

TECHNICAL DATA SHEET

SWCNT Pre-Dispersion for Rubber Elastomer Modification

Product code: CTIRN-01

Revision 2026-09

Description

CTIRN-01 is a 5% SWCNT paste in a specialized eco-friendly dispersing oil for natural rubber, polybutadiene rubber and similar general-purpose and specialty rubbers. A stable three-dimensional SWCNT network forms rapidly in the rubber matrix, significantly enhancing mechanical properties while simultaneously improving thermal conductivity and antistatic performance. No additional dispersants are required and no changes to existing formulations or processes are needed. Base SWCNT feedstock: 1–2 nm outer diameter, ≥98% purity by TGA (see CTI powder TDS for full grade specification).

Technical Parameters

Property	Specification
Appearance	Black paste
Solid content	5%
Dispersion medium	Specialized eco-friendly dispersing oil
Storage stability	12 months sealed at room temperature

Application Effect (Representative Data)

- Mechanics and heat conduction (tire modification, 0.3% net SWCNT vs base compound): up to +22% tensile strength, +57% tear strength, +47% thermal conductivity; elongation, hardness and wear resistance maintained or improved.
- Antistatic: at 1–3% addition, surface resistance drops from $10^{12} \Omega$ to 10^6 – $10^7 \Omega$.
- Formulated to minimize free carbon particle release; low migration.

Recommended Evaluation

- Initial screen at 2%, 4% and 6% CTIRN-01 by total compound weight.
- Optimal dosage must be determined on production equipment; results above are valid for the test formulation and may deviate in other rubber systems.

Application Scenarios

Tire tread, rubber seals, shock-absorbing components, adhesives, antistatic adhesive sheets, industrial conveyor belts, cable sheaths and any rubber product requiring reinforcement, improved thermal conductivity or antistatic performance.

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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