

Composition of Ground Granulated Blastfurnace Slag

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

 Based on the **July 2020** monthly composite sample:

Property			Value	BS EN 15167-1 Limit
Magnesia	MgO	%	7.65	≤ 18.0%
Sulfate	SO ₃	%	0.22	≤ 2.5%
Sulfide	S ²⁻	%	0.78	≤ 2.0%
Chloride	Cl ⁻	%	0.01	≤ 0.1%
Alkalis	Na ₂ O _{eq}	%	0.59	-
Alumina	Al ₂ O ₃	%	10.42	≤ 14%*
Fineness	SSA	m ² /kg	478	≥ 275 m ² /kg
7 Day Activity Index – June Sample		%	60	>40%
28 Day Activity Index – June Sample		%	82	>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:


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10.09.2020

Conformity of Ground Granulated Blast Furnace Slag to BS 8500-2: Annex A

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

Based on the **July 2020** monthly composite samples of:

Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM I	Aberthaw CEM I 52,5N

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)	29.3
28 Day Strength (MPa)	51.8

Based on equivalent results obtained for the last **3** months, the permitted proportions of combinations conforming to the requirements of Annex A of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	50	78
42,5L	6	63
52,5L	6	19

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

For and on behalf of Tarmac Cement:

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

Based on the **July 2020** monthly composite samples of:

Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM I	Cauldon CEM I 52,5N

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)	31.9
28 Day Strength (MPa)	54.5

Based on equivalent results obtained for the last **3** months, the permitted proportions of combinations conforming to the requirements of Annex A of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	67	80
42,5L	6	75
52,5L	6	47

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

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Conformity of Ground Granulated Blast Furnace Slag to BS 8500-2: Annex A

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

Based on the **July 2020** monthly composite samples of:

Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM I	Dunbar CEM I 52,5N

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)	24.0
28 Day Strength (MPa)	55.7

Based on equivalent results obtained for the last **3** months, the permitted proportions of combinations conforming to the requirements of Annex A of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	74	80
42,5L	37	80
52,5L	6	47

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

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Conformity of Ground Granulated Blast Furnace Slag to BS 8500-2: Annex A

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

Based on the **July 2020** monthly composite samples of:

Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM I	Hope CEM I 52,5N

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)	31.4
28 Day Strength (Mpa)	54.1

Based on equivalent results obtained for the last **3** months, the permitted proportions of combinations conforming to the requirements of Annex A of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	60	80
42,5L	6	71
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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**Tudela EN 15167-1 GGBS
 (0099/CPR/B34/0001)**

Based on the **July 2020** monthly composite samples of:

Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM I	Limerick CEM I 52,5N

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)	28.0
28 Day Strength (Mpa)	51.5

Based on equivalent results obtained for the last **3** months, the permitted proportions of combinations conforming to the requirements of Annex A of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	49	80
42,5L	6	69
52,5L	6	38

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

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

Based on the **July 2020** monthly composite samples of:

Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM I	Platin CEM I 52,5N

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)	29.4
28 Day Strength (MPa)	53.1

Based on equivalent results obtained for the last **3** months, the permitted proportions of combinations conforming to the requirements of Annex A of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	62	80
42,5L	6	73
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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**Tudela EN 15167-1 GGBS
 (0099/CPR/B34/0001)**

Based on the **July 2020** monthly composite samples of:

Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM I	Quinn CEM I 52,5N

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)	29.8
28 Day Strength (MPa)	55.4

Based on equivalent results obtained for the last **3** months, the permitted proportions of combinations conforming to the requirements of Annex A of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	72	80
42,5L	6	78
52,5L	6	49

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

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 (0099/CPR/B34/0001)**

Based on the **July 2020** monthly composite samples of:

Constituent	Source
EN 15167-1 GGBS	Tudela
EN 197-1 CEM I	Tunstead CEM I 52,5N

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)	30.6
28 Day Strength (Mpa)	56.0

Based on equivalent results obtained for the last **3** months, the permitted proportions of combinations conforming to the requirements of Annex A of BS 8500-2 are:

Strength Class of Combination	GGBS Content (%)	
	Min	Max
32,5L	66	80
42,5L	30	74
52,5L	6	50

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

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