

## BAUTECH WTW SYSTEM

### System of monolithic concrete floors (wet to wet)

#### DESCRIPTION

Monolithic industrial floors BAUTECH constitute a durable and particularly economical solution of highest technical parameters and resistance to abrasion.

MULTITOP® ENDURO and BAUTOP® ENDURO – dry shake toppings (DST) used for monolithic concrete floors containing hard aggregates, high-performance cements with suitable admixtures and pigments. Applied wet to wet and troweled on freshly-made concrete, they create a coloured, marble-like, abrasion and dusting resistant, smooth floor of increased resistance to the penetration with oils, grease etc.

#### USE

- New surface-hardened floors of high hardness and resistance to abrasion and dusting in heavy traffic facilities – production plants, warehouses with very intensive traffic, factories, logistic centres as well as in food and pharmaceutical industry facilities etc.
- Anti-electrostatic floors

#### PRODUCT CHARACTERISTICS

- Very high resistance to abrasion
- High dusting resistance
- Contains abrasion-resisting metallic aggregates
- High impact resistance
- Easy to clean
- Sealed and non-dusting surface
- Frost-resistant
- Wide range of colours

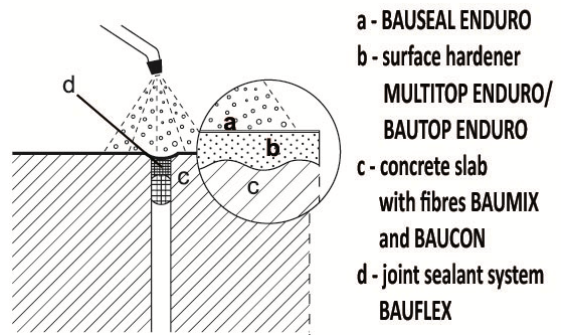
#### APPLICATION CONDITIONS

The temperature of the ambient and foundation during the works and for the next 5 days should be between +5°C and +30°C. The surface made should be protected from losing water too quickly as a result of, for example, high temperatures, draught, sunlight operation etc. In order to ensure high quality and uniform colour, all works should be performed with suitable tools in an area protected from dust, EPS balls and similar impurities.

#### CONCRETE SLAB REINFORCED WITH BAUCON AND BAUMIX FIBRES

**BAUTECH DST SYSTEM** floors are used on surfaces of freshly-made low-shrinkage concrete:

- class C20/25 or higher
- w/c ratio  $\leq 0,50$
- amount of cement  $\leq 350 \text{ kg/m}^3$
- alkali contents in cement  $< 0,5\%$
- cement CEM I, CEM II/A-S, CEM II/B-S or CEM III/A
- aggregate  $\leq 16 \text{ mm}$
- contents of fraction  $\leq 0.25 \text{ mm}$  - min. 4%
- sand point about 35%
- total amount of cement and aggregate of fraction  $\leq 0.25 \text{ mm}$  – max.  $450 \text{ kg/m}^3$
- consistence on the construction site: S3, Abrams cone slump about 12 cm. Addition of steel fibres decreases the slump.
- An addition of steel fibres **BAUMIX 60** is used in the amount of  $15\text{--}40 \text{ kg/m}^3$  of concrete. With the amount of steel fibre  $15 \text{ kg/m}^3$  of concrete, application of polypropylene fibre BAUCON in the amount of  $0.6 \text{ kg/m}^3$  is recommended. In surfaces with low dosage of steel fibres, application of hybrid reinforcement accompanied by observing the proper formula of concrete, limits the creation of contraction cracks in the largest degree possible. This is extraordinarily important for monolithic surfaces finished with a abrasion-resistant layer in the dry shake topping technique. BAUMIX 60 steel fibres can be placed in the aggregate bunker and dosed by weight. If no free bunker is available, add BAUMIX 60 straight into the concrete mixer, pouring



it out of the packaging. Steel fibres are added always after the last fraction of aggregate, before cement, water and (super) plasticizer. If an anti-electrostatic floor is being made, the concrete must have an addition of BAUMIX steel fibres in the amount of no less than  $20 \text{ kg/m}^3$ ; also a discharge of electrical charges must be performed. In case of hybrid reinforcement, BAUCON polypropylene fibres are added after steel fibres. Addition of BAUCON polypropylene fibres to a freshly-made concrete mixture acts as micro-reinforcement which decreases the plastic shrinkage and limiting the creation of shrinkage cracks in set concrete. BAUCON polypropylene fibres are added to concrete in the amount of  $0.6 \text{ kg/m}^3$  and to mortars –  $0.9 \text{ kg/m}^3$ . The difference in dosage results from higher contents of cement in mortars.

**CAUTION!** Do not add any volatile ashes, as these tend to accumulate in the top layer of the slab, which may cause the dusting of the floor or detachments of the hardener. It is forbidden to add water to concrete mixture in order to increase its workability. This causes a significant loss of the strength of the concrete and a clear increase of the chemical and physical shrinkage, leading to the creation of uncontrolled scratches and cracks.

**The concrete must be properly compacted.**

#### MAKING OF FLOOR WITH THE "WET TO WET" METHOD

To make the floor with "wet on wet" method surface hardener BAUTOP® ENDURO or MULTITOP® ENDURO is used. Before the mortar is spread, the concrete must achieve proper hardness. The setting time of concrete depends on the temperature, relative humidity of the air etc. The surface of the concrete must not get too hard, therefore its condition must be frequently checked. As a result, selection of the optimal moment to begin application of the mortar will be possible. The works may be commenced when the imprints of feet on the concrete are not deeper than 3-4 mm. Remove excess of cement grout from the surface and refresh it with a disc. Then begin the spreading of prepared MULTITOP® ENDURO or BAUTOP® ENDURO mortar.

#### Preparation of the mortar:

To 3.0-3.5 l of clean, cold water pour 30 kg (a bag) of dry mixture and mix for 3-4 minutes in a concrete mixer or with a slow-running drill with a mixer until a homogenous mass is obtained. Spill the prepared mortar on the foundation and spread to the desired thickness using a distance scraper or float along with a laser levelling instrument or spacer strip, while smoothing the surface with a long float until uniform, smooth structure is obtained.

Prepare portions which will be used within about 15 min. Do not add more water than the instructions indicate, as this will decrease the strength and increase the contraction of the mortar. In the winter-time the material should be kept in a heated room prior to mixing. Low temperature of the material may cause that some additions will not be able to dissolve during mixing. Too high temperature of the material will decrease the spread of the mortar and result in too quick bonding.

Perform the subsequent stages of troweling with blades set gradually at increasing angles.

Immediately after the troweling is completed, the whole surface should be treated with a selected preparation in order to prevent too quick loss of water:

**BAUSEAL® EKO**

A water-diluted sealer for industrial floors applied with the spraying method, with a low-pressure sprayer. Sealer should be applied once, with a thin layer, paying attention that no puddles are left.

Efficiency: 1 litre per 8-12 m<sup>2</sup>

**BAUSEAL® ENDURO**

A solvent-based sealer for industrial floors applied on freshly made concrete floor, immediately after the last mechanical troweling is done. Sealer should be applied with the spraying method, with a low-pressure sprayer. Sealer should be applied once, with a thin layer, paying attention that no puddles are left.

Efficiency: 1 litre per 8-10 m<sup>2</sup>

**BAUTECH FORMULA®**

Silicate and polymer based agent for the maintenance, strengthening and sealing of concrete surfaces. BAUTECH FORMULA should be applied evenly on the surface with the spraying method in the amount of 0.1 - 0.2 l/m<sup>2</sup> until complete coverage is obtained.

The surface should stay wet for 15 - 20 minutes. An additional amount of the agent should be applied in places where it dries up faster – a microfiber mop helps distribute the agent evenly and maintain the surface wet for the necessary time.

Efficiency: 1 litre per 4-10 m<sup>2</sup>

**NANOSEAL®**

Lithium and polymer based agent for the maintenance, strengthening and sealing of concrete surfaces. Thanks to the penetration and hardening of concrete in molecular structure, it allows to obtain a highly resistant cement matrix of extreme physical and chemical properties. Additional modification with a specially selected polymer binding agent provides the maximum level of sealing the concrete by bonding those ingredients of the concrete matrix that are devoid of free calcium compounds.

NANOSEAL should be applied evenly on the surface with the spraying method in the amount of 0.1 - 0.2 l/m<sup>2</sup> until complete coverage is obtained. The surface should remain wet for 15 - 20 minutes. An additional amount of the agent should be applied in places where it dries up faster – a microfiber mop helps distribute the preparation evenly and maintain the surface wet for the necessary time.

Efficiency: 1 litre per 4-10 m<sup>2</sup>

**JOINTS**

Expansion joints should be cut 24-72 hours after troweling works on the surface of the floor are finished. Expansion and contraction joints should be enlarged to the desired width and depth 28 days after the concrete floor is made. The edges of the widened joints should be bevelled with an angle grinder. Thoroughly remove dust from the joints. The surface must be clean, dry, uniform, free from grease, dust and loose particles. Any paint, cement grout and particles loosely bound with the surface must be unconditionally removed. After cleaning the joints with a vacuum

cleaner, introduce on the proper depth cord BAUCORD of diameter about 25% larger than the width of the joint. BAUCORD is elastic and chemically resistant material from expanded polyethylene with closed pores. It constitutes an integral element of the joint sealant system. Ground the bevelled surfaces and joint walls with BAUFLEX PRIMER and leave for about 60 minutes, when the primer becomes sticky. BAUFLEX PRIMER is a ready-to-use polyurethane grounding compound which increases adhesion of sealants to concrete. After preparing joints in the above-described manner, application of BAUFLEX® 35 – a single-component flexible sealant for industrial floors – may be commenced. The foundation and ambient temperature should be +10 ÷ +25°C, at the relative humidity of the air not exceeding 80% and the humidity of the joint walls below 4%. The joint should be filled with the sealant pressed out of the pistol until its level is equal with that of the floor. Remove the excessive amounts of the mass. During application pay attention that the mass has full contact with the joint walls. Avoid closing air bubbles in the mass. If protection tapes were used at the edges, remove them while the mass is still soft. Rooms where the works are performed should be separated and protected from the entry of casual visitors and keep a protection zone regarding the use of open fire, welding works in particular.

**SAFETY PRECAUTION, STORAGE, TECHNICAL DATA**

Safety precaution, storage, transport conditions and specifications for each product are listed in the Product Technical Data Sheets.

**MISCELLANEOUS INFORMATION**

- All the information herein refers to products stored and used according to our recommendations, has been presented in good faith and takes into account the current state of knowledge and experience of BAUTECH. You are obliged to use the product in accordance with its intended purpose and BAUTECH's recommendations. All the technical information provided is based on laboratory tests and trials. Out-of-laboratory tests may give different results due to the conditions, location, manner of application and other circumstances that are out of BAUTECH's control. Any different recommendations issued by our employees must be made in writing; otherwise, they shall be deemed null and void. These instructions replace all the previous ones and make them void.
- The surface of the made floor may have differences in the shade and appearance, depending on the conditions and manner of performing works, drying conditions etc. This is not a defect of the product and does not influence the technical parameters and functional properties of the floor. Colour diversification of the floor may also result from non-homogenous concrete foundation.
- If the relative humidity of the air is below 40%, blooming may appear on the surface. If the relative humidity of the air exceeds 80%, the setting process of the concrete may be extended.
- Hair-like crack may appear on the surface of floor troweled mechanically. This is a typical phenomenon on concrete floors with no influence on the functional properties of the floor.

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