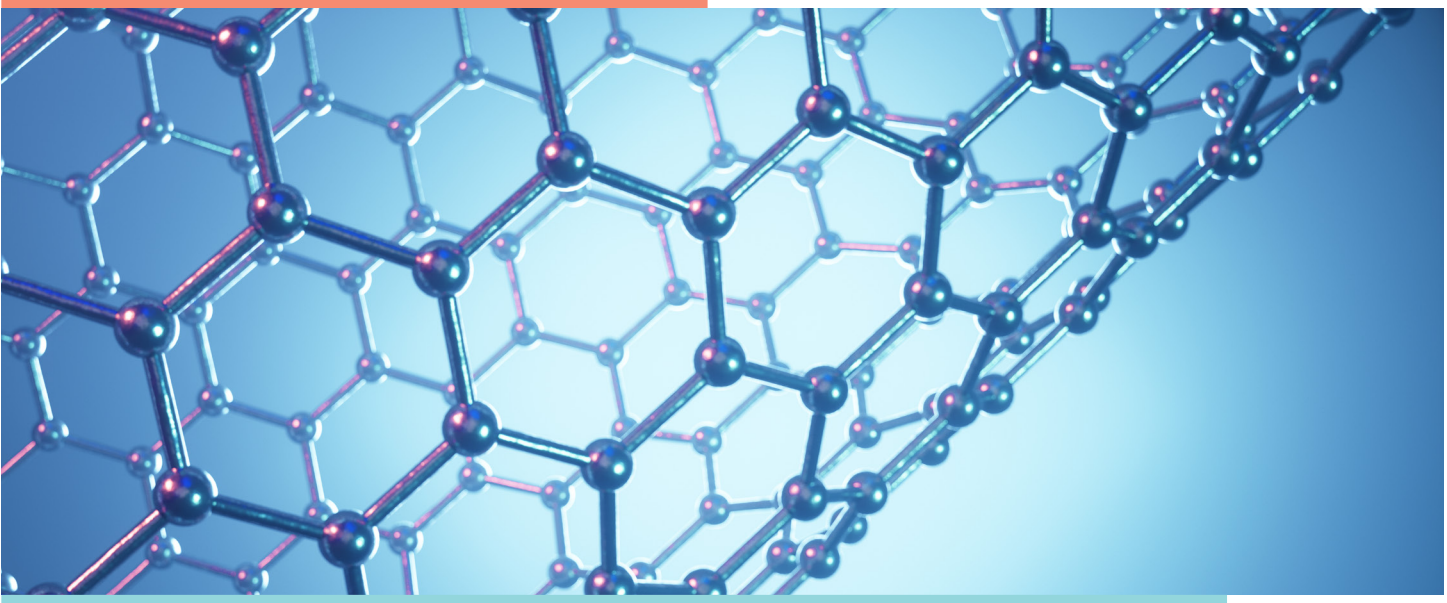
MechT Dispersions



Carbon Nanotube (CNTs) Dispersions for Conductive Resin & Ink Formulations

MechT dispersions combine Mechnano's novel discrete carbon nanotubes with Bomar (meth)acrylated resins for use in UV–curable 3D printing and CASE applications. While CNTs have been available industrially for many years, Mechnano's breakthrough technology allows for CNTs to be dispersed discretely and uniformly in resins, rather than agglomerated in clumps. This dispersion and functionalization technology unlocks the performance benefits of the CNTs, and enables improvements to electrical and thermal conductivity, impact resistance, tear resistance, adhesion, corrosion resistance and more, without degrading mechanical properties of the resin.

Applications:

- ESD compliant 3D–printing resins
- Low surface resistivity coatings
- Conductive inks

- Stable dispersion of discrete nanotubes
- Promotes electrostatic dissipation in UV–curable formulations
- No degradation of mechanical properties
- Capable of achieving 104–109 Ω/sq resistivity
- Easy addition to a formula without high shear mixing
- Provides carbon content with no carbon trails
- Functionalized CNTs for long–term stability
- Tunable conductivity
- Easy intergration into multiple resin types
- Versatile across flexible and rigid formulations

BOMAR

E35B+

Conductive CNT Dispersion for High–Resolution 3D Printing

Deliver uniform conductivity, isotropic mechanical strength, and high resolution detail in SLA, DLP, and jettable resins

Key Features

Proprietary CNT Dispersion: E35B+ contains CNTs that are uniformly dispersed within the oligomer, ensuring consistent performance across your entire resin formulation.

High–Resolution Printing Compatibility: Designed for SLA, DLP, and jettable printing technologies, E35B+ maintains exceptional resin flow and detail fidelity.

Isotropic Mechanical Strength: Unlike some conductive additives that compromise part strength, addition of E35B+ preserves or enhances mechanical properties of final formulation.

Decreased Surface Resistivity: E35B+ significantly reduces resistivity in the final formulation, providing ability to design resins with effective ESD–safe performance.

Easy Integration & Process Stability: The dispersion is formulated for straightforward incorporation into photopolymer resins, requiring no high–shear mixing or specialized equipment.

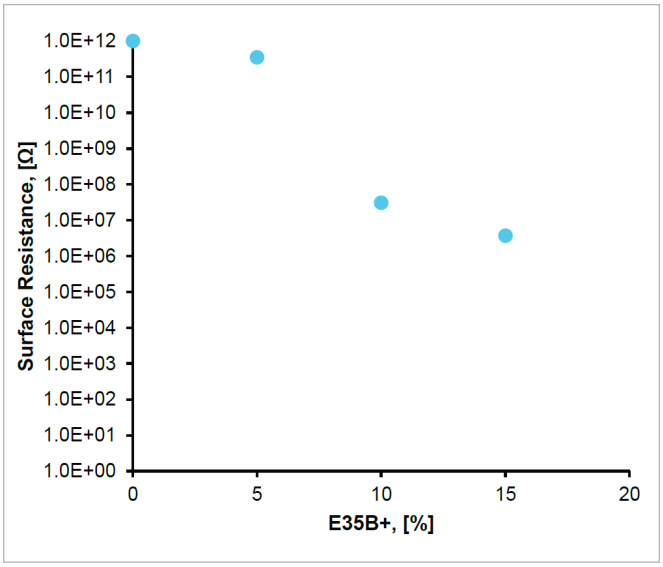
Consistent Electrical Performance and Strength Across Formulated Resins and Inks

Example Formulation Performance

PROPERTY	CONTROL	10% E35B+	UNITS
Ultimate Tensile Strength	66.2	74.5	MPa
Tensile Modulus	2661.4	2895.8	MPa
Elongation	7.0	4.3	%
Durometer Hardness	87D	90D	**
MEK Double Rubs (#)	>200	>200	**

Key Benefits

- Delivers reliable, repeatable conductivity, eliminating hotspots or weak points.
- Allows fabrication of precise, high–resolution parts without sacrificing electrical functionality.
- Printed components remain rigid and strong, even while achieving electrostatic discharge protection.
- Allows manufacturers to meet stringent electrical safety requirements without additional coatings or post–processing.
- Easy integration reduces production complexity and saves time, while ensuring consistent, predictable results.



T50B

CNT Dispersion for Conductive Resin & Ink Formulations

Transform resins and inks with consistent conductivity, isotropic strength, and easy formulation integration

Key Features

Proprietary CNT Dispersion: T50B contains discrete, functionalized CNTs that remain uniformly dispersed, ensuring consistent performance across your entire resin formulation.

Tunable Electrical Properties: The dispersion allows control over surface resistivity, enabling formulators to achieve precise ESD–safe performance.

Preserved Mechanical Strength: T50B maintains isotropic mechanical properties in final resins or inks, preventing weakening of the material while achieving electrical functionality.

Easy Formulation Integration: T50B is designed for straightforward incorporation into a wide range of photopolymers, inks, and UV–curable systems.

High Resolution & Print Fidelity: In resins used for additive manufacturing or precise printing applications, T50B supports high–resolution output while maintaining conductivity and mechanical integrity.

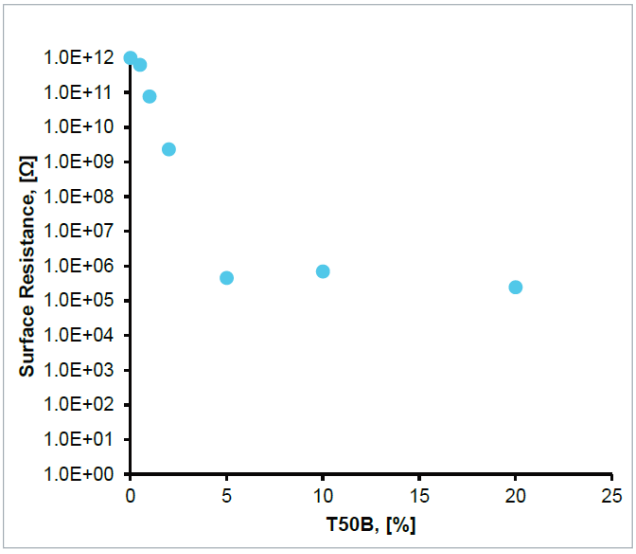
Consistent Electrical Performance and Strength Across Formulated Resins and Inks

Example Formulation Performance

PROPERTY	CONTROL	10% T50B	UNITS
Ultimate Tensile Strength	18.6	26.9	MPa
Tensile Modulus	537.8	827.4	MPa
Elongation	25.0	18.0	%
Durometer Hardness	76D	77D	**
MEK Double Rubs (#)	17	13	**

Key Benefits

- Yields end–products with consistent electrostatic protection and predictable performance.
- Provides the benefit of flexible design for different application requirements without reformulating from scratch.
- Delivers strong, durable, and functional formulations.
- Allows simplified processing, reducing production complexity and ensuring consistent results.
- Compatible with a broad range of photopolymers and UV–curable systems, giving formulators versatility across multiple product types.



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