

Test certificate

Type and designation of the material:	Portland cement CEM I 52,5 R (sp) Milke®plus
---------------------------------------	---

Origin or manufacturer:	HeidelbergCement AG, Zementwerk Elsa / Geseke 59590 Geseke
-------------------------	---

Period of analysis:	01.01.2009 to 31.12.2009
---------------------	--------------------------

Binder test according to DIN 1164/18506/EN 196/EN 197/EN 413/EN 459 and according to internal test instructions:

Grinding fineness residue 630 µm		%	Loss on ignition	1,5	%
Grinding fineness residue 200 µm	0,0	%	insoluble residue	0,6	%
Grinding fineness residue 90 µm	0,0	%	SiO ₂	23,1	%
Grinding fineness residue 63 µm		%	Al ₂ O ₃	3,9	%
Blaine value	7425	cm ² /g	Fe ₂ O ₃	1,4	%
Spec. gravity		g/cm ³	CaO	66,4	%
Bulk density		kg/dm ³	MgO	0,8	%
Water requirement (NST)	39,2	%	SO ₃	3,4	%
Start of setting	120	Min.	K ₂ O	0,7	%
End of setting	175	Min.	Na ₂ O	0,1	%
False setting - w/b		cm	Cl	< 0,1	%
Water for mortar		%	Brightness	46,8	%
Slump		mm			

Strengths:

Flexural tensile strengths in MPa after				
	1 day	2 days		28 days
	7,3	8,5		9,5

Compressive strengths in MPa after				
	1 day	2 days		28 days
	41,4	55,0		75,7

Remark:
The above-mentioned values are mean values, which are subject to the usual production fluctuations.