

GENERAL INDUSTRIAL APPLICATIONS

THE COMPANY:

With headquarters in Cambridge, UK, Keronite Ltd is a world leader in the provision of technology services to industry, enabling manufacturers to reduce costs and improve performance through the use of light metals such as aluminium and magnesium.

Established in 2000, the company has developed unique surface treatment technology known as Plasma Electrolytic Oxidation (PEO). Today Keronite is not only being used by the automotive industry, but has found rapid success across the globe in applications as diverse as architectural facades, consumer goods, cookware, space exploration, hand tools and plastics moulding.

THE TECHNOLOGY:

Keronite technology transforms the surface of light alloys into a hard, dense ceramic with outstanding resistance to **corrosion** and **wear**. The Keronite layer is atomically bonded to the substrate alloy and yet has all the **thermal barrier** properties of ceramic. Keronite also provides an ideal key for scratch-resistant **A-class paint finishes**, for **adhesive bonding** or for composites such as **PTFE**.

Unlike some systems, the Keronite process is **safe** to operate, uses **no chrome** or other toxic chemicals and generates **no hazardous waste**.

INDUSTRIAL APPLICATIONS:

Because Keronite has such a unique combination of desirable properties, a wide range of articles can be coated to improve surface quality, surface condition and to enable the use of more cost effective light metal base materials:

- **CONSUMER GOODS:** light metal components for eyewear, MP3 players, compact disc players, binoculars, optical instruments, laptops and even magnesium bicycle frames can be cost effectively pre-treated with Keronite to

enhance the durability and resistance to wear and tear of products where perceived value and quality surface finish are all important.

- **TEXTILE MACHINERY:** where light weight components with a hard, wear resistant finish are required, then Keronite presents a more durable, versatile and eco-friendly alternative to hard anodising and plasma spray coatings.

- **COOKWARE:** the recent recognition of Keronite by DuPont as a pre-treatment for Teflon® has opened the way for Keronite to be used as an alternative to plasma spray titanium ceramic coatings on cookware.

- **ELECTRONICS INDUSTRY:** there are a variety of applications for Keronite within the electronics and electrical industries, from pick-and-place nozzles for PCB production to products that utilise the electrical insulating properties of Keronite.

- **PAINT AND POWDERCOAT:** Keronite provides an environmentally-friendly pre-treatment for paint and powdercoat systems on magnesium and aluminium surfaces, providing exceptional corrosion performance and a viable alternative to toxic chromate-containing pre-treatment systems.

- **PLASTIC MouldING INDUSTRY:** in combination with PTFE or as a stand alone coating, Keronite can extend the tool life of aluminium plastics mould tools used in the blow moulding, vacuum forming and injection moulding industries.



Eyewear



Cookware



Textile machinery



Bicycle parts



Moulds



Automotive



SUCCESS:

The list of Keronite uses in the General Industrial field is extensive and the following shows some of the growing list of both tried and tested and new applications for this versatile product:

Aerospace components; automotive components; electronics machinery; compressor components; pumps, valves; textile machinery; cookware; plastics mould tools; bearing materials; mobile phone cases; eyewear; laptop cases; power tool components; autosport components; motorcycle parts; medical equipment; conveyor equipment; pre-treatment for adhesives; print rolls; fuel pumps; tyre moulds; papermill equipment; oilfield equipment and architectural components.



Keronite architectural cladding tiles under construction

INDEPENDENT VALIDATION:

Keronite surfaces have been extensively tested by a variety of independent bodies:

- Keronite has been given the Plunkett award by **DuPont** for the use of Keronite as a base for Teflon®.
- **TWI** (The Welding Institute) conducted tests demonstrating that Keronite is 3 times harder than hard anodising and that the surface is less prone to cracking.
- **BMW** has given approval for Keronite as a pre-treatment for magnesium car body parts.
- **Alutec**, the French technical institute for the eyewear industry, has confirmed that magnesium frames coated with Keronite prior to painting have a satisfactory aesthetic appearance, and a resistance to sweat which meets the requirement of the European Standard EN ISO 12870.
- **General Motors (Allison Transmissions)** has specified Keronite as a coating for magnesium gearbox cases.
- **European Space Agency** has approved Keronite for use on various satellite and space vehicle hardware.
- Independent tests carried out in Italy have revealed that Keronite exceeds the European **Qualicoat** standards for paint, lacquer and powder coat on aluminium for architectural operations. The test house reported it was the best pre-treatment they had ever tested.
- Tests conducted by the **University of Cambridge** confirm that Keronite is a far more effective thermal barrier than hard anodising.
- Further investigations at **TWI** showed that Keronite is extremely wear resistant, out-performing electroless nickel in ball-on-disk tests.

AVAILABILITY:

Keronite Ltd works hand in hand with a growing network of experienced, quality conscious applicators across Europe, North America and Asia to deliver Keronite surface treatment technology wherever it is required.

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