Leeson Polyurethanes
A brand of ICP Building Solutions Group

LEESON GRIP® 2-1 D3149/20

Cold Applied Polyurethane Resin Bonded Surfacing Material Installation Guide

A bond for life

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LEESONGRIP® 2-1 D3149/20

LEESONGRIP 2-1 D3149/20 is a two component solvent free polyurethane, which when used with suitable aggregate, produces a high grip resin bonded surface for roads, cycle paths, walkways and drives.

Usability:	Its ease of spreading allows for rapid application, and the cure speed for the product allows for application sites to be opened to use in a timely fashion.
Site Safety:	LEESONGRIP 2-1 D3149/20 is a solvent free system and does not require heat lances or burners to apply, lowering the number of risks installers may be exposed to.
Versatile:	LEESONGRIP 2-1 D3149/20 can be used to produce a range of surfaces include roads, pedestrian crossings, cycle paths, driveways, bridges, walkways, stairs, car park decks, ramps, flooring and airport runways. LEESONGRIP 2-1 D3149/20 can be used with a range of aggregates to provide varied aesthetic finishes.
Strong, resilient system:	The cured LEESONGRIP 2-1 D3149/20 exhibits excellent resistance to extreme temperatures (-20˚C to +120°C), moisture and chemical contact for extended periods without loss of strength.

Technical Specification

Parameter	LEESONGRIP 2-1 D3149/20	
	Part A Resin	Part B Hardener
Colour:	Opaque Buff	Transparent Brown
Specific gravity:	0.96 g/cm³	1.24 g/cm³
Solids Content:	100%	100%
Mixing Ratio by Weight:	2.15	1
Mixing Ratio by Volume:	2.78	1
Viscosity at 23ºC:	4,000 ± 600 mPa.s	300 ± 75 mPa.s
Mix Viscosity at 23ºC:	1,600 ± 400 mPa.s	
Pot life at 19ºC:	25 ± 5 minutes	
Hardness, Shore A	≥ 90	

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Installation of Resin Bounded Surfacing System LEESONGRIP 2-1 D3149/20

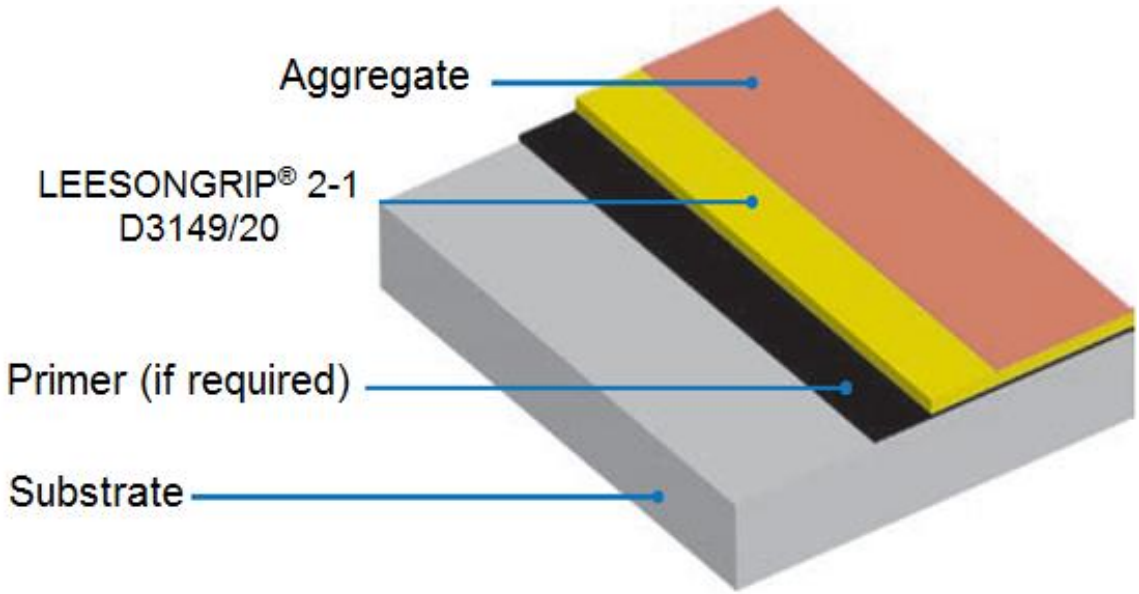
Introduction

This installation guide, together with all necessary Safety Data Sheets, and COSHH Risk Assessment for the Works shall be deposited with the Purchaser and maintained on-site during installation.

Every batch shall be subject to visual quality control checks to ensure compliance with the system specification. Each component received on-site shall be logged and stored to prevent contamination or deterioration, in accordance with the Manufacturer's instructions.

The Purchaser should ensure that the pavement structure is adequate to support the traffic without undue cracking or deformation during the life of the System.

Applied System



Surface Preparation

The areas to which the system is to be applied shall be clearly defined and marked by the purchaser on the existing application surfacing prior to commencement of work on-site.

All imperfections in the application surface not acceptable to the installer shall be reinstated with a material approved by the Purchaser in consultation with the Installer.

The application surface shall be clean, dry and free from ice, frost, loose aggregate, oil, grease, road salt and other loose matter which may impair the adhesion of the System.

Where the surface does not comply with the above it shall either be cleaned by the installer or others, by grit blasting, high pressure water jetting, low pressure water/abrasive blast cleaning, scarifying, scabbling or other means approved by the purchaser. To remove dust and other loose matter the application surface should be vigorously brushed or treated with hot compressed air. Any oil visible on the application surface shall be removed by washing and scrubbing with a suitable detergent solution followed by flushing with clean water or by other suitable means.

Existing road markings, ironwork, road edges or areas not to be treated and road studs shall be suitably masked.

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Priming of surfaces

Bituminous Surfaces:

- Asphalt should be at least 30 days old to ensure it is fully cured before installation. The application surface should have a texture depth of between 0.5mm and 2.0 mm as determined by the sand patch test.

Concrete Surfaces:

- Concrete is to be hot compressed air blasted then primed with a solvented one component polyurethane primer with the primer being allowed to cure following the manufactures recommendations. The LEESONGRIP 2-1 D3149/20 should be applied within the primer's overcoat window.

Steel:

- Steel is to be shot blasted to SA2½ and primed with the solvented aluminium paste-based metal primer PU5701, with the primer being allowed to cure following the manufactures recommendations. The LEESONGRIP 2-1 D3149/20 should be applied within the primer's overcoat window.

Weather Conditions

Installation of the System shall only be carried out at an application surface temperature of 5ºC to 35ºC. Ambient and application surface temperatures together with relative humidity shall be recorded at the start and regularly during the installation process. Installation surfaces shall be dry before and during the installation of the system.

The installer will notify the purchaser of the curing period of the system dependent upon the prevailing weather conditions.

Mixing and Application

1. Premix the LEESONGRIP 2-1 D3149/20 Part A, resin, ensuring an even colour and consistency is achieved.
2. Add 1 part by weight of LEESONGRIP 2-1 D3149 Part B, curing agent, to 2.15 part by weight of LEESONGRIP 2-1 D3149/20 Part A and mix until a mass of uniform colour is obtained.
3. The surface is then coated with the blend within 10 minutes (at 19°C) at a minimum coverage rate of 1.5 kg per m^2 dependant on surface porosity and then allowed to self-level to give total coverage.
4. The non-slip aggregate (moisture content less than 0.4%) is then scattered over the resin within 5 minutes (at 19°C).
5. Excess aggregate can be removed after 2 hours.
6. The site can be reopened to traffic after 4 hours depending on ambient temperature or until the binder is hard to the touch.

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Accelerator Additions

D4860 Accelerator should be used to maintain the cure speed of LEESONGRIP 2-1 D3149/20 at temperatures below 20ºC. D4860 should be mixed into the LEESONGRIP 2-1 D3149/20 Part A thoroughly before adding the LEESONGRIP 2-1 D3149 Part B:

Air Temperature (°C)	D4860 Addition Level
20	0ml per 17kg kit
17.5	2.5ml per 17kg kit
15	3.5ml per 17kg kit
12.5	4.1ml per 17kg kit
10	4.7ml per 17kg kit

DO NOT USE IN TEMPERATURES BELOW 5ºC.

Colour Additions

LEESONGRIP 2-1 D3149/20 can be pigmented with pigment packs, this is primarily done when using colour coated bauxites as the bonded aggregate. Pigmented packs should be mixed into the LEESONGRIP 2-1 D3149/20 Part A thoroughly before adding the LEESONGRIP 2-1 D3149/20 Part B.

Pigment Pack	Addition Level
D3149 Pigment Black - Powder	0.77kg per 17kg kit
D3149 Pigment Red - Liquid	0.29kg per 17kg kit

Aggregate Selection

A wide selection of natural and colour coated aggregates can be used with LEESONGRIP 2-1 D3149/20

Natural Aggregates:


Chinese Buff Bauxite


Chinese Grey Bauxite


Guyanan Bauxite


Golden Pea


Red Granite


Green Granite

Colour Coated Aggregates:

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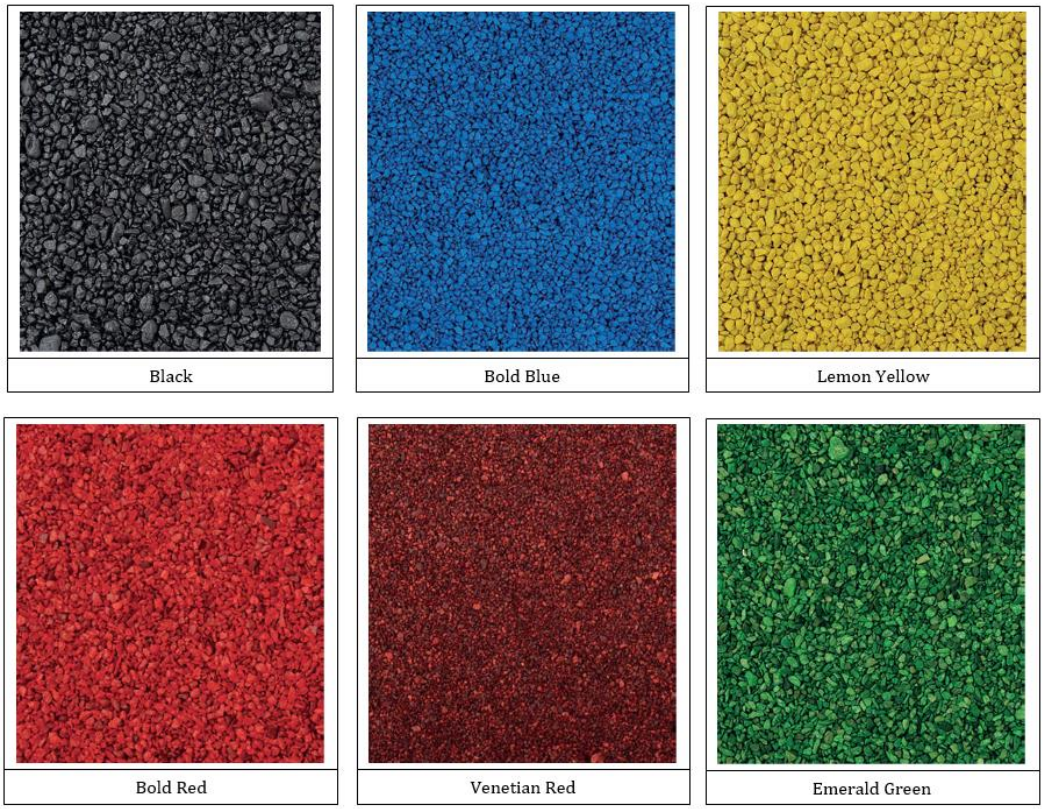

Health and Safety

LEESONGRIP 2-1 D3149/20 Part A is not classified as a hazardous substance; however, the wearing of goggles and gloves is to be recommended.

LEESONGRIP 2-1 D3149 Part B contains a non-volatile isocyanate, when used in the European Union from 24 August 2023 adequate training is required before industrial or professional use. Before use, ensure that you have read the Safety Data Sheet for this product. Samples will be provided on request to enable customers to satisfy themselves as to the suitability of the product for any specific purpose and to assess the product under their own working conditions.

- Ensure non-porous gloves and eye protection is worn when handling.
- Avoid prolonged contact with skin.
- In cases of contact with eyes, flush out with excess water and seek medical attention.

Maintenance Schedule for Resin Bonded Surfacing

Leeson Polyurethanes have been supplying resin bonded systems since the early 1990s. Over that time the systems have demonstrated their quality, durability and ease of maintenance. With some simple routine procedures, the surfacing can be kept in optimum condition.

General:
If repair work is required to an established surface, the area to be treated should be cut back to firmly bonded material, cleaned with hot compressed air (or any other suitable means) and the high friction system applied to the original specification.

Aftercare:
The masking shall be removed and the System allowed to cure. During the curing period no disturbance or trafficking of the System shall be permitted. Before opening to traffic at the end of the curing period the excess aggregate shall be removed by vacuum sweeper or other suitable means.

The Installer shall inspect the application area after 24 hours and carry out any necessary remedial work, or further sweeping.

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Periodic Cleaning:
General cleaning of the surface can be carried out by cold pressure washing up to a maximum 150 bar rating to remove dirt and grime. The water should be applied using a fan type lance which should be kept 200mm above the installed surface. Care should be taken however to prevent damage to the surface with excessive water pressure. Pressure washing can also be used to remove tyre marks.

Spillages:
Please note it is important that any spillages or contamination are dealt with promptly otherwise permanent staining, marking or physical damage to the surfacing and underlying materials may result.

Sand/Soil:
Shovel up material and sweep surface clean with a stiff brush. Pressure washing up to 150 Bar can also be used to clean sand from the surface.

Chewing Gum:
Removal of individual pieces of chewing gum, can be achieved by treating each piece with a freezing spray and then scraping off the gum with a suitable scraper. For more extensive gum removal, contact a specialist-cleaning contractor.

Ice and Frost:
Salt can be used on the surface to help eliminate ice and frost. Once weather conditions return to normal the salt/grit needs to be washed off thoroughly to remove all salt traces.

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LEESONGRIP® - Application Audit Sheet

Date	
Customer	
Site Reference & Address	
Coverage Area (m^2)	

Site Preparation:

Installed on to an Approved Subbase	Yes / No
Subbase Type	
Age of Subbase	
Is Primer to be Used	Yes / No
Primer Used	
Primer Batch Number	

LEESONGRIP Application:

Application Time	Start		End		
Ground Temperature (ºC)	Start		End		
Air Temperature (ºC)	Start		End		
Relative Humidity (%)	Start		End		
Dew Point (ºC)	Start		End		
Product Number					
Part A - Batch Number					
Part B - Batch Number					
D4860 Used	Yes / No				
D4860 Addition Level (ml)					
Kit Mixing Time					
Number of Kits Used					
PU coverage / m^2					
Pot-Life Used (Record for First 5 Kits)					
Aggregate Type Used					
Aggregate Grade (mm range)					
Supplier of Aggregate					

Additional Comments:

Completed by:

Signed:

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DEW POINT CHART

Definition: Dew Point is the temperature at which condensations forms. To determine the Dew Point from the charts below, find the temperature of the air in question on the left side of the table. Next, locate the relative humidity of the air in question across the top of the table. The intersection of these two numbers in the matrix identifies the temperature at which Dew Point is reached.

Temp °C	% Relative Humidity																		
	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10
43	43	42	41	40	39	38	37	35	34	32	31	29	27	24	22	18	16	11	5
41	41	39	38	37	36	35	34	33	32	29	28	27	24	22	19	17	13	8	3
38	38	37	36	35	34	33	32	30	29	27	26	24	22	19	17	14	11	7	0
35	35	34	33	32	31	30	29	27	26	24	23	21	19	17	15	12	9	4	0
32	32	31	31	29	28	27	26	24	23	22	20	18	17	15	12	9	6	2	0
29	29	28	27	27	26	24	23	22	21	19	18	16	14	12	10	7	3	0	
27	27	26	25	24	23	22	21	19	18	17	15	13	12	10	7	4	2	0	
24	24	23	22	21	20	19	18	17	16	14	13	11	9	7	5	2	0		
21	21	20	19	18	17	16	15	14	13	12	10	8	7	4	3	0			
18	18	17	17	16	15	14	13	12	10	9	7	6	4	2	0				
16	16	14	14	13	12	11	10	9	7	6	5	3	2	0					
13	13	12	11	10	9	8	7	6	4	3	2	1	0						
10	10	9	8	7	7	6	4	3	2	1	0								
7	7	6	6	4	4	3	2	1	0										
4	4	4	3	2	1	0													
2	2	1	0																
0	0																		

Example: Read the air temperature in the left-hand column and the humidity at the top of the chart. If the air temperature of the site is 24º C and the relative humidity is 35%, the intersection of the two shows the dew point of the area to be 7ºC. The surface temperature should be at least 3 degrees above that point, i.e. 10ºC or above, to prevent water condensing on the application surface.

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