Cerakote™ CERAMIC COATINGS FINISH STRONG

RESULT SUMMARY FOR SAMPLE TESTING

Customer:	N/A
Material:	Mossy Oak Brush and Infinity over H – 199 Desert Sand
Date:	5/1/14

Test Summary:
NIC Industries, Inc. examined groups of hydrographic coated parts that had been coated using different preparation methods. The first group was a set of 4 panels that were coated with H-199 Desert Sand at a 24:1 hardener ratio, flashed for 5 minutes at 160 ^{o}F, dipped one hour after flash time with Mossy Oak Brush using the 2010 activator and then cured at 250 ^{o}F.

The second group contained 6 sets of 4 panels. 2 sets were coated with H-199 Desert Sand at a 24:1 hardener ratio, flashed for 5 minutes at 160 ^{o}F, dipped 10 minutes after flash time with Mossy Oak Infinity using the 3350 activator and then cured at 300 ^{o}F for 45 minutes. The next two sets were coated with H-199 Desert Sand at a 24:1 hardener ratio, flashed for 4 minutes at 160 ^{o}F, dipped 10 minutes after flash time with Mossy Oak Infinity using the 3350 activator and then cured at 300 ^{o}F for 45 minutes. The final two sets of the second group were coated with H-199 Desert Sand at a 24:1 hardener ratio, flashed for 3 minutes at 160 ^{o}F, dipped 10 minutes after flash time with Mossy Oak Infinity using the 3350 activator and then cured at 300 ^{o}F for 45 minutes.

The last group also contained 6 sets of 4 panels. 2 sets were coated with H-199 Desert Sand at a 24:1 hardener ratio, flashed for 5 minutes at 160 ^{o}F, sat overnight after flash time, then dipped with Mossy Oak Brush using the 3350 activator and cured at 250 ^{o}F for 2 hours. The next two sets were coated with H-199 Desert Sand at a 24:1 hardener ratio, flashed for 4 minutes at 160 ^{o}F, sat overnight after flash time, then dipped with Mossy Oak Brush using the 3350 activator and cured at 250 ^{o}F for 2 hours. Lastly, the final two sets were coated with H-199 Desert Sand at a 24:1 hardener ratio, flashed for 3 minutes at 160 ^{o}F, sat overnight after flash time, then dipped with Mossy Oak Brush using the 3350 activator and cured at 250 ^{o}F for 2 hours.

In order to determine the performance provided by the parts, NIC Industries subjected the parts to ASTM tests. NIC Industries subjected the panels to pencil hardness, scratch hardness, adhesion, mandrel bend, impact, gloss and thickness.

Test Results:
The ASTM tests used to analyze the performance provided by the two coatings were pencil hardness, scratch hardness, adhesion, mandrel bend, impact, gloss and thickness. Each test was performed according to the proper ASTM standards. The results of these tests of each coating are summarized in the tables below.

Table 1 shows the results of first group of panels (Mossy Oak Brush with 2010 activator), Table 2 the results of the second group of panels (Mossy Oak Infinity with 3350 activator) and Table 3 the results of the final group (Mossy Oak Brush with 3350 activator). The values reported are in regards to performance of the hydrographics themselves and the bond it shares to the H-199 Desert Sand. For example, in terms of adhesion this means that while portions of the hydrographics were removed, the Desert Sand remained bonded to the metal substrate.

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Test	Mossy Oak Brush with 2010 activator 5 min flash
Thickness (mils)	0.7-1.1
Gloss	5.7
Pencil Hardness	7h
Scratch Hardness	7h
Adhesion	3B
Mandrel Bend	0 mm loss
Impact (Direct)	160 inch-lbs
Impact (Indirect)	160 inch-lbs

Table 1. ASTM Results for Group 1 (Mossy Oak Brush with 2010 Activator).

Test	Mossy Oak Infinity with 3350 activator 5 min flash	Mossy Oak Infinity with 3350 activator 4 min flash	Mossy Oak Infinity with 3350 activator 3 min flash
Thickness (mils)	0.4-1.25	0.5-1.0	0.5-1.2
Gloss	7.2	6.6	7.9
Pencil Hardness	6h	6h	6h
Scratch Hardness	6h	6h	6h
Adhesion	2B	2B	1B
Mandrel Bend	0 mm loss	0 mm loss	0 mm loss
Impact	160 inch-lbs	160 inch-lbs	140 inch-lbs
Impact (Indirect)	160 inch-lbs	160 inch-lbs	60 inch-lbs

Table 2. ASTM Results for Group 2 (Mossy Oak Infinity with 3350 Activator).

Test	Mossy Oak Brush with 3350 activator 5 min flash	Mossy Oak Brush with 3350 activator 4 min flash	Mossy Oak Brush with 3350 activator 3 min flash
Thickness (mils)	0.4-1.0	0.5-1.0	0.5-1.2
Gloss	3.5	3.5	3.7
Pencil Hardness	7h	6h	4h
Scratch Hardness	6h	5h	4h
Adhesion	5B	5B	5B
Mandrel Bend	0 mm loss	0 mm loss	0 mm loss
Impact	160 inch-lbs	160 inch-lbs	160 inch-lbs
Impact (Indirect)	160 inch-lbs	160 inch-lbs	160 inch-lbs

Table 3. ASTM Results for Group 3 (Mossy Oak Brush with 3350 Activator).

The combination that had the best overall performance throughout all of the ASTM testing process was the 5 minute flash Mossy Oak Brush with 3350 activator, followed closely by the 5 minute flash Mossy Oak Brush with 2010 activator.

Credit: Hydrographic Film and H-199 coating application courtesy of Dynamic Finishes in Lee's Summit, Missouri (http://www.dynamicfinishes.com/).

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