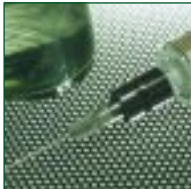


Biomedical Surfaces



- Plasma treatments
- Thin films
- Ion implantation
- Hard coating

Making the **right choice**

Surfaces play a critical part in the performance of all medical devices. Whether inside or outside the body, in drug delivery systems, or at the interface between the body and an implant, the surface properties are crucial to the long term functionality of medical devices.

Tecvac's surface engineering technologies provide biotechnologists with the resource to enhance, transform or modify all types of surfaces.

Metals

Ceramics

Polymers

Composites



Specialist coatings and surface treatments

- » Low temperature plasma treatments, to modify the performance of polymers
- » Plasma vapour deposition treatments used for containment, management or transport of drugs
- » Low friction diamond and carbon coatings for instruments and devices
- » Hard coatings and treatments for hips, knees and other orthopaedic prosthetics

Tecvac has decades of performance history using the best thin film technology to help medical device designers provide biocompatible surfaces that aid clinical performance at all levels.



Definitive solutions

Tecvac's research team includes experienced materials scientists, who can advise on process control and technologies, including heat treatments, plasma treatments, advanced coatings and polymer chemistry, to help biomedical decision-makers make the right choice.



Advanced processing capability

Tecvac's coating centre, close to Cambridge, provides substantial capacity to meet all types of hard coating requirement, often on very short timescales. A nationwide transport system serves the needs of critical services and trauma surgery. Clean room facilities and a state-of-the-art cleaning plant meet all the needs of engineering, precision assembly and bio-performance standards.

There is only one standard - excellence

Process quality control is the highest priority at Tecvac. Traceable and repeatable processes meet the most stringent standards for processing metals, ceramics and polymers.

Plasma coatings and surface modification

Tecvac's family of low temperature plasma techniques is used to treat polymers and other delicate, biocompatible materials. Tecvac's plasma coating application partner Innovatek Medical has developed applications using Tecvac's plasma technology to:

- » Clean critical surfaces
- » Modify polymer surfaces ready for assembly
- » Cross-link polymer surfaces to control permeability or other characteristics
- » Condition surfaces to promote wetting and adhesion

Innovatek Medical designs processes and equipment, and provides consultancy, component processing, and 'on demand' plasma treatment services.

Thin films

Tecvac's PVD and CVD vacuum deposition technologies apply a wide variety of elements and compounds to metal, ceramic or polymer surfaces. These services are widely used by research teams and volume production customers.

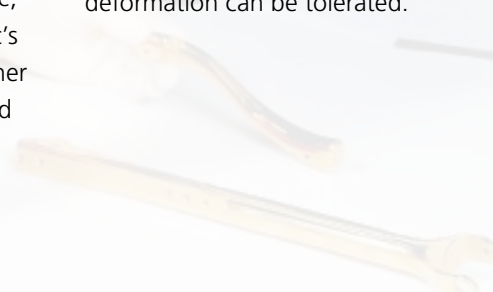
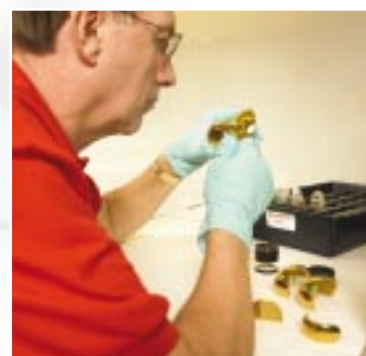
Ion implantation

This low temperature process produces wear-resistant, hardened surfaces for high precision components, such as knee or hip joints, where no surface deformation can be tolerated.



Hard coatings

Titanium Nitride coatings have been specified by the orthopaedic community for many types of implant and reconstruction surgery. These very hard coatings provide very low friction, biocompatible surfaces with lifetimes measured in 100 million cycles or more. More recently, Tecvac has developed a family of carbon-based, lubricious coatings, including Diamond Like Carbon (DLC), which can reduce friction to negligible levels. Biotechnologists can specify a wide variety of properties, varying from hardnesses comparable with diamond to the lubricity of graphite.



Collaborative ventures and research projects

Tecvac's team operates within a number of Pan-European research and development projects. It has close links with research teams at the University of Sheffield, University of Northumbria, and many other institutions throughout the world.

Research machine building

Tecvac skills are used by many universities and other research institutions. Tecvac's PVD (Physical Vapour Deposition) technology, combined with electron beam metal evaporation can apply thin films of pure elements such as gold or silver, complex ceramic coatings or other high purity compounds. Tecvac builds research machines that are used to investigate materials and coatings for cardiac and neurological applications.

The Wallwork Group

Tecvac is a member of the Wallwork Group of companies, which provides a complete range of metallurgical, heat treatment and foundry services to the aerospace, medical and automotive engineering sectors, with centres close to Manchester, Birmingham and Cambridge.



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