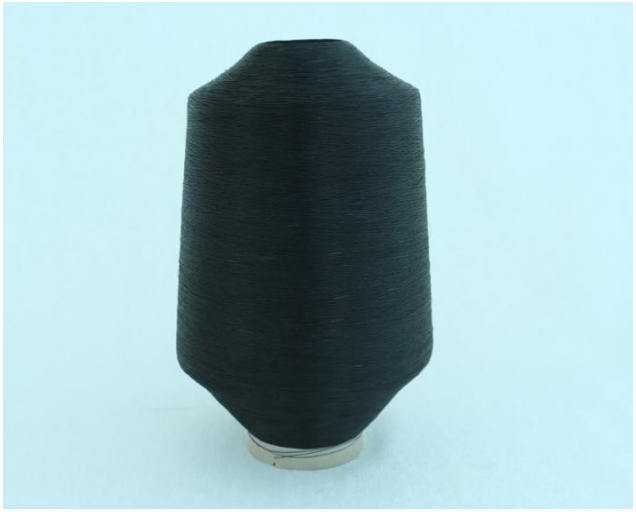
1. 产品描述（Product Description）

本产品是在普通纤维表层形成碳纳米管网状结构导电层，制备出的无机材料导电纤维。利用我院自有的碳纳米管（CNT）分散技术结合优化的线印染技术制备的导电纤维，具有质量更轻，柔软度柔韧性好，耐久性强等优点，为开发轻薄的面状发热布、防静电布等产品提供了素材。

The product is a kind of inorganic electroconductive fiber, using ordinary fiber coated with network structure of carbon nanotubes layer. The prepared electroconductive fiber which is combined our own developed CNT dispersing technology with fiber dyeing technology are more lighter, softness, flexibility and durability. It provides potential new material to make thin planar heating fabric and anti-static cloth, etc.

- 基础纤维材料：聚酯复丝加工线
  The basic fiber: polyester multifilament processing threads
- 碳纳米管：多层碳纳米管（NWCNT）
  Carbon nanotube: multi-wall carbon nanotubes(NWCNT)
- 涂层：利用粘合剂固定在纤维表面形成均一的碳纳米管网状组织
  Coating: uniform carbon nanotube network at the fiber surface fixed by adhesives

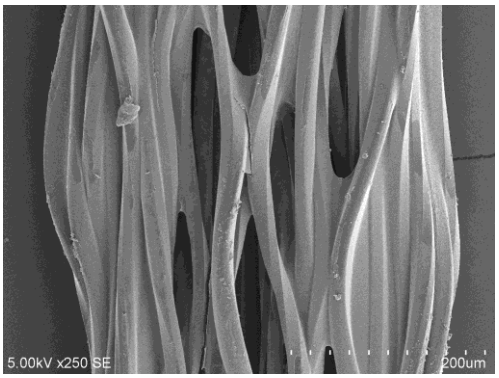


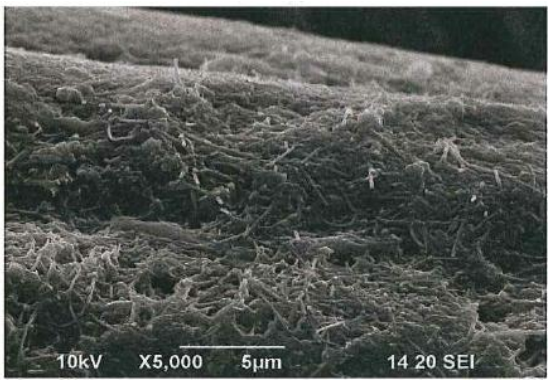
线轴示意图

2. 产品型号及性能(Product Model and Performance)

纤维参数 Fiber Parameter	单位 Unit	数值 Value	参考标准 Reference Method
电阻 Resistance	Ω/cm	900-1000	伏安法 Voltammetry
断裂伸长率 Elongation	%	29	GB/T 3916-2013
断裂强力 Breaking Strength	cN	680	GB/T 3916-2013
纤维密度 Fiber Density	Dtex	230	GB/T 14335-2008
熔点 Melting Point	℃	228.5	差示扫描量热法 Differential Scanning Calorimetry
直径 Diameter	mm	0.08	—

- 扫描电镜表征图片（SEM）





3. 产品特点（ Product Feature ）

- 对应各标准的电阻值：在10^2～10^{10} Ω/cm 的范围可提供各标准电阻值的线

  Resistance value range corresponding to standard: available standard resistance value vary form 10^2 Ω/cm to 10^{10} Ω/cm
- 稳定的电阻值:各标准的线,在线长方向均有稳定的电阻值

  Stable resistance value: the standard line has stable resistance value in line length direction
- 全面导电性：在每根单线表面进行碳纳米管的全面涂层，发挥良好的接触导电性

  Overall conductivity: excellent contact conductance of single line is implemented by full

surface coating with carbon nanotubes

- 高耐久性・耐弯曲疲劳性：在伸缩变形时电阻值的变化也很少，显示了高耐久性。由于基础材料使用了聚酯复丝加工线，与碳纤维电线、金属电线相比较，有良好的弯曲疲劳性

  High durability & bending resistant ability: the quality which the resistant value vary rarely when the fiber is stretched show high durability. The polyester thread has better bending fatigue resistance than carbon fiber and metal wire
- 柔软的感觉：将单线约1～2 Dtex 的聚酯复丝加工线作为基础，实现了柔软的感觉

  Soft touch:1～2 Dtex polyester multi-filament line is the basis to achieve a soft feeling
- 轻量・小型：与金属导线比较实现了大幅度的轻量・小型化

  Lightweight・ Mini: compared with metal conductor implement substantial lightweight・ miniaturization

4. 应用领域 (Product Application)

- 纤维电阻范围$10^{2-3}\Omega$/cm：代替金属传感器～面状通电发热布料

  Fiber resistance range $10^{2-3}\Omega$/cm: metal sensor substitute～planar electric heating fabric
- 纤维电阻范围$10^{5}\Omega$/cm：放静电织物用原线～运动服、外套、内衣、毛衣、地毯、床单、被子、车座椅、袋式过滤器等

  Fiber resistance range $10^{5}\Omega$/cm: anti-static raw material～sportswear, jackets, underwear, sweaters, carpets, bed sheets, blankets, car seat, bag filters, etc.
- 纤维电阻范围$10^{9}\Omega$/cm：复印机刷子等

  Fiber resistance range $10^{9}\Omega$/cm: the photocopier brush

5. 使用说明 (Instructions)

- 防止对皮肤的刺激，建议使用前请穿戴防护服，口罩，手套等防护用品

  Please wear dust protections such as overalls, face masks, gloves, etc.
- 请参照产品说明书选择合适的产品系列

  Please select the appropriate product series refer to the technical product data sheet
- 建议使用前比对产品说明书进行重要参数测试对比

Please test the sample and contrast important parameter with product specification before use

- 使用前请检查CNT染色线是否受潮、损坏、掉色脱落等现状

  Please check the CNT dyefiber status in advance whether is damped, damaged, fading off, etc
- 若通电使用，请注意人员安全
- Please guarantee personnel security before electricity power on.

6. 包装 (Packaging)

线轴，630 ±10g（含轴重）

Thread, 630 ±10g(total weight)

7. 储存 (Storage)

- 产品应长期存储于阴凉、干燥的环境中，尽可能的避免雨淋、受潮、暴晒

  The product should be long-term storage in a cool & dry environment, as much as possible to avoid the rain, moisture and exposure

  产品应密封存放，表面严禁附着灰尘；存储过程中应远离酸碱、热气、火源及有机溶剂等，避免产品受到损坏和污染
- The product should be sealed storage to avoid dust pollution. The storage should be away from acid, heat, fire and organic solvents, etc. Protect the product form damage and pollution
- 产品应置于通风条件下，同时注意防止虫蚁及微生物侵害
- The product should be placed in ventilated conditions, taking care to prevent form pests and microbial attack