

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 to Formlabs materials 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 Formlabs SLS and SLA printed parts, the following tests were administered.

TESTING PARAMETERS

- Materials were provided by Formlabs for testing and coating was applied by the Cerakote Technical Training team.
- Cerakote H-146 Graphite Black and C-102 Graphite Black were applied to Rigid 4k, Rigid 10K, Durable, Tough 2000, Grey Pro, and Nylon 12 printed parts.
- The recommended application process for polymers listed in the Cerakote H & Elite and C-Series Application Guides were used.
- The test panels were 3"x5" and 3mm thick.
- Tests conducted
 - ASTM Cross Hatch Adhesion D3359 (Method A/ Method B)
 - Pencil Hardness ASTM D3363 (Scratch/Gouge)
 - 24 Hour Chemical/Solvent/Fuel Submersion Testing
 - X-Rite Ci6X Color Spectrophotometer Measuring L,A,B Values / X-Right AcuGloss Reader Measuring Gloss Values

H-146	Panel	Gloss	L	A	B	Crosscut Adhesion Method A	Crosshatch Adhesion Method B	Gouge	Scratch
Rigid 4k	1	1.3GU	27.77	0.23	-0.11	5A	4B	7-H	7-H
	2	1.6GU	27.53	0.22	-0.14	5A	3B	9-H	7-H
Rigid 10k	1	3.4GU	28.41	0.20	-0.28	5A	5B	9-H	7-H
	2	3.3GU	29.08	0.21	-0.23	5A	5B	9-H	7-H
Durable	1	1.2GU	28.06	0.17	-0.35	5A	5B	9-H	9-H
	2	0.8GU	27.03	0.19	-0.30	5A	5B	9-H	9-H
Tough 2000	1	1.5GU	25.31	-0.06	-1.06	4A	5B	8-H	5-H
	2	2.5GU	25.50	-0.08	-1.02	4A	5B	7-H	5-H
Grey Pro	1	3.3GU	25.70	-0.10	-1.10	4A	4B	9-H	7-H
	2	2.4GU	25.45	-0.07	-1.06	5A	4B	9-H	7-H
Nylon 12	1	2.4GU	29.26	0.20	-0.29	4A	5B	9-H	8-H
	2	1.5GU	28.16	0.25	0.07	4A	5B	9-H	8-H

C-102	Panel	Gloss	L	A	B	Crosscut Adhesion Method A	Crosshatch Adhesion Method B	Gouge	Scratch
High Temp	1	2.9GU	25.65	-0.09	-1.11	4A	5B	9-H	5-H
	2	2.5GU	25.66	-0.08	-1.07	4A	5B	9-H	5-H
Rigid 10k	1	2.6GU	25.06	-0.08	-1.17	5A	5B	4-H	4-H
	2	2.1GU	24.85	-0.06	-1.19	5A	5B	3-H	3-H
Tough 1500	1	2.4GU	24.98	-0.08	-1.02	4A	5B	9-H	7-H
	2	2.5GU	25.43	-0.08	-1.09	4A	5B	9-H	4-H

Chemicals	Tough 1500	Rigid 10k	Nylon 12
Diesel	No Discoloration	No Discoloration	No Discoloration
Methylene Chloride	Slight Discoloration	No Discoloration	No Discoloration
91% Isopropyl Alcohol	No Discoloration	No Discoloration	No Discoloration