TECHNICAL INFORMATION

2-COMPONENT AFTERGLOW PAINT SYSTEM

swarco

Road Marking Systems

swarco
Road Marking Systems

2-COMPONENT AFTERGLOW PAINT SYSTEM

Art.-No.: 8139016 white, 2-comp. Primer
Art.-No.: 8131111 yellow-green, 2-comp. Afterglow paint
Art.-No.: 8130000 transparent, 2-comp. UV-clear varnish

Version: 2016-06-01

1 Main characteristics / Fields of application ... 3

2 Technical Data ... 3

3 Efficacy of afterglow markings ... 4

4 Processing instructions ... 5

4.1 Preparation of material and application technique ... 5

4.2. Optimizing application properties ... 5

5 Surfaces / pretreatment ... 5

5.1 General information ... 5

5.2 Concrete and cement-bound surfaces ... 5

5.3 Bituminous surfaces ... 6

5.4 Cobbled pavement ... 6

5.5 Floor coatings ... 6

5.6 Other surfaces ... 6

6 Application technique ... 6

Important Information:
Please consider our General Terms and Conditions and the general notes of the Technical Information Sheet! No liability is accepted for any errors! The information is provided to our best knowledge and experience. This information is, however, no warranty for any properties of the material. We provide this information without obligation, also regarding the rights of third parties. The user has to make sure that the material is appropriate for the respective application.

1 Main characteristics / Fields of application

2-component Afterglow paint system...

- is a three-layered marking system consisting of a 2-component primer, 2-component afterglow paint and a 2-component UV-clear varnish and belongs to the group of aromatic-free, solvent containing 2-component paints
- is distinguished from conventional one-component paints by its chemical reaction resulting in extended durability, resistance against chemicals and abrasion. The chemical reaction occurs besides physical drying by evaporation of the solvent
- suitable for near-ground optical safety guidance systems and identification of emergency exit routes in tunnels, staircases, parking garages, factories, shopping centers, tunnels etc. in case of a power blackout or fire with formation of smoke
- 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; incitation and emission can be repeated without limitation
- supplements existing emergency light systems invisible in smoke
- the marking's good luminescence does not only show the direction of evacuation routes, but also makes staircases, obstacles, doors etc. better visible
- the product is suitable for horizontal areas with car intensive traffic impact and also applicable on vertical surfaces (e.g. walls,) obstacles, emergency exits
- developed for inside rooms with intensive lighting, the afterglow paint should be applied close to these light sources
- suitable for bituminous surfaces (e.g. mastic asphalt, asphaltic concrete), floor coatings, concrete and various metal surfaces (test application on metal surfaces are necessary)
- tested and approved by the 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: test applications are recommended)

2 Technical Data

Three-layered system	**first layer**	**second layer**	**third layer**
Product	**Primer for 2-comp. Afterglow paint**	**2-comp. Afterglow paint**	**UV clear varnish for 2-comp. Afterglow paint**
Art.-No.	8139016	8131111	8130000
Standard color	white	yellow-green	transparent
Density: **without hardener** **with hardener**	 1.52 kg/l +/- 0.1 1.50 kg/l +/- 0.1	 1.16 kg/l +/- 0.1 1.10 kg/l +/- 0.1	 1.01 kg/l +/- 0.03 1.00 kg/l +/- 0.03
Mixture ratio	Base component : hardener 2-C. primer : 8623 **20 : 1**	Base component : hardener 2-C. Afterglow paint : 8620 **5 : 1**	Base component : hardener 2-C.UV-clear varnish : 8620 **2 : 1**
Thinner: on request	Thinner for 2-comp. EP (Art.-No.: 3130)	Thinner for 2-comp. Acrylic (Art.-No.: 8630)	Thinner for 2-comp. Acrylic (Art.-No.: 8630)
Thinner for cleaning	Special cleaner for marking machines Art.-No.: 3086	Special cleaner for marking machines Art.-No.: 3086	Special cleaner for marking machines Art.-No.: 3086
Potlife	Approx. 1 day (high temperatures shorten potlife)	approx. 1.5 h	approx. 1.5 h

Three-layered system	first layer	second layer	third layer
Product	**Primer for 2-comp. Afterglow paint**	**2-comp. Afterglow paint**	**UV clear varnish for 2-comp. Afterglow paint**
Next application after	approx. 3 h . (must not be sticky but dust-dry)	approx. 4 h . (must not be sticky but dust-dry)	/
Drying time / Trafficability	/	/	over night *
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. A thickness of more than 300µm requires a 2 layer application	**min. 60 µm – max. 100 µm** spray in two application steps
Theoretical consumption	approx. 0.30 kg/m² (0.20 l/m²) to approx. 0.61 kg/m² (0.40 l/m²)	approx. 0.11 kg/m² (0.102 l/m²) to approx. 0.68 kg/m² (0.6 l/m²)	approx. 0.06 kg/m² (0.06 l/m²) to approx. 0.1 kg/m² (0.1 l/m²)
Consumption 1.0 m² 2.5 m² 5.0 m²	**400 µm** 0.4 l 1.0 l 2.0 l	**600 µm** 0.6 l 1.5 l 3.0 l	**60 µm** 0.06 l 0.15 l 0.30 l
Standard packaging	5.0 l – tin foil container 0.25 l – hardener 8623	5.0 l – tin foil container 1.0 l – hardener 8620	5.0 l – tin foil container 2.5 l – hardener 8620
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	6 month in unmixed, sealed original packaging and protected from frost and direct sun light		
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 marking's work-on stability or trafficability 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
- 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 / m² after 1 min	10 min	30 min	60 min	decay time ** in min
		1.layer	2.layer	3.layer					
Test	April 2010	400	400	60	2168	232	67	29	2140
Test	June 2005	400	600	60	1725	216	68	31	2550

* **BAM –** Bundesanstalt für Materialforschung und -prüfung (Berlin) or: Federal Institute for Materials Research and Testings
** decay time until luminance amount to 0,3 mcd /m²

4 Processing instructions

4.1 Preparation of material and application technique

All products of the 2-Component Afterglow Paint System must be homogeneously stirred in their original containers 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 may partly 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 evenly distributed to get consistent afterglow properties.
Cleaning of machine (paint tank, hoses, tools) must takes place before the curing process is finished with Special cleaner for marking machines (Art.-No.: 3086).

4.2. Optimizing application properties

The products of the 2-Component Afterglow Paint System are ready for processing upon delivery. In general it is not necessary to add thinner but for optimizing the material’s spray properties add 2-5% of the thinner type stated in the spreadsheet above (see Ch. 2. Technical Data). Only use thinners recommended by the manufacturer.

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 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. If the 2-Component Afterglow Paint System is to be applied onto old markings, drying times may be prolonged.

Note: 2-Component 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, paraffins, 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 your concerns in written form.

On new washed concrete surfaces (with grit) poor bonding properties may occur, not caused by marking paint quality. We recommend applying test markings.
When applying the paint on concrete or cement-bound surfaces, the formation of bubbles is likely to occur. In order to prevent bubble formation Primer for 2-component Afterglow Paint should be used blended 1 : 1 with Thinner for 2-Component EP (Art.-No.: 3130) and sprayed with approx. 150 µm wet film thickness. Once dried, a second, undiluted layer can be applied.

5.3 Bituminous surfaces

Any loose components such as chippings must be removed. On new asphalt surfaces additives (fluxoils, adherents etc.) are detrimental to good bonding of markings and can cause discolorations on marking paints. Before application test markings / bonding checks are necessary. Since a mechanical removal is hardly possible, the surface should be treats with 2-Comp. Primer for Afterglow Paint. After 4 - 6 weeks waiting time conduct test markings (tests for adhesive properties and discoloration).
If marking test results are negative we recommend applying 2-Component Afterglow Paint System without any guarantee. Bituminous layers for car parks or factories are less compact than road asphalt. Therefore marking materials may cause crack formation on such asphalt layers.

5.4 Cobbled pavement

Natural, artificial and compound stone pavements are no-static surfaces. Basically they are not suitable for 2-Component Afterglow Paint System. 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 or wear of the marking. Test markings are always necessary.

5.5 Floor coatings

Synthetic resin floor products usually consist of epoxy resins or polyurethane. They are differentiated into sanded and non-sanded coatings. Such coatings must be considered critical surfaces. If the synthetic resin coatings are older than 3 days, it is essential for a successful application of 2-Component Afterglow Paint System that the floor is roughened with adequate means (e.g. Blastrac, fine millcut or grinding). If the marking is applied within 2 days after the coating application, roughening is not necessary. Due to the variety of different coatings we recommend conducting test applications and bonding checks and to check the coating's Technical Information, since these data sheets may provide hints about marking applications.

5.6 Other surfaces

Inside buildings different surfaces are possible (e.g.: PVC, wood, chipboards). Test markings with Primer for 2-Component Afterglow Paint are mandatory. Metal surfaces also need test markings.

6 Application technique

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

The application of 2-Comp. Afterglow Paint is to be conducted in the following sequence:

1. **2-Component Afterglow Primer**

   apply evenly

2. **2-Component Afterglow Paint**

   apply evenly, gives the afterglow effect, depending on applied thickness:

   two applications are necessary

3. **2-Component 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 the optimal afterglow properties.

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

The 2-component UV-clear varnish for Afterglow paint needs enough time for drying. Otherwise the varnish's surface gets soiled, damaged and black tire tracks may occur.