BECKOCOAT® PU 428/51XMPAC

TYPE

Light stabilized, oil-free, moisture curing one-component polyurethane resin

FORM OF DELIVERY (f.o.d.)

51 % in xylene / methoxypropyl acetate (51XMPAC)

SPECIAL PROPERTIES AND USE

Rapid curing.
Radiant brilliance.
Superior abrasion resistance.
Outstanding impact resistance, excellent adhesion.

Floor sealers, wood coating, concrete impregnation. Crosslinker for alkyd resins in two-component systems.

PRODUCT DATA

Determined per batch:

Dynamic Viscosity DIN EN ISO 3219 dynamic viscosity (25 1/s; 23 °C)	[mPa.s]	290 - 590
Iodine Colour Number DIN 6162 iodine colour number		<= 2
Non-Volatile Matter DIN 55671 non-volatile matter (120 °C; 5 min)	[%]	49 - 53

Not continually determined:

Isocyanate Content DIN EN ISO 11909 content	[%]	3 - 5
Non-Volatile Matter DIN EN ISO 3251 non-volatile matter (1 h; 125 °C; 1 g)	[%]	49 - 53
Density (Liquids) DIN EN ISO 2811-2 density approx. (20 °C)	[g/cm³]	1,03
Flash Point DIN EN ISO 1523 flash point approx.	[°C]	32

SUGGESTED USES

The extreme abrasion resistance, impact resistance, and chemical resistance make Beckocoat PU 428 films cured with the action of air humidity an excellent sealer and impregnation medium for concrete, a binder for non-slip coatings, for concrete coatings resistant to fuel oil and abrasion, for instance in garages, or for floorings and coatings for walls and ceilings in laboratories, chemical factories, etc. The films cure to radiant brilliance and can also be recommended for wooden floors subject to heavy wear like in bowling alleys, roller skating rinks, dancing halls, gymnasiums and schools. Beckocoat PU 428 has also proved an ideal vehicle for coating sports articles like spears, bowling pins, golf balls, bats, hockey sticks, tennis rackets, etc.

In exterior use, Beckocoat PU 428 will lose gloss and will yellow. Weather resistance and gloss retention can be enhanced through coemploying alkyd resins like Vialkyd AR 408.

PROCESSING

Beckocoat PU 428/51XMPAC can only be used with further diluents, e. g. for parquet sealing coats. It can be applied by brush, roller, rubber wiper or spray gun. At lower application temperatures the viscosity of 20 s must be adjusted with a blend of xylene / methoxypropyl acetate = 1 : 1. On very dense substrates, e. g. fine grain concrete, it is recommended to dilute the resin down to 20 - 25 % to obtain better wetting and penetration. The solvents must be absolutely free from water and must not contain hydroxy groups nor other active groups.

Beckocoat PU 428 can be used in two-component systems in combination with Vialkyd AR 408. The pigment should be added to the alkyd resin. Moisture curing polyurethane resins cannot be processed by conventional methods, since they react with active hydrogen atoms and thus storage stability with moist extenders or pigments is considerably reduced. Another problem can arise from trace elements in pigments which may induce a self-condensation of these isocyanate adducts.

For special uses, Beckocoat PU 428 can be blended with suitable pigment pastes shortly before application. With special methods, pigmented one-component systems with good storage stability can be formulated on Beckocoat PU 428.

FILM PROPERTIES

Beckocoat PU 428/51XMPAC cures by reaction with air humidity. The curing rate of the films depends upon film thickness, temperature and degree of humidity. For films of about 200 µm of wet film thickness on glass plates the following curing schedule was recorded at 21 - 22 °C and 45 - 50 % of relative air humidity: dust-free after about 40 min, tack-free after about 180 min. The films could be handled and were insensitive to mechanical impact after about 24 hours and fully cured after about 7 days. The recorded values refer to a 38 % concentration of the resin as supplied.

Of the 38 % concentration, clear varnishes should be applied in a wet film thickness of about 200 µm as a maximum to secure full access of air humidity and thus through curing. In thicker films carbon dioxide and solvent bubbles may be entrapped. If thicker coats are desired, several layers must be applied. On principle recoatability has to be checked. Usually recoating is possible after 6 - 8 hours (23 °C). Between every layer sanding is recommended. At low temperatures (< 15 °C) blisters may occur.

At 21 - 22 °C with 40 - 50 % of relative humidity, the various layers should not be allowed to dry for more than 24 hours in order to secure intercoat adhesion. After longer periods or to renovate older films, sanding is recommended to secure better adhesion.

Beckocoat PU 428 has excellent adhesion to hardboard, chipboard, wood, mortar, asbestos cement, concrete and cured unsaturated polyesters. Adhesion to metal or glass is fair, but can be enhanced considerably by using an epoxy resin primer.

STORAGE

At temperatures up to 25 °C storage stability packed in original containers amounts to at least 365 days.

SPECIAL INDICATIONS

Discharge and package

Since one-component polyurethane resins cure by air humidity, it should be made sure that only dry and dense containers are used. Experience showed tinplate containers a suitable material. Glass should not be used, traces of alkali might cause gelation, and polyethylene containers will allow the solvents to diffuse. As thinner, only solvents absolutely free from water should be used.

Artificially bleached or with acid-curing paints coated woodwork may discolour the paint film. In some cases, if for example Beckocoat is applied on floors, also in rooms with unfavourably formulated freshly applied wall fillers and emulsion paints, discolouration might be observed. Pre-tests are recommended.

Also the variety of substrates and their condition (old coatings, cleaning, pre-treatment, etc.) requires in any case a pre-testing in order to secure the durability of the coating.

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