TECHNICAL INFORMATION

LIMBOROUTE W13

swarco

Road Marking Systems

LIMBOROUTE W13

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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 applications

LIMBOROUTE W13 …

- is a fast-drying waterborne road marking paint
- is a water-thinnable, environmentally friendly high solid waterborne paint. It is characterized by good drying and bead embedment properties, excellent covering power and good resistance against abrasion
- is suitable for both bituminous (e.g. mastic asphalt, asphaltic concrete) and concrete surfaces
- is suitable for applications with airless and atomizing techniques

2 Technical Data

Color	white, other colors upon request
Density	approx. 1.56 kg/l +/- 0.04
Solid content	≤ 80%
Solvent-content	< 2%
Thinner	As needed 2% water to optimize the material's properties Cleaning of equipment and machinery with water
Storage stability	6 months; in sealed original packaging and sheltered from frost and direct sun exposure!
Overrollability / curing time	The drying times are laboratory values that may differ from field conditions depending on climate (temperature, humidity, wind), material, layer thickness and road surface. In general the markings' overrollability must be checked before exposing them to traffic impact.
WOT (Wash-out-time)	approx. 15 minutes after application depending on layer thickness and climatic conditions.
Standard packaging	**LIMBOROUTE W13:** Plastic container with 25 kg filling weight Container upon 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 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.
Processing temperature	min. +10°C
Surface temperature	+ 10°C to +45°C
Rel. humidity	max. 75 % - (dew point spreadsheet has to be regarded)
Layer thickness / Theoretical consumption	Layer thickness = Theoretical consumption 300 µm = ca. 0,47 kg/m² (0,3 l/m²) 400 µm = ca. 0,63 kg/m² (0,4 l/m²) 600 µm = ca. 0,94 kg/m² (0,6 l/m²) The actual consumption depends on the applied layer thickness and the type and state of the surface.

3 Processing Instructions

3.1 Preparation of material and application techniques

The LIMBOROUTE W13 has to be homogeneously stirred in the original container. The exact machine adjustments have to be done according to the manufacturer` instructions. Layer thickness and quantity of drop-on material need to be evenly distributed. Scattering losses on both line sides make modified machine adjustments necessary.

Note: All devices and tubes must be totally free from paint residues and solvents before LIMBOROUTE W13 is applied! Do not use equipment that has any brass or copper parts. Stainless steel parts are recommended.
Before using waterborne paints, we recommend to clean equipment and machinery used earlier for solvent-based paints in the following three steps:

1. Rinse thoroughly with solvent (Art.-No. RH10010 Acetone)
2. Rinse with industrial alcohol or an alcohol / water mix (Art.-No. RH10070 Ethanol)
3. Rinse with plenty of water

At each work interruption the nozzles must be cleaned. Once the work is completed, the machine must be thoroughly rinsed.
Immediately after the application of waterborne paints, equipment and machinery must be cleaned in reverse order to prepare them for the use of solvent- based paints.

3.2 Optimizing of application properties of water paint

The LIMBOROUTE W13 in its delivery state is ready for processing. Usually the addition of thinner is not necessary. It is, however, possible to optimize the material's spray properties by adding 2% water as thinner.

3.3 Rain Resistance / WOT (Wash-out-time)

In contrast to other marking materials and in addition to trafficability, rain resistance must be considered when working with waterborne paint. Rain resistance / WOT describes the time beyond trafficability / curing time after which waterborne paint is resistant against weather-related influences and after which it can no longer be washed out. It is recommended to apply water-soluble marking systems only under stable weather conditions without the probability of rain.

4 Road surface / pretreatment

4.1 General information

The surface must be dry, clean and 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 the material to be applied. In case of doubt, test applications and bonding checks are required. Ideally, old markings should be removed with appropriate mechanical procedures.

Information: LIMBOROUTE W13 is not appropriate for large surface applications.

4.2 Concrete or cement-bound surfaces

The pavement components in new road surfaces that prevent good bonding (fine mortar layer, concrete slurries) must be appropriately removed (e.g. with high pressure waterjet, fine millcut or similar). When applying the paint to concrete or cement-bound surfaces, bubble formation is likely occur. In order to prevent the formation of bubbles the concrete should be pretreated with LIMBOROUTE W13 blended 1:1 with water as a primer (approx. 200µm). The humidity of the concrete must not exceed 4% during the marking work. After precipitations a waiting period of minimum 48 hours is recommended.

4.3 Bituminous surfaces

Any loose components such as chippings must be removed. Fluxoils of new bituminous surfaces are detrimental to the good bonding of markings and may lead to discoloration of the striping. Since these oils are hardly removable mechanically, the surface should either be exposed to traffic for 4 – 6 weeks or initially be marked with paint.

4.4 Cobbled pavement

All kind of cobbled pavements are moveable surfaces. That can lead to crack formation or spallings on the marking. Material is used without any manufacture guarantee. Test applications, surface pretreatments are recommended. Cobbled pavement must ensure proper bonding.

4.5 Floor coatings

For markings on floor coatings our indoor marking products should be used.

5 Application techniques

With conventional marking machines with stainless steel equipment (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.

5.1 Table 1: RPA – Test reports by BASt (German Road Institute)

Test report-no.	Layer thickness	consumption		Drop-on material (DOM)	Traffic technological properties	
	mm	Material	DOM	Identification (divergent identification possible - see relevant test report)	New condition	Used condition
		kg/m²	kg/m²			
2014 1DW 07.03	0.3	0.468	0.24	Swarcolux P21 T15 M25	P5, S1, R5, Q5, T2	P5, S1, R5, Q5
2014 1DW 07.04	0.4	0.624	0.32	Swarcolux P21 T15 M25	P5, S1, R5, Q5, T3	P5, S1, R5, Q5