LABSHIELD® ECO

100% solids, Long Working Time, Quick Curing and Odor-free Polyaspartic

Technical Data Sheet

Description

The LABSHIELD® ECO is a virtually odor-free, 100% solids, two-component (2A:1B), and non-yellowing polyaspartic for concrete floor coating, commonly used with vinyl flakes. The co-lored LABSHIELD® ECO serves as the base coat, while the clear version is used as a protective topcoat, both sharing a common hardener. LABSHIELD® ECO formulation includes Advanced Opacity Technology which reduces chip repulsion effect and allowing pigments to remain on top of the substrate therefore improving coverage and aesthetics. LABSHIELD® ECO offers two variations (Ultra-Fast Set (-) and Prolonged Working Time (+)). LABSHIELD® ECO provides an optimal work time/cure time ratio. The utilization of the LABSHIELD® ECO allows the installa-tion of a full floor system in one single day, with rapid return to service. The product displays excellent curing capability even at very low temperature levels. It offers superior mechanical and chemical properties, is low maintenance, and exhibits a superior aesthetic finish with excellent UV stability, making it optimal for both interior and exterior applications. We recommend using LABTEC vinyl chips in combination with LABFAST®/LABSHIELD® products. Two- or three-coat systems can be considered.

Uses

The chemical and mechanical properties of LABSHIELD® ECO provide excellent results for several applications:

+ Garages
+ Other residential applications
+ Commercial centers
+ Office buildings
+ Retail stores
+ Manufacturing facilities
+ Food processing and preparation plants
+ Public facilities including hospitals and schools
+ Pharmaceutical companies
+ Other commercial uses

Advantages

+ Solvent-free, no/minimal odor
+ Low-VOC, 100% solids
+ Advanced Opacity Technology
+ Better coverage of the substrate
+ Reduction of the chip repulsion effect
+ Up to 15% less top coat needed
+ Potential for LEED eligibility
+ Non-yellowing
+ Excellent impact and abrasion resistance
+ High elongation
+ Easy to use 2A:1B system with common hardener for the base coat and topcoat
+ Possibility to install base coat and topcoat in a single workday
+ Cures quickly – recommended to obtain best curing at very low temperature levels (below -10°C /14°F)
+ Optimal for exterior applications
+ (+) version offers longer working time of approx. 25 min.
+ Possible to install two- or three-coat systems
+ Easy to install due to the very low viscosity of the product
+ Very long recoat window
+ Excellent chemical and mechanical resistance
+ Impermeability / low moisture sensitivity
+ Superior gloss finish
+ High density of the product prevents dirt penetration resulting in low maintenance

Product Data

Mix Ratio	2A:1B	
Packaging	3 US gallon kits (3 x 3.78L) 15 US gallon kits (3 x 18.9L)	
Color	Clear, Pretinted	
Solids Coverage / US GAL	Mils	Sq. Ft.
	6	267
	8	200
	10	160
	12	133
	14	114
Shelf Life	One year, in original unopened factory pails under normal storage conditions.	
Application Temperature	Min -30°C / -22°F , Max 30°C / 86°F	
Cure Time	22°C / 72°F and 50% Rel. Hum.	

Version	**ECO -**	**ECO +**
Working time	15 min	25 min
Tack Free	1 h 10	1 h 45
Recoat	1 h 10 - 24 h	1 h 45 - 24 h
Dry Through	6 h	8 h
Foot Traffic	24 h	24 h
Light Traffic	48 h	48 h
Full Cure	2 weeks	2 weeks
Pot Life	10 min	12 min

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Technical Properties

Hardness ASTM D2240 Shore D at maturity	60
Abrasion (1000 cycles) ASTM D4060	35 mg loss
DRY Coefficient of Friction (Smooth coating) ASTM E303	1.5
Pull Off Test ASTM D7234	>3 Mpa
Elongation at break ASTM D638	210%
Tensile Strenght ASTM D638	2440 psi
Impact resistance (Direct) ASTM D2794 ft lb	>9
Solids Content by Volume	100%
Viscosity	400 +/-50 cps
VOC Content	0 g/l
DE 500 hr ASTM D3424	<2.0
Gardner Impact (Dir/Rev)	>160 lbs

The technical data provided pertains specifically to the LABSHIELD® ECO + CLEAR version. Other versions may have differing technical data. All information in this datasheet is based on laboratory tests, and actual values may vary due to uncontrollable factors. Testing was conducted at 22°C (72°F) with a relative humidity of 50%, unless specified otherwise.

Surface Preparation

Concrete should be clean, dry and free of grease, oil, paint, curing agents or any contaminants that may inhibit proper adhesion. Concrete should be cured at least 28 days before applying the coating system. If the concrete slab has been installed within 28 days, the LABPOX® MVB FAST moisture mitigation system could be considered system (refer to the LABPOX® MVB FAST technical data sheet for application details).

Proper testing procedures should be practiced with regards to moisture vapor transmission. Use a Tramex® CME / CMExpert to measure the moisture content of the concrete slab. Moisture content must be below 4% before applying the product. It is necessary to take several measurements at various places on the slab. If the reading is higher than 4%, steps will be required to neutralize the soil moisture. The first thing to do is to make sure that the floor is completely dry before application. Floors with higher results can receive the LABPOX® MVB FAST moisture mitigation.

Surface must be shot blasted or prepared with an equivalent mechanical means in line with CSP-2 or more depending on the application. Ensure the surface is free of contaminants, and the pores are open to allow the product to penetrate.

When applying a resinous coating over fiber-reinforced concrete, ensure that all surface fibers are completely removed before installing the primer or base coat.

When fibers are present in the concrete mix, the surface is more likely to develop an uneven or bumpy texture, as well as voids, which can be very difficult to correct once coated.

Voids in the coating can act as channels for contaminants, allowing moisture or chemicals to migrate beneath the coating. This may significantly reduce the system's performance and long-term durability.

If the product is applied to an existing LABFAST®/LABSHIELD® ECO flake flooring system that has been cured for more than 24 hours (at 22°C / 72°F), the floor surface should be sanded properly until a matte appearance is reached above and between the flakes. To achieve this result, we recommend the use of a sander equipped with a sponge pad which will follow the profile of the surface and allow the sandpaper to reach the low points between the flakes. It is necessary to sand in a multidirectional way. Repeat until a matte finish is achieved on the entire floor. It is also necessary to use xylene to remove all dust after sanding and to soften the existing layer so that it can bond with the new layer. The use of xylene for this task is mandatory as it will soften the previous coat for better adhesion. The xylene must be completely evaporated before applying the next coat.

Tip: Spreading some grade #32 silica sand on the floor surface before sanding will increase the efficiency reaching lower areas between flakes.

If the product is applied over an existing LABPOX® flooring system that has been cured for a period longer than 24 hours, it should be sanded with a proper floor machine. A mechanical bound to a sanded surface is required and the pores of the existing coating must be opened for better adhesion. Vacuum dust and properly wipe the surface with alcohol prior applying the LABSHIELD® ECO. Conduct adhesion tests if there is a doubt about surface preparation.

IMPORTANT: Adhesion of LABSHIELD® ECO to LABPOX® MVB FAST can only be achieved by sanding the LABPOX® MVB FAST to a dull appearance across the entire floor. This applies at all time, even within the 24h recoat window.

Once cured, the base coat with the flakes should be scraped and cleaned after appropriate hardness is reached prior applying the topcoat.

Mixing

Before final mixing, pre-mix part A at low speed using a Jiffy® or an Exomixer® mixer blade. Special attention must be paid to colored versions of the product since pigments may have separated from the rest of the formulation during storage. Mixing should be done until the color is uniform.

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Then, using a Jiffy® or an Exomixer® mixer blade, mix two parts of A and one part of B together at low speed in a separate container. The mixing container must be clean and free of any outside particle. Mix thoroughly for a minimum of three minutes, until a completely homogeneous mixture is obtained. Use a low-speed drill (300-450 rpm) to minimize the entrapping of air. It is recommended to activate the mixer in the reverse mode after 90 seconds for the liquid to mix from the bottom of the mixing can to the top. Make sure to scrap sides and bottom of mixing container so no unmixed material remains. Mix only the necessary quantity to be used according to the specified pot life / working time.

Application

Best results will be obtained between -10°C / 14°F and 30°C / 86°F, with a relative humidity of less than 80%. This product will also cure at temperatures as low as -30°C / -22°F. If a heated floor is installed, ensure that the system is turned off during application and for the full duration of the cure. The product has been especially designed to adhere to concrete surfaces.

Once the surface has been properly prepared, squeegee and back roll the product. It is recommended to apply the product in a multi-directional (north-south, east-west) motion to ensure proper coating thickness.

The following flake systems can be considered:

2-Coats System		3-Coats System		
Base Coat + LABTEC Chips	Topcoat	Base Coat 1	Base Coat 2 + LABTEC Chips	Topcoat
8-13 mils	8-13 mils	4-9 mils	4-9 mils	8-13 mils

The following elements will influence the amount of resin required for the base coat and/or topcoat:

+ Concrete porosity: Porous or soft concrete will require more base coat resin to achieve full saturation.
+ Flake size: Smaller flakes will require more topcoat resin to achieve full encapsulation.
+ Scraping method: Different scraping techniques leave varying surface profiles; a more pronounced profile will require more topcoat resin.
+ Desired finish: A smooth finish (less orange peel) will require more topcoat resin than a standard orange-peel texture.

The LABSHIELD® ECO is used as a colored base coat and a clear topcoat using a common hardener. A version with a prolonged working time (+) and one providing fast curing (-) are available.

IMPORTANT: Colored LABSHIELD ECO is designed exclusively as a basecoat and must not be left exposed. It must be covered with an aggregate system (vinyl flakes or quartz). Any other use is not recommended and may affect system performance.

We recommend the LABTEC Vinyl Chips when installing a flake system. Do not exceed a thickness of 30 mils for the entire system as solvent entrapment or lingering odors may occur following the installation. The color of the base coat should match the type of flake blend used. With that regards, Labsurface has made recommendations in the LABTEC Vinyl Chips section of this document.

It is also possible to use the LABSHIELD® ECO Clear as a protective coat over epoxy. In addition to the superior chemical resistance and cleanability, the LABSHIELD® ECO Clear also provides additional UV protection that will significantly slow the yellowing of epoxy over time. When used as a protective layer on epoxy, a thickness of 10 mils is recommended.

Proper tests should be conducted prior application. Contact a Labsurface representative for additional information.

Recoat

If the product is applied to an existing LABFAST®/LABSHIELD® ECO flooring system that has been cured for more than 24 hours (at 22°C / 72°F), the floor surface should be sanded properly until a matte appearance is reached above and between the flakes. To achieve this result, we recommend the use of a sanding machine equipped with a soft sanding pad which will follow the profile of the surface and allow the sandpaper to reach the low points between the flakes. It is necessary to sand in a multidirectional way. Repeat until a matte finish is achieved on the entire floor. It is also necessary to use xylene to remove all dust after sanding and to soften the existing layer so that it can bond with the new layer. The use of xylene for this task is mandatory. Make sure the solvent is completely evaporated and there are no residues. In case there are remaining residues, wipe the surface using a dry rag or swab.

Tip: Spreading some grade #32 silica sand on the floor surface before sanding will increase the efficiency reaching lower areas between flakes.

IMPORTANT: Adhesion of LABSHIELD® ECO to LABPOX® MVB FAST can only be achieved by sanding the LABPOX® MVB FAST to a dull appearance across the entire floor. This applies at all time, even within the 24h recoat window.

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Available Colors

Clear (NOT COMPATIBLE with LABTEC Universal Pigment Pods)
Pre-Tint Colors: Grey, Tan, Black, White

LABTEC Vinyl Flakes

Marble LABTEC Chips

BASALT
Pre-tint Color: Grey
Pods Suggestions:
Light Concrete, Mid Concrete, Dark Concrete

SCHIST
Pre-tint Color: Grey
Pods Suggestions:
Light Concrete, White

DOLERITE
Pre-tint Color: Grey
Pods Suggestions:
Stone Concrete ,
Mid Concrete,
Dark Concrete

Terrazo LABTEC Chips

DENALI
Pre-tint Color: Grey
Pods Suggestions:
Stone Concrete,
Mid Concrete,
Light Concrete

JUNEAU
Pre-tint Color: Grey
Pods Suggestions:
Stone Concrete,
Mid Concrete,
Light Concrete

ARMADILLO
Pre-tint Color: Grey
Pods Suggestions:
Stone Concrete ,
Beechwood

....AND MORE

To explore our full range of options, including all **Signature LABTEC Chips 1/4"** and **1/16"**, we invite you to visit our website and browse through the available samples.

EXAMPLES

Terrazo **ARMADILLO** Flooded

Terrazo **ARMADILLO** with LABFENDER 240

Terrazo **JUNEAU** Flooded

Terrazo **JUNEAU** with LABFENDER 240

Signature 1/16" **NIGHTFALL**

Signature 1/16" **NIGHTFALL** with LABFENDER

Signature 1/4" **NIGHTFALL**

Limitations

Requires a dry substrate. Moisture content of the substrate must be measured with a Tramex® CME / CMExpert at must be below 4% before applying the product. This product should not be applied to concrete substrates that show high levels of moisture/ humidity unless a moisture a LABPOX® MVB FAST moisture mitigation system is used.

IMPORTANT: Adhesion of LABSHIELD® ECO to LABPOX® MVB FAST can only be achieved by sanding the LABPOX® MVB FAST to a dull appearance across the entire floor. This applies at all time, even within the 24h recoat window.

Colored LABSHIELD® ECO is designed exclusively as a basecoat and must not be left exposed. It must be covered with an aggregate system (vinyl flakes or quartz). Any other use is not recommended

The LABTEC Universal Pigment Pods are not compatible with the LABSHIELD® ECO. Everything else being equal, thicker is the film, longer is the curing time. Drying time will be faster in a hot and/ or humid environment. Conversely, the drying time will be longer in a cold and/or dry environment. Do not clean the finished surface during the week following installation. Keeping the product stored at room temperature.

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.

While resinous coatings provide excellent chemical and mechanical resistance, they are not immune to osmotic, alkali-silica reaction (ASR) or hydrostatic pressure. Moisture in the substrate may adversely affect coating performance such as blistering, delamination, or other coating failures.

The usage of direct-fired, unvented and certain other heat sources are not recommended as they emit byproducts that may negatively impact the curing process of the resin and lead to defects such as amine blush, whitening, loss of adhesion, or other surface imperfections.

Labsurface stands behind the quality of its products. However, 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. Although Labsurface makes reasonable efforts to control the quality of the finished product and its components, ASTM re-

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sults may vary depending on the quality of the inputs delivered to Labsurface.

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. Information and data included in this reference document may not be up to date as of the date of reference. Contact Labsurface for further information regarding the limitations of this product.

This product is not immune to transfers of plasticizers contained in rubber, including car tires. Although the transfer of plasticizers phenomenon is very rare, under specific circumstances combining high tire temperature with i) high levels of plasticizers, and/or (ii) certain plasticizer types and/or (iii) certain tire types, it is possible for plasticizers to transfer from the tire rubber to the floor coating. This phenomenon is irreversible and can cause staining of the coated area. Tires should therefore cool down prior to the parking of the vehicle in the coated area.

Pressure washing and power washing (power washing involves water heating while pressure washing uses cold water) must be used with caution. Extreme pressure could damage the coating. Using hot water could also cause irreversible damage. When used to clean polymer coatings, water temperature must not exceed 49°C / 120°F and should be ideally between 32°C and 43°C / 90°F and 110°F.

Exposure to certain chemicals may cause reactions similar to those experienced with allergies. Chemicals that may cause sensitivity include synthetic and natural substances found in the Part A or the Part B of flooring or casting products. Once cross linked and completely cured, those substances are inert and therefore should not result in allergic reactions. Raw materials used by Labsurface do not differ significantly from comparable products manufactured by our competitors.

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

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