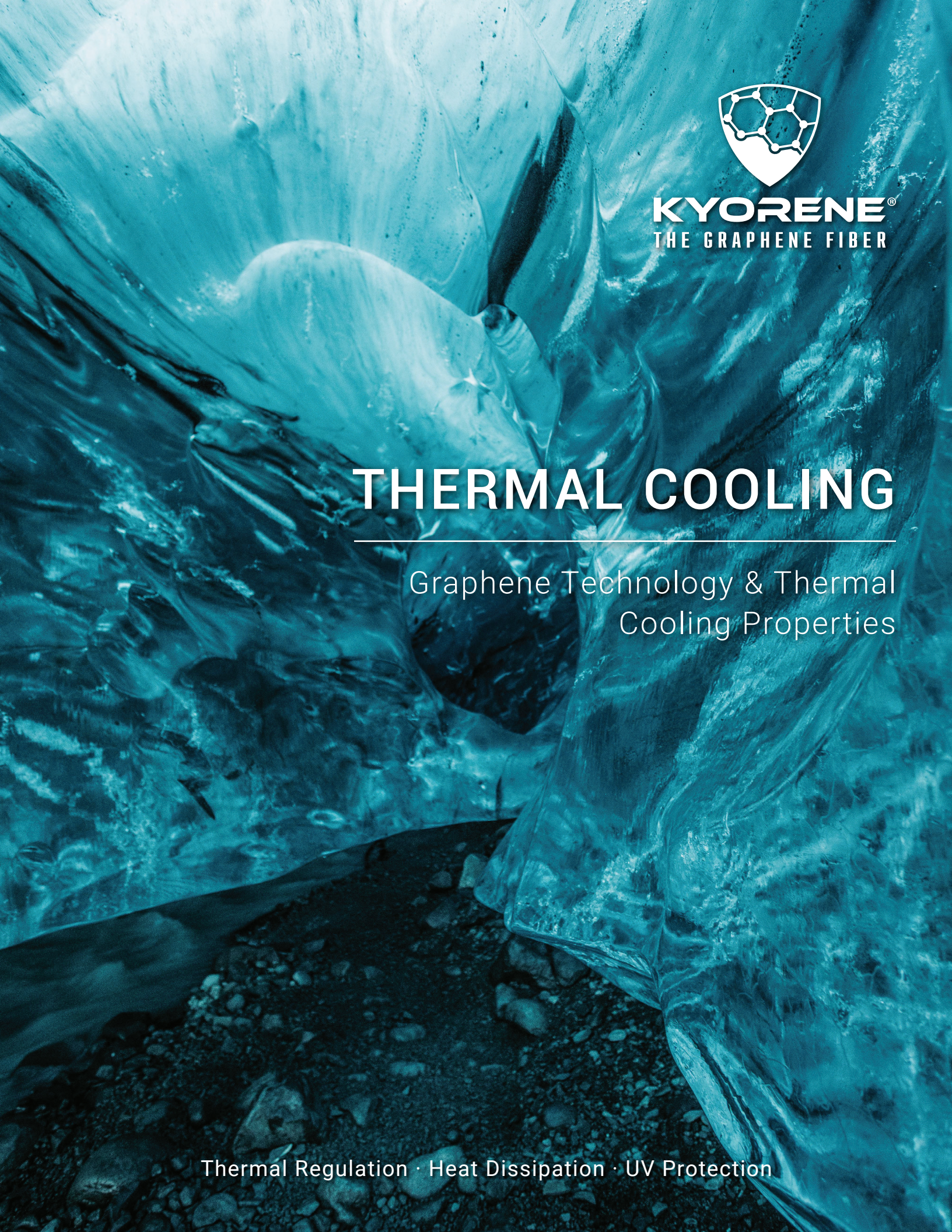


THERMAL COOLING

Graphene Technology & Thermal Cooling Properties

Thermal Regulation · Heat Dissipation · UV Protection

KYORENE®
THE GRAPHENE FIBER

GRAPHENE TECHNOLOGY & THERMAL COOLING

Graphene One is using patented, breakthrough technology to infuse yarns, fibers and filaments with graphene.

Graphene is being increasingly explored in textiles for its thermal management properties, especially in cooling and heat dissipation and Graphene One is at the forefront of this movement.

Graphene One's parent company, QS Safety, began R&D into graphene in 2009. By 2015, QS Safety had successfully figured out how to integrate graphene into yarn, fibers and filaments. In that same year, Graphene One officially launched Kyorene®: a graphene-infused fiber that can be used in clothing and textiles.

Here's a breakdown of how graphene enables thermal cooling in textiles, its mechanisms, applications, and benefits:

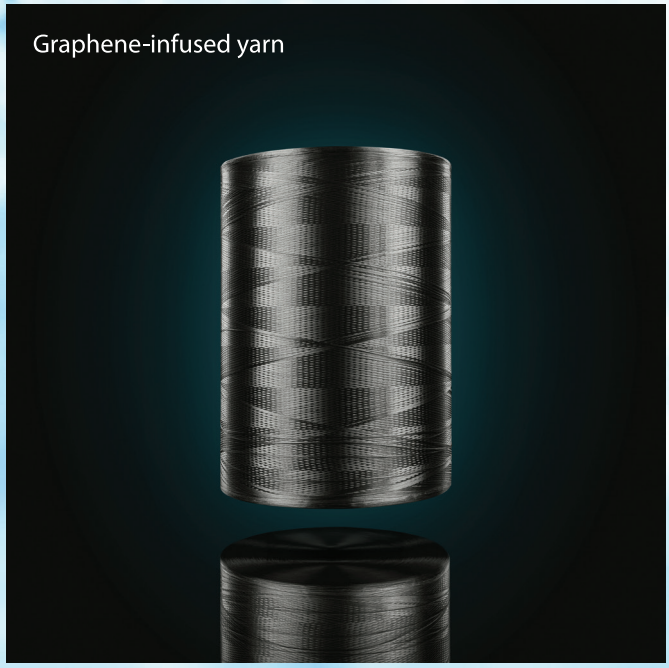
How Graphene Provides Thermal Cooling in Textiles:

High Thermal Conductivity
Graphene has an exceptionally high thermal conductivity (up to ~5000 W/m·K), which allows it to rapidly conduct heat away from the body. In fabrics, graphene layers or coatings can spread and dissipate body heat more evenly across the surface, reducing hot spots.

Far-Infrared (FIR) Radiation Management
Graphene can reflect and manage far-infrared radiation, allowing for better heat regulation. Some graphene-enhanced fabrics reflect body-emitted infrared away, promoting a cooling effect.

Moisture-Wicking Enhancement
When integrated with hydrophilic layers, graphene fabrics can enhance sweat evaporation, leading to cooling via evaporative effects.

Antistatic & Breathable
Graphene coatings often retain breath-ability, while also being antistatic, helping with comfort and microclimate regulation close to the skin.



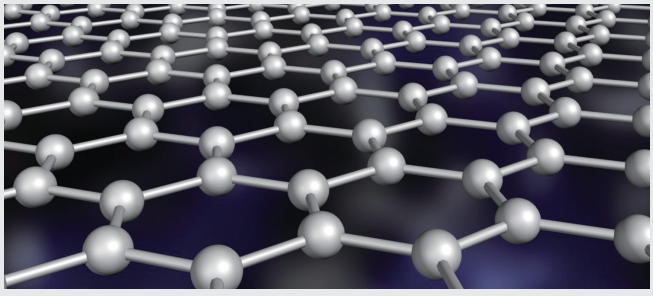
KYORENE®
THE GRAPHENE FIBER

How Graphene One Integrates Graphene Into Yarns:

1. We take raw graphite and separate it down to the appropriate layers to which it becomes graphene.
2. Next, we liquefy the graphene turning it into Graphene Oxide (GO).
3. From there, we covalently bond the Graphene Oxide (GO) to host yarns.
4. As a result of the covalent bonding, the graphene cannot flake, shed, or come off the host yarn.

Advantages of Graphene Cooling in Textiles:

- Enhanced sweat wicking & heat dissipation
- Temperature regulation
- Keeps wearer cooler in hot climates
- Thermal comfort
- Lightweight & flexible
- Durable & washable
- Eco-Friendly
- Conductive
- UV protection



Graphene's honeycomb lattice construction

Applications of Graphene in Textiles:

- Apparel: denim, undergarments, athletic wear, casual attire, socks
- Outdoor gear: ski-wear, outerwear
- Home textiles: mattress ticking, towels, bedding
- PPE: gloves, masks, sleeves, jackets
- Domestic & industrial appliances: water filtration systems, toothbrushes