



## FuturZement C.1 | FuturBeton C.1

*nanostructured cement/concrete*

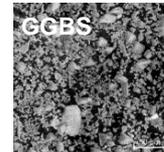
high strength ☀ CO<sub>2</sub>-low ☀ super durability

**- from slag to high performance concrete -**



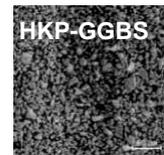
### 01 drying & pre-milling of slag to Ground Granulated Blastfurnace Slag (GGBS)

- drying of slag by conventional drying techniques (oven etc.), remaining humidity should be < 1%
- pre-milling in a common drum ball mill (e. g. Zoz), processing time about 4 h (low-cost process)



### 02 super-activation of GGBS to HKP-GGBS

- High Kinetic Processing (HKP) utilizing a continuously operating Simoloyer® (Zoz, -s1 series + cement appl.)
- closed carrier-gas circuit (air) at zero emission with automatic charging & discharging



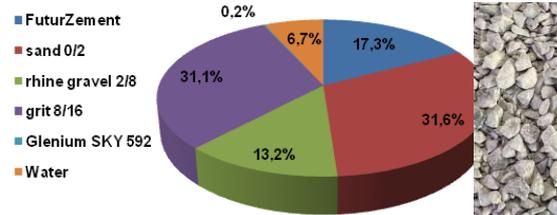
### 03 mixing FuturZement from OPC and HKP-GGBS

- mixing HKP-GGBS with Ordinary Portland Cement CEM I 52,5 R in a 30:70 ratio
- mixing approx. 3-5 min utilizing a ploughshare-mixer (e. g. Loedige)



### 04 composition of FuturBeton

- FuturZement, grit, gravel, sand, water and super-plasticizer (Glenium® SKY, PCE-based, BASF Co.)
- water should preferably not contain accelerating ions, common concrete reinforcement possible



### 05 mixing FuturBeton

- in a common plate concrete mixer:
  - add aggregates (grit, gravel, sand) and FuturZement, mix dry until the mixture is homogeneous (5-10 min)
  - add water and mix shortly to disperse (ca. 5-10 min)
  - add super-plasticizer and mix until slurry is homogeneous and smooth (5- 10 min)



### 06 casting of FuturBeton

- form prepared with mould talcum powder, preferably at ambient temperature, casting by buckets or other
- densification & mould-degassing on a vibratory plate or inject mobile vibrating unit into slurry (5-10 min)



### 07 encasing of FuturBeton

- at a curing time of < 15 h, encasing can be done after 16 h at the high early strength of > 25 MPa !
- post-processing of the virtually shiny surface and transportation after 1 day !



### 08 the product FuturBeton

- after setting, the concrete binder matrix becomes stronger than the aggregates !
- light blue colored matrix due to GGBS will turn grayish-white at air

