

NUCOCOMP®

aluminum oxide polymer composite layers



A surface
aalberts technologies

NUCOCOMP®

NUCOCOMP® refers to aluminum oxide polymer composite layers for aluminum alloys. The layers are formed by anodic oxidation of the base material and simultaneous molecular compounding of the aluminum oxide layer with polymers.

Excellent adhesion to the base material results from the fact that the layer partially merges into the base

material. Due to the molecular polymer content, NUCOCOMP® offers chemical bond bridges with a coordinated choice of top-coats, providing very good adhesion results. In general, the cross-linked layer structure makes NUCOCOMP® a robust layer. NUCOCOMP®-H, which is produced on the basis of a hard anodic oxidation (hard anodizing), is harder and more wear and corrosion resistant.

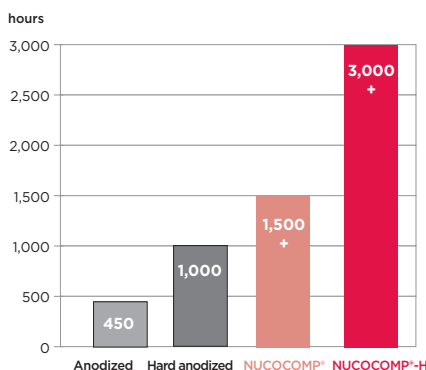
NUCOCOMP® is excellent for coloring. Accelerated weathering tests with 200 hours of UV exposure show only 1/3 of the reduction in color and brightness in NUCOCOMP® compared to that of conventionally

anodized layers (both layers 10 wvw, colored black and sealed). Standard colors: black, titanium grey, blue, red, gold, green. Other colors on request.



Corrosion resistance

NUCOCOMP® is corrosion resistant and outperforms normal anodic coatings due to the presence of molecular polymers.



Component with blue colored NUCOCOMP® layer.

Salt-spray Test (ASTM B117):

alloy 6061 T6, anodized (MIL Typ III) 10 µm / hard anodized (MIL Typ III) 37.5 µm / NUCOCOMP® 10 µm / NUCOCOMP®-H 37.5 µm.

NUCOCOMP®	process details
Hardness	As layer hardness – as usual with anodic oxidation layers – the so called apparent hardness is measured. Depending on the alloy and process, it is between 300 and 600 HV.
Wear resistance	In the Taber-Abraser-Test (MIL A 8625F), NUCOCOMP® shows excellent wear resistance which can be even better than that of conventional anodizing layers.
Flexural strength	NUCOCOMP® does not affect the flexural strength of the base material. This property makes the layer interesting for applications in aviation.
Fracture properties	NUCOCOMP® produces a fibre-like fracture pattern in notch impact tests. In contrast, conventional oxide layers break in a brittle manner like glass.
Tribological properties	NUCOCOMP® roughens up the surface comparatively little and possesses an optimized microstructure. NUCOCOMP® displays very good anti-scuffing properties in various friction pairings and friction tests. In some cases, the friction coefficient in repeated tests even decreases (self-smoothing effect). Stick-slip effects are reduced.
A selection of applications	Architecture, automotive industry, aviation, defense technology, domestic appliances, electrical engineering, hunting firearms, hydraulics, information technology, mechanical engineering, medical technology, packaging machines, photo and video technology, pneumatics, sporting goods.