



DESCRIPTION

The LABFENDER™ is a two or three-component, high solids, aliphatic polyurethane floor coating product which has low-VOC. It is designed to be applied as a protective layer over Labsurface's LABPOX® epoxies, LABFAST® and LABSHIELD® ECO polyaspartic coatings. LABFENDER™ boasts exceptional abrasion resistance, making it less likely for traffic patterns to appear over time even if exposed to heavy or repeated use caused by equipment, forklifts, presence of high foot traffic. The LABFENDER™ has a superior chemical resistance which offers unparalleled protection against transfer of plasticizers with up to 60 times more resistance¹, making it an ideal candidate to protect floors from staining prematurely. It also offers an additional UV protection that will significantly delay the yellowing of the epoxies it is applied on. LABFENDER™ long working time allows to achieve maximum floor surface installations with minimal crew. The LABFENDER™ formulation is based on advanced aliphatic urethane technology displaying superior chemical resistance.

USES

The chemical and mechanical properties of LABFENDER™ provide excellent results for several applications:

- + Residential, commercial, industrial and institutional uses
- + Garage floors
- + Flakes & quartz systems
- + Metallic systems
- + Manufacturing facilities
- + Warehouses
- + Aerospace and avionics hangars
- + Commercial centers
- + Office buildings
- + Retail stores
- + Food/beverage processing and preparation plants
- + Public facilities including hospitals and schools
- + Pharmaceutical companies
- + Healthcare & veterinary facilities
- + Forklift traffic

ADVANTAGES

- + Beautiful finish with no orange peel
- + Application-friendly with low viscosity reducing the risk of roll marks
- + Extremely high abrasion resistance
- + Very high chemical and stain resistance

- + Easier cleanability versus epoxies
- + Up to 60 times the resistance against transfers of plasticizers¹
- + Developed for heavy traffic and abusive environments
- + Long working time (60 minutes)
- + Low-VOC, potential for LEED eligibility
- + Low-odor
- + Non-yellowing
- + Protects epoxy coatings by providing a UV barrier that will slow down the yellowing of epoxies
- + Long pot life
- + Interior and exterior applications
- + Impermeability / low moisture sensitivity
- + High density of the product prevents dirt penetration
- + Traffic wear patterns less likely to appear on heavy traffic surfaces

APPLICATION DATA

Mix Ratio	6A:1B:1C		
Packaging	1 US gallon kit (3.78L) Part A 0.8 Gal Part B 0.2 Gal Part C 3 lb		
Color	Clear		
Solids Coverage / US GAL	Mils (wet)	Mils (solids)	Sq. Ft.
	2	1.8	800
	3	2.7	535
	4	3.6	401
Shelf Life	12 months, in original unopened factory pails under normal storage conditions		
Pot Life	3 h		
Application Temperature	Min 10°C / 50°F, Max 30°C / 86°F		
Cure Time	22°C / 72°F and 50% Rel. Hum.		
Working Time	60 min		
Tack Free	3 - 4 h		
Dry Through	10 - 12 h		
Light/Foot Traffic	12 h		
Heavy Traffic	24 h		
Full Cure	1 week		

¹ Labsurface's tests were performed at a range of 80-90°C (176-194°F). At those temperature levels the LABFENDER™ lasts up to 60x longer than any 1K or 2K products / technology that were tested with tires in laboratory by our R&D team.



TECHNICAL PROPERTIES

VERSION	LABFENDER™ with aluminum oxide Gr 240 @ 3lb/gal	LABFENDER™ ONLY
Solids Content	92%	90%
VOC Content	45 g/l	45 g/l
Pencil Hardness (1week)	4H	2H
Viscosity	400 cps +/- 50	400 cps +/- 50
Abrasion (1000 cycles) ASTM D4060	20 mg loss	40 mg loss
Dry coefficient of friction (Smooth coating) ASTM E303	1.1	0.9
Pull Off Test ASTM D4541	>3 Mpa	>3 Mpa
Impact resistance (Direct) ASTM D2794 ft lb	> 9	> 9
DE 500 hr ASTM 3424	< 2	< 2

SURFACE PREPARATION

LABFENDER™ should only be used as a protective topcoat over new or existing LABPOX®, LABFAST® or LABSHIELD® ECO floor coating products. When applied within the recoat window of LABPOX®, LABFAST® or LABSHIELD® ECO, no additional surface preparation is required. When applied past the recoat window or over an existing coating, mechanical surface preparation is mandatory. The existing floor coating must be sanded or abraded with appropriate equipment until a uniform dullness is achieved. We recommend the use of an orbital floor sander equipped with #80 grit sandpaper. Afterward, vacuum thoroughly and wipe the floor with solvent, allowing it to evaporate completely before application. Ensure no gloss remains on the floor before continuing.

For application over coatings from other manufacturers, proper testing is required before applying LABFENDER™.

LABFENDER™ is not recommended for direct application on concrete.

MIXING

3 PARTS MIX - 1 GALLON KIT

Ratio= 6A:1B: 3lb of LABTEC ALUMINUM OXIDE grade 240

When used as a topcoat over colored epoxy, metallic systems, or high-traffic areas, the usage of LABTEC ALUMINUM OXIDE is mandatory.

Pre-mix Part A for 1 minute at low speed, (use Jiffy® or Exomixer® blade). Add 1 part of B into the pre-mixed 6 parts of A. We recommend using a complete kit to avoid mixing errors related to the mixing ratio. Mix thoroughly for a minimum of 3 minutes at low speed until fully homogeneous. Avoid air entrapment by using a low-speed drill (300-450 rpm). Operate in reverse mode for the last 90 seconds to mix product from the bottom up. Scrape the sides and bottom of the container to ensure all material is thoroughly mixed. Then add 3lb of LABTEC ALUMINUM OXIDE slowly, and mix for an additional 2-3 minutes until homogeneous.

Recommended dosage: 3lb/1gallon kit of LABFENDER™ (1360 g / 3.78 L kit). Make sure the mixing container is clean and free of any outside particles. **Do not add any solvents.**

2 PARTS MIX - 1 GALLON KIT

Ratio= 6A:1B (no aluminum oxide)

The only exceptions to optionally add part C (LABTEC ALUMINUM OXIDE) to the mix is when installing LABFENDER on flakes or quartz systems.

Follow the same mixing procedure as above (REF. 3 PARTS MIX). Make sure the mixing container is clean and free of any outside particles. **Do not add any solvents.**

APPLICATION PREPARATION

The following application technique, along with the recommended tools, will help achieve a uniform finish across the entire surface. Labsurface acknowledges that experienced installers may have alternative techniques and tool preferences that can also produce excellent results.

Apply LABFENDER™ when ambient air and floor temperatures are between 10°C / 50°F and 30°C / 86°F, with a relative humidity of less than 80% for at least 24 hours before and after installation. If a heated floor is installed, ensure that the system is turned off 2-4 hours (depending on the type of radiant floor) before application and for the full duration of the cure. It is also important to turn off ventilation as it may cause the product to cure prematurely and affect the finish. If used outside, wind should be blocked from the surface.

RECOMMENDED MATERIAL

Deep trays are recommended when using LABFENDER™ with LABTEC ALUMINUM OXIDE.

TRAY SELECTION

FIG. 1	LABFENDER™	LABFENDER™ with aluminum oxide
REGULAR TRAY	GOOD	NOT RECOMMENDED
DEEP TRAY	GOOD	BEST

DEEP TRAY TYPE



ROLLER SELECTION

APPLICATION ON SMOOTH SURFACES (e.g., Epoxy floors)

Lint-free microfiber rollers are recommended. Use 9-inch rollers for smaller areas and 18-inch rollers for larger areas. Start with a 3/8-inch (10mm) nap roller for the initial application, then switch to a 1/4-inch (5mm) nap roller for back rolling and finishing.

Usage of a single 1/4-inch (5mm) nap roller can be more convenient for a one installer application.

RECOMMENDED ROLLER NAP PER STEPS

FIG. 3	LABFENDER™			LABFENDER™ with aluminum oxide		
	Applying	Back Roll	Finish Roll	Applying	Back Roll	Finish Roll
1/4-inch (5mm)	G	B	B	G	B	B
3/8-inch (10mm)	B	G	NR	B	G	NR

B = Best G = Good NR = NOT RECOMMENDED

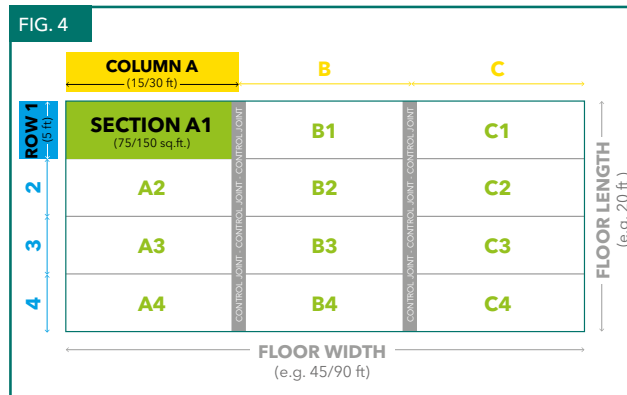
APPLICATION ON TEXTURED SURFACES (e.g., Flake Floors)

To better reach the lower points when installing LABFENDER™ on Flake, Quartz, or other aggregate floor systems, the use of a 3/8-inch (10mm) nap roller is recommended for all steps of the application.

FLOOR PLAN DEFINITION

When planning a floor coating application project, it's important to view the surface divided into **columns**, **rows**, and **sections**. These divisions help organize the work and ensure a systematic approach to apply the coating. Depending on factors such as floor size, expansion joint locations, walls, doorways, roller size, number of installers, etc., the layout of the **columns**, **rows**, and **sections** may vary.

FLOOR PLAN EXAMPLE



COLUMNS

Orientation: Runs North to South

Determination: The number and size of columns depend on the width of the floor and the width of the roller being used (9 or 18 in). Column size should be planned to ensure full coverage of the area.

ROWS

Orientation: Runs West to East

Determination: The number and height of rows are determined by the length of the floor and the length of the pole used.

SECTIONS

Definition: A section is the area where columns and rows intersect. It represents the portion of the floor that can be worked on at one time.

Determination: The number and size of sections are determined by the measurements of the columns (width) and rows (height). Sections should be manageable in size, considering the number of installers and their experience.

MARKING THE FLOOR

Use existing concrete control joints to mark the boundaries of columns. This will guide the application process, ensuring consistent and even coverage across the floor.

By following the above recommendations systematically, you can ensure that the coating is applied uniformly, avoiding missed spots or inconsistencies in the finish.

PREPARATION OF ROLLERS AND TRAYS

To achieve the best results and avoid roller marks or fiber debris when applying a coating, follow these steps for roller preparation:



1. TRIM THE ROLLER (REF. TO FIG. 5)

Cut the fibers on both ends of the roller at a 45-degree angle. This helps in preventing roller marks during application.

2. REMOVE LOOSE FIBERS (REF. TO FIG. 6)

Use high-quality adhesive tape to remove any loose fibers. Pull a 3-4 ft length of tape and roll the roller on it until its entire surface has come into contact with the tape 3-4 times.

3. CONDITION ROLLER WITH LABFENDER™

Saturate the roller in LABFENDER™, then squeeze out the material by rolling the roller on a clean piece of cardboard. This step further removes loose fibers and prepares the roller for a smooth application.

4. DIP & MIX TECHNIQUE WITH ALUMINUM OXIDE

When using LABFENDER™ with LABTEC ALUMINUM OXIDE, use a large volume, deep paint tray (REF. TO FIG. 2). To **DIP & MIX**, plunge the roller into the LABFENDER™, and mix it thoroughly by rolling the material in the tray. The objective of the **DIP & MIX** technique is to maintain a uniform dispersion of the aluminum oxide in the mixture. This consistency is essential to achieving a uniform finish across the floor.

CREW SIZE

When determining crew size for the floor coating application, the procedure adapts to the number of installers available, ensuring efficiency and consistency.

By assigning specific tasks (mixing, applying, back roll & finish roll), to each crew based on the number of workers available, the application process becomes streamlined, minimizing the risk of inconsistencies and ensuring a high-quality finish.

APPLICATION METHOD

FIRST SECTION (A1) (REF. TO FIG. 4)

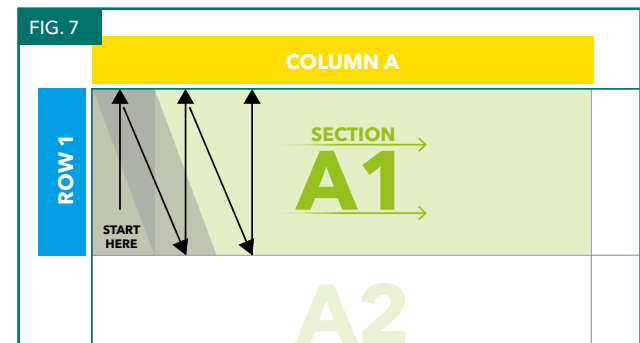
STEP 1

APPLY W PATTERN

PREPARING THE ROLLER

(REF. TO PREPARATION OF ROLLERS AND TRAYS ABOVE)

- + Use a 3/8 in (10 mm) nap roller for applying LABFENDER™. (Usage of a 1/4 in (5mm) nap roller can be more convenient for a one installer application).
- + **DIP & MIX:** plunge the roller into the LABFENDER™ and mix it thoroughly by rolling the material in the tray.



ROLLING TECHNIQUE:

W PATTERN (REF. TO FIG. 7)

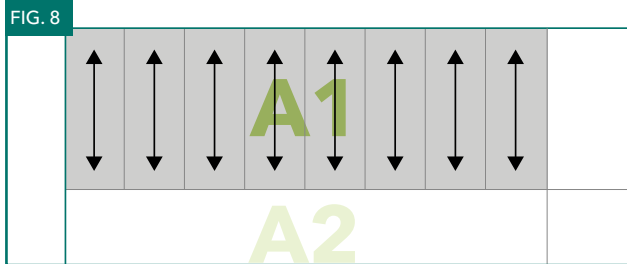
- + Apply the material in a W shape pattern across the section width, moving from West to East.
- + The height of the W pattern should be between 4 to 6 ft (North to South), depending on the length of the roller pole.
- + Maintain a consistent W pattern across the entire section to ensure even coverage.
- + Adjust dipping frequency as needed to maintain an even thickness of 2-3 mils across the surface.

THIN-IT TO WIN-IT

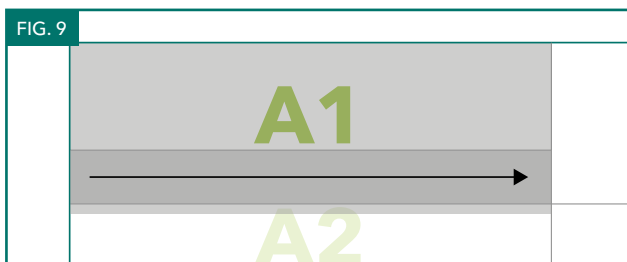
For best results, apply LABFENDER™ thin.
Maintain a consistent thickness of 2-3 mils.

IMPORTANT CONSIDERATIONS

- + **DIP & MIX** every time you dip the roller in the tray. This ensures the aluminum oxide remains uniformly dispersed in the mixture.
- + When using a 5 mm (1/4 in) nap roller, more frequent dipping may be required due to the thinner nap absorbing less material.

STEP 2**PARALLEL ROLLING****ROLLING TECHNIQUE:****PARALLEL ROLLING** (REF. TO FIG. 8)

- + Roll back and forth in straight, parallel passes. The goal is to uniformize the thickness across the section.
- + Roll from South to North and then back from North to South over the W pattern.
- + Keep the roller moving continuously to avoid leaving marks or stopping on the surface.
- + Ensure that the parallel rolling covers the entire width of the section.
- + Apply consistent pressure during rolling to achieve an even thickness across the section.
- + After covering the full width, remove excess material from the roller.
 - + Roll the roller on a dry portion of the floor or a clean piece of cardboard. Apply some pressure to expel excess material effectively.

STEP 3**ROLL BOTTOM EDGE****ROLLING TECHNIQUE:****ROLL BOTTOM EDGE** (REF. TO FIG. 9)

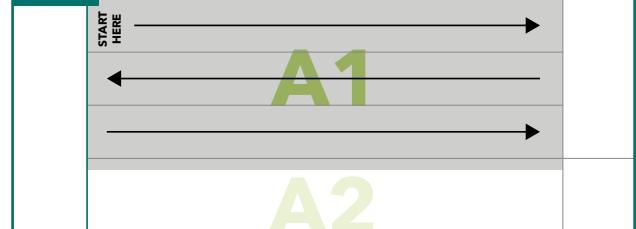
- + Position the roller perpendicularly at the bottom (South) edge of the section A1.
- + Roll the bottom edge in a smooth motion from West to East.
- + Extend the roller slightly beyond the wet edge to the next section by about one inch. This overlap ensures that the edge has a uniform thickness, preventing visible roller marks.

STEP 4**BACK ROLL, THIN-IT TO WIN-IT****PREPARING THE ROLLER**

(REF. TO PREPARATION OF ROLLERS AND TRAYS ABOVE)

- + Use a 1/4 in (5 mm) nap roller for back rolling LABFENDER™ on a smooth surface, or a 3/8 in (10mm) when back rolling on Flake, Quartz, or other aggregate floor systems.
- + Ensure the roller is free of excess LABFENDER™. To do this, roll the roller on a dry portion of the floor or a clean piece of cardboard until it's evenly saturated but not overloaded.

FIG. 10

**ROLLING TECHNIQUE:****BACK ROLL, THIN-IT TO WIN-IT** (REF. TO FIG. 10)

- + Position the roller at the top-left (North-West) of section A-1.
- + Pull the roller across the section from West to East and then East to West. **It's important to pull rather than push the roller to avoid adding pressure, which can create unwanted roller marks.**
- + Use minimal pressure on the roller as you back roll. The goal is to smooth out the coating and remove roller marks, not to add material.
- + Remove excess material from the roller as it gets loaded.
- + Repeat the back roll process until 2-3 mils thickness is achieved.

THIN-IT TO WIN-IT

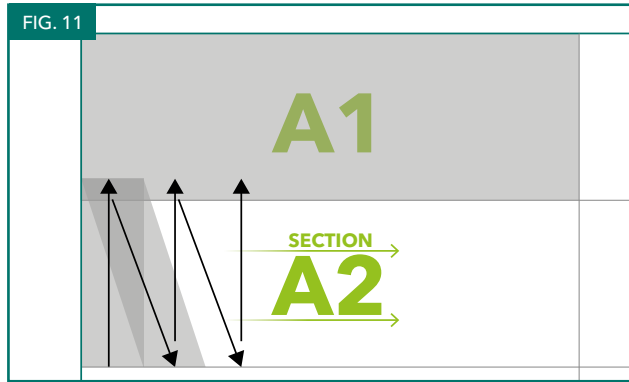
The key to success is maintaining a thin and even coat across the floor, which ensures a smooth and professional finish.

SECOND SECTION (A2) (REF. TO FIG. 4)**STEP 5****W PATTERN OVERLAP****PREPARING THE ROLLER**

(REF. TO PREPARATION OF ROLLERS AND TRAYS ABOVE)

- + Use a 3/8 in (10 mm) nap roller for applying LABFENDER™. (Usage of a 1/4 in (5mm) nap roller can be more convenient for a one installer application).

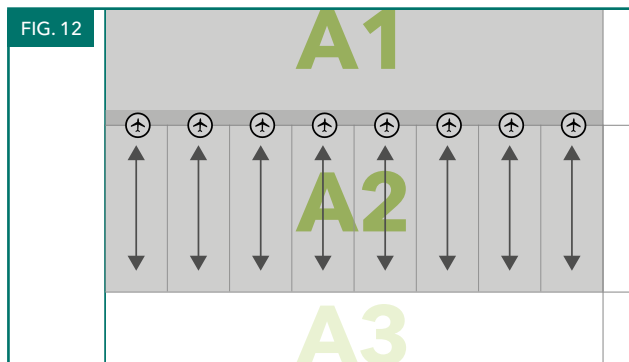
- + **DIP & MIX:** Plunge the roller into the LABFENDER™ and mix it thoroughly by rolling the material in the tray.



ROLLING TECHNIQUE:
W PATTERN OVERLAP (REF. TO FIG. 11)

- + Use the same W pattern technique as previously described (REF. TO STEP 1), dipping and rolling the roller in a W shape across the Section (A2) width (West to East).
- + Ensure that the new W pattern slightly overlaps the edge of the previous Section (A1) by approximately 1 inch. This overlap will help blend the new Section (A2) with the previous Section (A1), preventing visible lines or inconsistencies.
- + **DIP & MIX** every time you dip the roller in the tray. This ensures the aluminum oxide remains uniformly dispersed in the mixture.

STEP 6
PARALLEL ROLLING OVERLAP WITH ROLLER TAKE OFF



ROLLING TECHNIQUE:
PARALLEL ROLLING OVERLAP WITH ROLLER TAKE OFF (REF. TO FIG. 12)

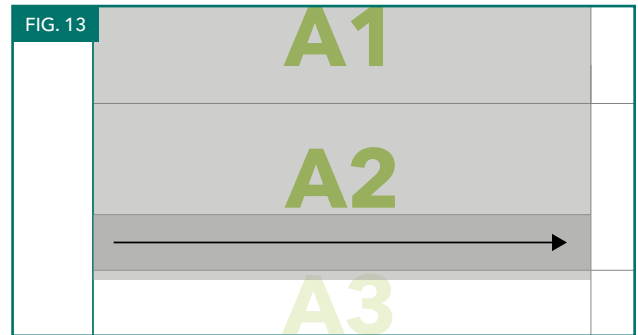
Use the same technique performed in previous section (REF. TO STEP 2) and overlap slightly the junction of current and previous section.

- + On the last stroke from South to North, lift the roller slightly (similar to an airplane taking off) right after hitting the junction. This technique helps to prevent excess material from

accumulating at the junction and ensures a smooth transition between sections.

- + Remove excess material from the roller as it gets loaded.
- + Roll the roller on a dry portion of the floor or a clean piece of cardboard. Apply some pressure to expel excess material effectively.

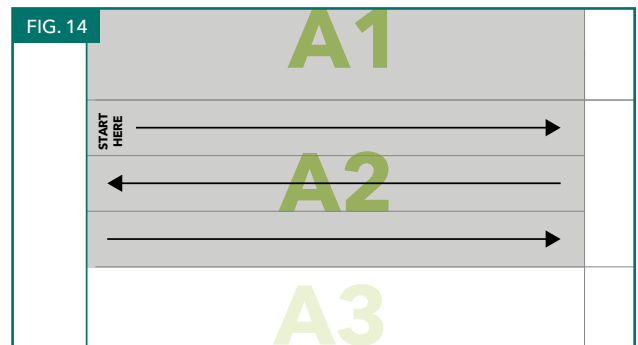
STEP 7
ROLL BOTTOM EDGE



ROLLING TECHNIQUE:
ROLL BOTTOM EDGE (REF. TO FIG. 13)

Use the same technique performed in previous section (REF. TO STEP 3).

STEP 8
BACK ROLL, THIN-IT TO WIN-IT



ROLLING TECHNIQUE:
BACK ROLL, THIN-IT TO WIN-IT (REF. TO FIG. 14)

Use the same technique performed in previous section (REF. TO STEP 4).

STEP 9

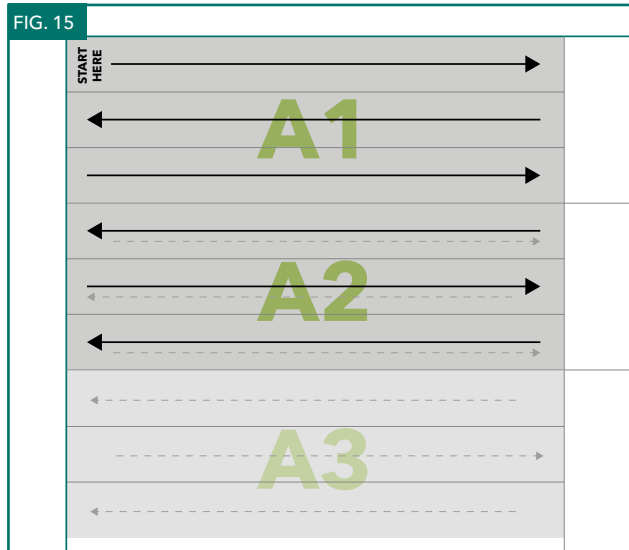
FINISH ROLL, THIN-IT TO WIN-IT

To achieve a uniform look, we recommend a Finish Roll. Finish rolling is an additional back roll of the last two sections to ensure that all areas blend seamlessly and provides a smooth, uniform coating across the entire surface. This is the last step in **THIN-IT TO WIN-IT**.

PREPARING THE ROLLER

(REF. TO PREPARATION OF ROLLERS AND TRAYS ABOVE)

- + Use a 1/4 in (5 mm) nap roller for back rolling LABFENDER™ on a smooth surface, or a 3/8 in (10mm) when back rolling on Flake, Quartz, or other aggregate floor systems.
- + Ensure the roller is free of excess LABFENDER™. To do this, roll the roller on a dry portion of the floor or a clean piece of cardboard until it's evenly saturated but not overloaded.



ROLLING TECHNIQUE:

FINISH ROLL, THIN-IT TO WIN-IT (REF. TO FIG. 15)

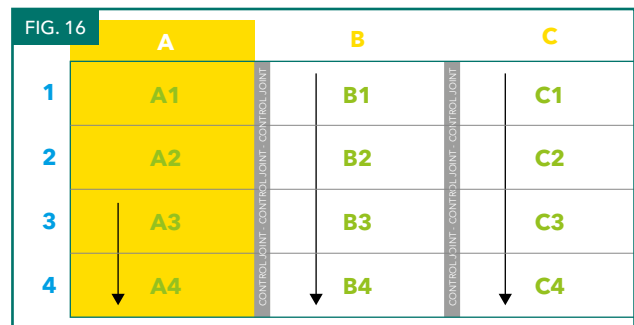
- + Position the roller at the top-left (North-West) of the previous Section (A1).
- + Pull the roller across the section from West to East and then East to West, until you reach the bottom South edge of the current section (A2). **It's important to pull rather than push the roller to avoid adding pressure, which can create unwanted roller marks.**
- + Remove excess of material as the roller gets loaded.
- + Continue the Finish Roll, overlapping slightly with each pass, **repeat as needed until uniform finish is achieved.**
- + Complete the Finish Roll within the **60-minute working time** window to ensure that the finish remains workable.

IMPORTANT: Do not step with spike shoes where finish roll has been performed as this will leave undesired marks on the surface.

NEXT SECTIONS

FOLLOWING SECTIONS OF COLUMN A (REF. TO FIG. 16)

For each subsequent section within the same column (A3, A4, ect), follow steps 5-9. Once all sections in the current column are completed, proceed to the next column.



MOVING TO NEXT COLUMN

If the first section of the previous Column (A1) was completed in less than 60 minutes or if the columns are separated by a control joint, you can begin applying LABFENDER™ in Column (B). If more than 60 minutes has passed, we recommend skipping Column (B) and applying LABFENDER™ to this area on the next day (use tape or other accessories to prevent overlap marks). If applicable, you can move to Column (C).

CLEANING

LABFENDER™ must cure a minimum of 7 days before using any mechanical cleaning equipment and no less than 48 hours before any exposure to water or neutral PH cleaning agents. The LABFENDER™ is easily cleanable, providing optimal results for all applications including heavy traffic industrial applications. Due to the final texture, systems where LABTEC ALUMINUM OXIDE has been used with LABFENDER™ may require a more thorough cleaning process.

LIMITATIONS

WORKING ENVIRONMENT

1. Application should only take place when both air and floor temperatures are between 10°C / 50°F and 30°C / 86°F.
2. Ensure relative humidity remains below 80% for at least 24 hours before and after the application.



3. Application above 30°C / 86°F should be avoided to prevent accelerated curing and reduce working time.
4. Higher temperatures will accelerate the curing process, shortening working time significantly.
5. Lower temperatures will slow curing, extending the working time, but avoid excessive cold as it may impede proper curing.
6. Turn off ventilation during application because airflow can prematurely cure the product and affect the final finish.
7. For outdoor applications, block any wind to prevent uneven curing and possible imperfections.
8. The use of direct-fired, unvented heat sources during application is discouraged as they may emit byproducts that negatively affect the curing process, potentially causing issues like loss of adhesion or surface imperfections.
9. In the event that dew point conditions lead to condensation persisting above the concrete surface, and for which the grinding process fails to eliminate this condensation, it is crucial to thoroughly dry the surface before installation. Neglecting this step may result in shortened working times and/or issues with adhesion.

SUBSTRATE REQUIREMENTS

10. The substrate must be completely dry before application.
11. LABFENDER™ must be installed on existing Labsurface's LABPOX® epoxies, LABFAST® and LABSHIELD® ECO polyaspartic coatings.
12. LABFENDER™ should not be installed direct on concrete or bare aggregates such as Flake, Quartz, or other aggregate floor systems.
13. Tests must be performed to validate adhesion when installing on other coatings.

PRODUCT

14. Store product at room temperature.
15. Do not exceed 3 mils of wet film thickness per coat as it may result in product foaming or a blotchy, uneven finish.
16. LABTEC Universal Pigment Pods are NOT compatible with LABFENDER™.
17. Never use tape on the floor to delineate or define the width of the columns, as the use of tape leaves marks that can cause surface defects.
18. Always backroll within 60 minutes of applying LABFENDER™
19. Do not dilute or thin the LABFENDER™ mixture with any solvents. Adding solvents can cause application problems such as roll marks or irregular finishes.
20. Do not step with spike shoes where finish roll has been performed as it could leave undesired marks on the finished floor.

PLASTICIZER RESISTANCE

21. LABFENDER™ increases resistance to plasticizers found in rubber, particularly in car tires, up to 60 times¹. Hot tires with high levels of plasticizers or specific plasticizer types may cause irreversible staining of the coating. This phenomenon is irreversible and can cause staining of the coated area.
22. It is recommended to allow tires to cool down before parking in areas coated with LABFENDER™ to avoid this issue.
23. Transfer of plasticizers can also occur when a car is parked for a prolonged period of time without moving. Labsurface recommend protecting the floor by adding pieces of cardboard, wood or Lexan underneath each tire when parking a vehicle for longer periods of time.

CLEANING CONSIDERATIONS

24. To prevent surface damage, pressure washing and power washing should be used with caution.
25. Using hot water can cause irreversible damage. Hot water should not exceed 49°C / 120°F when cleaning polymer coatings. Ideal cleaning temperatures range between 30°C / 86°F and 43°C / 110°F.

CHEMICAL SENSITIVITY

26. Exposure to certain chemicals in the Part A or Part B of the LABFENDER™ product could cause allergic reactions during the application or handling process.
27. Once the product has fully cured and crosslinked, these chemicals become inert and should not cause allergic reactions.
28. Raw materials used by Labsurface do not differ significantly from comparable products manufactured on the market.

PRODUCT TESTING AND QUALITY CONTROL

29. Labsurface emphasizes that users are responsible for testing the product to ensure it meets their specific needs and application conditions.
30. Labsurface conducts continuous testing and may occasionally modify formulations to improve product performance.
31. Labsurface cannot guarantee results since Labsurface has no control over surface preparation, operating conditions and application procedures. Clients are solely responsible to test Labsurface's products to determine if they perform as expected.
32. To meet our strict requirements, we are continuously testing our coatings and on occasion, formulations may be modified to improve certain properties within each coating.
33. Information and data included in this reference document may not be up to date as of the date of reference.

¹ Labsurface's tests were performed at a range of 80-90°C (176-194°F). At those temperature levels the LABFENDER™ lasts approximately 60x longer than most common multi purpose epoxy.



Contact Labsurface for further information regarding the limitations of this product.

Refer to the most recent Material Safety Data Sheet prior using this product.

COLOR

Clear

LABSURFACE

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