

Tarmac Cement
National Laboratory
Yelsway Lane
Waterhouses
Staffordshire
ST10 3AZ

21/12/20

Composition of Fly ash

**Tudela Fly ash
EN 450-1 LOI Cat. B, Fineness Cat.N
0099-CPR-A95-0019**

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

Property			Value	BS EN 450-1 Limit
Fineness (Residue)	45µm	%	16.8	Declared Value 15% ± 10% <i>(Tested in accordance with BS EN 450-1 cl. 5.3.1)</i>
APD		g/cm ³	2.49	< 200kg/m ³ from declared value
28 Day Activity Index – October sample		%	73.3	>75%
90 Day Activity Index – Sept sample		%	92.6	>85%
Sulfate	SO ₃	%	1.47	≤ 3.0%
Loss on Ignition	LOI	%	3.52	≤ 7.0%
Chloride	Cl ⁻	%	0.005	≤ 0.1%
Calcium Oxide	CaO	%	5.85	≤ 10.0%
SiO ₂ + Al ₂ O ₃ + Fe ₂ O ₃	-	%	83.96	≥ 70.0%
Free Lime	-	%	0.97	≤ 1.0%
Alkalis	Na ₂ O _{eq}	%	0.92	≤ 5.0%
Declared Mean Alkali Content	Na ₂ O _{eq}	%	1.50	-
Declared Maximum Chloride Content	Cl ⁻	%	0.05	-

*BS EN 933-10:2009 method replacing the 63 µm sieve with a 45 µm sieve

For and on behalf of Tarmac Cement:

S. Chudley

Simon Chudley

**National Commercial Technical Manager
Tarmac Cement**

TARMAC.COM

Tarmac Trading Limited Registered in England and Wales. Company No. 453791
Tarmac Cement and Lime 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: **Portland House Bickenhill Lane Solihull Birmingham B37 7BQ**

Portland House Bickenhill Lane
Solihull Birmingham B37 7BQ
0800 1 218 218 enquiries@tarmac.com

Tarmac Cement National Laboratory
 Yelsway Lane
 Waterhouses
 Staffordshire
 ST10 3AZ

20.01.2021

Conformity of Fly Ash to BS 8500-2: Annex A

**Tudela EN 450-1 Fly Ash
 0099-CPR-A95-0019**

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

Constituent	Source
EN 450-1 Fly Ash	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 70:30 blend of the CEM I with the Fly Ash were:

2 Day Strength (MPa)	23.2
28 Day Strength (MPa)	49.9

Based on equivalent results obtained for the last **12** months, the permitted proportions of combinations conforming to the requirements of Annex A of BS 8500-2 are:

Strength Class of Combination	Fly Ash Content (%)	
	Min	Max
32,5R	26	35
42,5N	6	34

BS 8500-2 Combination Designation	Fly Ash Content (%)	
	Min	Max
CIIA-V	6	20
CIIB-V	21	35

For and on behalf of Tarmac Cement:

S. Chudley

Simon Chudley

**National Commercial Technical Manager
 Tarmac Cement**

TARMAC.COM

Tarmac Trading Limited Registered in England and Wales. Company No. 453791
 Tarmac Cement and Lime 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: **Portland House Bickenhill Lane Solihull Birmingham B37 7BQ**

Portland House Bickenhill Lane
 Solihull Birmingham B37 7BQ
0800 1 218 218 enquiries@tarmac.com

Tarmac Cement National Laboratory
 Yelsway Lane
 Waterhouses
 Staffordshire
 ST10 3AZ

20.01.2021

Conformity of Fly Ash to BS 8500-2: Annex A

**Tudela EN 450-1 Fly Ash
 0099-CPR-A95-0019**

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

Constituent	Source
EN 450-1 Fly Ash	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 70:30 blend of the CEM I with the Fly Ash were:

2 Day Strength (MPa)	21.2
28 Day Strength (MPa)	45.8

Based on equivalent results obtained for the last **12** months, the permitted proportions of combinations conforming to the requirements of Annex A of BS 8500-2 are:

Strength Class of Combination	Fly Ash Content (%)	
	Min	Max
32,5R	22	35
42,5N	6	27

BS 8500-2 Combination Designation	Fly Ash Content (%)	
	Min	Max
CIIA-V	6	20
CIIB-V	21	35

For and on behalf of Tarmac Cement:

S. Chudley

Simon Chudley

**National Commercial Technical Manager
 Tarmac Cement**

TARMAC.COM

Tarmac Trading Limited Registered in England and Wales. Company No. 453791
 Tarmac Cement and Lime 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: **Portland House Bickenhill Lane Solihull Birmingham B37 7BQ**

Portland House Bickenhill Lane
 Solihull Birmingham B37 7BQ
0800 1 218 218 enquiries@tarmac.com

Tarmac Cement National Laboratory
 Yelsway Lane
 Waterhouses
 Staffordshire
 ST10 3AZ

20.01.2021

Conformity of Fly Ash to BS 8500-2: Annex A

**Tudela EN 450-1 Fly Ash
 0099-CPR-A95-0019**

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

Constituent	Source
EN 450-1 Fly Ash	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 70:30 blend of the CEM I with the Fly Ash were:

2 Day Strength (MPa)	17.8
28 Day Strength (MPa)	40.6

Based on equivalent results obtained for the last **12** months, the permitted proportions of combinations conforming to the requirements of Annex A of BS 8500-2 are:

Strength Class of Combination	Fly Ash Content (%)	
	Min	Max
32,5R	18	35
42,5N	6	25

BS 8500-2 Combination Designation	Fly Ash Content (%)	
	Min	Max
CIIA-V	6	20
CIIB-V	21	35

For and on behalf of Tarmac Cement:

S. Chudley

Simon Chudley

**National Commercial Technical Manager
 Tarmac Cement**

TARMAC.COM

Tarmac Trading Limited Registered in England and Wales. Company No. 453791
 Tarmac Cement and Lime 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: **Portland House Bickenhill Lane Solihull Birmingham B37 7BQ**

Portland House Bickenhill Lane
 Solihull Birmingham B37 7BQ
0800 1 218 218 enquiries@tarmac.com

Tarmac Cement National Laboratory
 Yelsway Lane
 Waterhouses
 Staffordshire
 ST10 3AZ

20.01.2021

Conformity of Fly Ash to BS 8500-2: Annex A

**Tudela EN 450-1 Fly Ash
 0099-CPR-A95-0019**

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

Constituent	Source
EN 450-1 Fly Ash	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 70:30 blend of the CEM I with the Fly Ash were:

2 Day Strength (MPa)	17.3
28 Day Strength (MPa)	40.7

Based on equivalent results obtained for the last **12** months, the permitted proportions of combinations conforming to the requirements of Annex A of BS 8500-2 are:

Strength Class of Combination	Fly Ash Content (%)	
	Min	Max
32,5R	18	35
42,5N	6	26

BS 8500-2 Combination Designation	Fly Ash Content (%)	
	Min	Max
CIIA-V	6	20
CIIB-V	21	35

For and on behalf of Tarmac Cement:

S. Chudley

Simon Chudley

**National Commercial Technical Manager
 Tarmac Cement**

TARMAC.COM

Tarmac Trading Limited Registered in England and Wales. Company No. 453791
 Tarmac Cement and Lime 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: **Portland House Bickenhill Lane Solihull Birmingham B37 7BQ**

Portland House Bickenhill Lane
 Solihull Birmingham B37 7BQ
0800 1 218 218 enquiries@tarmac.com

Tarmac Cement National Laboratory
 Yelsway Lane
 Waterhouses
 Staffordshire
 ST10 3AZ

20.01.2021

Conformity of Fly Ash to BS 8500-2: Annex A

**Tudela EN 450-1 Fly Ash
 0099-CPR-A95-0019**

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

Constituent	Source
EN 450-1 Fly Ash	Tudela
EN 197-1 CEM I	Rugby CEM I 52,5N

The results of compressive strength testing (in accordance with BS EN 196-1) on a 70:30 blend of the CEM I with the Fly Ash were:

2 Day Strength (MPa)	22.7
28 Day Strength (MPa)	46.7

Based on equivalent results obtained for the last **12** months, the permitted proportions of combinations conforming to the requirements of Annex A of BS 8500-2 are:

Strength Class of Combination	Fly Ash Content (%)	
	Min	Max
32,5R	21	35
42,5N	6	30

BS 8500-2 Combination Designation	Fly Ash Content (%)	
	Min	Max
CIIA-V	6	20
CIIB-V	21	35

For and on behalf of Tarmac Cement:

S. Chudley

Simon Chudley

**National Commercial Technical Manager
 Tarmac Cement**

TARMAC.COM

Tarmac Trading Limited Registered in England and Wales. Company No. 453791
 Tarmac Cement and Lime 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: **Portland House Bickenhill Lane Solihull Birmingham B37 7BQ**

Portland House Bickenhill Lane
 Solihull Birmingham B37 7BQ
0800 1 218 218 enquiries@tarmac.com

Tarmac Cement National Laboratory
 Yelsway Lane
 Waterhouses
 Staffordshire
 ST10 3AZ

20.01.2020

Conformity of Fly Ash to BS 8500-2: Annex A

**Tudela EN 450-1 Fly Ash
 0099-CPR-A95-0019**

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

Constituent	Source
EN 450-1 Fly Ash	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 70:30 blend of the CEM I with the Fly Ash were:

2 Day Strength (MPa)	21.3
28 Day Strength (MPa)	51.2

Based on equivalent results obtained for the last **12** months, the permitted proportions of combinations conforming to the requirements of Annex A of BS 8500-2 are:

Strength Class of Combination	Fly Ash Content (%)	
	Min	Max
32,5R	24	35
42,5N	6	35

BS 8500-2 Combination Designation	Fly Ash Content (%)	
	Min	Max
CIIA-V	6	20
CIIB-V	21	35

For and on behalf of Tarmac Cement:

S. Chudley

Simon Chudley

**National Commercial Technical Manager
 Tarmac Cement**

TARMAC.COM

Tarmac Trading Limited Registered in England and Wales. Company No. 453791
 Tarmac Cement and Lime 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: **Portland House Bickenhill Lane Solihull Birmingham B37 7BQ**

Portland House Bickenhill Lane
 Solihull Birmingham B37 7BQ
0800 1 218 218 enquiries@tarmac.com