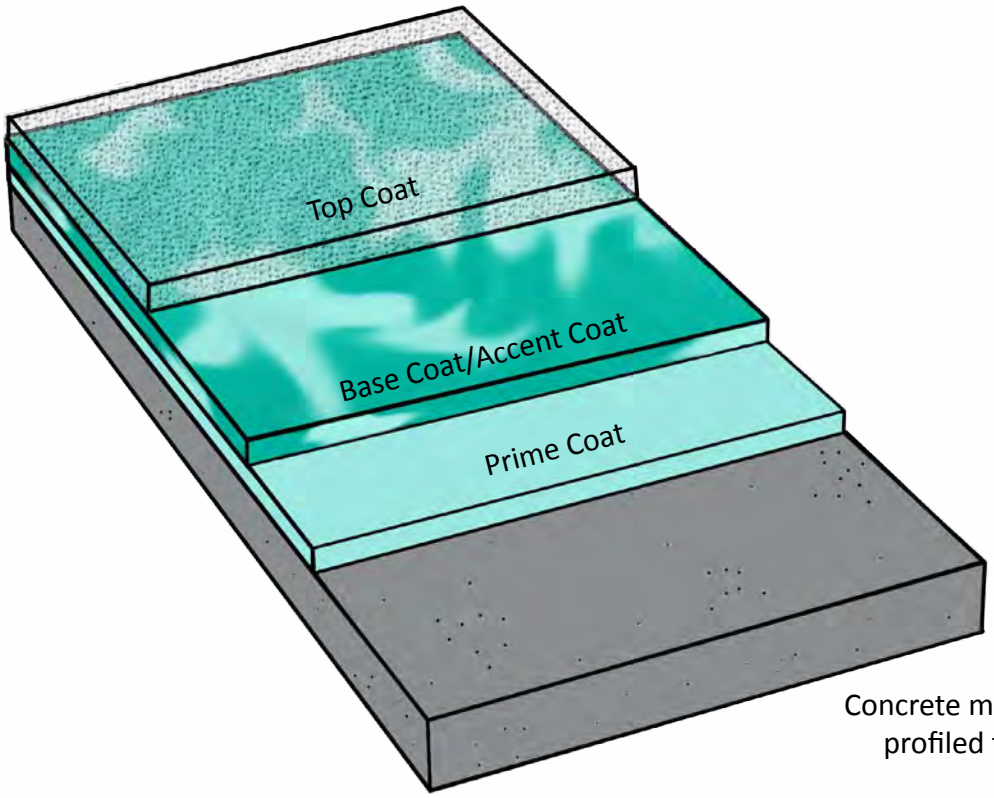
KRĒTUS

TOP SHELF®
METALLIC
INSTALLATION GUIDE

KRETUS TOP SHELF® METALLIC SYSTEM

Transform floors into the centerpiece of any room with **KRETUS Top Shelf® Metallic Systems**. Composed of 100% solids Top Shelf® Epoxy, high-performance Polyurethane HS, and highly reflective Anti-Slip Glass 70 — these luxurious 3-D systems are customizable, built to last, and easy to maintain.



TOP SHELF® METALLIC

High-build option for increased durability—best for indoor high-traffic residential and commercial flooring.

- **Prime Coat:** Top Shelf Epoxy + Metallic Pigment
- **Base Coat:** Top Shelf® Epoxy + Metallic Pigment
- **Accent Coat:** Top Shelf® Epoxy + Metallic Pigment
- **Top Coat:** Polyurethane HS + Anti-Slip Glass 70

TOP SHELF® METALLIC UV

High UV resistance for color stability—recommended for outdoor and brightly lit indoor spaces.

- **Prime Coat:** Top Shelf® Epoxy + Metallic Pigment
- **Base Coat:** Polyurethane + Metallic Pigment
- **Accent Coat:** Polyurethane + Metallic Pigment
- **Top Coat:** Polyurethane HS + Anti-Slip Glass 70

COLOR CHART

Colors are approximate. Product selection, substrate, mix ratio, application technique, climate, and location may affect color. Colors are sold as Metallic Pigment packs and must be combined with part A 20 minutes to 24 hours prior to mixing with part B. To order a pre-blended or custom color, fill out the KRETUS® Special Order form available at kretus.com/project-planning. Allow for additional lead time and fees.

USES

KRETUS Top Shelf® Metallic Systems stand up to high traffic and are great for entryways, lobbies, conference and show rooms. Our system can also be adapted for countertop coatings.

- **automotive**—showroom, sales floor
- **entertainment**—theme park, sports facility, museum
- **nonprofits**—church, education and art facilities
- **hospitality and retail**—tattoo parlor, clothing store, restaurant, hotel, bar, night club, airport
- **medical facility**—vet clinic, hospital
- **residential**—garage, home office

ADVANTAGES

- **compliant:** meets USDA, FDA, EPA, SCAQMD, and VOC requirements
- **anti-microbial:** protects against bacterial and fungal growth
- **ez clean:** requires little effort to maintain
- **green building:** eligible for LEED points, produced in California from partially recycled materials
- **high shine:** gives high gloss and reflectivity to shine
- **high-traffic tolerant:** stands up to vehicle traffic and continuous pedestrian traffic
- **hot-tire resistant:** curbs delamination caused by hot tires
- **scratch resistant:** conceals minor scratches
- **waterproofing:** protects surfaces and underlying areas from water intrusion

LIMITATIONS

- All epoxy will amber over time. If color stability is important, use **Top Shelf® Metallic UV**.
- **Polyaspartic:** Do not apply single coat greater than 14 mils thick (114 sf per gallon).

ASTM C722 Chemical and Stain Resistance

Protected by a clear coat of Polyurethane HS, **KRETUS Top Shelf® Metallic Systems** withstand most household chemicals, food and alcohol spills, and automotive grease and oil.

The following chemicals have no adverse effect on fully cured coating if removed within 24 hours.

- ammonia, 30%
- antifreeze
- brake fluid
- citric acid, 30%
- hard water
- jet fuel
- motor oil
- premium gasoline
- wine and whisky

For all test results, review the Chemical Resistance Guide available at kretus.com/project-planning.

MAINTENANCE AND CLEANING

For daily cleaning, use KRETUS® Coating Cleaner or similar pH-neutral cleaning product. For more information on the proper care of your floor, review the Maintenance and Cleaning Guide available at kretus.com/project-planning.

NC = no change in results, same as previous column

PROPERTY/TEST METHOD	TOP SHELF® METALLIC	TOP SHELF® METALLIC UV
NOMINAL THICKNESS	32-57 mils	32 mils
MOISTURE VAPOR EMISSION RATE, lbs./1,000 sf/24 hrs (ASTM F1869)	<3-10	<3-8
RELATIVE HUMIDITY (ASTM F2170)	<90%	<80%
ADHESION TO CONCRETE, psi (ASTM D4541)	700	NC
COEFFICIENT OF LINEAR THERMAL EXPANSION (ASTM D696)	0.000005	NC
COMPRESSIVE STRENGTH, psi (ASTM D695)	Resin only: 11,000-12,000	NC
DYNAMIC COEFFICIENT OF FRICTION (DCOF ANSI 137.1)	Based on Anti-Slip texture >0.4	NC
FLAMMABILITY (ASTM D635, E84 & E162)	Self-extinguishing Flame Spread Index: Class A, 9.29 Smoke Deposit, mg/ms: 0.1	NC
FLEXURAL MODULUS OF ELASTICITY (ASTM D790)	620,000 Resin only: 380,000	NC
FLEXURAL STRENGTH, psi (ASTM D790)	4,500-4,600 Resin only: 10,000	NC
IMPACT RESISTANCE (MIL-D-24613)	Pass: No chipping, no cracking Indentation (24 hrs): 0.0008	NC
OIL ABSORPTION (MIL-D-3134)	0.000005	NC
PERM RATING, perms (ASTM E96)	0%	NC
SHORE D HARDNESS (ASTM D2240)	0.1	NC
IMPACT RESISTANCE (MIL-D-24613)	75-80	NC
TENSILE STRENGTH, psi (ASTM D638)	1,100 Resin only: 4,000	NC
WATER ABSORPTION (ASTM D570)	0%	NC
SYSTEM VARIES BY TOP COAT	**POLYURETHANE HS**	
ABRASION RESISTANCE, mg loss, CS-17 wheel/1,000 g load/1,000 cycles (ASTM D4060)	4	
HEAT RESISTANCE LIMITATION	140-200°F	

SYSTEM OPTIONS

When jobsite conditions demand increased durability, chemical or skid resistance, contact KRETUS® distributor for additional top coat options and/or Anti-Slip texture samples.

PRODUCT GUIDE

Most KRETUS® 2- and 3-component products have fast- and slow-cure hardeners. Before making a selection, consider jobsite temperature, MVER, applicator's skill level, and time available for installation. FC and FAST hardeners are recommended only for experienced installers or at low temperatures.

Product	TOP SHELF® EPOXY (2 COMPONENT)					
	MVR-EZ	MVR-FC	EZ	AP	TH*	FAST
Application Temperature	60-95°F <90% RH	41-77°F <90% RH	60-110°F <90% RH	60-95°F <90% RH	60-80°F <90% RH	41-85°F <90% RH
Working Time	25-30 min	15 min	40-50 min	25-35 min	20-25 min	15-20 min
Recoat Time	8.5-24 hrs	3-16 hrs	9-36 hrs	7.5-36 hrs	8-24 hrs	5.5-24 hrs
Return to Service	24 hrs	5-6 hrs	24 hrs	24 hrs	24 hrs	10 hrs
Full Cure	7 days	5 days	7 days	7 days	7 days	5 days

*TH recommended only when MVER (moisture vapor emission rate) is less than 3 lbs./1,000 sf in a 24-hour period.

Product	POLYURETHANE HS (2 COMPONENT)	
	FC	EZ
Application Temperature	40-80°F <40% RH	60-110°F <90% RH
Working Time	15-20 min	30-45 min
Recoat Time	2-4 hrs	6-8 hrs
Return to Service	12 hrs	48 hrs
Full Cure	7 days	7 days

All times recorded using 1-qt. sample at ambient temperature of 70°F and 50% humidity. Top Shelf® Epoxy recorded using A-Resin in 1-qt. sample.

STORAGE AND HANDLING

Store materials in a cool, dry place out of direct sunlight. DO NOT mix materials that are warmer than 85°F. Sealed, unopened Parts A and B and Solvent Cleaner may be placed in an ice bath to bring the temperature of the material down. DO NOT place any other KRETUS® products in ice bath. DO NOT let water into material.

SAFETY

Review current Safety Data Sheet(s) and all relevant KRETUS® documentation. Safety conditions and personal protective equipment must be considered before mixing or installing any KRETUS® product.

IDEAL CONDITIONS

Apply material when temperature is decreasing—adhere to the KRETUS® Dew Point Calculation Chart available at kretus.com/project-planning. Do not apply under direct sunlight. Do not install if rain is forecasted during time allotted for installation.

- ↑ higher temperature and/or humidity = ↓ reduced working times
- ↓ lower temperature and/or humidity = ↑ increased working times

TESTING AND WARRANTY

Before you begin installation, review Pre- and Post-Job Checklists available at kretus.com/project-planning. Test and look for any unknown site conditions and/or defects.

ON-SITE APPLICATION TESTING

To ensure desired results are achieved, the system should be tested in a small area on site before beginning installation.

SURFACE PREPARATION

Before installing KRETUS® System, substrate must be

- Clean: Remove any and all contaminates.
- Profiled (concrete floor): Mechanically prepare by diamond grinding or shotblasting to ICRI CSP 2. Adhere to International Concrete Repair Institute's current standards.
- Sound: Treat all joints (terminations and transitions) and random cracks with manufacturer-approved crack and joint repair.

  NOTE (concrete floor): Coatings tend to pull away from free edges—termination points (anywhere concrete ends), joints, cracks, gutters, drains. Anchor joints may need to be added 6" from termination points. Joints and cracks may need to be expanded to 2x the width and 1x the depth. Edges around drains and gutters may need a deeper slope.

MOISTURE MITIGATION

If MVER (moisture vapor emission rate) is higher than 3 lbs., do not use Top Shelf® Epoxy TH hardener. If MVER is higher than 8 lbs., a KRETUS® Moisture Mitigation System may be required for proper adhesion:

After substrate has been prepared (see Surface Preparation), use flat flexible blade and 3/8" non-shed nap roller to apply prime coat of Top Shelf® Epoxy + Solvent Cleaner. Use blade/squeegee and 3/8" non-shed nap roller to apply MVR application (Top Shelf® Epoxy A-Resin + MVR-FC or MVR-EZ).

- Low to moderate MVER, up to 15 lbs.: MVR application ≥ 12 mils.
- High MVER, up to 20 lbs.: MVR application ≥ 16 mils.

Before beginning installation, test Moisture Mitigation System with the KRETUS Top Shelf® Metallic System in a small area on site. Adhere to working/recoat times provided in Product Guide.

MIXING STATION GENERAL OVERVIEW

Organize and inspect products, equipment, and tools to minimize delays during installation. For mixing station examples, visit kretus.com/project-planning.

Select a well-ventilated area outside of application zone and out of direct sunlight. Mixing station is ideally a 4-by-4-feet or larger level surface protected by cardboard or plastic liner.

DO NOT mix or install material in confined space without proper ventilation.

Check and Compare Like Materials

Separate Top Shelf® Epoxy Parts A and B; Polyurethane HS Parts A and B; Metallic Pigments; Anti-Slip Glass 70; and Solvent Cleaner.

- Parts A: Make sure product is clear.
- Parts B: Make sure product has no gelation or crystallization. If this occurs, contact KRETUS®.
- Metallic Pigments: Make sure material is dry and undamaged. Check to see that color is correct and that batch numbers are the same. If different batch numbers, box (or mix) batches to keep color consistent throughout application.
- Anti-Slip: Make sure material is dry and undamaged. Moisture will cause material to clump. Clumps should be sifted prior to mixing or discarded.

Only combine products within the same product line. DO NOT combine Top Shelf® Epoxy products with Polyurethane HS products.

GENERAL MIXING GUIDE

- Use a low-RPM, low-torque drill and Jiffler double-bladed mixer.

DO NOT mix materials by hand.

Premeasure components before combining. Mix materials in clean buckets. To ensure material is uniform and thoroughly mixed, use paint stick to scrape sides and bottom of mixture. Change mix buckets every 2-5 batches. Use all material immediately after mix. Buildup on bucket or transfer of buildup to new batch will shorten product's working time.

DO NOT mix more product than can be applied in the working time allotted. DO NOT leave mixed material in mass. REMEMBER more material = more heat. Mixing large batches will shorten a product's working time.

DRAW A CROWD

TOP SHELF® METALLIC

EQUIPMENT CHECKLIST

Safety

- ☐ KRETUS® Safety Data Sheets
- ☐ gloves
- ☐ hard hat
- ☐ knee pads
- ☐ respirator
- ☐ safety glasses
- ☐ _____
- ☐ _____
- ☐ _____

Mixing

- ☐ low-speed mixing drill
- ☐ mixing blades (Jiffler double-bladed mixer)
- ☐ paint mixing sticks
- ☐ measuring & mixing pails
- ☐ masking/rosin paper
- ☐ painter's plastic, cardboard
- ☐ painter's tape
- ☐ duct tape
- ☐ cooler and ice when temperature exceeds 80˚ F
- ☐ _____
- ☐ _____
- ☐ _____

Clean-Up

- ☐ rags
- ☐ stiff-bristle broom(s)
- ☐ cordless electric leaf blower and extra batteries
- ☐ _____
- ☐ _____
- ☐ _____

Additional Tools/Products

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

Surface Preparation

- ☐ calcium chloride and pH test kit
- ☐ Wagner Rapid RH® test kit
- ☐ 10-gauge extension cords, 100'
- ☐ HEPA vacuum
- ☐ power source or generator
- ☐ Clarke 17" floor maintainer
- ☐ 17" sanding discs, 36 and 60 grit
- ☐ 17" sanding screens, 80 and 120 grit
- ☐ sanding/rubbing stones
- ☐ concrete grinding equipment
- ☐ diamond or shotblast tooling to achieve CSP 2
- ☐ _____
- ☐ _____
- ☐ _____

Application

- ☐ chip brushes
- ☐ blades—flat rigid/flexible, 15-20 and 25-30 WFT (wet film thickness) mil
- ☐ paint accessories—extension rods, frames, and pans
- ☐ roller covers, 3/8" nap, non-shed (6", 9", 18")
- ☐ spiked shoes
- ☐ _____
- ☐ _____
- ☐ _____

KRETUS® PRODUCT CHECKLIST

- ☐ Top Shelf® Epoxy (2 component)
- ☐ Polyurethane HS (2 component)
- ☐ Anti-Slip Glass 70
- ☐ Metallic Pigment
- ☐ Solvent Cleaner
- ☐ Power Cleaner
- ☐ _____
- ☐ _____
- ☐ _____

This serves as a general guide and is not a comprehensive list.

SYSTEM ACTION GUIDELINE

TOP SHELF® METALLIC

This serves as a general installation guide. Before you begin, review all relevant documents.

NOTE **MVR COAT:** If MVER is ≥3-10 lbs, select a system with higher moisture tolerance.

PRIME COAT: If outgassing is suspected or prevalent or if concrete is in poor condition or very porous, a prime coat may be required. If bubbling occurs, follow Sand & Sweep Procedure (see Step 4), then apply a second Metallic Prime Coat.

PIGMENTS/COLORANTS/ANTI-SLIP: After combining Metallic Pigment and Part A, cover mixture and allow it to set for at least 20 min but no more than 24 hrs. Light colors may require a 2nd coat. Continue to mix combined coatings throughout application to ensure no particles settle to the bottom of the mixing vessel.

COVERAGE RATES: Factors such as waste, unusual/abnormal substrate conditions, and other unforeseen jobsite conditions may affect actual product yields and are the responsibility of the installer. Coverage rates are for estimating purposes only.

<table>
<tr><th></th><th>1
METALLIC PRIME COAT</th><th>2
METALLIC BASE COAT</th><th>3
METALLIC ACCENT COAT</th><th>4
SAND & SWEEP</th><th>5
TOP COAT (Clear)</th></tr>
<tr><td>PRODUCT</td><td>A (Top Shelf® Epoxy Part A)
+ MP (Metallic Pigment)
+ B (Top Shelf® Epoxy Part B)
+ SC (Solvent Cleaner)</td><td>A (Top Shelf® Epoxy Part A)
+ MP (Metallic Pigment)
+ B (Top Shelf® Epoxy Part B)</td><td>A (Top Shelf® Epoxy Part A)
+ MP (Metallic Pigment)
+ B (Top Shelf® Epoxy Part B)</td><td rowspan="3">If coat(s) cure for ≥12 hrs:
1. Mechanically prepare surface with 80-grit sanding disc. For small areas, use pole sander. For large areas, use floor maintainer.
2. Sand uneven areas and remove all loose material.</td><td>A (Polyurethane HS Part A)
+ B (Polyurethane HS Part B)
+ T (Anti-Slip Glass 70)</td></tr>
<tr><td>STANDARD KIT MIX RATIO</td><td>A:MP:B:SC =
1 gal:4 oz:1/2 gal:1 qt</td><td>A:MP:B =
1 gal:8-12 oz:1/2 gal</td><td>A:MP:B =
1 gal:8-12 oz:1/2 gal</td><td>A:B:T =
1 gal:1/2 gal:10-14 oz</td></tr>
<tr><td>MIXING INSTRUCTIONS</td><td>Mix A with MP until color is uniform. Add B and mix for 1 min. Add SC and mix for 1 min.</td><td>Mix A with MP until color is uniform. Add B and mix for 2 min or until color is uniform.</td><td>Mix A with MP until color is uniform. Add B and mix for 2 min or until color is uniform.</td><td>Mix A with T until texture is uniform. Ad B and mix for 2 min or until texture is uniform.</td></tr>
<tr><td>METHOD/ TOOLS</td><td>Apply with flat rigid blade and non-shed 3/8" nap roller.</td><td colspan="2">Work in 500 sf increments:
1. Pour metallic base coat in vertical, horizontal, or diagonal ribbons across floor. Apply material with 15-20, 25-30, or 40-50 WFT-mil blade and 3/8" non-shed nap roller.
2. Use leaf blower, solvent spray, or backroll color(s) to achieve desired pattern.
3. If applying accent coat, wait 15-20 min. Pour color(s) in desired pattern and disperse using leaf blower, solvent spray, or backroll.</td><td>Apply with
• 5-7 WFT-mil blade and non-shed 3/8" nap roller. Dry backroll.
OR
• dip-and-roll method with non-shed 3/8" nap roller. Dry backroll.</td></tr>
<tr><td>RECOAT TIME</td><td>When dry to touch.</td><td colspan="2">Fast- and slow-cure hardeners available. See Product Guide.</td><td>When loose material is removed and surface is clean.</td><td>See Product Guide.</td></tr>
<tr><td>COVERAGE RATE</td><td>400-550 sf/kit</td><td>15-20 WFT: 120-160 sf/kit
25-30 WFT: 80-100 sf/kit
40-50 WFT: 50-60 sf/kit</td><td>as desired</td><td>N/A</td><td>350-480 sf/kit</td></tr>
</table>

SYSTEM ACTION GUIDELINE

TOP SHELF® METALLIC UV

This serves as a general installation guide. Before you begin, review all relevant documents.

NOTE **MVR COAT:** If MVER is ≥3-8 lbs, select a system with higher moisture tolerance.

PRIME COAT: If outgassing is suspected or prevalent or if concrete is in poor condition or very porous, a prime coat may be required. If bubbling occurs, follow Sand & Sweep Procedure (see Step 4), then apply a second Metallic Prime Coat.

PIGMENTS/COLORANTS/ANTI-SLIP: After combining Metallic Pigment and Part A, cover mixture and allow it to set for at least 20 min but no more than 24 hrs. Light colors may require a 2nd coat. Continue to mix combined coatings throughout application to ensure no particles settle to the bottom of the mixing vessel.

COVERAGE RATES: Factors such as waste, unusual/abnormal substrate conditions, and other unforeseen jobsite conditions may affect actual product yields and are the responsibility of the installer. Coverage rates are for estimating purposes only.

	1 METALLIC PRIME COAT	2 METALLIC BASE COAT	3 METALLIC ACCENT COAT	4 SAND & SWEEP	5 TOP COAT (Clear)
PRODUCT	A (Top Shelf® Epoxy Part A) + MP (Metallic Pigment) + B (Top Shelf® Epoxy Part B) + SC (Solvent Cleaner)	A (Polyurethane HS Part A) + MP (Metallic Pigment) + B (Polyurethane HS Part B)	A (Polyurethane HS Part A) + MP (Metallic Pigment) + B (Polyurethane HS Part B)	**If coat(s) cure for ≥12 hrs:** 1. Mechanically prepare surface with 80-grit sanding disc. For small areas, use pole sander. For large areas, use floor maintainer. 2. Sand uneven areas and remove all loose material.	A (Polyurethane HS Part A) + B (Polyurethane HS Part B) + T (Anti-Slip Glass 70)
STANDARD KIT MIX RATIO	A:MP:B:SC = 1 gal:4 oz:1/2 gal:1 qt	A:MP:B = 1 gal:8-12 oz:1/2 gal	A:MP:B = 1 gal:8-12 oz:1/2 gal		A:B:T = 1 gal:1/2 gal:10-14 oz
MIXING INSTRUCTIONS	Mix A with MP until color is uniform. Add B and mix for 1 min. Add SC and mix for 1 min.	Mix A with MP until color is uniform. Add B and mix for 2 min or until color is uniform.	Mix A with MP until color is uniform. Add B and mix for 2 min or until color is uniform.		Mix A with T until texture is uniform. Ad B and mix for 2 min or until texture is uniform.
METHOD/ TOOLS	Apply with flat rigid blade and non-shed 3/8" nap roller.	**Work in 500 sf increments:** 1. Pour metallic base coat in vertical, horizontal, or diagonal ribbons across floor. Apply material with 15-20 WFT-mil blade and 3/8" non-shed nap roller. 2. Use leaf blower, solvent spray, or backroll color(s) to achieve desired pattern. 3. If applying accent coat, wait 15-20 min. Pour color(s) in desired pattern and disperse using leaf blower, solvent spray, or backroll.			**Apply with** • 5-7 WFT-mil blade and non-shed 3/8" nap roller. Dry backroll. OR • dip-and-roll method with non-shed 3/8" nap roller. Dry backroll.
RECOAT TIME	When dry to touch.	Fast- and slow-cure hardeners available. See Product Guide.		When loose material is removed and surface is clean.	See Product Guide.
COVERAGE	400-550 sf/kit	120-160 sf/kit	as desired	N/A	350-480 sf/kit

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