



SWARCO LIMBURGER LACKFABRIK GmbH

Road Marking Systems



Afterglow Dispersion System

TECHNICAL INFORMATION

SWARCO | First in Traffic Solutions.

Afterglow Dispersion System

Art.-No.: 8179016 white, waterborne primer (1-comp.)
 Art.-No.: 8171111 yellow-green, afterglow dispersion paint (1-comp.)
 Art.-No.: 8170000 transparent, waterborne UV-clear varnish (1-comp.)

Special applications – afterglow systems

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1 Main characteristics / Fields of application

Afterglow Dispersion System...

- is a **three layer** marking system consisting of a waterborne primer, afterglow dispersion paint and a waterborne UV-clear varnish and belongs to the group of waterborne one-component paints
- can be incited by UV radiation as well as by white daylight or artificial light. In the dark afterglow paint is visible through its afterglow properties (emission of light). The special afterglow pigments are free of phosphor, radioactive substances or other toxic chemicals
- is especially suitable for near-ground optical safety guidance system and identification of emergency exit routes in staircases, parking garages, factories, shopping centers, tunnels etc., in case of a power blackout or fire with formation of smoke (product is not suitable for areas with car traffic impact; applicable on floors with **low pedestrian traffic volume** only)
- supplements existing emergency light systems which are invisible in smoke
- its good luminescence does not only show the direction of evacuation routes, but also makes staircases, obstacles, doors etc. better visible
- especially suitable for vertical applications
- developed for indoor locations 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 Testing (BAM, Berlin) according to DIN 67510 part 1 (longtime afterglow products)
- suitable for airspray technique (for airless machines: tests are recommended)

2 Technical Data

Three layer system	first layer	second layer	third layer
Product	Waterborne primer for the afterglow dispersion system	Afterglow dispersion paint	Waterborne UV-clear varnish for the afterglow dispersion system
Art. No.:	8179016	8171111	8170000
Standard colors	white	yellow-green	transparent
Density	1.61 kg/l +/- 0.1	1.24 kg/l +/- 0.1	1.04 kg/l +/- 0.03
Thinner	If required add 2% water for optimizing spray properties		
Thinner for cleaning	water		
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 / Trafficability	/	/	approx. 1 hour after last application (must not be sticky)*
Wet layer thickness to be applied	approx. 200 µm watch out for even and complete coverage	min. 100 µm - max 600 µm depending on requested afterglow time span. Thicknesses of more than 300µm need to be applied in 2 steps	min. 60 µm – max. 100 µm apply in two application steps
Theoretical consumption	approx. 0.322 kg/m ² (0.20 l/m ²)	approx. 0.112kg/m ² (0.086 l/m ²) to approx. 0.74 kg/m ² (0.5 l/m ²)	approx. 0.063 kg/m ² (0.066 l/m ²) to approx. 0.104 kg/m ² (0.108 l/m ²)
Standard packaging	1.0l - can 5.0l - plastic container 10.0l - plastic container	1.0l - can 5.0l - plastic container 10.0l - plastic container	1.0l - can 5.0l - plastic container 10.0l - plastic container

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Identification	The regulations and instructions concerning appropriate transport, handling, storage, first aid and measures, toxicology and ecology are stated in detail in our material safety data sheets! The instructions stated on the product label and in the MSDS must be followed.
Storage stability	6 months; unmixed in sealed original packaging and sheltered from frost and direct sun light!
Processing temperature	min. +10°C
Surface temperature	+10°C to +45°C
Relative humidity	max. 75% (dew point spreadsheet has to be regarded)

* In general the markings' stability must be checked before exposing it 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
- Layer thickness
- Quality of the white primer

Optical properties tested at BAM* - Afterglow dispersion 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	
Test June 2005 first layer 400 second layer 600 third layer 60	1506	194	63	28	2430

* BAM – Bundesanstalt für Materialforschung und –prüfung (Berlin): 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 dispersion system must be homogeneously stirred in their original container before processing by using an appropriate stirring device. The cleaning must occur with water before the material has dried completely. The application and drying properties of the material depend on temperatures of air, material and surface. Proper storage conditions may improve application conditions.

The theoretical material consumption is stated in the table “Theoretical material- and drop-on consumption” on our homepage.

The exact machine adjustments have to be done according to the manufacturer’s instructions. The Layer thickness has to be even to get consistent afterglow properties.

Attention: All machine parts (tank, pumps, spray devices) must be made of stainless steel. The machine must be perfectly clean, remaining solvent paints or solvents may cause damage in combination with waterborne paints.

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4.2 Optimizing application properties

Afterglow dispersion products are ready for use upon delivery and usually do not require thinning with water. Adjust spray equipment first before considering diluting the paint! It is possible to optimize the material's spray properties by adding up to 2 - 5% of water as thinner. Never mix waterborne paint with organic solvents!

5 Surfaces / pretreatment

5.1 General information

The surface must be dry, clean and free from grease, oil and loose gravel and other contaminations. The surface and potentially existing old markings must be checked for their carrying capacity and compatibility with the 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. Dark surfaces need a white primer for improving the effectiveness of the afterglow system.

Attention: The afterglow dispersion system is not appropriate for large surface applications.

5.2 Concrete and cement-bound surfaces

The pavement components of new concrete surfaces that prevent good bonding (fine mortar layers, concrete slurries) must be appropriately removed (e.g. with high pressure waterjet, fine millcut, or similarly effective methods). The humidity of the concrete must not exceed 4% during the marking process.

We advise against applying waterborne marking systems onto steel fiber concrete.

When applying the paint on concrete or cement-bound surfaces or interlocking concrete pavement, the formation of bubbles is likely to occur. In order to prevent bubble formation the concrete should be pretreated with Afterglow dispersion primer blended 1:1 with water. The wet film thickness should amount to approx. 150µm. Once dried, a second, undiluted layer can be applied. The humidity of the concrete must not exceed 4% during the marking process.

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 discoloration. Since these oils are not removable mechanically, the surface should be applied with Afterglow dispersion primer. After a waiting time of 4 - 6 weeks test markings (tests for adhesive properties and discoloration) are recommended prior to the application of the afterglow dispersion.

Furthermore, it has to be regarded that new bituminous surfaces applied inside car parks and industrial buildings are not as well compacted as road asphalt. Therefore underneath the marking or on the sides of the markings cracks / chippings may occur.

5.4 Cobbled pavement

Natural, artificial and compound stone pavements are non-static surfaces. Basically they are not suitable for the application of Afterglow dispersion marking. No guarantee is given in case of crack formation, chippings caused by the movement of pavement parts, poor marking bonding (e.g. natural or artificial stones), penetration of moisture, wear of the marking. Test markings are obligatory.

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5.5 Floor coatings

The Afterglow dispersion system is not suitable for floor coatings. The 2-Comp. afterglow paint system or the 2-comp. afterglow plastic should be used. Test markings are mandatory on these surfaces.

5.6 Other surfaces

Inside buildings further surfaces are encountered (e.g.: PVC, wood, chipboards). Test markings are mandatory on these surfaces. The 2-comp. afterglow paint may be an option. Metal surfaces are not suitable for Afterglow dispersion paint.

6 Application techniques

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

The application of Afterglow dispersion paint has to be conducted in the following sequence:

1. Afterglow dispersion primer, white
apply evenly
2. Afterglow dispersion paint, yellow-green
apply evenly, provides for the afterglow effect, depending on desired thickness: 2 applications may be necessary
3. Afterglow dispersion UV-clear varnish
protects afterglow paint against dirt and wear and prolongates life time

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

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

The Afterglow dispersion UV-clear varnish needs enough time for drying. Otherwise the varnish's surface may get soiled.

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