



PRODUCT DATA SHEET

EFA-Füller[®] S-FWK

Fly ash according to DIN EN 450-1 – For concrete according to DIN 1045-2

The fly ash **EFA-Füller[®] S-FWK** from the heat distribution power plant in Gelsenkirchen of Uniper Kraftwerke GmbH is a fine-grained pozzolanic binder that consists mainly of SiO_2 and Al_2O_3 . The content of reactive SiO_2 is at least 25 % by mass. It is a type II concrete addition according to DIN 1045-2: Plain, reinforced and pre-stressed concrete structures – Part 2: Specification, properties, production and conformity of concrete – Application document for use with DIN EN 206-1.

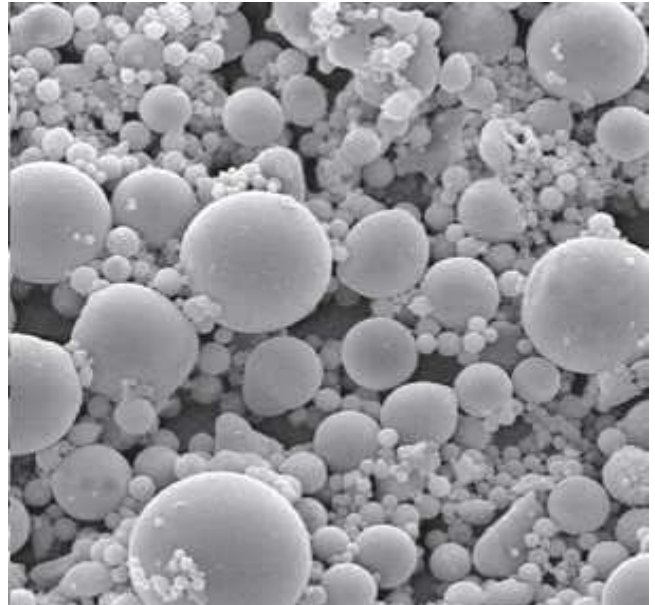
In combination with DIN EN 206-1 DIN 1045-2 regulates the use of **EFA-Füller[®] S-FWK** as follows:

- paragraph 5.2.5.2.2:
 - minimum cement content
 - maximum permissible water/cement ratio
 - sulphate resistance
 - combined use with aggregates sensitive to alkalis
- paragraph 5.2.5.2.4: the common use of **EFA-Füller[®] S-FWK** and microsilica
- paragraph 5.3.2: the limits for the fine grain content < 0.125 mm
- paragraph 5.3.4: the use of **EFA-Füller[®] S-FWK** in subaqueous concrete

The use of **EFA-Füller[®] S-FWK** in bored cast-in-place piles according to DIN 4014 and cast-in-situ concrete diaphragm walls according to DIN 4126 is regulated by addendum to the enclosure for parts 2.1/2 and 2.1/6 of “Musterliste der Technischen Baubestimmungen”. According to this paragraphs paragraph 5.3.4 from DIN 1045-2 has to be used for these concretes.

Advantages of **EFA-Füller[®] S-FWK**:

- cement reduction
- reduction of water demand
- improved workability of fresh concrete including pumping capability
- increased compactability of fresh concrete



scale: 1000:1

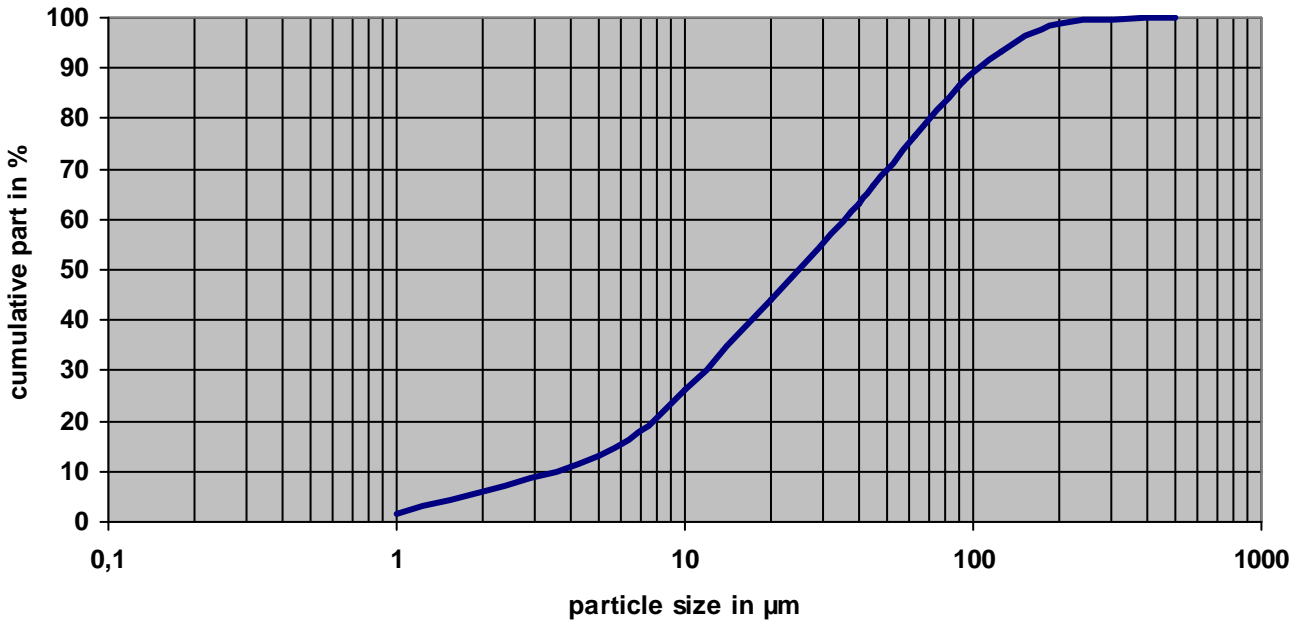
- reduction of the hydration temperature, e.g. for mass concrete
- reduced efflorescence of the concrete
- increased resistance to chemical attacks on concrete, e.g. Sulphate, chloride, sea water

CHARACTERISTIC VALUES

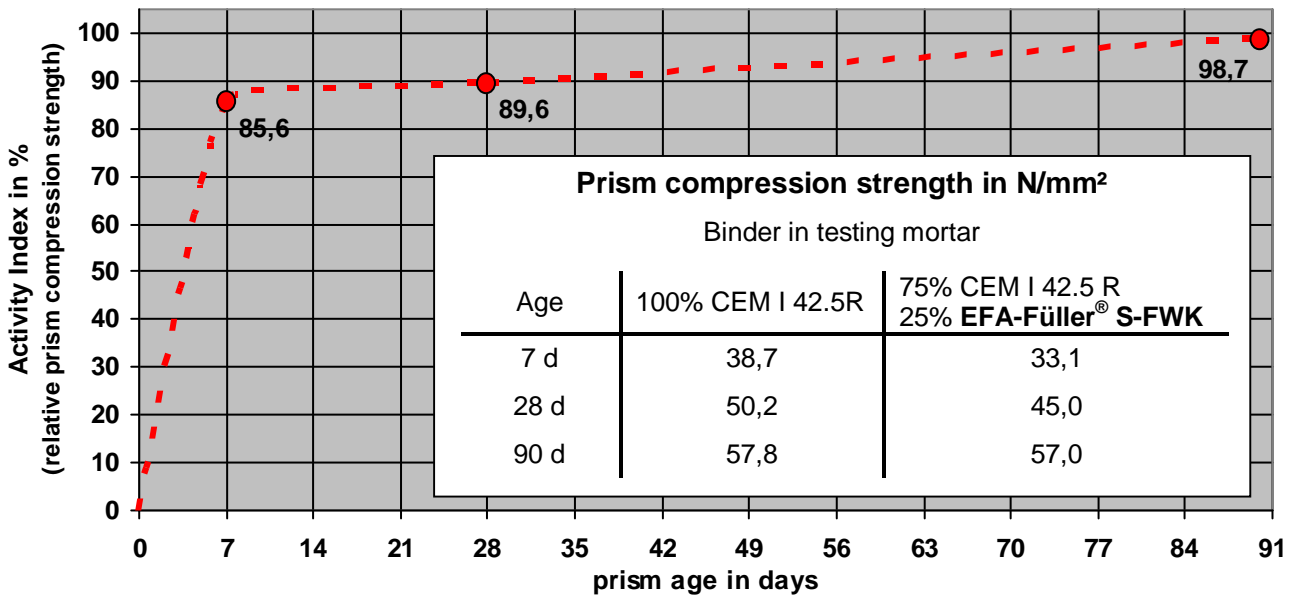
Loss on ignition: category A	≤ 5 % by mass
Fineness > 45 µm	30 ± 10 % by mass
Na ₂ O equivalent *	2.75 % by mass
Bulk density (DIN EN 459 part 2) *	0.96 t/m ³
Particle density	2.08 ± 0.20 t/m ³

* average of the year 2015

PARTICLE SIZE DISTRIBUTION *



STRENGTH DEVELOPMENT * (according to DIN EN 196 part 1)



* average of the year 2015

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BauMineral

Werk Scholven

Z-3.31-1928

INSTITUT FÜR BAUFORSCHUNG AACHEN

External control and certification

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EFA-Füller® S-FWK

Fly ash according to DIN EN 450-1

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