ONLY TO BE APPLIED BY A SIKA APPROVED CONTRACTOR

Construction

Pulastic Coating-221 W

2 Component Polyurethane

Positioning

Description

- Water based, 2-component polyurethane manufactured by a company registered with the ISO 9001 quality standard organization and ISO 14001 for environmental care.
- PULASTIC Coating 221/W is a durable, high quality coloured coating that meets the most stringent V.O.C. regulations in Europe and the USA known today. The product is mainly used for the installation of seamless sports flooring systems. We recommend that the manufacturer is consulted regarding alternative applications other than the standard sports flooring systems.
- This water based coating offers the optimum friction properties for sports, has a long-term very mat appearance, a high abrasion resistance, a high colour fastness and a high resistance against the usual cleaning agents. Moreover the coating has good bonding properties and is permanently flexible. The balanced viscosity liquid consistency assures a uniform texture all over the area when roller applied.
- The nature of the product requires (manufacturer) trained specialists to execute the application.

Product Data

Colour

16 as per standard colour card

Packing

Two-can sets of 10 Kgs or 1 Kg.
Product identification on A component label: 3PU221W A comp.
Product identification on B component label: BU4540.

Storage Conditions / Shelf-Life

Under ideal storage conditions the shelf-life, in original factory sealed cans, is 6 months. Store material in a dry, cool (10-25°C) environment where protection against damage is guaranteed. Avoid prolonged storage at temperatures below 0°C or above 40°C.

Consumption

130 ± 5 grams/m²

Curing Information

Mixing ratio	A : B = 86 : 14 (weight) = 5.8 : 1 (volume).		
Pot-life	+/- 40 minutes/10-30°C		
Foot traffic	36 h/10°C	24 h/20°C	18 h/30°C
Light-loading	5 days/10°C	3 days/20°C	2 days/30°C
Full-loading	6 days/10°C	4 days/20°C	3 days/30°C

Technical Data

Solids	+/- 55%	
Water content	+/- 43%	
V.O.C. content	<45 g/L ASTM D 3960	(EPA Method 24)
Density at 20°C	1.20 Kg/litre	
Friction	98	(EN-ISO 13036-4)
Abrasion resistance	0.15 gram loss of weight	(Taber 1Kg, H18/1000 rev / EN-ISO 5470-1)
Chemical resistance	Neutral cleaners, common beverages	
Colour fastness	8 (excellent)	(DIN 54004)
Gloss	3%	(EN-ISO 2813)
Light reflection	Depending on colour. Standard colour range: 0.11-0.30	

Application Details

Conditions

During installation and curing of the PULASTIC Coating 221W it is of major importance to determine exactly the degree of humidity of the working area.
Too humid conditions during installation and curing may result in colour deviation, inconsistent appearance of the floor ("cloudy effect"), reduced strength of the coating layer and/or reduced friction of the floor.

The appearances mentioned above can be avoided if the dew point of the room is determined exactly, before starting the coating application. The dew point determines at what temperature, condensation will take place on the floor surface.
Condensation of humidity must be avoided at all times for two reasons:

1) At a too high humidity in the room the water in the coating will have great difficulties evaporating, or will not evaporate at all. The speed of evaporation of water in the coating 221W is directly related to difference between the dew point and the floor-temperature. The closer the floor-temperature is to the dew point, the slower the coating will dry. Even if the floor temperature is equal to the dew point, the coating will stop drying completely.

2) Curing of a 2-component system, waterborne PU system exists of 2 processes. First the evaporating of the water. Secondly curing of the A- with the B-component. Important to note that the B-component also reacts with water. If evaporation takes too long, a relatively too big part of the B-component will react with the water of the coating and reaction between A and B component may insufficient, resulting in the deviations mentioned above such as discoloration, cloudy effects in the floor and/or lower coating abrasion resistance.

Basically the following working conditions must be respected* :
Temperature of material and working area: 10°C - 30°C.
Temperature of sub floor: **minimal 4°C above the Dew-point**.
Air humidity: **max 75%.**

If ventilation possibilities are only very limited, the conditions are even more critical and must be respected as follows*:
Temperature of material and working area: 10°C - 30°C.
Temperature of sub floor: **minimal 5°C above the Dew-point**.
Air humidity: **max 70%.**

*** During Application and Curing!**

Higher humidity and lower temperatures (slower drying process) injures the coating film formation and lowers the abrasion resistance. Too high temperatures affect the appearance (visible overlaps and lower matting). Draft, e.g. at open doors, has to be avoided.

As mentioned, it is of vital importance to determine the Dew-point of the floor when applying the PULASTIC 221W coating. The overview mentioned underneath will help you determine the Dew point after measuring floor temperature, relative (air-)humidity and the air temperature. The dewpoint will actually determine whether you can start applying the 221W coating. It is of vital importance to check the floor temperature with a so-called "contact-thermometer"; the regular ones only measure air temperature which is not sufficient for determination of the floor temperature.

(For dew point determination, there also special devices available, such as "TQC DewCheck", which will determine dew point fully automatically).

Air Temp in°C	DewPoint in °C relative Air humidity in %										
	30%	**35%**	**40%**	**45%**	**50%**	**55%**	**60%**	**65%**	**70%**	**75%**	**80%**
30	10.5	12.9	14.9	16.8	18.4	20	21.4	22.7	23.9	25.1	26.2
29	9.7	12	14	15.9	17.5	19	20.4	21.7	23	24.1	25.2
28	8.8	11.1	13.1	15	16.6	18.1	19.5	20.8	22	23.2	24.2
27	8	10.2	12.2	14.1	15.7	17.2	18.6	19.9	21.1	22.2	23.3
26	7.1	9.4	11.4	13.2	14.8	16.3	17.6	18.9	20.1	21.2	22.3
25	6.2	8.5	10.5	12.2	13.9	15.3	16.7	18	19,1	20.3	21.3
24	5.4	7.6	9.6	11.3	12.9	14.4	15.8	17	18.2	19.3	20.3
23	4.5	6.7	8.7	10.4	12	13.5	14.8	16.1	17.2	18.3	19.4
22	3.6	5.9	7.8	9.5	11.1	12.5	13.9	15.1	16.3	17.4	18.4
21	2.8	5	6,9	8.6	10.2	11.6	12.9	14.2	15.3	16.4	17.4
20	1.9	4.1	6	7.7	9.3	10.7	12	13.2	14.4	15.4	16.4
19	1	3.2	5.1	6.8	8.3	9.8	11.1	12.3	13.4	14.5	15.5
18	0.2	2.3	4.2	5.9	7.4	8.8	10.1	11.3	12.5	13.5	14.5
17	-0.6	1.4	3.3	5	6.5	7.9	9.2	10.4	11.5	12.5	13.5
16	-1.4	-0.5	2.4	4.1	5.6	7	8.2	9.4	10.5	11.6	12.6
15	-2.2	-0.3	1.5	3.2	4.7	6.1	7.3	8.5	9.6	10.6	11.6
14	-2.9	-1	0.6	2.3	3.7	5.1	6.4	7.5	8,6	9.6	10.6
13	-3.7	-1.9	0.1	1.3	2.8	4.2	5.5	6.6	7.7	8.7	9.6
12	-4.5	-2.6	1	0.4	1.9	3.2	4.5	5.7	6.7	7.7	8.7
11	-5.2	-3.4	1.8	-0.4	1	2.3	3.5	4.7	5.8	6.7	7.7
10	-6	-4.2	2.6	-1.2	0.1	1.4	2.6	3.7	4.8	5.8	6.7

The dew point table indicates, at what floor temperature condensation of air humidity is taking place – as a function of air temperature and relative air humidity.

Example: at 20°C Air temperature and 70% relative air humidity, the dew point of the floor is at +14.4°C. If the floor temperature reading is lower than 18.4°C (14.4°C + 4°C security factor) then coating application should NOT take place.

Preparation

The substrate should be free from irregularities, porosity, grease, dirt, dust and moisture. Sanding or other treatment of the substrate may be necessary, to obtain good bonding. Inadequate curing or porous substrates cause cracking in the coating and lowers the abrasion resistance. Take all the necessary safety precautions and secure sufficient ventilation. Check availability and condition of materials and equipment. Make sure that all cans of coating are from the same production batch, cross blend if different batches have to be used. Never add more than two 1-Kg kits to the 10-Kg kits.
Remove loose hairs from rollers with tape.

Equipment

Low-speed 400 Watt electric drill, mixing-blade, brushes, microfiber rollers (10 cm side-roller, 70 cm for surface area – amount depending on size of floor).
Plastic sheeting for placement of wet rollers.
Clean all tools with Sika Thinner C immediately after use!

Procedure

Open the cans shortly before use, assure correct content and check that the A component is free of lumps and the B component is a clear liquid without a skin.

Premix the A Component and add the complete contents of the B Component. Mix A and B thoroughly to a homogeneous mixture. Visually check homogeneity on the mixing blade. Under certain exceptional circumstances minor diluting with water is allowed.

Pulastic Coating 221/W & Adding water for dilution purposes

Because of difference in oil-absorption of the different pigments used in the PULASTIC Coating 221W (during production), it may show a difference in viscosity between the different colours.

Under circumstances, it may contribute to the final result to add a minor quantity of water to the coating and make the application a little easier. Please take good notice in the table mentioned underneath of the quantities advised with different humidity percentages in combination with air temperature.

Maximum quantity of water allowed for dilution of PULASTIC Coating 221w in %(and ml per 10 kg Can)*

	R.H.=30-40%	R.H.=40-55%	R.H.= 55-65%	R.H.= 65-70%	R.H. = 70-75%***
25-30°C	3.0% (300 ml)	2.5% (250 ml)	1.5% (150 ml)	1.0% (100 ml)	0.0%
20-25°C	2.5% (250 ml)	2.0% (200 ml)	1.0% (100 ml)	0.5% (50 ml)	0.0 %
17-20°C	1.5% (150 ml)	1.0% (150 ml)	0.5% (50 ml)	0.0% (0 ml)	0.0%
15-17°C	1.0% (100 ml)	0.5% (50 ml)	0.0% (0 ml)	0.0% (0 ml)	0.0%

* Point of departure: Floor temperature = Air temperature.
Determine dew point and measure floor temperature

** Below 30% relative humidity the reaction between A- and B-components will start fairly quickly and may result in a structure difference between lane overlaps (please discuss with technical expert).

*** Coating 221W to be used only with sufficient ventilation of the working area.

Please note:

All PULASTIC Coating 221W Standard colours can be used in a good manner in undiluted form.
It is at the judgement of the installer, in relation to the roller used, conditional circumstances, colour used and personal preference , how much water should be added (but never more than mentioned above!)
Please be aware that water-diluted coating 221W will be more easy to apply, thus bringing also the risk of applying too little coating on the floor. In order to ensure a good end result, do calculate the appropriate quantity in undiluted form.

Pour the mixture in a second drum and mix for a further few seconds to avoid the use of unmixed material (from the sides and bottom of the first drum).

To gain the maximum liquidity the full contents of the mixture should be poured out as quickly as possible (within the pot-life) and should be spread out immediately under stringent observation of the consumption rate (130 ± 5 g/m^2). Assure to apply all material within 45 minutes after mixing. Pot-life is limited by reaction time and not by liquidity; note that the end of the pot-life may not be noticeable. Assume about 1 Kg loss of material to wet each 70 cm roller. Wet the rollers with some material on the floor before starting the application. In case wet rollers have to be stored during the application (when pouring material or working on the sides) the rollers have to be placed on some plastic sheeting and not on the floor! Not even for a short time! Storage on the floor will leave marks in the finished floor surface. The sides have to be coated shortly before the floor area with side-rollers (10 cm) to assure wet-to-wet connections and minimise visibility. Never work more than 15 minutes ahead on the sides.

Pre-coat any areas that have been strongly sanded just a few minutes before the main application of the coating to minimise visibility of these spots after drying.

After pouring spread the material with the 70 cm roller in the direction of the pour and back.
Apply the coating transversal with to the pour direction starting with the same roller, followed by another two times with the same 70 cm roller. The width of the lane with the first roller should be approximately 1.35 mtr, the second 1.45 mtr and the third 1.5 mtr.

Assure complete absence of shining (glittering) spots and consistent structure. Roll at a limited speed.

When the sides of the rollers get too wet these have to be dried by rolling on the side of the rollers, this avoids rolling marks. Roll again over those lanes afterwards as normal.

Start the second lane, follow the same procedure. When rolling through the first time the material should not overlap with the previous lane. The second roll should overlap the previous lane with a few centimetres and the third roll should overlap with 10 to 15 cm. Make overlaps with the second and third roller with the previous lane within 15 minutes after application of that lane. If, due the length of the lanes, overlaps cannot be made within 15 minutes, multiple men should apply the material simultaneously, each taking care of their own lane. One man can typically handle a section with a maximum width of approximately 8 meters. Decide on the appropriate number of men working simultaneously depending on floor size and climate conditions (curing speed). Since the wet product tacks less to the substrate compared to solvent based coatings, it is necessary that some pressure is applied on the roller on the first and second roll through. The third time the roller should not be too dry.

Although the coating is a water based product, it still should not enter the environment. Dry waste can be disposed off as normal waste.

Before applying Pulastic Coating 221 W for the first time the technician should contact your local Sika Technical Sales Representative and discuss all details.

Health and Safety

Protective Measures

- Do not reseal B component container if contamination is suspected.
- To avoid rare allergic reactions, we recommend the use of protective gloves. Change soiled work clothes and wash hands before breaks and after finishing work.
- Local regulations as well as health and safety advice on packaging labels must be observed.
- For further information refer to the Sika Material Safety Data Sheet which is available on request.
- If in doubt always follow the directions given on the pack or label.

Important Notes

- Residues of material must be removed according to local regulations. Fully cured material can be disposed of as household waste under agreement with the responsible local authorities.
- Detailed health and safety information as well as detailed precautionary measures e.g. physical, toxicological and ecological data can be obtained from the safety data sheet.

Legal Notes

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