

Tarmac Cement National Laboratory

Yelsway Lane  
 Waterhouses  
 Staffordshire  
 ST10 3AZ

12/06/2025

**Composition of Ground Granulated Blastfurnace Slag**

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

Based on the **March 2025** monthly composite sample: 1402

| Property                                |                                |                    | Value | BS EN 15167-1 Limit      |
|-----------------------------------------|--------------------------------|--------------------|-------|--------------------------|
| Magnesia                                | MgO                            | %                  | 7.00  | ≤ 18.0%                  |
| Sulfate                                 | SO <sub>3</sub>                | %                  | 0.19  | ≤ 2.5%                   |
| Sulfide                                 | S <sup>2-</sup>                | %                  | 0.80  | ≤ 2.0%                   |
| Chloride                                | Cl <sup>-</sup>                | %                  | 0.03  | ≤ 0.1%                   |
| Alkalis                                 | Na <sub>2</sub> Oeq            | %                  | 0.50  | -                        |
| Alumina                                 | Al <sub>2</sub> O <sub>3</sub> | %                  | 11.44 | ≤ 14%*                   |
| Fineness                                | SSA                            | m <sup>2</sup> /kg | 493   | ≥ 275 m <sup>2</sup> /kg |
| 7 Day Activity Index – February Sample  |                                | %                  | 55    | >40%                     |
| 28 Day Activity Index – February Sample |                                | %                  | 88    | >65%                     |
| Declared Mean Alkali Content            | Na <sub>2</sub> Oeq            | %                  | 0.70  | -                        |
| Declared Maximum Chloride Content       | Cl <sup>-</sup>                | %                  | 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**

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 Registered address for all companies: T3 Trinity Park, **Bickenhill Lane, Birmingham, B37 7ES**

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: March 2025

| Constituent          | Source                              |
|----------------------|-------------------------------------|
| EN 15167-1 GGBS      | Tudela                              |
| EN 197-1 CEM II/A-LL | Aberthaw (limestone content 10-14%) |

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)  | 31.0 |
| 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                         | 50               | 80  |
| 42,5L                         | 6                | 64  |
| 52,5L                         | 6                | 34  |

| BS 8500-2 Combination<br>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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Based on the composite samples for the month of: March 2025

| 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)  | 31.9 |
| 28 Day Strength (MPa) | 53.0 |

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                         | 57               | 79  |
| 42,5L                         | 6                | 66  |
| 52,5L                         | 6                | 39  |

| BS 8500-2 Combination<br>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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Based on the composite samples for the month of: March 2025

| 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)  | 29.3 |
| 28 Day Strength (MPa) | 53.5 |

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                         | 55               | 80  |
| 42,5L                         | 6                | 67  |
| 52,5L                         | 6                | 41  |

| BS 8500-2 Combination<br>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: March 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)  | 32.2 |
| 28 Day Strength (MPa) | 52.6 |

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                         | 55               | 80  |
| 42,5L                         | 6                | 69  |
| 52,5L                         | 6                | 32  |

| BS 8500-2 Combination<br>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-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)  | 31.2 |
| 28 Day Strength (MPa) | 52.5 |

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                         | 58               | 80  |
| 42,5L                         | 6                | 70  |
| 52,5L                         | 6                | 40  |

| BS 8500-2 Combination<br>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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