FuturZement C.1 | FuturBeton C.1

nanostructured green cement/concrete

high strength ☼ CO_2-low ☼ super durability

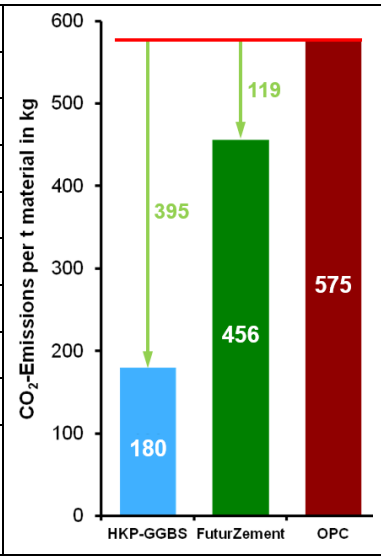
all advantages for EUR 7,00 / ton of concrete

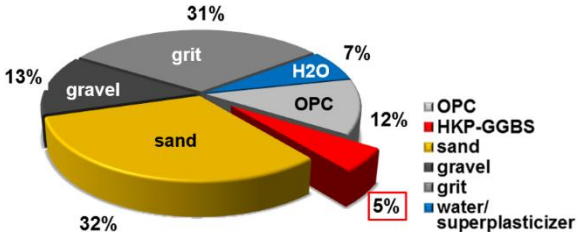
(additional full cost, CM900, Germany 2012-10)

Emission Values CO2

Cement is mankind's product utmost relevant to manmade CO2-emissions. FuturZement achieves it`s outstanding properties by substituting 30 wt% OPC with HKP-GGBS, saving clinker at nearly same ratio in the raw materials balance. Resulting CO2-emission saving by FuturZement vs. OPC is 20% (20.6%).

CO2-emissions, FuturZement vs. OPC		
	OPC	**HKP-GGBS**
CO2 emission by manufacturing/ton	**575 kg**	***179.7 kg**
CO2 emission FuturZement fractions/ton	70% = 402.5 kg	30% = 53.9 kg
total CO2 emission per ton FuturZement	**456.4 kg**	
	CO2 saving potential	
CO2 saving per ton FuturZement	**118.6 kg** (- **20.6%**)	
CO2 saving per ton HKP-GGBS	**395.3 kg** (- 68.7%)	
***from GGBS to HKP-GGPS, CO2-emission in Germany**		
Energy consumption of GGBS processing	347 kWh/ton	
CO2 emission per MWh energy generated	518 kg (DE 2002)	
CO2 emission per ton of GGBS processing	**179.7 kg**	





The net CO2-savings calculation does NOT take into account, that due to higher concrete strength, less material for the same construction is required and due to the virtually endless durability, we would build less often. This does multiply not only efficiency but also CO2-savings. The following calculation stays with the 20% from direct impact.

20% CO2 emission saving, impact DE & World

volumes and potentials, Germany and globally p. a.		**DE**	**World**	**share DE**
CO2-emission total [9]-DE, [10]-World	[Mt]	850	30.000	2.9 %
concrete consumption		250	8.000	3.1 %
		absolute	**relative**	
FuturZement, CO2-saving / ton of cement (30 wt% HKP-GGBS)	[kg]	118.6	20 %	
FuturBeton, CO2-saving / ton of concrete (5 wt% HKP-GGBS)		19.8		
		DE	**World**	
CO2-savings-potential (by FuturBeton)	[Mt]	4.95	158.4	
CO2-savings-potential (ditto relative)	[-]	0.6%	0.5 %	
very much simplified calculation indicates approximate values at a presumed further simplifying autonomous concrete production in Germany				
[9] publication Federal Environment Agency of Germany (UBA) [26.02.2013]; [10] The Cement Sustainability Initiative Progress Report, [2005]				

If entire German cement manufacturers would adopt FuturZement technology, construction industry at higher strength and higher early strength can build faster, sleeker, higher, more durable and cost-effective in fact at lower cost than ordinary.

Germany is spending billions for saving CO2 in automotive, in cement/concrete it would be **less than free of charge**. See OnePager "**Emission CO2 vs. Auto**".