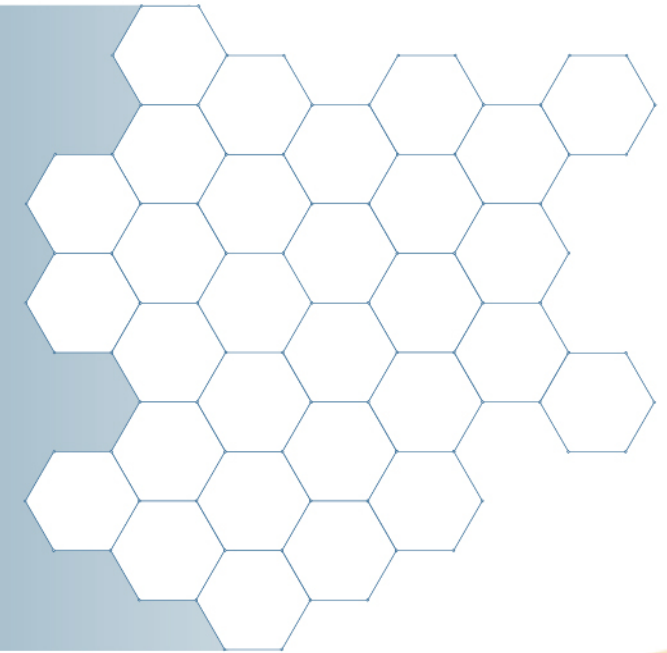


## Monolayer Graphene-Based Multifunctional Healthcare Fibers

OPEN A NEW ERA OF HEALTHCARE TEXTILES

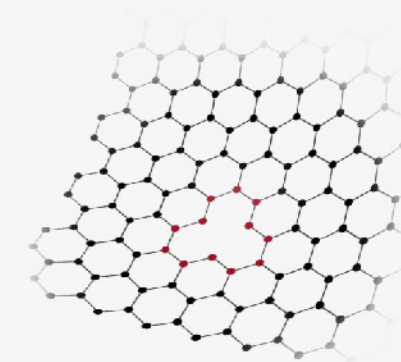
- ◆ The world's first IGCC certified monolayer graphene oxide modified fiber
- ◆ Holder of confidence in textiles OEKO-TEX Standard 100
- ◆ GaoxiTech original technology, with dozens of Chinese invention patents



Monolayer Graphene for Healthy Life 单层石墨烯康护新生活



# GaoxiTech, Your Premier Graphene Partner



## Graphene Oxide (Oxygen-containing graphene)

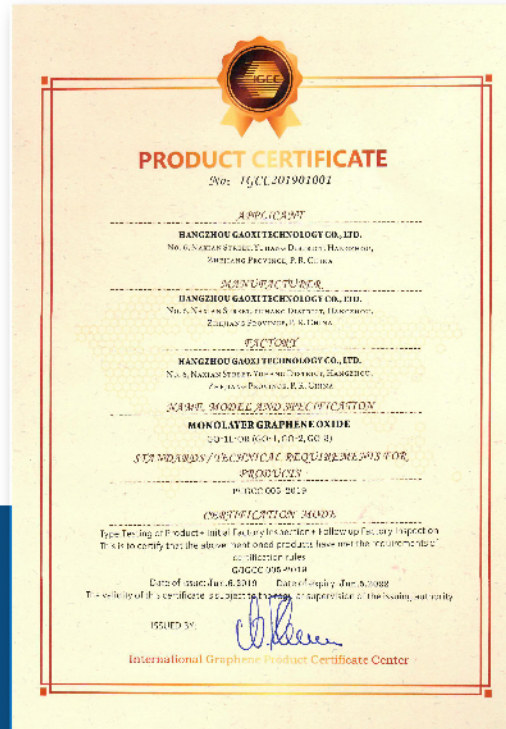
- ◆ The world's first IGCC certified monolayer graphene oxide
- ◆ The only IGCC certified monolayer graphene oxide modified functional fiber in the world
- ◆ Three core technologies of GaoxiTech fibers: monolayer graphene oxide, in situ polymerization, fine denier yarn
- ◆ More than 100 invention patents  
GaoxiTech has the IPs from graphene to fibres
- ◆ Zhejiang University science achievements of graphene
- ◆ Graphene with oxygen functional groups, easy to dissolve, easy to process, easy to reduce
- ◆ Functional graphene, more hydrophilic, more infiltrating, more healthier
- ◆ Excellent adhesion to the substrate, wash resistance, scratch resistance, bending resistance
- ◆ Peerless monolayer graphene, uniform dispersion, excellent far-infrared emission and UV resistance





扫码查询证书及编号

# Original Invention International Authorized Certification



The world's first IGCC certified monolayer graphene oxide



The world's first IGCC certified monolayer graphene oxide modified fiber

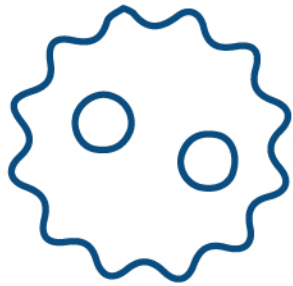


Pass the certification by confidence in textiles OEKO-TEX Standard 100.



Chinese invention patent, ZL201710134838.3

## Six Health Features In One



Antibacterial



Antiviral



Far infrared health care



Negative ion generation



UV protection



Anti-mites



## Six advantages of the GaoxiTech supreme healthcare fibers

### Extremely thin graphene

Self-produced monolayer graphene oxide  
(The only in the world)

### Fine-denier quality

Graphene-nylon 6 DTY 20D/24f-S/Z  
Graphene-polyester DTY 75D/72f-S/Z  
Full specs of long fibers  
(The only in the world)

### Multiple categories

Graphene-modified nylon 6 (PA6),  
polyester (PET), PAN, spandex, and  
viscose; long fibers, short fibers, irregu-  
lar sections, etc. (The only in the world)

### Lasting function

Graphene is covalently connected to  
substrate polymer fibers, with long-last-  
ing effect, and no attenuation after re-  
peated washing

### Safe and healthy

No heavy metal ions contained, meets  
the infant standard of safety

### Skin-friendly

High-quality fibers with smooth surface

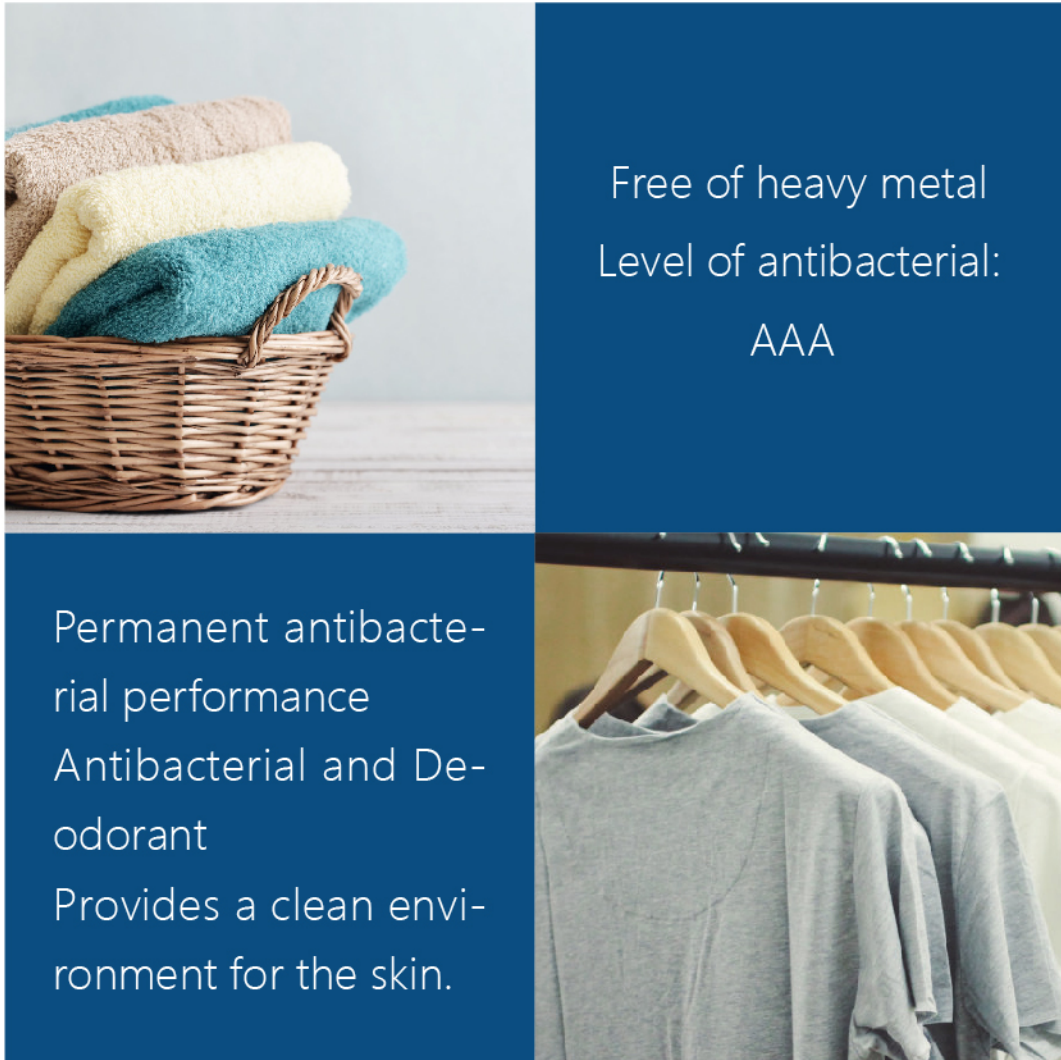


## Antibacterial

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The excellent antibiosis of graphene functional fiber can significantly eliminate the odor caused by bacteria, meanwhile avoid bacterial reproduction to a certain extent and reduce the risk of re-transmission. Furthermore, the antibacterial property reduces the risk of skin diseases, speeds up the recovery of skin wounds and improves personal hygiene conditions.





? why

Graphene's unique nano-scale edge, large specific surface area and surface functional groups can cut and envelop bacteria, catalyze the oxidative stress of bacteria, thus killing bacterium by inhibiting growth. Although its antibacterial mechanism is still under extensive research, it has shown an extremely attractive prospect as an antibacterial agent that neither produces drug resistance nor poses a threat to the environment or human body like heavy metal ions.

Apply to: underwear, socks, towels, sportswear, bed linen, public textiles...

## Antiviral

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After testing by authoritative institutions, the anti-viral rate of the monolayer graphene multi-functional composite fiber fabric of GaoxiTech against H1N1 influenza virus has reached 99.99%.

Anti-virus principle: Graphene can catalyze the oxidative stress reaction of viruses, leading to the death of viruses. Whether it is hospital protection, or home life, where viruses are infested, monolayer graphene multifunctional composite fibers are effective.





# Far-infrared Health Care

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## Function

The far-infrared rays of 4-16 microns are called "life rays", and their energy can resonate with human tissue and cells to accelerate blood circulation and metabolism. It can effectively relieve fatigue, reduce oxidation, and purify toxins in the body to improve human immunity. At the same time, the composite fiber gently heats human body and improves muscle elasticity, reducing the formation of cellulite and making wearer energetic.

## why?

Graphene has a large conjugated structure with strong infrared absorption in the wavelength range of 5-15 microns, making it an ideal far-infrared absorbing material and an ideal far-infrared radiation material. Graphene functional fibers are able to absorb external light and heat and convert them into far-infrared rays that are beneficial to the human body and reflect back to the skin.

Excellent far-infrared emission,  
far-infrared emissivity:  $> 0.90$



Apply to  
underwear  
socks  
Sports clothes  
knee  
...





## Negative Ion Generation

As a piezoelectric material, graphene is capable of releasing abundant negative ions. Some negative ion fiber products on the market use "nelogite", a radioactive material, which will cause great harm to the human body, whereas graphene functional fiber is safe and environmentally friendly.

Negative ions are called "vitamins of the air" and have two major functions:

air purification: remove dust and decompose harmful gases.

Health care: improve brain function, increase body immunity, promote metabolism, regulate nerve function, eliminate fatigue, slow heart rate, reducing blood pressure of hypertensive patients tends to normal level, and can also strengthen the ciliary movement of the respiratory surface, increase gland secretion, improve lung ventilation, and reduce the susceptibility of the respiratory tract to trauma.



# UV protection



## Function

Under Ultraviolet radiation in the range of 290-400 nm, a large amount of free radicals generated in human skin leads to peroxidation of the cell membrane, which causes melanocytes to produce more melanin. Graphene functional fiber can block ultraviolet rays, protect skin from sunburn and reduce the risk of skin cancer.



## why

The conjugated structure of carbon atoms on graphene can match the energy of ultraviolet light, so that it can effectively absorb ultraviolet rays. At the same time, the unique two-dimensional structure of graphene makes it particularly effective in light shielding. Outstanding UV protection can be realized with very small amount of graphene.







## Anti-mites

Human mites are commonly parasitic in human hair follicles and cortical glands. Researchers have long found that people with high levels of mites can cause disease, while low levels of mites do not cause disease, but also affects cosmetic effects. A variety of skin problems such as acne, skin itchi-ness are caused by mites parasitic. Graphene func-tional fibers have the function of inhibiting the growth of mites and alleviating skin problems caused by mites. This feature is especially suitable for products such as home textiles that cannot be washed frequently.



Graphene can catalyze the oxidative stress of mites parasitic on the surface of human skin, thereby effectively inhibiting the growth and growth of mites. At the same time, the graphene functional fiber does not contain any anti-mite chemical preparations, is safe and environmentally friendly, and has no irritation to the human body.





## The Lycra plain cloth made of Graphene/nylon 6 blended yarn (knitting)



**Fabric Composition:** 50 S Graphene/nylon 6 blended yarn (Four in one) 93%, Spandex7%

Weight: 180g/m<sup>2</sup>

**Fabric Features:** Soft, skin-friendly, good stretch, suitable for application and close-fitting clothing, such as underwear, T-shirts, home casual wear, protective products, et al.

### **Fabric Function:**

- 1). Anti-bacterial and bacteriostatic: standard "AAA" level, the bacteriostatic rate of the three strains is over 87%;
- 2). Far infrared emission: In safety materials, it is much higher than other materials and national standards. Far-infrared emission rate  $\geq 0.93$ , Far infrared radiation temperature rise  $\geq 2.4$ ;
- 3). Negative oxygen ions generation: Relying on the self-property of monolayer graphene oxide to produce truly safe and harmless negative oxygen ions, according to the national standard test report, the generation of negative oxygen ions are 617/cm<sup>3</sup> (moderate level). In order to improve the living environment and increase the immunity of the human body, there is an additional guarantee.
- 4). UV protection: Tested after 10 consecutive washings, the performance is excellent, the UPF value is more than 100.

**Summary of advantages:** The function is permanently identifiable, safe and environmentally friendly, suitable for the elderly and infants.

## Double-sided rib fabric made of Graphene/nylon 6 blended yarn (knitting)



**Fabric Composition:** Graphene/nylon 6 functional fiber DTY 20D/24f 40%, Nylon 6 filament, DTY 20D/24f 40%, Spandex 20%

Weight: 150g/m<sup>2</sup>

**Fabric Feature:** Soft and smooth, good stretchability and wrapping, suitable for application and close-fitting clothing, such as underwear, T-shirts, home casual wear, et al.

### **Fabric Function:**

- 1). Anti-bacterial and bacteriostatic: standard "AAA" level, the bacteriostatic rate of the three strains is over 86%;
- 2). Far infrared emission: In safety materials, it is much higher than other materials and national standards. Far-infrared emission rate  $\geq 0.94$ , Far infrared radiation temperature rise  $\geq 2.3$ ;
- 3). Negative oxygen ions generation: Relying on the self-property of monolayer graphene oxide to produce truly safe and harmless negative oxygen ions. In order to improve the living environment and increase the immunity of the human body, there is an additional guarantee.
- 4). UV protection: The performance is excellent, the UPF value is more than 100.

**Summary of advantages:** The function is permanently discernible, safe and environmentally friendly, the fabric has high color plasticity and strong sense of fashion



## Double-sided Lycra plain cloth made of Graphene/nylon 6 blended yarn (knitting)



**Fabric Composition:** Graphene/nylon 6 functional fiber DTY 20D/24f 32.8%, Nylon 6 filament , DTY 20D/24f 32.8%, Spandex 34.4%

Weight: 180g/m<sup>2</sup>

**Fabric Feature:** Soft, delicate, silky, stretchable and well-wrapped, suitable for application and close-fitting clothing, such as underwear, sportswear, et al.

### **Fabric Function:**

- 1). Anti-bacterial and bacteriostatic: standard "AAA" level, the bacteriostatic rate of the three strains is over 86%;
- 2). Far infrared emission: In safety materials, it is much higher than other materials and national standards. Far-infrared emission rate  $\geq 0.92$ , Far infrared radiation temperature rise  $\geq 2.3$ . Effectively activate human cells to achieve microcirculation health care.
- 3). Negative oxygen ions generation: Relying on the self-property of monolayer graphene oxide to produce truly safe and harmless negative oxygen ions. In order to improve the living environment and increase the immunity of the human body, there is an additional guarantee.
- 4). UV protection: The performance is excellent, the UPF protection level is high.

**Summary of advantages:** The function is permanently discernible, safe and environmentally friendly, the fabric comfort is good, high color plasticity and strong sense of fashion.

## Double-sided Lycra plain cloth made of Graphene/nylon 6 blended yarn (knitting)



**Fabric Composition:** Graphene/nylon 6 functional fiber DTY 20D/24f 39%, Nylon 6 filament , DTY 20D/24f 39%, Spandex 33%

Weight: 230g/m<sup>2</sup>

**Fabric Feature:** Soft, delicate, silky, good stretchability and wrapping, suitable for application and close-fitting clothing, such as: sports yoga, casual wear, et al.

**Fabric Function:**

- 1). Anti-bacterial and bacteriostatic: standard "AAA" level, the bacteriostatic rate of the three strains is over 87%;
- 2). Far infrared emission: In safety materials, it is much higher than other materials and national standards. Effectively activate human cells to achieve microcirculation health care.
- 3). Negative oxygen ions generation: Relying on the self-property of monolayer graphene oxide to produce truly safe and harmless negative oxygen ions. In order to improve the living environment and increase the immunity of the human body, there is an additional guarantee.
- 4). UV protection: The performance is excellent, the UPF protection level is high.

**Summary of advantages:** The function is permanently discernible, safe and environmentally friendly, the fabric comfort is good, high color plasticity and strong sense of fashion.





# GaoxiTech 高烯科技

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Monolayer Graphene for Healthy Life 单层石墨烯康护新生活