Ultra Lightweight Parts with Nanovate™ Plating on Plastics



30% weight savings vs. aluminum with stronger and more durable parts

Structural Plating on Plastics

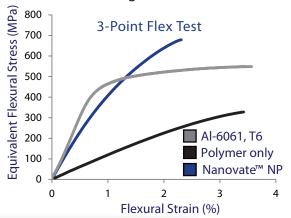
Nanovate™ NP combines high strength nanocrystalline metal coatings on injection molded plastics, resulting in lighter, stronger, more durable parts than aluminum. A wide array of polymers can be used including ABS, Nylon, PEEK, SLS, SLA and FDM





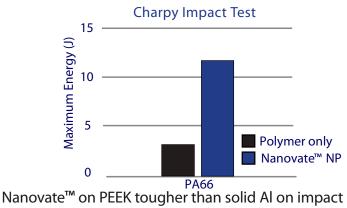
Stronger and Lighter than Aluminum . . .

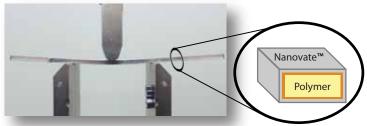
100 μm of Nanovate[™] on GF Nylon comparable to Al with 30% reduction in weight

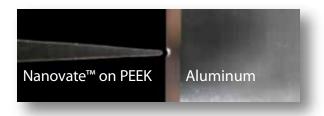




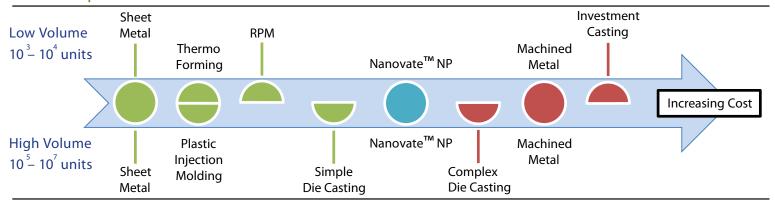
Nanovate[™] adds impact resistance to polymers







Cost Comparison



Example Applications



Jet Engine Components



Aircraft Interiors



Consumer Electronics



Medical Devices



Replace Metal using Nanovate™ Structural Plating on Plastics

Design & Manufacturing Process

Applications



Design

A preliminary technical and commercial feasibility discussion followed by design feedback on CAD models. Corners are rounded to avoid



Plastic and Coating Selection

Optimizing for strength, weight, and functional properties the best plating grade polymer and Nanovate™ alloy complement



Injection Molding

The part is injection molded with no mold release and optimized for surface quality. Initial parts are checked for platability



Plastic Activation

The part is activated using proprietary processes for the selected polymer and is ready for the first metallic layer





Copper Plating

The activated part is given a thin layer of copper to act as



a conductive base ready for the Nanovate™ process



The key step in the manufacturing process, Nanovate[™] is applied providing the structural and functional properties for the part. The coating thickness is typically 30 - 100 µm



Finishing

If required a thin layer of chrome, clear coat, paint, or a variety of other finishes can be applied



Selective Plating



Paint masking over a well defined edge

Tel: 416.675.6266



Two-shot molding with plating and non-plating polymer





About Integran

Integran is a world leader in Nanocrystalline Metal Plating and has a 10 year track record of developing high performance coatings for military and environmental agencies.

Our nanotechnology enabled coatings take advantage of small grain size effects to provide superior performance at reduced weight vs conventional materials



Coarse Grained Metal (10 µm average grain size)



Nanovate[™] Metal (10 -100 nm grain size)

Integran's Toronto, Canada facilities include:

- R&D, prototyping and development facility
- ITAR compliant (Canadian controlled goods program) 5x Stronger
- AS9100C certified by 2012
- · Fully equipped test lab

Integran is also a leader in commercializing nanotechnology:

- Open to licensing for mass production opportunities
- · Already licensed to manufacturing partners in Mexico and China

Nanovate[™] NP is a Green Technology supported by SDTC

Platable Resins

ABS PEI CF/GF
ABS-GF PEEK CF/GF
Nylon PPA
Nylon-GF PPS
PAA SLA
PAI SLS

Featured Resins

DuPont[™] Zytel® HTN53G40LWMF

Metafuse™ Nanometal/Polymer Hybrids
Victrex® PEEK™ 450CA30

Platable advanced engineering polymer

Harvest Technologies Nylon GF HST Rapid prototyping polymer

Recent Awards

2011 JEC Innovation Award (w/ partner ACG) 2010 Frost & Sullivan's North American Enabling Technology of the year 2010 Boeing SURFAIR Innovation Award 2009 Lux Research Global Leader in Nanocoatings

2008 ASM Canada - Corporate Innovation Award

Selected Partners

Government and Defense



Commercial



CleanTech Initiatives



Integran Technologies Facility



Other Highlighted Technologies



Functional Coatings



Magnetic & EMI Shielding



Composite Tube Liners

