SWCNT Slurry

– High-Conductivity CNT Dispersion

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1. Product Overview

What it is
SWCNT Slurry is a pre-dispersed single-walled carbon nanotube (SWCNT) conductive additive, supplied as a stable liquid dispersion for industrial formulations.

What it does
It forms a long-range conductive network at ultra-low loading, enabling high electrical conductivity with minimal impact on formulation viscosity and mechanical properties.

Typical use cases

- Battery electrodes and energy-storage materials
- Conductive and ESD polymers
- Functional coatings and inks
- Flexible and printed electronics

2. Key Benefits

- Ultra-low percolation threshold, enabling conductivity at very low CNT loading
- Long-range conductive pathways, superior to conventional carbon black at low dosage
- Stable dispersion in aqueous and NMP-based systems
- Process-friendly rheology, minimizing viscosity increase
- Ready-to-use slurry, non-dusting and easy to handle
- Broad formulation compatibility across polymers, coatings, and electrodes

3. Typical Applications

3.1 Energy & Electrochemical Systems

- Lithium-ion and sodium-ion battery electrodes
- Lead-acid battery conductive networks
- Supercapacitors and current collectors

3.2 Polymers & Composites

- Conductive and ESD plastics
- Elastomer and resin reinforcement
- Conductive or functional 3D-printing filaments

3.3 Coatings & Inks

- Conductive coatings
- Transparent conductive films
- Functional printing inks

3.4 Electronics & Flexible Devices

- Flexible and wearable electronics
- Sensors and RFID components
- EMI shielding and antistatic layers

4. Technical Specifications

Parameter	Specification
CNT Type	Single-Walled Carbon Nanotubes (SWCNT)
CNT Purity	≥ 90–99% (typ.)
Tube Diameter	~1.2–2.0 nm
Tube Length	2–10 μm (typ.)
Solid / CNT Content	0.05–0.8 wt% (customisable)
Solvent System	Aqueous or NMP-based
Dispersant	Proprietary
Appearance	Black, homogeneous slurry
Viscosity	Tunable, process-friendly
Dispersion Stability	No visible sedimentation ≥ 3–6 months
Shelf Life	6–12 months (sealed)
Packaging	25 kg standard (other options available)
Storage Conditions	Room temperature, avoid freezing and direct sunlight

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5. Product Grades

Model	CNT Content	Dispersion Medium	CNT Diameter	Typical Package
YXL-DL	0.05 wt%	Water	1.5–2.5 nm	1000 mL / 25 kg
YXL-DH	0.2 wt%	NMP / organic	1.5–2.5 nm	1000 mL / 25 kg
YXL-PB	0.4 wt%	Water	2–3 nm	1000 mL / 25 kg
YXL-PBN	0.4 wt%	NMP / organic	2–3 nm	

Grade selection depends on solvent system, formulation viscosity window, and target conductivity.

6. Processing Guidelines

- Recommended addition sequence:

Add SWCNT slurry after resin or binder pre-dissolution.

- Mixing conditions:

Low-to-medium shear mixing is generally sufficient; excessive high-energy dispersion is not required.

- Formulation compatibility:

Compatible with common polymers, resins, and binders (e.g. PVDF, SBR, CMC, PU, epoxy, acrylic systems).

- Handling notes:

Stir gently before use; avoid freezing.

(Processing parameters should be optimized by the user according to equipment and formulation.)

7. Safety & Handling

- Supplied as a non-dusting slurry, reducing airborne CNT exposure
- Use standard industrial PPE (gloves, protective eyewear)
- Avoid freezing and prolonged exposure to elevated temperatures
- Safety Data Sheet (SDS): available upon request

8. Revision History

Version	Description
v2.1	General-grade restructuring, improved processing guidance and application clarity

Hunan Kela Materials Co., Ltd.
Empowering advanced materials with nanocarbon innovation.

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