

Imron® 3.1 HG-D + Polyurethane High Gloss Direct-To-Metal (Mix Quality TH)



GENERAL

DESCRIPTION

Imron 3.1 HG-D + is a two-package, VOC conforming to comply with 3.5 lbs/gal regulated areas, low HAPS, direct-to-metal (DTM) acrylic polyurethane. The coating is designed to provide a highly durable high gloss, high build, one-step system suitable for non-corrosive exposures and selected harsher environments. The resulting product is a direct-to-metal acrylic polyurethane which can be brushed, rolled or sprayed and formulated to provide maximum topcoat appearance and industry-leading polyurethane performance.

SUGGESTED USES

Designed as a quality high build, high gloss, polyurethane DTM on hot rolled carbon steel, weathered and properly treated galvanized, aluminum, dry wall, and wood where:

- A one-step DTM application is desired
- High build either as a DTM or high build topcoat is desired
- Outstanding DTM color and gloss retention are required
- Excellent adhesion and flexibility are desired
- Application by brush and roller, in addition to spraying, may be necessary
- Application to 35°F may be required
- Excellent hiding is needed

COMPATIBILITY WITH OTHER COATINGS

- Imron 3.1 HG-D + can be applied as a DTM over properly prepared: aluminum, hot rolled carbon steel, and weathered galvanized surfaces, in non-corrosive exposures and selected harsher environments (contact Axalta Coating Systems for specific recommendations).
- It may be used over most aged and hard cured coatings in good condition. Testing for lifting, bubbling and adhesion is recommended to assure compatibility with unknown coatings.
- For more protection, Imron 3.1 HG-D + can also be used over properly primed surfaces in exterior exposures. Recommended primers include: Imron 2.8 PR, Imron 2.1 PR, Tufcote™ 3.3 PR, Tufcote 3.5 PR, Corlar® 2.1 PR, Corlar 2.1 PR-P, and Corlar 2.8PR. Contact your Axalta Coatings Systems Representative for specific recommendations.

NOT RECOMMENDED FOR

- Immersion service or floors
- Severely corrosive environments (as a one coat system)

PERFORMANCE PROPERTIES

Abrasion & Mechanical	Excellent
Alkalis	Excellent
Humidity	Excellent
Solvents	Excellent
Color & Gloss Retention	Excellent
Acids	Excellent
Salts	Excellent
Weather	Excellent

COLOR

164-67632 White
164-67640 Black
Custom Mix Colors | Mix quality TH



MIXING

MIX RATIO

8 parts colored base (mix quality TH)
1 part 9T00-A

OR

8 parts colored base (mix quality TH)
1 part 15309S

PACKAGING

Custom Mix Colors (TH)

Activator - 9T00-A

Activator-15309S

Please consult Axalta Customer Service for current size availability.

Various fills

Quart container 100% full (32 oz.)

Quart container 100% full (32oz.)



APPLICATION

SURFACE PREPARATION

Imron 3.1 HG-D + can be applied as a DTM over properly prepared: aluminum, steel, and weathered galvanized surfaces. All surfaces should be cleaned with solvent (SSPC-SP1) to remove any grease or oil contamination prior to priming. For best results, abrasive blast surface to an SSPC-SP-6 Commercial Blast. Profile should be 1.5 to 2.0 mils. Average peak to valley surface profile should be 1.5 to 2.0 mils. If blasting is not possible or practical, then hand tool clean to an SSPC-SP 2 or power tool clean to an SSPC-SP 3 may be used with possible sacrifice in performance vs. blasted surfaces.

- Aluminum surfaces should be properly treated. Surface preparations may include sanding, alodine treatment or other preparation necessary to ensure adhesion. Can be applied over other surface preparations as well as phosphatizing.
- Galvanized steel surface preparation may include detergent washing, pre-treatment and abrasion for new surfaces; for weathered surfaces, detergent washing and sanding. For new galvanized surfaces, an appropriate primer such as Corlar 2.1 ST should be used.

For additional protection in exterior exposures, Imron 3.1 HG-D + can also be used over properly primed surfaces.

- Recommended primers include: Imron 2.8 PR, Imron 2.1 PR, Tufcote 3.3 PR, Tufcote 3.5 PR, Corlar 2.1 PR, Corlar 2.1 PR-P, Corlar 2.8PR.
- Contact your Axalta Representative for specific recommendations.

ACTIVATION

Mix pigmented portion until uniform in color. Mix 8 parts color base to 1 part Imron 9T00-A activator OR 8 parts of color base to 1 part Imron 15309S activator. Measure out appropriate amounts and add activator while mixing. Material can be used immediately. There is no induction time. Addition of thinner is not recommended and may affect film build and VOC.

REDUCTION

No reduction necessary to achieve 8 mils wet.

When rolling Imron 3.1 HG-D +, add 1 oz per activated gallon of 9M05 Rolling Thinner to reduce bubbling.

Any thinning may hamper ability to achieve high film builds and may cause sagging to occur. Application by brush or roller may require additional coats to achieve recommended dry film thickness. While no reduction is recommended to achieve recommended film builds, up to 5% 9M01, 9M02 or Y32401 can be added. Please check VOC limitations before using.

APPLICATION THINNERS

Spray, Brush	None recommended
Electrostatic Spray	None recommended
Rolling	9M05

Note: 9M01, 9M02 and Y32401 can be used as noted in the reduction section, if conditions dictate.

CLEAN UP THINNERS

T-1021, Acetone, MEK

APPLICATION CONDITIONS

Do not apply if material, substrate or ambient temperature is below 35°F (2°C) or above 110°F (43°C). The substrate must be at least 5°F (3°C) above the dew point. Relative humidity should be below 90%.

APPLICATION EQUIPMENT

- Apply by spray, brush or roll
- Manufacturers listed below are a guide. Others may be used. Changes in pressure and tip size may be required to achieve proper application.

BRUSH and ROLL

- ¼"- ½" nap Wooster Pro/Doo-Z roller cover. Keep roll wet. Roll in one direction, rewet, then cross roll.
- 2"-4" Wooster China Bristle Brush

CONVENTIONAL

Manufacturer | Model | Tip Size

Manufacturer	Model	Tip Size
Sata	DeVilbiss	Graco
K3 RP or	JGA, MBC	DeltaSpray XT
LM 3000 RP	or FLG	Iwata
1.0 – 1.3 mm	1.1 - 1.4 mm	W-77, W-71, or W-200
		1.2 – 1.4 mm
		Binks
		2001 or 95
		1.2 – 1.3 mm

*Fluid lines 3/8" ID or larger are required for proper fluid delivery.

HVLP SPRAY

Manufacturer | Model | Tip Size

Manufacturer	Model	Tip Size
Sata	DeVilbiss	Graco
3000RP	JGHV, EXL, or	AirPro
HVLP	FLG	Iwata
1.0 – 1.3 mm	1.1 - 1.4 mm	LPH 200 LVLP
		1.2 – 1.4 mm
		Binks
		MACH 1 & 1SL
		SV100 HVLP
		1.2 – 1.4 mm

AIRLESS SPRAY

Manufacturer

Manufacturer	Model	Tip Size
Graco	Iwata	Binks
Silver or Plus	ALG or	Airless 1
	Airlesso	Kremlin
		Airless 250 II
Tip Size	.011 - .015	.011 - .017
Pump	30:1 min	30:1 min
		.013 - .017
		Orca 32:1

- Fluid lines > ¼" ID are recommended for lengths up to 25', 3/8" ID or larger are required for proper fluid delivery at lengths longer than 25'.
- Minimum pressure: 2500 – 4500 psi
- Filter 60 Mesh.

ELECTROSTATIC

Manufacturer

Manufacturer	Model	Tip Size
Graco	Nordson	Ransburg
PRO Xs3	Kinetix Systems	REA 90
Or XS4	AA, KVLP &	or AA90
Electrostatic	Conventional	
Gun		

Orifice Size

in.	(mm)	in.	(mm)
.031	(0.8)	.055	(1.4)
.042	(1.0)	.067	(1.7)
.043	(1.1)	.070	(1.8)
.051	(1.3)	.080	(2.0)



DRY TIMES

Cure Times – HOURS @ 5 mils suggested DFT

	@ 77° F (25° C) 50% RH			@ 90° F (32° C) 50% RH	
	No Accelerator	With 1 oz VG805	With 1 oz V389S	No Accelerator	With 1 oz. VG805
To Touch	1.5	0.5	0.5	0.5	0.5
To Handle	6	5	4	3	2
To Recoat	4	2	1	2	1.5
Pot Life	3	2	1.5	2	1.5
Full Cure	7 days	6 days	6 Days	6 days	5 Days



PHYSICAL PROPERTIES

Maximum Service Temperature 250°F (93°C) in continuous service.

Note: Solids, Gallon Weight will vary with color. Values listed above are an average across many colors. If exact values are needed, please contact Axalta Coating Systems.

Volume Solids (RTS) with 9T00-A 52 +/- 2%
Volume solids (RTS) with 15309S 49 +/- 2%

Weight Solids (RTS) with 9T00-A 62 +/- 3%
Weight solids (RTS) with 15309S 59 +/- 4%

Theoretical Coverage Per Gallon with 9T00-A 834 ft² /gal @ 1 mil dft
166 ft² /gal @ 5 mil dft

Theoretical Coverage Per Gallon with 15309S 785 ft² /gal @ 1 mil dft
157 ft² /gal @ 5 mil dft

Material losses during mixing and application will vary and must be taken into consideration when estimating job requirements.

Weight Per Gallon (RTS) with 9T00-A 9.5 +/- 1 lbs
Weight Per Gallon (RTS) with 15309S 9.4 +/- 1 lbs

Shipping Weight (approximate)
Enamel: 1 gallon container: Varies with fill
Activator: 1 quart container: @ 2 - 3 lbs
Suggested Film Thickness 6.0 – 8.0 mils (150-200 µm) wet
4.0 – 5.0 mils (100 – 125 µm) dry

Application by brush and roller may require additional coats to achieve recommended films thickness.

Flash Point Closed Cup Between 20° to 73°F (-6° to 23°C)
Gloss (ASTM D523) 90 measured @ 60° angle
Color Custom Colors
Shelf Life 12 months minimum

Storage Conditions
Store in a dry, well-ventilated area. Storage conditions should be between 35°F (2°C) and 120°F (48°C).

VOC REGULATIONS

Imron 3.1 HG-D+ is designed to comply with recommended reduction conditions to 3.5 lbs/gal regulated areas. This product can also be used with additional flexibility, with lower VOC conditions. Please see reduction conditions for complete information.

8:1	with 9T00-A	with 9T00-A + 5% 9M02
	VOC lbs/gal	VOC lbs/gal
No accelerator or reducer	3.086	3.178
1 oz 389S	3.129	3.186
2 oz 389S	3.171	3.228
1 oz VG805	3.129	3.186
2 oz VG805	3.171	3.228

8:1	with 15309S	with 15309S + 5% 9M02
	VOC lbs/gal	VOC lbs/gal
No accelerator or reducer	3.161	3.153
1 oz 389S	3.204	3.222
2 oz 389S	3.247	3.270
1 oz VG805	3.204	3.222
2 oz VG805	3.246	3.270

HAPS INFORMATION – THEORETICAL

Lbs Volatile HAPS per gallon of solids

8:1	with 9T00-A	with 9T00A + 5% 9M02
	HAPS lbs/gal	HAPS lbs/gal
No accelerator or reducer	0.456	0.456
1 oz 389S	0.457	0.457
2 oz 389S	0.457	0.457
1 oz VG805	0.457	0.457
2 oz VG805	0.457	0.457

8:1	with 15309S	with 15309S + 5% 9M02
	HAPS lbs/gal	HAPS lbs/gal
No accelerator or reducer	0.477	0.477
1 oz 389S	0.478	0.478
2 oz 389S	0.478	0.478
1 oz VG805	0.478	0.478
2 oz VG805	0.478	0.478

These directions refer to the use of products which may be restricted or require special mixing instructions in VOC regulated areas. Follow mixing usage and recommendations in the VOC Compliant Products Chart for your area.

ASTM INFORMATION

Physical properties are for Imron 3.1 HG-D + direct-to-metal only. Properties may be enhanced by use of appropriate primers. For other system recommendations, please contact Axalta Coating Systems.

Paint System: Imron 3.1 HG-D +
 Substrate: Grit blasted cold rolled steel/ Bonderite1000
 Type: Polyurethane
 DFT: 4-5 mils

Test	Results	750 hrs	1000 hrs
Adhesion (ASTM D335)			
X-cut	5 A-No failures		
Cross hatch	5 B-No failures		
Impact (ASTM D 2794) 80 in lbs.- Forward	No failures		
Mandrel Bend (ASTM D522) 1/8 " mandrel	No cracking		
Pencil Hardness	4H		
Salt Fog (ASTM B117)		No creep from scribe, no blistering	Creep: 0.5 to 1.0 mm No blistering
Relative Humidity (ASTM D2247)		No blistering	No blistering
QUV Condensation (ASTM D4587/340A)		See 1000 hours	86 % gloss retention @ 60°

SELECT CHEMICAL RESISTANCE

The following are chemical resistance ratings (1=poor, 10= excellent), after exposure to listed chemicals and 24-hour watch glass exposure.

Chemical	Rating	Chemical	Rating
Sulfuric Acid 1%	10	Diethylene Glycol Monobutyl Ether	8
Sulfuric Acid 10%	8	Sodium Hydroxide 10%	7
Phosphoric Acid 10%	10	Motor Oil (Mobil 10W-30)	10
Methyl Ethyl Ketone	9	Hydraulic Oil (Pennzoil)	10
Nitric Acid 1%	9	Cutting oil (Rigid)	7
Ammonium Hydroxide 5%	9	Unleaded Gas	8
Ammonium Hydroxide 28%	9	Skydrol (500B4L)	7
Sodium Hydroxide 1%	10	Tide Soap 10%	10
Sodium Hydroxide 5%	8	Fantastic	7
Ethanol	9	Bleach	7
Aromatic Controlled VM&P Naphtha	9	Break Fluid (DOT 3 Wagner Premium)	7
Isopropyl Alcohol	9	Cola	10

SAFETY AND HANDLING

For industrial use only by professional, trained painters. Not for sale to or use by the general public. Before using, read and follow all label and MSDS precautions. If mixed with other components, mixture will have hazards of all components.

Ready to use paint materials containing isocyanates can cause irritation of the respiratory organs and hypersensitive reactions. Asthma sufferers, those with allergies and anyone with a history of respiratory complaints must not be asked to work with products containing isocyanates.

Do not sand, flame cut, braze or weld dry coating without a NIOSH approved air purifying respirator with particulate filters or appropriate ventilation, and gloves.

All technical advice, recommendations and services are rendered by the Seller gratis. They are based on technical data which the Seller believes to be reliable, and are intended for professional use by persons having skill and know-how at their own discretion and risk. Seller assumes no responsibility for results obtained or damages incurred from their use by Buyer in whole or in part. Such recommendations, technical advice or services are not to be taken as a license to operate under or intended to suggest infringement of any existing patent.

Revised: July 2016