

# OX-TI TITANIUM ANODIZING

OX-Ti is an anodizing surface treatment of titanium alloys that creates a thin film of compact titanium oxide. The treatment is performed by immersion using an electrolytic process.

Depending on the treatment parameters, the anodizing process self-generates a wide array of colors. The color is not due to the addition of pigments, but rather the titanium oxide layer formed on the surface assumes a color due to the nature of the refracted light. Different titanium oxide thicknesses produce different colors.

Since the layer is composed of titanium oxide, it has properties of high durability and excellent chemical resistance. This makes it suitable for coating components for the medical and implants sector.

The treatment is used in the motorsport sector as an anti-galling coating and a decorative finish.



## VARIOUS COLOR OPTIONS

The surface can be produced in various bright scratch-resistant colors due to self-coloration of the titanium oxide film without the use of pigments or inks. The colors can be used as visual codes for rapid identification components of similar appearance.

## BIOCOMPATIBLE

Thanks to the high chemical resistance, biocompatibility of the film, and absence of pigments, this process can be used also on medical components.

## ANTI-GALLING

The titanium oxide film that forms during the treatment makes it possible to eliminate the galling problem typical of titanium alloys.

## TECHNICAL SPECIFICATIONS

COMPOSITION AND APPLICABLE STANDARDS
<p><b>COMPOSITION</b></p> <p>The OX-Ti treatment transforms the titanium alloy surface into a compact layer of titanium oxide. The coating composition is thus strongly dependent on the starting alloy. The film color is obtained by self-coloration. No pigments or inks are used in the process.</p>
<p><b>ROHS COMPLIANCE</b></p> <p>RoHS compliant. No restricted substances present in amounts greater than the maximum tolerated concentrations.</p>
<p><b>REACH COMPLIANCE</b></p> <p>REACH compliant. No SVHCs present in amounts higher than 0.1% by weight.</p>
ANODIZABLE ALLOYS
<p><b>TITANIUM ALLOYS</b></p> <p>All commonly used titanium alloys</p>

## COATING THICKNESSES AND COLORS OBTAINABLE

### COATING THICKNESS

#### TYPICAL THICKNESS, ACCORDING TO THE REQUIRED COLOR

< 1µm

### COLORS OBTAINABLE



Fuchsia



Violet



Dark blue



Light blue



Light yellow



Golden yellow



Grey

## TRIBOLOGICAL PROPERTIES

### WEAR RESISTANCE

High color durability thanks to the resistance of the titanium oxide film to light wear and scratching.

## CHEMICAL PROPERTIES

### CHEMICAL RESISTANCE

Excellent chemical resistance, typical of titanium alloys.

### CHEMICAL COMPATIBILITY

Chemical compatibility values. The actual environmental resistance must anyway be tested in the field.

- ✓ Hydrocarbons (e.g. petrol, diesel, mineral oil, toluene)
- ✓ Alcohol, ketones (e.g. ethanol, methanol, acetone)
- ✓ Neutral saline solutions (e.g. sodium chloride, magnesium chloride, seawater)
- ✗ Reducing acids and halogens (e.g. sulphuric acid, hydrochloric acid, oxalic acid)
- ✓ Acid oxidizing agents (e.g. nitric acid)
- ✓ Dilute bases (e.g. dilute sodium hydroxide)
- ✓ Base oxidizing agents (e.g. sodium hypochlorite)
- ✓ Concentrated bases (e.g. concentrated sodium hydroxide)