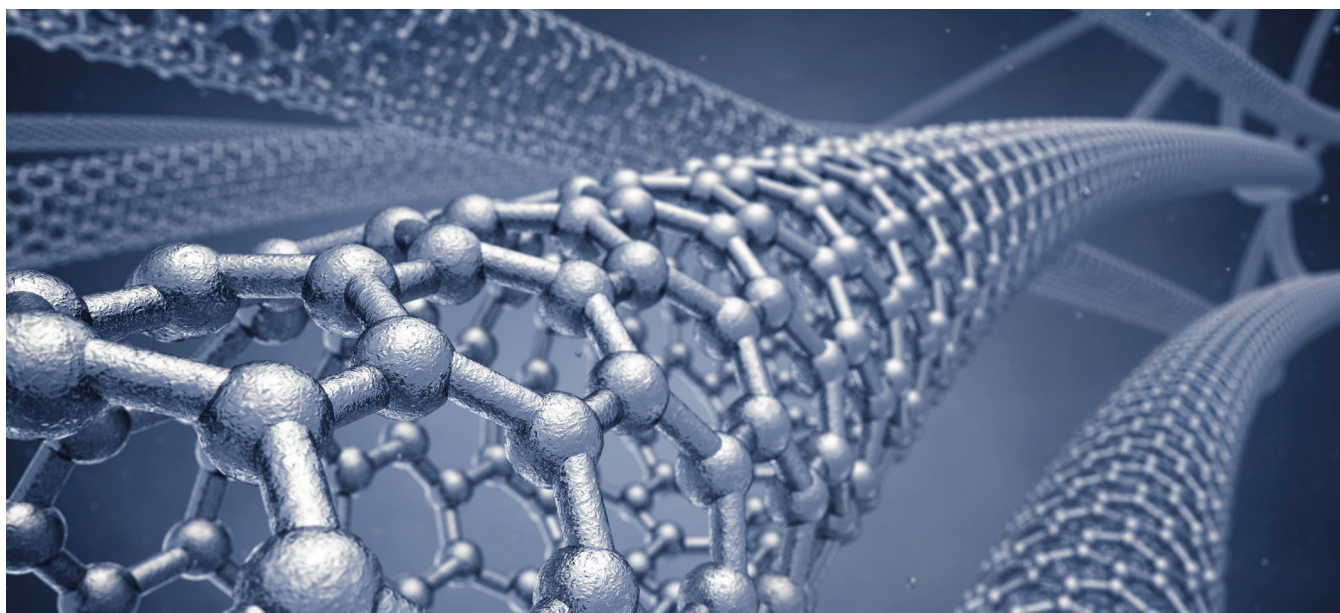


Insight™ PANC03-PP CNT Masterbatches

Insight™ PANC03 is a Polypropylene based CNT masterbatch with a 15% by weight loading of unique CNT technology that improves physical properties as well as electrical conductivity at various levels with various loadings.



GENERAL	SI METRIC	ENGLISH	TEST METHOD
SPECIFIC GRAVITY	0.94	0.94	ASTM D792
MELT POINT	166 °C	330 °F	ASTM D3418

PROCESSING NOTES

Unless otherwise stated, all data was generated from typical values of injection molded samples.

These data are typical and not to be construed as a specification.

Drying: While PP is not hygroscopic and does not inherently absorb moisture It is recommended to dry the masterbatch for 2-4 hours at 150 °F (60 °C) using a desiccant air dryer.

RECOMMENDED USAGE:

Recommended usage levels are 10-30% by weight of the Masterbatch to achieve 2-7% CNT loading.

The information in this Data Sheet are provided for reference only and are based on preliminary data. Final Data Sheet properties will be updated as soon as possible. This information is not a substitute for user testing to determine fitness for use and the user is responsible for ensuring safe and lawful use of the product. No express or implied warranties are provided. No representations are made, and no liability is assumed arising from or relating to the product.

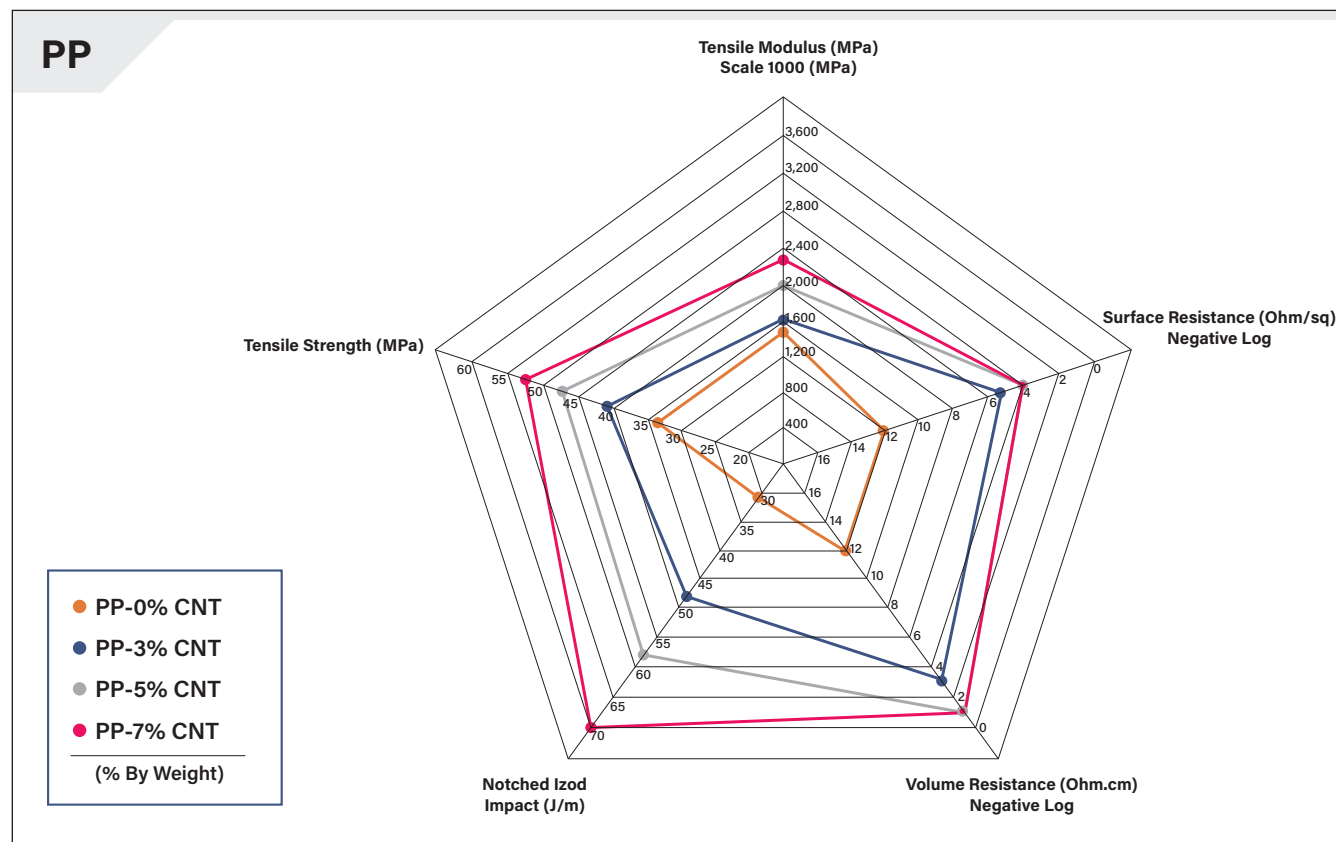
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Insight™ PANC03-PP CNT Masterbatches

The data below summarizes the mechanical and electrical properties of Insight Polymers PANC03 Polypropylene 15% Carbon Nanotube (CNT) Masterbatch that has been let down to 3%, 5%, and 7% total CNT loading by weight. The addition of CNT's results in improvements to Tensile Modulus, Tensile Strength, and Electrical Resistance with minimal effect to Impact Strength. The data summarized in the table and multi-axis spider chart below are based on injection molded ASTM test specimens.

POLYMER (% BY WEIGHT)	PP - 0% CNT	PP - 3% CNT	PP - 5% CNT	PP - 7% CNT
TENSILE MODULUS (MPa)	1500	1600	2000	2300
TENSILE STRENGTH (MPa)	34	41	47	51
ELONGATION@BREAK (%)	30	8	6	5
NOTCHED IZOD IMPACT (J/m)	31	48	59	70
UN-NOTCHED IZOD IMPACT (J/m)	1200	540	500	470
SURFACE RESISTIVITY (Ohm/sq)	1E+12	<1E+05	<1E+04	<1E+04
VOLUME RESISTIVITY (Ohm.cm)	1E+12	<1E+03	<1E+01	<1E+01



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