



SWARCO LIMBURGER LACKFABRIK GmbH

Road Marking Systems



1-component Afterglow paint system

TECHNICAL INFORMATION

SWARCO | First in Traffic Solutions.

1-component Afterglow paint system

Art.-No.: 8129016 white, 1-comp. Afterglow primer
 Art.-No.: 8121111 yellow-green, 1-comp. Afterglow paint
 Art.-No.: 8120000 transparent, 1-comp. UV-clear varnish

Special applications – afterglow systems

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1 Main characteristics / Fields of application

1-component Afterglow paint system...

- is a **three-layered** marking system consists of a 1-component primer, 1-component afterglow paint and a 1-component UV-clear varnish and belongs to the group of aromatic-free, solvent containing 1-component paints
- can be incited by UV radiation as well as by white daylight or artificial light, in the dark afterglow paint is visible by its afterglow properties (emission of light), the special afterglow pigments are free of phosphor, radioactive substances or other toxic chemicals. Incitation and emissions can be repeated without limitation
- suitable for near-ground optical safety guide systems and identification of emergency exit routes in tunnels, staircases, parking garages, factories, shopping centers, tunnels etc. when a power blackout or fire with formation of smoke takes place
- supplemented existing emergency light systems invisible by smoke
- marking's good luminescence does not only show the direction of evacuation routes, but also make staircases, obstacles, doors etc. visible
- product is not suitable for areas with car traffic impact; applicable on horizontal surfaces with **low pedestrian traffic density only** or on **vertical** surfaces (e.g. walls)
- developed for inside rooms with intensive lights, the afterglow paint should be applied close to those light sources
- suitable for bituminous surfaces (e.g. mastic asphalt, asphaltic concrete), not suitable for floor coatings
- tested and approved at Federal Institute for Materials Research and Testings (BAM, Berlin) according to DIN 67510 part 1 (longtime afterglow products)
- suitable for airspray technique (for airless machines: in advance tests are recommended)

2 Technical Data

Three-layered system	first layer	second layer	third layer
Product	Primer for 1-component Afterglow paint	1-component Afterglow paint	UV clear varnish for 1-component Afterglow paint
Art.-No.:	8129016	8121111	8120000
Standard colors	white	yellow-green	transparent
Density	1.57 kg/l +/- 0.1	1.13 kg/l +/- 0.1	0.96 kg/l +/- 0.03
Thinner	on request: Thinner for HS-paint (Art.-No.: 3080)		
Thinner for cleaning	Special cleaner for marking machines Art.-No.: 3086		
Next application after	approx. 5 – 15 min. (must not be sticky – but dust-dry)	approx. 10 – 25 min. (must not be sticky – but dust-dry)	approx. 10 – 15 min.
Drying time / Overrollability			approx. 1 hour after last application (must not be sticky)*
Wet layer thickness to be applied	approx. 200 µm - 400 µm make sure: evenly and all over coverage	min. 100 µm - max. 600 µm depending on requested afterglow time span. Thickness more than 300µm needs application with two layers	min. 60 µm – max. 100 µm spray in two applications
Theoretical consumption	approx. 0.314 kg/m ² (0.20 l/m ²) approx. 0.628 kg/m ² (0.40 l/m ²)	approx. 0.11 kg/m ² (0.102 l/m ²) to approx. 0.68 kg/m ² (0.6 l/m ²)	approx. 0.058 kg/m ² (0.062 l/m ²) to approx. 0.096 kg/m ² (0.103 l/m ²)

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Standard packaging	2.5l - tin foil container 5.0l - tin foil container 10.0l - tin foil container	2.5l - tin foil container 10.0l - tin foil container	2.5l - tin foil container 10.0l - tin foil container
Identification	The regulations and instructions concerning appropriate transport, handling, storage, first aid measures, toxicology and ecology are stated in our material safety data sheets! The instructions stated on the product label and in the MSDS must be followed		
Storage stability	1 year in unmixed, sealed original packaging and sheltered from frost and direct sun exposure		
Processing temperature	min. + 5°C		
Surface temperature	+ 5°C to + 45°C		
Relative humidity	max. 75% (dew point spreadsheet has to be regarded)		
* In general the markings` work-on stability must be checked before exposing them to traffic impact			

3 Efficacy of afterglow markings

Influencing factors affecting afterglow properties:

- Quality of the afterglow pigment
- Line width
- Effective source of light enables a proper incitation for the whole spectral range
- charging time
- quality of the white primer
- layer thickness

Optical properties tested at BAM* - Afterglow paint system according to DIN 67510-1 -

sample	Wet film thickness μm			luminance mcd / m^2 after				decay time ** in min.
	1.min	10 min	30 min	60 min	1 min	10 min	30 min	
	1.layer	2.layer	3.layer					
Test April 2010	400	400	60	2880	312	90	39	2700
Test June 2005	400	600	60	1736	219	68	30	2450

* BAM – Bundesanstalt für Materialforschung und –prüfung (Berlin) or: Federal Institute for Materials Research and Testings

** decay time until luminance amount to 0,3 mcd / m^2

4 Processing instructions

4.1 Preparation of material and application technique

All products of the afterglow paint system must be homogeneously stirred in their original container before processing by using an appropriate stirring device.

The application and drying properties of the material depend on temperatures, of air- material and surface. Proper storage conditions improve application conditions partly.

Theoretical material consumption is stated in:

- Table “Theoretical material- and drop-on consumption” on our homepage

The exact machine adjustments have to be done according to the manufacturers` instructions. Layer thickness has to be evenly distributed to get consistent afterglow properties.

Cleaning of machine (paint tank, hoses, tools) must takes place before curing occurs with Special cleaner for marking machines Art.-No.: 3086.

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4.2 Optimizing of application properties

The 1-component afterglow paint system in its delivery state is ready for processing. In general it is not necessary to add thinner but for optimizing the material's spray properties approx. 2% Thinner for high solid paints (Art.-No.: 3080) can be added. Thinner recommended by the manufacturer must be used only.

5 Surfaces / pretreatment

5.1 General information

The surface must be dry, clean free from grease, oil and loose gravel and other contaminations. The surface and potential existing old markings must be checked for their carrying capacity and compatibility with material to be applied. In case of doubt, test applications and adhesion tests are required. Ideally, old markings should be removed with appropriate mechanical procedures. If the 1-component Afterglow paint system is applied onto old markings, drying times could be prolonged.

Attention: 1-comp. Afterglow paint system is not suitable for large scale asphalt markings.

5.2 Concrete and cement-bound surfaces

The pavement components that prevent good bonding, especially on new concrete, as fine mortar layer, concrete slurries, concrete after-treatments as setting retarders, paraffin, impregnations on silicate basis etc. must be appropriately removed (e.g. with high pressure waterjet, fine millcut or similar). We recommend conducting test applications in case of doubt communicate concerns in writing about paint bonding properties.

On new washed concrete surfaces (with grit) poor bonding properties may occur, not caused by marking paint quality. Therefore we recommend applying test markings.

When applying the paint to concrete or cement-bound surfaces, the formation of bubbles is likely to occur. In order to prevent formation of bubbles the concrete - Primer for 1-component Afterglow paint - should be used blended 1:1 with Thinner for HS-Paints (Art.-No.: 3080) and sprayed with approx. 150 µm wet film thickness. Once dried, a second, undiluted layer can be applied. The humidity of concrete must not exceed 4% during the marking job.

5.3 Bituminous surfaces

Any loose components such as chippings must be removed. Flux oils of new bituminous surfaces are detrimental to bonding of markings and may lead to discolouration. Since these oils are not removable mechanically, the surface should be applied with 1-comp. Primer for Afterglow paint and after 4 – 6 weeks waiting time conduct test markings (tests for adhesive properties and discoloration).

Furthermore has to be regarded: new bituminous surfaces applied inside car parks and industrial buildings are not as good compacted as road asphalt. Therefore underneath the marking or sideways the marking cracks / chippings may occur.

5.4 Cobbled pavement

Natural, artificial and compound stone pavements are loose surfaces that move. Basically they are no suitable surfaces for the 1-component Afterglow paint system. No guarantee is given in cases of: crack formation, chippings caused by the movement of pavement parts, poor marking bonding (e.g. natural or artificial stones), penetration of moisture and wear of marking. Test markings are always necessary.

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5.5 Floor coatings

For markings on floor coatings, SWARCO LIMBURGER LACKFABRIK's indoor marking products should be used. The 1-component Afterglow paint system is not suitable for floor coatings.

5.6 Other surfaces

Inside building's further surfaces are applied (e.g.: PVC, wood, chipboards). Test markings are mandatory. The 2-component Afterglow paint system may be an option. Metal surfaces are no suitable surface for the 1-component Afterglow paint system.

6 Application techniques

With marking airspray machines (in advance tests are necessary when using airless machines) or with hand spray gun or roller.

Application of the 1-component Afterglow paint system is to be conducted in the following sequence:

1. 1-component Afterglow primer
apply evenly
2. 1-component Afterglow paint
apply evenly, gives the afterglow effect, depending on wanted thickness:
two applications are necessary
3. 1-component UV clear varnish for 1-component Afterglow paint
protects afterglow paint against dirt and wear and prolonged life time

The above mentioned layer thicknesses and number of stated spray operations have to be applied in order to get the optimal afterglow properties.

Afterglow paint thickness can be modified between 100 µm to max. 600 µm depending on requested afterglow effect. Regard waiting times stated in the spreadsheet.

The 1-component UV-clear varnish for Afterglow paint needs enough time for drying. Otherwise varnish's surface gets soiled.

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