CERAKOTE® TESTING ON HP MULTI JET FUSION

HP Multi Jet Fusion – Nylon 12

Cerakote is an inorganic polymeric thin-film liquid ceramic coating that is designed to be applied directly to the substrate in a single layer application. Cerakote provides a wide variety of functional properties that complement the Nylon 12 material such as: scratch/abrasion resistance, UV stability, chemical resistance, hydrophobic properties, color consistency, and much more.

To demonstrate the performance attributes of Cerakote coatings on Nylon 12 MJF printed parts, the following tests were administered:

TESTING PARAMETERS

- Parts were provided by HP for testing and coating was applied by the Cerakote Technical Training team.
- Cerakote H-146 Graphite Black and H-297 Stormtrooper White were applied to Nylon 12 MJF printed parts.
- The recommended application process for polymers listed in the Cerakote H & Elite Application Guide was used.
- The test panels were 3”x5” and 3mm thick.

TEST METHOD	**H-146** GRAPHITE BLACK	**H-297** STORMTROOPER WHITE
ASTM D3359 Adhesion (Method A)	5A	4A
ASTM D3359 Adhesion (Method B)	4B	4B
ASTM D3363 Scratch/Gouge	9H/7H	9H/6H
ASTM D4752 24 Hr. Submersion (Modified) – *Water*		
Before and after mass	+0.03 grams	+0.02 grams
Visual color change	No discoloration	No discoloration
ASTM D4752 24 Hr. Submersion (Modified) – *Acetone*		
Before and after mass	+0.07 grams	+0.11 grams
Visual color change	No discoloration	No discoloration
ASTM D4752 24 Hr. Submersion (Modified) – *Diesel*		
Before and after mass	+0.02 grams	+0.02 grams
Visual color change	No discoloration	No discoloration
ASTM D1729 Color – Standard Deviation 16 Samples		
L/A/B Color	L:0.4 / A:0.009 / B:0.06	L:0.18 / A:0.03 / B:0.13
Deviation of mass across 16 samples	Mass 0.42 Grams	Mass 0.55 Grams
ASTM D523 Color – Standard Deviation 16 Samples		
Gloss unit standard deviation at 60°	0.14	0.65

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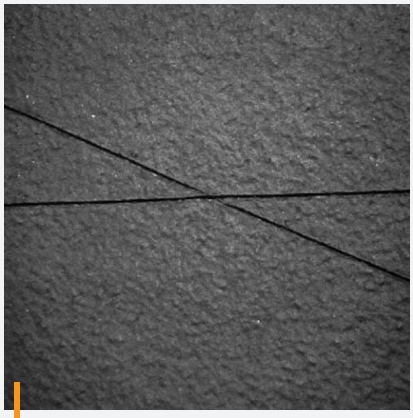
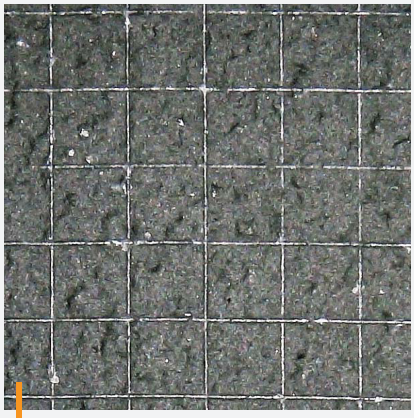
Cerakote's testing proves that applying Cerakote to MJF parts provides a final finish that has additional durability needed to make a MJF part complete.



ASTM D3359 – Adhesion Method A

5A Adhesion



ASTM D3359 – Adhesion Method B

4B Adhesion

ASTM D3363 – Scratch/Gouge

9H/7H

For more information about Cerakote on HP's MJF technology visit Cerakote.com > Industries > 3D Printing. You can also email us at info@cerakote.com or call us at 866-774-7628.

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