

OX-UHA MAGNESIUM MAGNESIUM PEO

Micron has developed an innovative PEO (Plasma Electrolytic Oxidation) magnesium anodizing treatment called OX-UHA. The treatment makes it possible to obtain exceptional characteristics of corrosion and wear protection, better than any other chromium-free magnesium coating.

Due to the health and environmental problems associated with hexavalent chromium, OX-UHA has become the main alternative treatment.

It is applied successfully on an assortment of automotive, aerospace, and motor sports sector parts, such as motorcycle wheels and aircraft components.

The process converts the magnesium into a dense and compact film of magnesium oxide characterized by uniform thickness over the entire outer surface. The treatment is light in color and it can be used as-is or as a primer for a subsequent painting schedule that further increases corrosion resistance.



EXCELLENT WEAR RESISTANCE

Unlike conventional anodizing treatments, the OX-UHA process employs high current to create a plasma on the surface of the part. This results in micro-fusion of the oxide film, which is mineralized and compacted, increasing the level of hardness and wear resistance.

EXCELLENT CORROSION RESISTANCE

The compact ceramic oxide layer protects the magnesium against corrosion in multiple aggressive environments, offering enhanced protection compared to conventional magnesium anodizing or chrome plating treatments.

ECOCOMPATIBLE, CR⁶⁺ FREE

The process does not use toxic chemicals or hexavalent chromium so it has a very low impact on the environment and on health.

COATABLE

Thanks to the surface morphology, the coating provides excellent anchorage for a subsequent paint coat. The combination of OX-UHA and paint coating makes it possible to achieve very high corrosion resistance.

TECHNICAL SPECIFICATIONS

COMPOSITION AND APPLICABLE STANDARDS				
COMPOSITION				
The OX-UHA treatment transforms the aluminium substrate into a compact layer of magnesium and aluminium oxide.				
Mg	O	Al	P	Impurities
35÷45%	40÷50%	5÷15%	3÷7%	Depending on the alloy
ROHS COMPLIANCE				
RoHS compliant. No restricted substances present in amounts greater than the maximum tolerated concentrations.				
REACH COMPLIANCE				
REACH compliant. No SVHCs present in amounts higher than 0.1% by weight.				

ANODIZABLE ALLOYS

ANODIZABLE ALLOYS

MAGNESIUM ALLOYS

All commonly used magnesium alloys

COATING THICKNESS AND AESTHETIC APPEARANCE

COATING THICKNESS

STANDARD THICKNESS

10µm

TOLERANCE

±5µm

Variable thickness depending on the geometry of the parts. Thickness is lower in holes and internal zones.

AESTHETIC APPEARANCE


Matt white. Surface roughness increases to approximately Ra 0.8-1.0.

TRIBOLOGICAL PROPERTIES

HARDNESS

The surface hardness of OX-UHA varies in accordance with the treated alloy.

HARDNESS VALUE

 500±100HV

ALLOY

AZ61

WEAR RESISTANCE

Thanks to the high film hardness, the OX-UHA treatment offers high wear resistance, achieving superior values to any other magnesium alloy treatment.

CHEMICAL PROPERTIES

CORROSION RESISTANCE

The compact oxide film of the OX-UHA treatment makes it possible to achieve superior corrosion resistance to that of magnesium alloy chrome plating or standard anodizing processes.

GUIDELINE CORROSION RESISTANCE VALUE

NSS TO ISO 9227 - THICKNESS 10 µm - SURFACE CORRODED < 5%

 ≥240 hours

ALLOY

AZ61

CHEMICAL RESISTANCE

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)
- ✗ Dilute reducing acids (e.g. citric acid, oxalic acid)
- ✗ Acid oxidizing agents (e.g. nitric acid)
- ✗ Concentrated acids (e.g. sulphuric acid, hydrochloric acid)
- ✗ Dilute bases (e.g. dilute sodium hydroxide)
- ✗ Base oxidizing agents (e.g. sodium hypochlorite)
- ✗ Concentrated bases (e.g. concentrated sodium hydroxide)