

Composition of Ground Granulated Blastfurnace Slag

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

Based on the **July 2024** monthly composite sample: 2706

Property			Value	BS EN 15167-1 Limit
Magnesia	MgO	%	7.50	≤ 18.0%
Sulfate	SO ₃	%	0.17	≤ 2.5%
Sulfide	S ²⁻	%	0.74	≤ 2.0%
Chloride	Cl ⁻	%	0.02	≤ 0.1%
Alkalis	Na ₂ O _{eq}	%	0.58	-
Alumina	Al ₂ O ₃	%	13.22	≤ 14%*
Fineness	SSA	m ² /kg	443	≥ 275 m ² /kg
7 Day Activity Index – June Sample		%	57	>40%
28 Day Activity Index – June Sample		%	83	>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: July 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)	26.0
28 Day Strength (MPa)	50.0

Based on equivalent results obtained for the last 5 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	75
42,5L	6	56
52,5L	6	21

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: July 2024

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)	29.7
28 Day Strength (MPa)	50.0

Based on equivalent results obtained for the last 5 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	42	73
42,5L	6	55
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: July 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)	28.6
28 Day Strength (MPa)	50.0

Based on equivalent results obtained for the last 4 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	45	76
42,5L	6	58
52,5L	6	34

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: July 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)	27.7
28 Day Strength (MPa)	54.0

Based on equivalent results obtained for the last 5 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	51	77
42,5L	12	63
52,5L	6	37

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: July 2024

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)	27.1
28 Day Strength (MPa)	49.8

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	48	80
42,5L	26	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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Based on the composite samples for the Month of: July 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)	26.9
28 Day Strength (MPa)	51.3

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	48	75
42,5L	6	59
52,5L	6	34

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: July 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)	27.0
28 Day Strength (MPa)	51.0

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	49	77
42,5L	6	62
52,5L	6	34

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)	25.3
28 Day Strength (MPa)	53.7

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	52	77
42,5L	23	58
52,5L	6	41

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

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