

RUST-OLEUM®



9400 SYSTEM

HIGH GLOSS POLYESTER URETHANE

DESCRIPTION AND USES

A two component, polyester polyurethane with a super high gloss finish. This coating system has two different activators to meet the specific requirements set by national air quality regulations. The 9401 Activator is used to meet the VOC requirements of the automotive refinishing rule. The 9401 Activator does not meet the VOC requirements for industrial maintenance painting. For industrial maintenance painting, use only the HS9401 Activator which has been formulated to meet the reduced VOC levels established for this market.

When using the 9401 Activator, this highly durable, high gloss enamel is designed for coating mobile equipment used in an aggressive environment. The coating has excellent chemical resistance and excellent color and gloss retention making it ideal for outdoor equipment such as ready-mix concrete trucks, bulk haulers, tank wagons, cranes, and other mobile equipment.

When using the HS9401 Activator, this high performance polyurethane has excellent chemical resistance and excellent color and gloss retention. It is suitable for use in severe coastal, offshore, or chemical environments where both corrosion protection and aesthetics are very important. Ideal for exposed structural steel, tanks, conveyors, and other tough maintenance applications.

PRODUCTS

FINISHES

1-Gallon	5-Gallon	Description
9410402	—	Clear
9425402	—	Blue
9479402	—	Black
9483402	—	Gray
9492402	9492300	White
9465402	—	Red
9401402	9401300	Activator
HS9401402	HS9401300	High Solids Activator
9402730*	—	Dry Time Accelerator
9404730*	—	Leveling Additive

TINT BASES

1-Gallon	5-Gallon	Description
9405405	—	Red Base
9406405	—	Yellow Base
9407405	—	High Gloss Masstone
9408421	—	High Gloss Deep
9409408	—	High Gloss Light

PRODUCTS (cont.)

*Use with 9401 Activator only. All standard colors, tint bases and activators are USDA acceptable under FSIS Directive 11000.4 (Rev.1), November 24,1995. Color subject to approval of USDA Inspector. Agriculture Canada accepted: 9425, 9492, 9479, 9410, 9483, and 9465 cured with HS9401 Activator.

PACKAGING

Standard premix colors are packaged in short filled gallon containers to allow for the addition of activator. The activator is packaged in a short filled, cone top, quart container. The combined base and activator components will yield one full gallon.

Tint bases are packaged in short filled gallon containers to allow for the addition of colorant and activator. The following tint bases are available. **Red Base** – A red tint base that can accept up to 16 ounces of colorant per gallon. **Yellow Base** – A yellow tint base that can accept up to 16 ounces of colorant per gallon. **Masstone Base** – A clear tint base that can accept up to 16 ounces of colorant per gallon. **Deep Base** – A white tint base that contains 0.8 pounds of titanium dioxide per gallon. It can accept up to 12 ounces of colorant per gallon. **Light Base** – A white tint base that contains 1.8 pounds of titanium dioxide per gallon. It can accept up to 8 ounces of colorant per gallon. Activated tinted colors which do not use the maximum amount of colorant will yield less than a full gallon of activated material.

COMPANION PRODUCTS

RECOMMENDED PRIMERS

HS9369 Red
HS9381 Gray Epoxy Primer.

COMPATIBLE PRIMERS

With 9401 activator:

2083 Gray Transportation Primer

With HS9401 activator:

9100 System DTM Epoxy Mastic, (do not use 9115 aluminum)

9360 or 9370 High Solids Epoxy Primer

PRODUCT APPLICATION

SURFACE PREPARATION

ALL SURFACES: If excessive time has elapsed since the primer was applied, remove all dirt, grease, oil, salt and chemical contaminants by washing the surface with Pure Strength® Cleaner/Degreaser item #3599402, commercial detergent or other suitable cleaner.



TECHNICAL DATA

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PRODUCT APPLICATION (cont.)

Two-component epoxy primers may require light scuff sanding or sweep blasting. Mold and mildew areas must be cleaned with a chlorinated cleaner or bleach solution. Rinse thoroughly with freshwater and allow to fully dry. All surfaces must be dry at time of application.

STEEL: Intended for clean steel only. Sand or scarify the surface to optimize adhesion. For optimum corrosion resistance, use HS9369 Red or HS9381 Gray Epoxy Primer as a prime coat. See primer labels and technical data sheet for correct surface preparation and application procedures.

PREVIOUSLY COATED: Previously coated surfaces must be sound and in good condition. Smooth, hard, or glossy finishes should be scarified by sanding or sweep blasting to create a surface profile. The High Gloss Polyester Urethane is compatible with most coatings, but a test patch is suggested.

WARNING! If you scrape, sand or remove old paint from any surface, you may release lead paint dust. **LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE.** Wear a NIOSH-approved respirator to control lead exposure. Carefully clean up with a wet mop or HEPA vacuum. Before you start, find out how to protect yourself and your family by contacting the U.S.EPA/Lead Information Hotline at 1-800-424-LEAD or log onto www.epa.gov/lead.

GALVANIZED METAL: New galvanized steel must be free of grease, oil, or wax surface treatments prior to coating. Solvent wiping may be required.

APPLICATION

Apply only when the air temperature is between 32-100°F (0-38°C) and surface temperature is at least 5°F above dew point and less than 120°F (49°C). For best result, air atomized spray is the recommended method of application. Airless spray will produce an acceptable industrial finish. Brush and roller applications generally do not produce an acceptable finish and should be limited to touch up only. The 9404 Leveling Additive is suggested for use with the 9401 Activator. The 9402 Accelerator and 9404 Leveling Additive can not be used with HS9401 Activator.

EQUIPMENT RECOMMENDATIONS

BRUSH: For touch-up only. Good quality natural or synthetic bristle recommended.

ROLLER: For touch-up only. Good quality lamb's wool or synthetic fiber recommended.

AIR-ATOMIZED SPRAY:

Method Pressure	Fluid Tip	Fluid Delivery	Atom.
Pressure	0.055-0.070	10-16 oz./min.	25-60 psi
Siphon	0.055-0.070	—	25-60 psi
HVLP	0.043-0.070	8-10 oz./min.	10 psi at the tip

PRODUCT APPLICATION (cont.)

AIRLESS SPRAY:

Fluid Pressure	Fluid Tip	Filter Mesh
1600-2400 psi	0.013-0.017	100

THINNING

With 9401 activator:

Use the following levels of 190 Thinner to remain within VOC limits: Without additives, do not exceed 15% by volume (19 oz. per activated gallon). With 9402 Accelerator, do not exceed 14% by volume (18 oz. per activated gallon). With 9404 Leveling Additive, do not exceed 15% by volume (19 oz. per activated gallon).

With HS9401 activator:

Use the following levels of 195 Reducer to remain within VOC limits: for airless spray do not exceed 15% by volume (19 oz. per activated gallon); for air atomized spray do not exceed 20% by volume (25 oz. per activated gallon). In order to maintain VOC <420 g/l do not thin more than 25% by volume with 195 Reducer only.

MIXING

Premix base component before adding activator, then combine at a 1:1 ratio by volume and mix together. Short-filled tinted base components are to be mixed with one full gallon of activator.

CLEAN-UP

190 Thinner or Methyl Ethyl Ketone (MEK)

PERFORMANCE CHARACTERISTIC

System Tested

Primer: 9100 System DTM Epoxy Mastic

Topcoat: 9400 System High Gloss Polyester Urethane

CYCLIC PROHESION

Rating 1-10, 10=best

METHOD: ASTM D5894, 5 cycles, 1,680 hours

RESULT: 10 per ASTM D714 for blistering

RESULT: 10 per ASTM D610 for rusting

GLOSS (60°)

METHOD: ASTM D523

RESULT: 94% (color-white)

ACCELERATED WEATHERING (% gloss retention)

METHOD: ASTM D4587, QUV Type A bulb, 1,500 hours

RESULT: 99% gloss retention (color-white)

Refer to the Rust-Oleum Industrial Brands Catalog (Form #206275) for chemical and corrosion resistance.



TECHNICAL DATA

9400 SYSTEM HIGH GLOSS POLYESTER URETHANE

PHYSICAL PROPERTIES

		FINISH COLORS†	TINT BASES†	FINISH COLORS‡	TINT BASES‡
		†With 9401 Activator		‡With HS9401 Activator	
Resin Type		Aliphatic isocyanate, converted polyester urethane		Aliphatic isocyanate, converted polyester urethane	
Solvents		Xylene, esters and ketones		Xylene, esters and ketones	
Weight*	Per Gallon	8.3-10.3 lbs.	8.3-9.8 lbs.	8.7-10.5 lbs.	8.6-10.2 lbs.
	Per Liter	1.0-1.2 kg	1.0-1.2 kg	1.0-1.2 kg	1.0-1.2 kg
Solids*	By Weight	44-45%, 43% 9410 Clear	46-54%	61-71%, 60% 9410 Clear	62-70%
	By Volume	37-41%, 35% 9410 Clear	39-42%	54-58%, 43% 9410 Clear	55-58%
Volatile Organic Compounds*		<600 g/l (5.0 lbs./gal.)		<420 g/l (3.50 lbs./gal.)	
Recommended Dry Film (DFT) Per Coat		1-2 mils (25-50µ) 0.5-1.0 mils (12.5-25.0µ) 9410 Clear	1-2 mils (25-50µ)	1-2 mils (25-50µ)	1-2 mils (25-50µ)
Wet Film to Achieve DFT (unthinned material)		3-5 mils (75-125µ) 1.5-2.5 mils (37.5-62.5µ) 9410 Clear	2.5-5.0 mils (62.5-125µ)	2.0-4.0 mils (50-100µ)	2.0-3.5 mils (50-87.5µ)
Theoretical Coverage at 1 mil DFT (25µ)		595-660 sq. ft./gal. (14.6-16.2 m ² /l) 560 sq. ft./gal. (13.8 m ² /l) Clear	560 sq. ft./gal. (13.8 m ² /l)	866-930 sq. ft./gal. (21.3-22.9 m ² /l)	885-930 sq. ft./gal. (21.8-19.4 m ² /l)
Practical Coverage at Recommended DFT (assumes 15% material loss)		260-560 sq. ft./gal. (6.4-13.8 m ² /l) 480-950 sq. ft./gal. (11.8-23.4 m ² /l) 9410 Clear	265-570 sq. ft./gal. (6.5-14.0 m ² /l)	370-790 sq. ft./gal. (9.1-19.4 m ² /l)	375-790 sq. ft./gal. (9.2-19.4 m ² /l)
Mixing Ratio		1:1 Activator to base (by volume)	One full gallon of 9401 Activator per unit of tinted base component	1:1 Activator to base (by volume)	One full gallon of HS9401 Activator per unit of tinted base component
Induction Period		None required	None required	None required	None required
Pot Life @ 70-80°F (21-27°C) & 50% Relative Humidity		8-16 hours	8-16 hours	2-4 hours	2-4 hours
Dry Times at 77°F (25°C) and 50% Relative Humidity	Tack-free	2-4 hours	2-4 hours	2-4 hours	2-4 hours
	Handle	4-6 hours	4-6 hours	6-8 hours	6-8 hours
	Recoat	9400 Finishes after 16 hours; Over HS9360 or HS9381, ½-72 hours; Over 2083, ½ hour		9400 Finishes after 16 hours; Over HS9360 or HS9381, ½-72 hours; Over 9100 Finishes, 16 hours-14 days. Over HS Epoxy Primers, 16 hours - 14 days. Over 2068 or 2082 after 1 hour.	
Force Cure		15-20 minutes at 150-225°F (66-105°C) Dry to handle after cooling.		15-20 minutes at 150-225°F (66-105°C) Dry to handle after cooling.	
Dry Heat Resistance		300°F (149°C). A color shift may occur at temperatures above 150°F (66°C)		300°F (149°C). A color shift may occur at temperatures above 150°F (66°C)	
Shelf Life		2 years. Opened 9401 Activator must be used within 2-4 weeks. Do not use opened activator if it has become cloudy.		2 years. Opened HS9401 Activator must be used within 2-4 weeks. Do not use opened activator if it has become cloudy.	
Safety Information	Warning!	FLAMMABLE. VAPOR HARMFUL IF INHALED MAY AFFECT BRAIN OR NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. CAUSES NOSE, THROAT, EYE AND SKIN IRRITATION. FOR INDUSTRIAL OR COMMERCIAL USE ONLY. KEEP OUT OF REACH OF CHILDREN. SEE THE PRODUCT MATERIAL SAFETY DATA SHEET (MSDS) AND LABEL WARNINGS FOR ADDITIONAL SAFETY INFORMATION.			

*Activated material

Calculated values are shown and may vary slightly from the actual manufactured material.

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