms many micro capacitor-like structures within a polymer composite.
- As a result, it significantly enhances permittivity values even at low additive concentrations.
- The changes in dielectric parameters with the incorporation of different concentrations of AeroPowder-TR6 into PP are summarized below.



## Processing Guidelines

For preparing AeroPowder-TR6 composites with polymers:

- Use of a volumetric or gravimetric side feeder is recommended.
- If feeding through the main hopper, applying 0.5-1.5% liquid wax to the polymer before preparing the dry blend (polymer + AeroPowder-TR6) is advised.
- AeroPowder-TR6 powder should be added and thoroughly mixed before extrusion.
- This method ensures that the AeroPowder-TR6 powder adheres uniformly to the polymer granules, preventing premature entry into the extruder barrel.
- Use of a twin-screw extruder is recommended, preferably with an L/D ratio of 25 or higher.

**Important Notice:** The results presented in this document may vary depending on polymer type, processing equipment, and testing devices used.

## Processing Guidelines

- AeroBlend-PLAMB does not require any additional drying or special feeding methods.
- It is suitable for use at standard PLA processing temperatures.
- This masterbatch is compatible with PLA and its derivatives.
- For optimal results, a twin-screw extruder is recommended for preliminary mixing.

These parameters serve as general guidelines. Process parameters should be adjusted according to specific equipment and application needs. The values in this datasheet are based on typical measurements conducted by us and should not be considered definitive product specifications. Aerofen reserves the right to modify the content and format of this document at any time. Customers are responsible for verifying and qualifying the product for their specific processes, ensuring compliance with regulatory requirements and potential patent issues.



Are you curious to learn more about  
**AeroBlend® MB Products** or a possible collaboration?

Contact our team at [info@aerofen.com](mailto:info@aerofen.com)