

TECHNICAL DATA SHEET

SWCNT Pre-Dispersion for Thermoplastic Modification

Product code: CTIP-01

Revision 2026-09

Description

CTIP-01 is a 10 wt% SWCNT pre-dispersion (masterbatch) in a thermoplastic-compatible carrier. Proprietary dispersion technology places the nanotubes uniformly and stably in the carrier so they can be dosed directly on existing compounding lines. A trace SWCNT addition forms a continuous, permanent three-dimensional conductive network that delivers efficient long-term antistatic/ESD performance with minimal impact on base-resin mechanical properties. Especially suited to PA66, PA66+GF, PA6 and PA6+GF; adaptable to other thermoplastic substrates. Base SWCNT feedstock: 1–2 nm outer diameter, ≥98% purity by TGA (see CTI powder TDS for full grade specification).

Advantages

- High adaptability: no significant changes to existing formulations or processing equipment.
- Low-dose antistatic performance: extremely low addition, minimal impact on mechanical properties of the base material.
- Long-term conductivity: significantly reduces surface and volume resistivity, giving permanent antistatic properties.
- Eliminates conductive hotspots, carbon precipitation and performance decay typical of carbon black; enables colored and transparent antistatic parts.
- RoHS compliant and suitable for food-contact plastic regulations.

Technical Parameters

Property	Specification
Appearance	Black powder
SWCNT content	10.0 wt%
Softening point	75–85 °C
Flash point	>200 °C
Bulk density	~0.45 g/cm ³
Particle size	Residue on 30-mesh sieve <1%

Application Examples

System	CTIP-01 addition (%)	Net SWCNT (%)	Surface resistance (Ω)
PA6 + GF30	0.5–1.0	0.05–0.1	10 ⁹ –10 ¹⁰
PA6 + GF30	1.0–2.0	0.1–0.2	10 ⁷ –10 ⁹
PA66 + GF30	0.5–1.0	0.05–0.1	10 ⁷ –10 ⁸
PA66 + GF30	1.0–2.0	0.1–0.2	10 ⁶ –10 ⁷

GF30 = 30 wt% glass fiber in the resin pellet, balance PA6/PA66. Results vary with formulation, raw-material lot, equipment and environment; confirm with production trials.

Recommended Evaluation

- Initial screen: dose at 0.05%, 0.10% and 0.15% net SWCNT of total weight (0.5%, 1.0%, 1.5% CTIP-01) and record surface resistance and mechanical properties at each level.
- Optimal dosage: because dosage and effect depend on formulation, raw materials and processing temperature, run repeated multi-batch trials to fix the addition level and conditions for your product.

Applicable Scenarios

Food packaging, engineering plastic pipes, aerospace components, consumer electronics, automotive parts, explosion-proof equipment and other fields with strict antistatic requirements.

Ordering, Packaging & Documentation

- Available from evaluation quantities through multi-ton annual supply agreements; ISO 9001 certified production.
- Each lot ships with a representative Certificate of Analysis; Raman, TGA, SEM/TEM data available on request.

All values are representative of typical production and do not constitute a lot-specific guarantee. Certificates of analysis accompany each shipment.

- Safety Data Sheet available at cheaptubes.com/nanomaterial-msds-safety-sheets.

Values are typical unless stated as limits. Application results depend on formulation, equipment and process conditions; confirm with your own trials. Cheap Tubes Inc. makes no warranty of fitness for a particular purpose beyond the published specification.

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