

GRAPHISTRENGTH® C M14-25

POLYPROPYLENE MASTERBATCH

TECHNICAL DATA SHEET

Description:

Graphistrength® C M14-25 is a Multi Wall carbon Nanotubes (MWCNT) concentrate that is used as an additive for polypropylene based materials. It contains 25 wt% of MWCNT perfectly dispersed in polypropylene matrix. Graphistrength® C M14-25 contains no processing aid or other additives.

Graphistrength® C M14-25 is well suited for the production of semi conducting and conducting polyolefin based compounds.

Graphistrength® C M14-25 is provided in pellet form with the following key characteristics:

Property	Method	Unit	Typical value ⁽¹⁾
MWCNT content	TGA	wt%	25.0 ⁽²⁾
Moisture content	Karl-Fisher	wt%	0.1-0.5

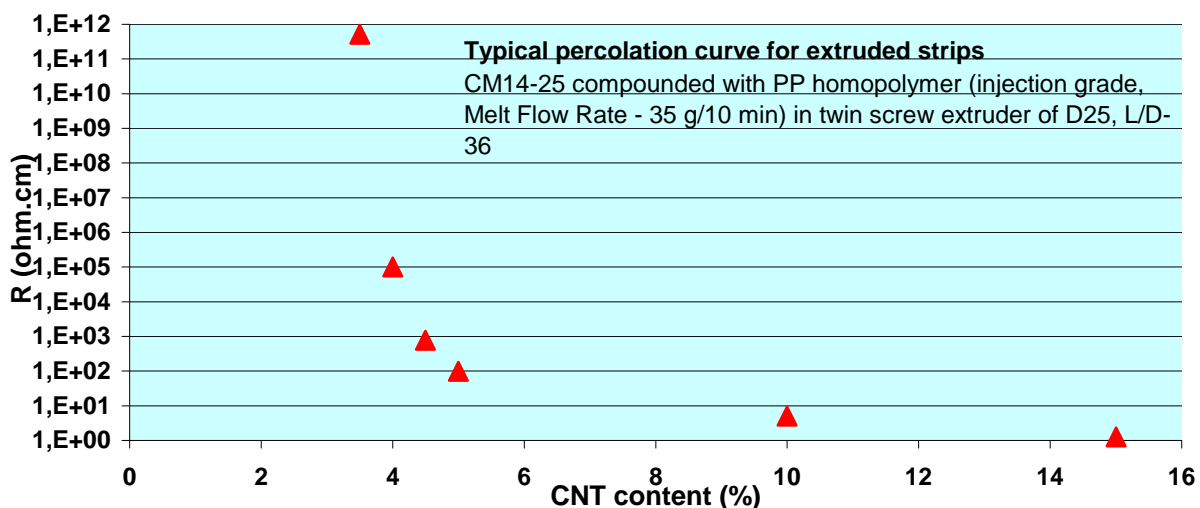
⁽¹⁾ Data not intended for specification purposes

⁽²⁾ Graphistrength® C M14-25 contains MWCNT with purity > 90 %

Benefits and applications:

Graphistrength® C M14-25 is generally diluted in PP homopolymer (PPH), PP copolymers (PPC) as well as in PP based polymer blends and PP contained composites. Typical final MWCNT loadings in the final compounds depend on the host matrix characteristics, the targeted performances, processing methods and conditions.

The typical electrical resistivity that can be achieved is in the range 1 – 10⁸ ohm.cm as shown in the percolation plot below. The ESD properties obtained with Graphistrength® C M14-25 are outstandingly consistent and uniform.



The resistivity is also depending on melt viscosity and composition of the host matrix and process conditions. The percolation curve is normally shifted to lower CNT content for **foams, molded articles, compounds with mineral fillers, TPV based formulations**, articles obtained by **rotomolding**. Higher loading of CNT for similar resistivity is needed for **films**, extruded layers as in **cables, pipes**, fluid lines, **textile yarns** etc.

Thanks to their low loading, and very small size, Graphistrength® MWCNT offer several additional advantages: smooth surface aspect, low increase in density and high preservation of the neat matrix's ductility and mechanical properties, while enhancing thermo-mechanical properties.

Dilution and processing guide

For optimal dispersion in **high flow rate polypropylene**, the use of a twin screw co-rotative extruder of L/D > 25 is recommended. The typical process temperature 220-230°C is recommended for PPH and PPC.

In the case of alloys with elastomers, like **TPV**, we recommend to apply a moderate share, a process temperature around 200°C and maintain the temperature of the dye below 230°C.

Packaging and Storage:

Graphistrength® C M14-25 is provided in lined bags of 5 kg or 25 kg net. The product is indefinitely stable in its unopened original packaging when stored at normal temperatures.

Graphistrength® C M14-25 may absorb water if exposed for long periods of time to the atmosphere. In this case, the pellets must be dried at 80 °C for 2 hours before using.

Safety and Handling:

Graphistrength® C M14-25 is provided in pellet form where MWNT are strongly embedded.

Graphistrength® C M14-25 doesn't present any specific health risk when using in thermoplastic processing. Consult the product SDS and MSDS for additional information on properties, hazards and handling.

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