

Tarmac Cement National Laboratory

Yelsway Lane
 Waterhouses
 Staffordshire
 ST10 3AZ

24/10/2025

Composition of Ground Granulated Blastfurnace Slag

**Tudela EN 15167-1 GGBS
 (0086-CPR-780512)**

Based on the **July 2025** monthly composite sample: 3223

Property			Value	BS EN 15167-1 Limit
Magnesia	MgO	%	7.31	≤ 18.0%
Sulfate	SO ₃	%	0.20	≤ 2.5%
Sulfide	S ²⁻	%	0.82	≤ 2.0%
Chloride	Cl ⁻	%	0.02	≤ 0.1%
Alkalis	Na ₂ Oeq	%	0.46	-
Alumina	Al ₂ O ₃	%	11.67	≤ 14%*
Fineness	SSA	m ² /kg	483	≥ 275 m ² /kg
7 Day Activity Index – June Sample		%	55	>40%
28 Day Activity Index – June Sample		%	86	>65%
Declared Mean Alkali Content	Na ₂ Oeq	%	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:



Cristiana Morariu

Senior Manager – Technical Commercial – Tarmac Cement

TARMAC.COM

Tarmac Trading Limited Registered in England and Wales. Company No. 453791
 Tarmac Cement Limited Registered in England and Wales. Company No. 66558
 Tarmac Services Limited Registered in England and Wales. Company No. 8197397
 Registered address for all companies: T3 Trinity Park, Bickenhill Lane, Birmingham, B37 7ES

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**Conformity of Ground Granulated Blast Furnace Slag to BS 8500-2: Annex B
Tudela EN 15167-1 GGBS
(0086-CPR-780512)**

Based on the composite samples for the month of: July 2025

Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM I	Dragon

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)	30.8
28 Day Strength (MPa)	53.7

Based on equivalent results obtained for the last 2 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	55	80
42,5L	6	69
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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Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM II/A-L	Hope (limestone content 12.5-16.5%)

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

7 Day Strength (MPa)	36.5
28 Day Strength (MPa)	56.1

Based on equivalent results obtained for the last **10** 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	58	79
42,5L	6	67
52,5L	6	42

BS 8500-2 Combination Designation	GGBS Content (%)	
	Min	Max
CIIIA	36	65
CIIBB	66	80
CIIA-M	6	14
CIIB-M	6	29
CIIC-M	16	44
CVI	31	59

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Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM II/A-L	Limerick

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

7 Day Strength (MPa)	33.1
28 Day Strength (MPa)	53.5

Based on equivalent results obtained for the last 2 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	80
42,5L	6	65
52,5L	6	30

BS 8500-2 Combination Designation	GGBS Content (%)	
	Min	Max
CIIA	36	65
CIIB	66	80
CIIA-M	6	14
CIIB-M	6	29
CIIC-M	16	44
CVI	31	59

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Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM I	Padeswood

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)	33.2
28 Day Strength (MPa)	54.7

Based on equivalent results obtained for the last 2 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	61	80
42,5L	6	71
52,5L	6	18

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 2025

Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM II/A-L	Platin (limestone content 12-16%)

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

7 Day Strength (MPa)	32.0
28 Day Strength (MPa)	52.6

Based on equivalent results obtained for the last **12** 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	80
42,5L	6	69
52,5L	6	29

BS 8500-2 Combination Designation	GGBS Content (%)	
	Min	Max
CIIIA	36	65
CIIBB	66	80
CIIA-M	6	14
CIIB-M	6	29
CIIC-M	16	44
CVI	31	59

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Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM I	Ribblesdale

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)	34.7
28 Day Strength (MPa)	55.6

Based on equivalent results obtained for the last 2 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	58	80
42,5L	6	69
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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Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM II/A-LL	Tunstead (limestone content 11-15%)

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)	35.0
28 Day Strength (MPa)	56.8

Based on equivalent results obtained for the last **10** 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	60	80
42,5L	6	70
52,5L	6	42

BS 8500-2 Combination Designation	GGBS Content (%)	
	Min	Max
CIIIA	36	65
CIIB	66	80
CIIA-M	6	14
CIIB-M	6	29
CIIC-M	16	44
CVI	31	59

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

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

7 Day Strength (MPa)	30.3
28 Day Strength (MPa)	54.3

Based on equivalent results obtained for the last **12** 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	57	80
42,5L	6	68
52,5L	6	43

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

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