

Composition of Ground Granulated Blastfurnace Slag

**Dunkirk EN 15167-1 GGBS
(0099/CPR/B34/0001)**

Based on the **September 2024** monthly composite sample: 3504

Property			Value	BS EN 15167-1 Limit
Magnesia	MgO	%	6.73	≤ 18.0%
Sulfate	SO ₃	%	0.18	≤ 2.5%
Sulfide	S ²⁻	%	0.75	≤ 2.0%
Chloride	Cl ⁻	%	0.01	≤ 0.1%
Alkalis	Na ₂ O _{eq}	%	0.57	-
Alumina	Al ₂ O ₃	%	12.09	≤ 14%*
Fineness	SSA	m ² /kg	453	≥ 275 m ² /kg
7 Day Activity Index – August Sample		%	58	>40%
28 Day Activity Index – August Sample		%	88	>65%
Declared Mean Alkali Content	Na ₂ O _{eq}	%	0.70	-
Declared Maximum Chloride Content	Cl ⁻	%	0.05	-

***Upper limit in BS 8500 for use in '+SR' combinations**

For and on behalf of Tarmac Cement:

S. Chudley

Simon Chudley

**National Commercial Technical Manager
Tarmac Cement**

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**Conformity of Ground Granulated Blast Furnace Slag to BS 8500-2: Annex B
 Dunkirk EN 15167-1 GGBS
 (1164-CPR-LGM002)**

Based on the composite samples for the Month of: September 2024

Constituent	Source
EN 15167-1 GGBS	Dunkirk
EN 197-1 CEM I	Aberthaw

The results of compressive strength testing (in accordance with BS EN 196-1)
 on a 50:50 blend of CEM I with GGBS were:

7 Day Strength (MPa)	28.3
28 Day Strength (MPa)	50.5

Based on equivalent results obtained for the last 7 Months, the permitted proportions of combinations conforming to the requirements of Annex B of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	44	75
42,5L	6	57
52,5L	6	24

BS 8500-2 Combination Designation	GGBS Content (%)	
	Min	Max
CIIS	6	35
CIIIA	36	65
CIIB	66	80

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Constituent	Source
EN 15167-1 GGBS	Dunkirk
EN 197-1 CEM II/A-LL	Aberthaw

The results of compressive strength testing (in accordance with BS EN 196-1)
 on a 50:50 blend of CEM II/A-LL with GGBS were:

7 Day Strength (MPa)	31.3
28 Day Strength (MPa)	51.8

Based on equivalent results obtained for the last 7 Months, the permitted proportions of combinations conforming to the requirements of Annex B of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	43	73
42,5L	6	56
52,5L	--	--

BS 8500-2 Combination Designation	GGBS Content (%)	
	Min	Max
CIIS	6	35
CIIIA	36	65
CIIB	66	80

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Based on the composite samples for the Month of: September 2024

Constituent	Source
EN 15167-1 GGBS	Dunkirk
EN 197-1 CEM I	Cauldon

The results of compressive strength testing (in accordance with BS EN 196-1) on a 50:50 blend of CEM I with GGBS were:

7 Day Strength (MPa)	26.6
28 Day Strength (MPa)	48.5

Based on equivalent results obtained for the last 6 Months, the permitted proportions of combinations conforming to the requirements of Annex B of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	44	76
42,5L	6	56
52,5L	6	32

BS 8500-2 Combination Designation	GGBS Content (%)	
	Min	Max
CIIS	6	35
CIIIA	36	65
CIIB	66	80

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Based on the composite samples for the Month of: September 2024

Constituent	Source
EN 15167-1 GGBS	Dunkirk
EN 197-1 CEM I	Hope

The results of compressive strength testing (in accordance with BS EN 196-1)
 on a 50:50 blend of CEM I with GGBS were:

7 Day Strength (MPa)	29.5
28 Day Strength (MPa)	55.2

Based on equivalent results obtained for the last 7 Months, the permitted proportions of combinations conforming to the requirements of Annex B of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	53	78
42,5L	16	64
52,5L	6	39

BS 8500-2 Combination Designation	GGBS Content (%)	
	Min	Max
CIIS	6	35
CIIIA	36	65
CIIB	66	80

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Constituent	Source
EN 15167-1 GGBS	Dunkirk
EN 197-1 CEM I	Lemona

The results of compressive strength testing (in accordance with BS EN 196-1)
 on a 50:50 blend of CEM I with GGBS were:

7 Day Strength (MPa)	30.0
28 Day Strength (MPa)	53.4

Based on equivalent results obtained for the last 8 Months, the permitted proportions of combinations conforming to the requirements of Annex B of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	49	80
42,5L	27	65
52,5L	6	40

BS 8500-2 Combination Designation	GGBS Content (%)	
	Min	Max
CIIS	6	35
CIIIA	36	65
CIIB	66	80

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Based on the composite samples for the Month of: September 2024

Constituent	Source
EN 15167-1 GGBS	Dunkirk
EN 197-1 CEM I	Limerick

The results of compressive strength testing (in accordance with BS EN 196-1) on a 50:50 blend of CEM I with GGBS were:

7 Day Strength (MPa)	28.4
28 Day Strength (MPa)	53.2

Based on equivalent results obtained for the last 9 Months, the permitted proportions of combinations conforming to the requirements of Annex B of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	49	76
42,5L	6	60
52,5L	6	35

BS 8500-2 Combination Designation	GGBS Content (%)	
	Min	Max
CIIS	6	35
CIIIA	36	65
CIIB	66	80

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Based on the composite samples for the Month of: September 2024

Constituent	Source
EN 15167-1 GGBS	Dunkirk
EN 197-1 CEM I	Platin

The results of compressive strength testing (in accordance with BS EN 196-1) on a 50:50 blend of CEM I with GGBS were:

7 Day Strength (MPa)	28.5
28 Day Strength (MPa)	52.2

Based on equivalent results obtained for the last 9 Months, the permitted proportions of combinations conforming to the requirements of Annex B of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	50	78
42,5L	6	63
52,5L	6	36

BS 8500-2 Combination Designation	GGBS Content (%)	
	Min	Max
CIIS	6	35
CIIIA	36	65
CIIB	66	80

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Constituent	Source
EN 15167-1 GGBS	Dunkirk
EN 197-1 CEM I	Tunstead

The results of compressive strength testing (in accordance with BS EN 196-1) on a 50:50 blend of CEM I with GGBS were:

7 Day Strength (MPa)	26.5
28 Day Strength (MPa)	56.4

Based on equivalent results obtained for the last 9 Months, the permitted proportions of combinations conforming to the requirements of Annex B of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	54	78
42,5L	26	59
52,5L	6	42

BS 8500-2 Combination Designation	GGBS Content (%)	
	Min	Max
CIIS	6	35
CIIIA	36	65
CIIB	66	80

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