

## Graphene textile products



### Graphene polyester staple fiber

Specification: 1D\*20mm

Graphene polyester staple fiber is a type of fine denier imitation down fiber prepared by blending melt spinning technology. Combining the characteristics of functional materials and graphene's ultra-high specific surface area and good far-infrared emissivity, graphene textile composite fibers own advantages of ultra-light, excellent heat storage and heat preservation effects, good antibacterial effects, and antistatic properties, which significantly improve thermal comfort. The fiber can be used in imitation down clothing field, which is suitable for scenarios with high warmth demand such as field exploration.

Far-infrared performance: far-infrared emissivity  $>0.85$ , far-infrared radiation temperature rise  $>1.7\text{ }^{\circ}\text{C}$

Antibacterial properties: Staphylococcus aureus bacteriostatic rate  $>99\%$ , Escherichia coli bacteriostatic rate  $>96\%$ , Candida albicans bacteriostatic rate  $>96\%$

Antistatic performance: specific resistance  $<1.0 \times 10^9 \Omega \cdot \text{cm}$

Typical applications: Down jacket: When filled at the same weight, the heat retention property of the product is comparable to the one filled with down.



### **Graphene warm wadding nonwovens**

Specification:  $80\text{g/m}^2 \sim 300\text{g/m}^2$

Graphene warm wadding nonwovens is a type of floc with a certain weight and size prepared by mixing, carding, and other processes of graphene fibers. With graphene ultra-high specific surface area, good far infrared emittance and excellent conductive fiber structure, the graphene textile composite thermal insulation material with excellent thermal insulation, anti-static, antibacterial, anti-mite, and other functions is prepared, which significantly improves the cold-proof insulation and thermal comfort of cold-proof products.

The products are suitable for daily cold prevention and border guard training and other warm retention needs. It can be used for all kinds of daily cold preventing clothing and quilts, sleeping bags and other products, but also can be used for cold preventing clothing of troops, oil fields, coal mine, electric power, railway, and other highly cold environment professional.

Thermal insulation: Carlo value 2.55, insulation rate 85%

Far-infrared performance: far-infrared emittance  $> 0.86$ , far-infrared radiation temperature appreciation  $> 3.8\text{ }^\circ\text{C}$

Antimicrobial properties: Staphylococcus aureus bacteriostatic rate  $> 99\%$ , Escherichia coli bacteriostatic rate  $> 99\%$ , Candida albicans bacteriostatic rate  $> 99\%$

Fluffiness:  $61.3\text{ cm}^3/\text{g}$ ; Compression performance: compression ratio 76.1%, compression elasticity ratio 94.6%

Anti-mite resistance: avoidance rate: 74.5%



### **Graphene antibacterial deodorant socks**

Material: Cotton, mulberry silk, cashmere, spandex, graphene, etc.

Size: Men's and women's mid-length cylinders

This product combines a new generation of graphene nano-antibacterial materials with socks, which effectively inhibits the proliferation of bacteria and fungi, quickly adsorbs odors, gives socks excellent antibacterial and deodorizing effects, significantly improves the foot environment. The production process is green and environmentally friendly. The product is skin-friendly, delicate, strong, wear-resistant, antibacterial, and deodorant.

The product is antibacterial, deodorant and moisture wicking, which is suitable for business travel, outdoor sports, and daily life.

Antimicrobial properties: After 50 washes, *Staphylococcus aureus* bacteriostatic rate >99%, *Escherichia coli* bacteriostatic rate >90%, *Candida albicans* bacteriostatic rate >80%

Deodorant: After 10 washes, the concentration of ammonia odor components reduced >80%, the concentration of acetic acid odor components reduced >70%, the concentration of isovaleric acid odor components reduced >85%



### **Graphene antibacterial underwear**

Material: cotton, modal, nylon, spandex, graphene, etc.

Size:

Female: M, L, XL

Men: M, L, XL, XXL, XXXL

Graphene antibacterial underwear is made of graphene and various fibers. A new generation of graphene nano-antibacterial technology forms an effective antibacterial barrier for clothing. After washing 50 times, the clothing still has a significant inhibitory effect on common bacteria and fungi. Meanwhile, the large specific surface area of graphene can absorb a large amount of water vapor, bringing the ultimate comfort.

Antimicrobial properties: After 50 washes, *Staphylococcus aureus* bacteriostatic rate >99%, *Escherichia coli* bacteriostatic rate >90%, *Candida albicans* bacteriostatic rate >80%



### **Graphene antibacterial cool POLO shirt**

Material: cotton, mulberry silk, graphene, etc.

Size:

Female: M, L, XL

Men: M, L, XL, XXL, XXXL

Graphene antibacterial cool polo shirt is made of cotton and mulberry silk mixed with graphene material. It has excellent breathability and moisture wicking, which keeps skin clean, reduces the growth of surface bacteria, and brings a fresh and refreshing experience to the skin after a long-time wear.

Product is moisture absorbable and breathable, suitable for summer or temperature  $>26^{\circ}\text{C}$ . It can be used in both outer and inner wear.

Antimicrobial properties: Staphylococcus aureus  $>99\%$ , Escherichia coli bacteriostatic rate  $>90\%$ , Candida albicans bacteriostatic rate  $>80\%$