

Fly Ash for Concrete according to DIN EN 450

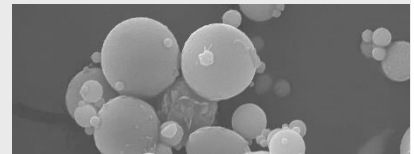
Wilhament® fly ash is a fine-grained construction material that mainly consists of dust-like, glassy particles. It is produced as a by-product from the process of combustion of hard coal to produce electricity and heat in the power plant “**Kraftwerk Wilhelmshaven**”. Its main constituents are amorphous phases of oxides of silicon, aluminum and iron that are formed in the process from the natural minerals associated with the coal.

Owing to its grain structure and pozzolanic reactivity, fly ash has a positive impact on both fresh concrete and hardened concrete: in green concrete, fly ash improves the workability of concrete; in hardened concrete it increases the compressive strength of the concrete and, by contributing to a denser microstructure of the concrete, also improves the durability of the concrete structure.

Wilhament® fly ash in accordance with DIN EN 450 can be used as Type II addition in concrete subject to DIN 1045-2/ DIN EN 206-1 (national provisions may apply). Fly ash has been used successfully for decades in the concrete producing industry as a high-quality raw material; in designing the concrete composition, the fly ash content may be credited toward the cement content and, via the k-value, towards the water/cement ratio.

The material's high quality is ensured by regular internal quality inspection and monitored by a recognized and independent inspection body. In addition to the Certificate of Conformity issued by **ibac (Institut für Bauforschung, RWTH Aachen)**, the environmental compatibility of **Wilhament®** has been verified in a general technical approval procedure.

In its declaration of performance the manufacturer of **Wilhament®** has declared not only the criteria of DIN EN 450, but also compliance with the environmental requirements according to the MVV TB number A 3.2.3 and the environmental guideline by the German Committee for Reinforced Concrete (DAfStb).



Certificates

Certificate of Conformity:
1077-CPR-45101101



Product Data

from the statistical analysis of quality data from EP Power Minerals¹⁾

Period: 01.01.2023 – 31.12.2023

Parameter	Average		Std. dev.	Requirement
Normativ				
Loss on ignition Category A	1.1	M.-%	0.29	≤ 5.0
Fineness > 0,045 mm Category N	23	M.-%	4.7	28 ± 10
CaO _{total}	4.0	M.-%	0.96	≤ 10.0
CaO _{free}	0.3	M.-%	0.24	- ²⁾
SO ₃	1.1	M.-%	0.30	≤ 3.0
Cl	< 0.01	M.-%	-	≤ 0.10
Na ₂ O _{equiv.}	1.9	M.-%	0.74	≤ 5.0
Particle density	2.31	g/cm ³	0.02	2.30 ± 0.2
Activity index	28d	85	%	≥ 75
	90d	98	%	≥ 85

¹⁾ The data compiled in the table shall not be deemed to be warranted characteristics nor constitute any warranty of quality

²⁾ from a content greater than 1.5 M.-% the soundness shall be tested