

# 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



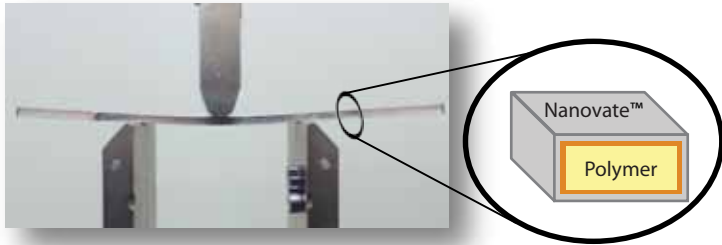
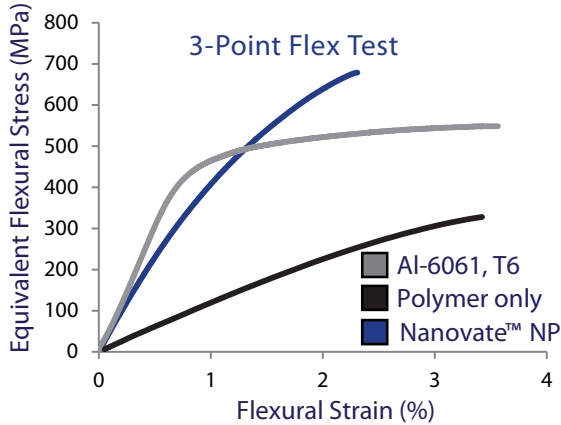
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THE NEXT GENERATION OF HIGH PERFORMANCE MATERIALS

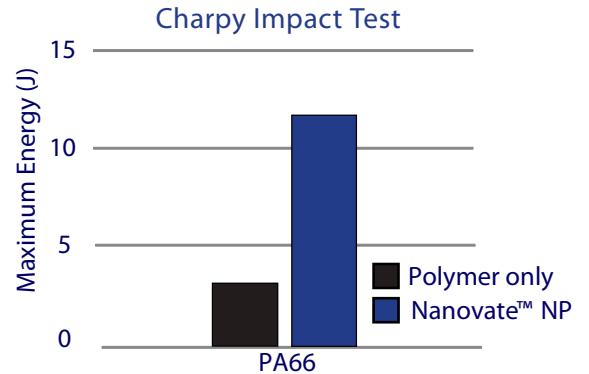
## Stronger and Lighter than Aluminum ...

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

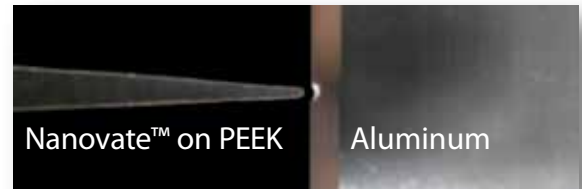


## ... and More Durable

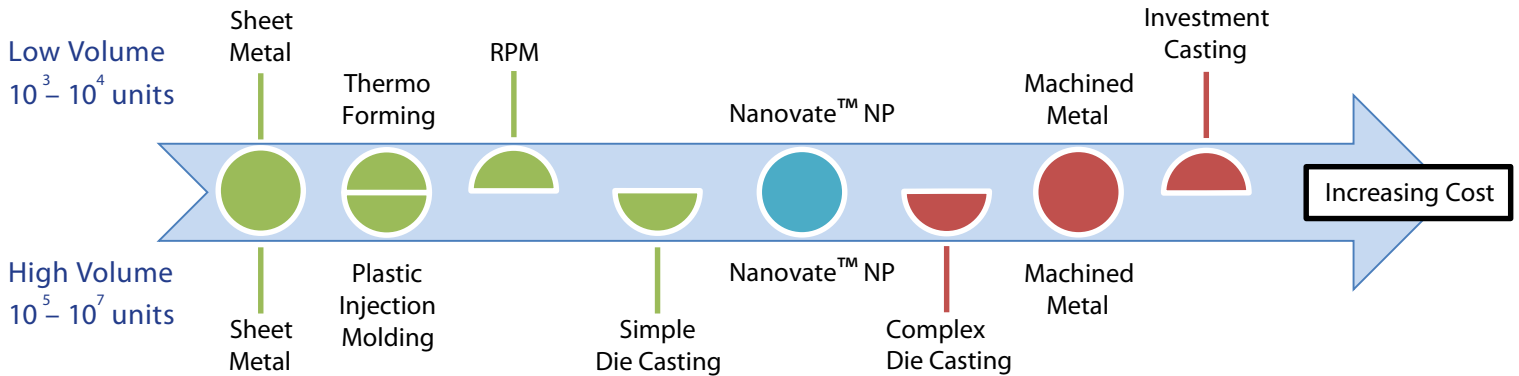
Nanovate™ adds impact resistance to polymers



Nanovate™ on PEEK tougher than solid Al on impact



## 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



## Selective Plating



Paint masking over a well defined edge



Two-shot molding with plating and non-plating polymer



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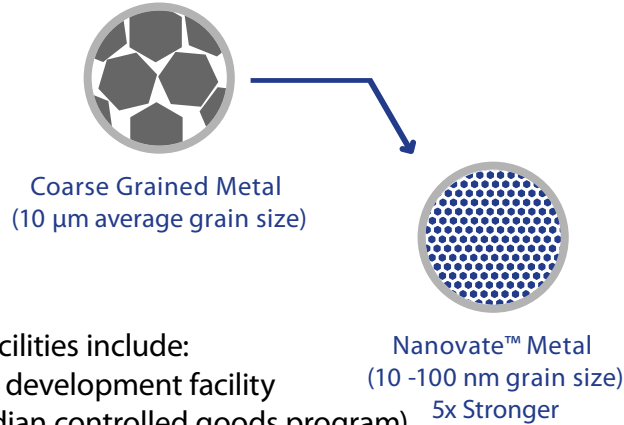
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## About Integran

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



Integran's Toronto, Canada facilities include:

- R&D, prototyping and development facility
- ITAR compliant (Canadian controlled goods program)
- 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 Nano-coatings  
2008 ASM Canada - Corporate Innovation Award

## Selected Partners

### Government and Defense



### Commercial



### CleanTech Initiatives



### Integran Technologies Facility



## Other Highlighted Technologies



CO

Functional Coatings



EM

Magnetic & EMI Shielding



NS

Composite Tube Liners