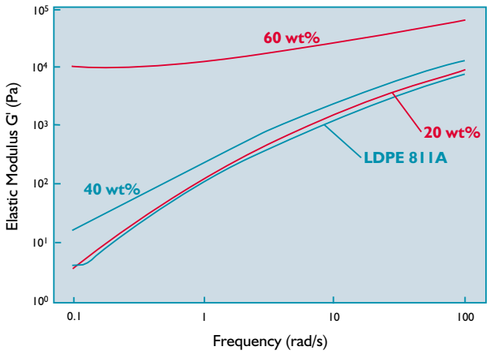
YIELD STRESS

One consequence of the high carbon black loading can be yield stress or the minimum stress to induce flow. Yield stress results from the formulation of a carbon black network that leads the material to behave as a solid. In this chart the elastic modulus data show that a 40% Thermax concentrate behaves as a liquid even at low shear rates. Although the 60% concentrate shows solid-like behaviour at low shear, the data indicate it will flow under typical extrusion conditions.



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cancarb

THERMAX IN PLASTICS

INCOMPARABLE CARBON BLACK PERFORMANCE FOR UNIQUE NEEDS

Thermax thermal carbon black is known for its purity, quality and problem solving capabilities. It is produced from natural gas, the cleanest burning fossil fuel. This not only ensures a high degree of consistency and purity but also a product manufactured to the most demanding specifications in the industry. Cancarb's ISO certified quality management system assures you that Thermax is made under controlled conditions time after time.

CARBON BLACK IN PLASTICS

Carbon black is an important and versatile ingredient in plastics. It can provide colour, opacity, protection from ultra violet and electrical conductivity. Thermax is unique among carbon blacks in its ability to deliver low viscosity concentrates and parts with very low electrical conductivity.

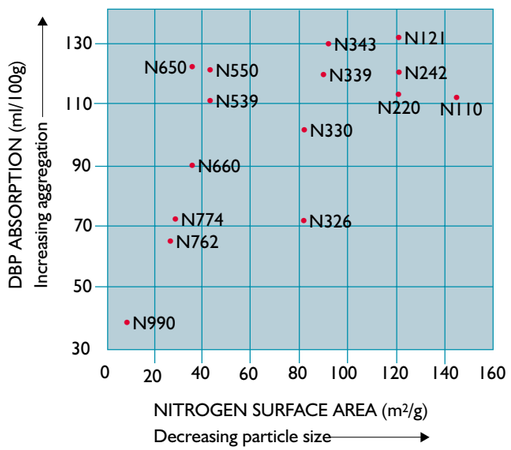
PERFORMANCE

Carbon black performance in plastics is largely determined by two key properties:

- Particle size (as measured by nitrogen surface area)
- Degree of permanent aggregation of particles or structure (as measured by DBP absorption)

As shown is the chart below, a wide spectrum of carbon blacks is available. The unique nature of Thermax is readily apparent... ***the largest particle size and lowest structure carbon black by a significant margin.***

CARBON BLACK SPECTRUM



PARTICLE SIZE & PERFORMANCE

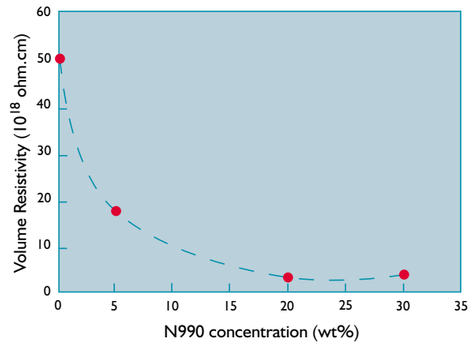
Many important properties of plastic are influenced by the particle size and structure of carbon black.

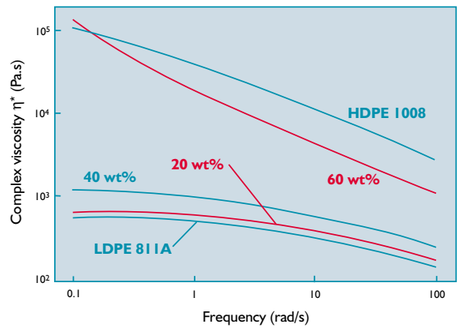
LARGE PARTICLE		SMALL PARTICLE
Lower	Jetness	Higher
Lower	Tint Strength	Higher
Lower	UV Protection	Higher
Lower	Electrical Conduct	Higher
Lower	Viscosity	Higher
Better	Dispersibility	**Worse**

STRUCTURE & PERFORMANCE

LOW STRUCTURE		HIGH STRUCTURE
Higher	Jetness	Lower
Higher	Tint Strength	Lower
Lower	Electrical Conduct	Higher
Lower	Viscosity	Higher
Worse	Dispersibility	**Better**

For low conductivity black plastic parts and low viscosity easy processing concentrates, Thermax is incomparible.





ELECTRICAL PROPERTIES

As the largest particle, lowest structure black available, Thermax N990 Medium Thermal Carbon Black makes the least contribution to electrical conductivity of the plastic. This benefit is clearly evident in the graph which shows the volume resistivity of polyethylene as a function of N990 concentration.

RHEOLOGICAL PROPERTIES & PROCESSING BENEFITS

Thermax offers excellent dispersion over a wide range of processing conditions. Its large particle size and low structure also lead to low viscosity in black concentrates. Even as a partial substitute for higher colour blacks, Thermax can improve productivity by allowing increased throughput without capital investment. Additionally, operating cost for electricity may be reduced. The amount of substitution is only limited by colour considerations.