



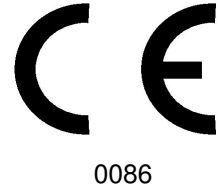
Fly ash Test Report

United Kingdom

Technical Department

Portland House
Bickenhill Lane, Solihull
Birmingham. B37 7BQ

Telephone: 0845 812 6400
Facsimile: 0845 812 6200



Date: **24 March 2010**

Aberthaw

Fly ash BS EN 450-1

Fineness category:N, Loss on ignition category:A

Monthly average data for

November 2009

A) Physical and chemical properties of the fly ash sample

Test Property	Test result	BS EN 450-1
Fineness (%)	15.6	declared value 22.0
Sulfuric anhydride (%)	0.5	max 3.0
Loss on ignition (%)	3.4	0.0 to 5.0
Chloride (%)	0.01	max 0.1
Calcium oxide (%)	2.75	max 10.0
SiO ₂ +Al ₂ O ₃ +Fe ₂ O ₃ (%)	86.3	min 70.0
Free Lime (%)	0.53	max 1.0
Acid soluble alkali (%)	2.75	max 5.0
Additional information:		
Declared particle density (kg/m ³)	2200	

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): **230**

PC 28 day strength (MPa)

Test Property	Test result	BS EN 450-1
Activity index @ 28 days	82	min 75
Initial Setting Time (min)	275	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

Lafarge Cement UK PLC

Registered in England and Wales. Registered number 66558. Registered Office: Granite House, Granite Way, Syston, Leicester. LE1 1PL



Certificate of Conformity to BS 8500-2 Annex A

United Kingdom

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Date: **24 March 2010**

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

November 2009

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	20.4	MPa
28 day strength	44.6	MPa

Based on equivalent results obtained for the last **10** 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	41
42,5 N	0	28

For and on behalf of Lafarge Cement UK :

National Commercial Technical Manager



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Date: **24 March 2010**

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

November 2009

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	17.9	MPa
28 day strength	43.5	MPa

Based on equivalent results obtained for the last **10** 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	17	37
42,5 N	4	26

For and on behalf of Lafarge Cement UK :

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Date: **24 March 2010**

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

November 2009

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	16.9	MPa
28 day strength	39.6	MPa

Based on equivalent results obtained for the last **10** 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	32
42,5 N	0	22

For and on behalf of Lafarge Cement UK :

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Date: **24 March 2010**

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

November 2009

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

No Sample

2 day strength		MPa
28 day strength		MPa

Based on equivalent results obtained for the last **10** 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	18	39
42,5 N	0	27

For and on behalf of Lafarge Cement UK :

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Date: **24 March 2010**

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

November 2009

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	20.3	MPa
28 day strength	43.7	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	14	34
42,5 N	0	24

For and on behalf of Lafarge Cement UK :

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Date: **24 March 2010**

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

Lagerdorf PC

prepared by Lafarge Cement UK

each relating to product supplied during

November 2009

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

No sample

2 day strength		MPa
28 day strength		MPa

Based on equivalent results obtained for the last **2** 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	22	41
42,5 N	0	30

For and on behalf of Lafarge Cement UK :

National Commercial Technical Manager