



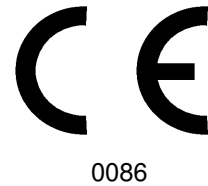
Fly ash Test Report

United Kingdom

Technical Department

Portland House
Bickenhill Lane, Solihull
Birmingham. B37 7BQ

Telephone: 0845 812 6400
Facsimile: 0845 812 6200



Date: 21 October 2011

Aberthaw Fly ash BS EN 450-1
Fineness category:N, Loss on ignition category:A
Monthly average data for **August 2011**

A) Physical and chemical properties of the fly ash sample

Test Property	Test result	BS EN 450-1
Fineness (%)	15.5	declared value 22.0
Sulfuric anhydride (%)	0.3	max 3.0
Loss on ignition (%)	3.8	0.0 to 5.0
Chloride (%)	0.00	max 0.1
Calcium oxide (%)	2.9	max 10.0
SiO ₂ +Al ₂ O ₃ +Fe ₂ O ₃ (%)	83.6	min 70.0
Free Lime (%)	0.46	max 1.0
Acid soluble alkali (%)	2.23	max 5.0
Additional information:		
Declared particle density (kg/m ³)	2270	

B) Physical properties of a 25:75 blend of the fly ash with a reference Portland cement

PC Source: **Ribblesdale**
PC Initial setting time (min): **160**
PC 28 day strength (MPa) **61.4**

Test Property	Test result	BS EN 450-1
Activity index @ 28 days	79	min 75
Initial Setting Time (min)	210	max 120min more than PC

Note: This report has been produced from data supplied by the manufacturer, Celtic Ash

For and on behalf of Lafarge Cement UK :

National Commercial Technical Manager



United Kingdom

Certificate of Conformity to BS 8500-2 Annex A

Technical Department

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Birmingham
B37 7BQ

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Date: **21 October 2011**

For a composite sample of

Aberthaw fly ash to BS EN 450-1

Fineness category:N, Loss on ignition category:A

prepared by Celtic Ash

and a composite sample of

Aberthaw PC-RM, BS EN 197-1 CEM I 52.5N

prepared by Lafarge Cement UK

each relating to product supplied during

August 2011

the results of test carried out in accordance with
BS 196-1 on a 70:30 blend of the CEM I with the
fly ash were

2 day strength	21.0 MPa
28 day strength	45.2 MPa

Based on equivalent results obtained for the last **9** months
the permitted proportion of combinations conforming with the requirements
of Annex A of BS 8500-2 are

Strength class of combination	fly ash content (as a percentage)	
	min	max
32,5 R	13	37
42,5 N	0	23

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Date: **21 October 2011**

For a composite sample of

Aberthaw fly ash to BS EN 450-1

Fineness category:N, Loss on ignition category:A

prepared by Celtic Ash

and a composite sample of

Hope PC-RM, BS EN 197-1 CEM I 52,5N

prepared by Lafarge Cement UK

each relating to product supplied during

August 2011

the results of test carried out in accordance with
BS 196-1 on a 70:30 blend of the CEM I with the
fly ash were

2 day strength	19.9 MPa
28 day strength	44.5 MPa

Based on equivalent results obtained for the last **9** months
the permitted proportion of combinations conforming with the requirements
of Annex A of BS 8500-2 are

Strength class of combination	fly ash content (as a percentage)	
	min	max
32,5 R	19	39
42,5 N	5	26

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Date: **21 October 2011**

For a composite sample of

Aberthaw fly ash to BS EN 450-1

Fineness category:N, Loss on ignition category:A

prepared by Celtic Ash

and a composite sample of

Castle Padeswood PC

prepared by Lafarge Cement UK

each relating to product supplied during

August 2011

the results of test carried out in accordance with
BS 196-1 on a 70:30 blend of the CEM I with the
fly ash were

2 day strength	19.4 MPa
28 day strength	42.7 MPa

Based on equivalent results obtained for the last **8** months
the permitted proportion of combinations conforming with the requirements
of Annex A of BS 8500-2 are

Strength class of combination	fly ash content (as a percentage)	
	min	max
32,5 R	20	35
42,5 N	0	24

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Date: **21 October 2011**

For a composite sample of

Aberthaw fly ash to BS EN 450-1

Fineness category:N, Loss on ignition category:A

prepared by Celtic Ash

and a composite sample of

Cemex Rugby PC

prepared by Lafarge Cement UK

each relating to product supplied during

August 2011

the results of test carried out in accordance with
BS 196-1 on a 70:30 blend of the CEM I with the
fly ash were

2 day strength	20.8 MPa
28 day strength	45.2 MPa

Based on equivalent results obtained for the last **8** months
the permitted proportion of combinations conforming with the requirements
of Annex A of BS 8500-2 are

Strength class of combination	fly ash content (as a percentage)	
	min	max
32,5 R	15	38
42,5 N	0	25

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Date: **21 October 2011**

For a composite sample of

Aberthaw fly ash to BS EN 450-1

Fineness category:N, Loss on ignition category:A

prepared by Celtic Ash

and a composite sample of

Dragon Alfa PC

prepared by Lafarge Cement UK

each relating to product supplied during

August 2011

the results of test carried out in accordance with
BS 196-1 on a 70:30 blend of the CEM I with the
fly ash were

2 day strength	20.0 MPa
28 day strength	45.9 MPa

Based on equivalent results obtained for the last **9** months
the permitted proportion of combinations conforming with the requirements
of Annex A of BS 8500-2 are

Strength class of combination	fly ash content (as a percentage)	
	min	max
32,5 R	15	35
42,5 N	0	23

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Date: **21 October 2011**

For a composite sample of

Aberthaw fly ash to BS EN 450-1

Fineness category:N, Loss on ignition category:A

prepared by Celtic Ash

and a composite sample of

Irish Cement - Platin PC

prepared by Lafarge Cement UK

each relating to product supplied during

August 2011

the results of test carried out in accordance with
BS 196-1 on a 70:30 blend of the CEM I with the
fly ash were

2 day strength	16.6 MPa
28 day strength	43.0 MPa

Based on equivalent results obtained for the last **3** months
the permitted proportion of combinations conforming with the requirements
of Annex A of BS 8500-2 are

Strength class of combination	fly ash content (as a percentage)	
	min	max
32,5 R	14	35
42,5 N	0	22

For and on behalf of Lafarge Cement UK :

National Commercial Technical Manager