TECHNICAL INFORMATION

LIMBOROUTE HIGH-SOLID PAINT COLORED

swarco

Road Marking Systems

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LIMBOROUTE HIGH-SOLID PAINT COLORED

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1 Main characteristics / Fields of application

LIMBOROUTE High-Solid-Paint colored…

- is a low solvent, aromatic-free, one-component high-solid paint specially manufactured for indoor and outdoor public traffic areas
- produced with special pigments on basis of a BASt approved white HS-Paint
- if necessary drop-on materials like colored quartz sand or glass granulate can be added to get better anti-skid resistance; Type I drop-on materials can also be used
- is suitable for both bituminous surfaces and concrete surfaces, not suitable for large scale or indoor / hall markings; of limited suitability for cobbled pavement
- is applicable with any marking machines used at present
- available in airless quality only

2 Technical Data

Standard colors	Colored RAL paints, see point 3
Density	approx. 1.56 – 1.65 kg/l (depends on color)
Solid content	min. 75%
Volume solid content	approx. 57.71%
Solvent content	max. 25%
Thinner	When needed add 2% thinner for high solid paint (Art.-No.: 3080) to optimize spray properties or add 2% thinner for high temperatures (Art.-No.: 3160) to optimize bead / drop-on material embedment
Cleaning thinner	Special cleaner for marking machines Art.-No.: 3086
Storage stability	1 year in unmixed, sealed original packaging and protected from frost and direct sun light
Drying time / Trafficability	The drying may differ from field conditions depending on climate (temperature, humidity, wind) material, layer thickness and road surface. In general the markings' trafficability must be checked before exposing it to traffic.
Standard packaging	tin foil containers of 6 / 15 / 40 kg filling weight container, steel drums on request Drop-on material**:** paper bags with PE-inlay – 25 kg filling weight
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
Processing temperature	min. +5°C
Surface temperature	+ 5°C to +45°C
Relative humidity	max. 75 % (dew point spreadsheet has to be regarded)

3 Theoretical consumption of material and drop-on material

Product	RAL color no.	Den-sity	Theoretical consumption / layer thickness			
		kg/l	kg/m²	kg/m² *	kg/m² *	kg/m² *
			0.1 mm	0.3 mm	0.4 mm	0.6 mm
LIMBOROUTE High-Solid-Paint traffic yellow	1023	1.57	0.157	0.47	0.63	0.94
LIMBOROUTE High-Solid-Paint traffic orange	2009	1.56	0.156	0.47	0.62	0,94
LIMBOROUTE High-Solid-Paint traffic red	3020	1.59	0.159	0.48	0.64	0.95
LIMBOROUTE High-Solid-Paint traffic blue	5017	1.61	0.161	0.48	0.64	0.97
LIMBOROUTE High-Solid-Paint traffic green	6024	1.63	0.163	0.49	0.65	0.98
LIMBOROUTE High-Solid-Paint traffic grey A	7042	1.63	0.163	0.49	0.65	0.98
LIMBOROUTE High-Solid-Paint traffic grey B	7043	1.64	0.164	0.49	0.66	0.98
LIMBOROUTE High-Solid-Paint traffic black	9017	1.65	0.165	0.49	0.66	0.99
Drop-on material Swarcolux P21 (if required) **				0.24	0.32	0.48
Quartz colored (if required, for anti-skid resistance) **				approx. 0.35	approx. 0.35	approx. 0.8
Glass granulate (if required, for anti-skid resistance) **				approx. 0.35	approx. 0.35	approx. 0.8

* rounded theoretical consumption
** additional material
The actual consumption depends on the applied layer thickness, type of application, metering device for broadcasted materials and type and state of the surface to be applied.

4 Processing instructions

4.1 Preparation of material and application techniques

Before processing LIMBOROUTE High Solid Paint Colored must be homogenously stirred in its original container. The exact machine adjustments depend on the application conditions, type of machine, required wet film thickness, type and quantity of drop-on material and need to be made according to the machine manufacturer's instructions.
The uniform distribution of marking material and drop-on material over the entire application surface must be observed. Losses of drop-on material must be regarded by adjusting bead pistol or bead dispenser.
Theoretical consumption of paint and drop-on material is listed in the table "Theoretical consumption of material and drop-on materials" on our homepage in kg/m² or in the table above.
Cleaning of machine (paint tank and hoses) and tools must take place before curing is completed with Special cleaner for marking machines Art.-No.: 3086 or with thinner for high solid paint (Art.-No.: 3080).

4.2 Optimizing of application properties

LIMBOROUTE High-Solid-Paint colored is ready for processing upon delivery. In general it is not necessary to add thinner but to optimize the material's spray properties approx. 2% Thinner for high solid paints (Art.-No.: 3080) can be added. When processing LIMBOROUTE High-Solid-Paint Colored at temperatures exceeding 25°C it is recommended to add approx. 2% Thinner for high temperatures (Art.-No.: 3160). Only thinner recommended by the manufacturer must be used.

5 Road 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.
Colored marking materials may fade after some time of outside exposure. This is normal for state-of-the-art materials. Constant traffic impact reduce this effect (referred to as “chalking”), but is not able to prevent it completely. See our discussion of this topic in our General Information in the Technical Information sheets.
Attention: LIMBOROUTE High-Solid-Paint colored is not suitable for large scale asphalt markings (bicycle lanes, sports fields, children’s playgrounds).

5.2 Concrete or cement-bound surfaces

The pavement components that prevent good bonding, especially on new concrete, such as fine mortar layers, 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 the quality of the marking paint. We recommend the application of test markings.
When applying the paint to concrete or cement-bound surfaces, the formation of bubbles is likely to occur. In order to prevent bubble formation the concrete should be pretreated with LIMBOROUTE High-Solid Paint colored blended 1 : 1 with Thinner for HS-Paints (Art.-No.: 3080) and sprayed with approx. 200 µm wet film thickness. Once dried, a second, undiluted layer can be applied. The humidity of the concrete must not exceed 4% during the application of the marking.

5.3 Bituminous surfaces

Any loose components such as chippings must be removed. On new asphalt surfaces additives (flux oils, adherents etc.) are detrimental to good bonding of markings and can cause discolorations. Before application test markings / bounding checks are necessary. Since a mechanical removal is hardly possible, the surface should be exposed to traffic for 4 - 6 weeks.

5.4 Cobbled pavement

Natural, artificial and compound stone pavements are non-static surfaces. Basically they are no suitable surfaces for LIMBOROUTE High-Solid-Paint colored. No guarantee is given in cases of crack formation, chippings caused by the movement of pavement parts, poor marking bonding (e.g. on natural or artificial stones), penetration of moisture, wear of marking. In case of doubt test markings / bounding checks are necessary.

5.5 Floor coatings

For markings on floor coatings our indoor marking products should be used.
LIMBOROUTE High-Solid-Paint colored is not suitable for indoor markings and floor coatings.

6 Application techniques

With conventional marking machines (airless or atomizing technique); manually with brush or roller. The marking paint must be homogeneously stirred in the original container before processing! The exact machine adjustments depend on the application conditions and the machine type and should be made according to the machine manufacturer's instructions. The uniform spread of marking material and drop-on material over the entire application surface must be observed. Layer thicknesses and drop-on material quantities must be respected. Use airless LIMBOROUTE High-Solid-Paint colored quality for airless machines only.
Immediate broadcasting of drop-on material is absolutely necessary. Otherwise the drop-on material is not embedded properly, which leads to poor traffic technological properties. Two layer application is an option (first layer + drop-on materials, second layer + drop-on material). Well embedded drop-on beads from the first layer get visible when the second layer is worn.