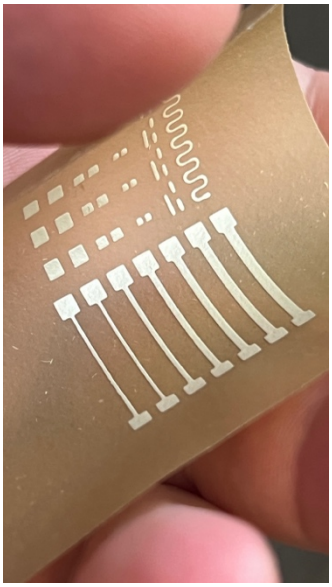
TANGHO© NanoPaper™

Technical Data Sheet
(30µm thickness)

Cellulose-nanofiber paper substrate engineered for flexible electronics, prototyping, and research.



NanoPaper™ is a continuous network of **cellulose nanofibers (CNF)**. The nanoscale fibril network yields a dense, smooth surface, excellent ink holdout, and mechanical strength that rivals polymer films—without petrochemicals.

- **Electronics-ready surface:** Ultra-smooth, low-roughness CNF sheet supports screen/inkjet/dispense printing with conductive, dielectric, and functional inks.
- **Heat-tolerant & dimensionally stable:** Handles common curing/anneal profiles used in printed electronics (validated up to 225 °C in partner trials).
- **Sustainable & high-performance:** Bio-based cellulose substrate with high modulus and tear resistance versus conventional paper.

Features and Benefits

- **Surface:** Low average roughness; high edge acuity and line fidelity
- **Print compatibility:** Screen, inkjet, gravure, flexo, aerosol/dispense (qualify per ink vendor)
- **Thermal:** Withstands typical curing bakes; low shrink/warp under controlled profiles
- **Mechanical:** High tensile modulus; robust handling and fixture mounting
- **Die-cutting:** Clean kiss-cut and through-cut; supports V-groove scoring (pilot your geometry)
- **Sustainability:** Bio-based cellulose substrate; chlorine-free fibers
- **ESD/Insulation:** Intrinsically insulating; pair with conductive inks for circuits

Key Attributes

Attribute	Result	Unit
A4 Sheet Dimensions	297 × 210	mm
Sheet Thickness	30	µm
Basis Weight	30-35	g/m^2
Composition	Natural Nanofibers Only	
Surface Roughness (Ra)	1.2	µm
Surface Energy	51	mN/m
Safe Curing Time at 150 °C	< 60	minutes
Safe Curing Time at 200 °C	< 30	minutes
Safe Curing Time at 220 °C	< 10	minutes
Degradation Onset Temperature	275	°C
Young Modulus	1.8	GPa
Tensile Strength	62	MPa
CIELAB Color Measurement (D50/2°, d/8 SCE, black trap, UV-included)	L* 86.40, a* 0.85, b* 6.09 C* 6.15; h° 81°	
Appearance (Color)	Translucent Off-White / Yellow	

Who It's For

R&D teams, materials scientists, and printed-electronics engineers developing sensors, antennas, RFID, strain/pressure arrays, heaters, and circuits that need a robust, bio-based substrate.

Use Cases

- **Printed sensors:** Pressure/strain, temperature, humidity
- **RF & antennas:** NFC/RFID, BLE form-factor studies
- **Heaters:** Low-power Joule heaters with silver/carbon inks
- **Prototyping:** Rapid iteration of interconnects and test coupons
- **Education:** University labs and maker spaces

Handling & Storage

Store flat in the original moisture-barrier pouch at **40–60% RH, 18–24 °C**. Acclimate sealed packs to the lab environment for **≥2 hours** before opening. Handle with nitrile gloves. If sheets take up moisture, re-dry in a ventilated drawer or low-temp oven (**~50–60 °C, 30–60 min**) before printing. Reseal unused sheets. During transport, keep sheets protected between rigid backings. If sheets become bent or curled, they can be flattened in a hot press at approximately 105 °C for about 30 minutes, with the time adjusted depending on the level of curl.

Printing Notes

Pre-test your ink set and curing schedule. For screen printing, start with **325–400 mesh**, medium durometer squeegee, light snap-off. For inkjet, use vendor-recommended waveform and platen temperature; purge/prime nozzles to minimize coffee-ring artifacts. For high-temp sintering, ramp gradually to mitigate moisture-driven curl.

Disposal

Dispose of Tangho NanoPaper™ in accordance with local, state, and federal regulations. Since the product is biobased and biodegradable, it can generally be disposed of through standard waste disposal methods, such as composting or in designated industrial waste facilities. Ensure that the disposal process is safe and environmentally responsible.

Health and Safety Information

For detailed safety, health, and environmental information regarding Tangho NanoPaper™, please refer to the Safety Data Sheet (SDS).