Fly ash Test Report

United Kingdom

Technical Department

Portland House
Bickenhill Lane, Solihull
Birmingham. B37 7BQ

Telephone: 0845 812 6400
Facsimile: 0845 812 6200

CE 0086

Date: **23 January 2012**

Aberthaw

Fly ash BS EN 450-1

Fineness category:N, Loss on ignition category:A

Monthly average data for **October 2011**

A) Physical and chemical properties of the fly ash sample

Test Property	Test result	BS EN 450-1
Fineness (%)	**14.3**	declared value 22.0
Sulfuric anhydride (%)	**0.2**	max 3.0
Loss on ignition (%)	**3.3**	0.0 to 5.0
Chloride (%)	**0.00**	max 0.1
Calcium oxide (%)	**2.9**	max 10.0
SiO_2+Al_2O_3+Fe_2O_3 (%)	**85.8**	min 70.0
Free Lime (%)	**0.44**	max 1.0
Acid soluble alkali (%)	**2.37**	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	**80**	min 75
Initial Setting Time (min)	**240**	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 : W.F. Price

National Commercial Technical Manager

LAFARGE CEMENT
United Kingdom

Certificate of Conformity to BS 8500-2 Annex A

Technical Department

Portland House
Bickenhill Lane
Solihull
Birmingham
B37 7BQ

Telephone: 0845 812 6400
Facsimile: 0845 812 6200

Date: **23 January 2012**

For a composite sample of

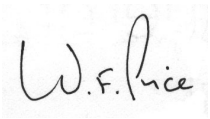
Aberthaw fly ash to BS EN 450-1
Fineness category:N, Loss on ignition category:A
prepared by Celtic Ash
and a composite sample of
Aberthaw PC-RM, BS EN 197-1 CEM I 52.5N
prepared by Lafarge Cement UK
each relating to product supplied during
October 2011
the results of test carried out in accordance with BS 196-1 on a 70:30 blend of the CEM I with the fly ash were

2 day strength	**21.1**	MPa
28 day strength	**44.2**	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	**21**	**37**
42,5 N	**0**	**26**

For and on behalf of Lafarge Cement UK :



National Commercial Technical Manager

LAFARGE CEMENT
United Kingdom

Certificate of Conformity to BS 8500-2 Annex A

Technical Department

Portland House
Bickenhill Lane
Solihull
Birmingham
B37 7BQ

Telephone: 0845 812 6400
Facsimile: 0845 812 6200

Date: **23 January 2012**

For a composite sample of

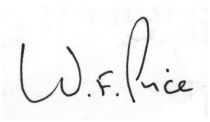
Aberthaw fly ash to BS EN 450-1
Fineness category:N, Loss on ignition category:A
prepared by Celtic Ash
and a composite sample of
Hope PC-RM, BS EN 197-1 CEM I 52,5N
prepared by Lafarge Cement UK
each relating to product supplied during
October 2011
the results of test carried out in accordance with BS 196-1 on a 70:30 blend of the CEM I with the fly ash were

2 day strength	**20.4**	MPa
28 day strength	**44.3**	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	**21**	**40**
42,5 N	**4**	**27**

For and on behalf of Lafarge Cement UK :



National Commercial Technical Manager

LAFARGE CEMENT
United Kingdom

Certificate of Conformity to BS 8500-2 Annex A

Technical Department

Portland House
Bickenhill Lane
Solihull
Birmingham
B37 7BQ

Telephone: 0845 812 6400
Facsimile: 0845 812 6200

Date: **23 January 2012**

For a composite sample of

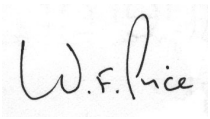
Aberthaw fly ash to BS EN 450-1
Fineness category:N, Loss on ignition category:A
prepared by Celtic Ash
and a composite sample of
Castle Padeswood PC, BS EN 197-1 CEM I 52.5N
prepared by Lafarge Cement UK
each relating to product supplied during
October 2011
the results of test carried out in accordance with BS 196-1 on a 70:30 blend of the CEM I with the fly ash were

2 day strength	**19.5**	MPa
28 day strength	**41.9**	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	**12**	**34**
42,5 N	**0**	**18**

For and on behalf of Lafarge Cement UK :



National Commercial Technical Manager

LAFARGE CEMENT
United Kingdom

Certificate of Conformity to BS 8500-2 Annex A

Technical Department

Portland House
Bickenhill Lane
Solihull
Birmingham
B37 7BQ

Telephone: 0845 812 6400
Facsimile: 0845 812 6200

Date: **23 January 2012**

For a composite sample of

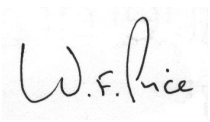
Aberthaw fly ash to BS EN 450-1
Fineness category:N, Loss on ignition category:A
prepared by Celtic Ash
and a composite sample of
Cemex Rugby PC, BS EN 197-1 CEM I 52.5N
prepared by Lafarge Cement UK
each relating to product supplied during
October 2011
the results of test carried out in accordance with 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	**43.9**	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	**19**	**36**
42,5 N	**0**	**25**

For and on behalf of Lafarge Cement UK :



National Commercial Technical Manager

LAFARGE CEMENT
United Kingdom

Certificate of Conformity to BS 8500-2 Annex A

Technical Department

Portland House
Bickenhill Lane
Solihull
Birmingham
B37 7BQ

Telephone: 0845 812 6400
Facsimile: 0845 812 6200

Date: **23 January 2012**

For a composite sample of

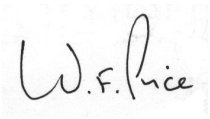
Aberthaw fly ash to BS EN 450-1
Fineness category:N, Loss on ignition category:A
prepared by Celtic Ash
and a composite sample of
Dragon Alfa PC, 42.5R
prepared by Lafarge Cement UK
each relating to product supplied during
October 2011
the results of test carried out in accordance with BS 196-1 on a 70:30 blend of the CEM I with the fly ash were

2 day strength	**20.1**	MPa
28 day strength	**42.4**	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	**9**	**38**
42,5 N	**0**	**21**

For and on behalf of Lafarge Cement UK :



National Commercial Technical Manager

LAFARGE CEMENT
United Kingdom

Certificate of Conformity to BS 8500-2 Annex A

Technical Department

Portland House
Bickenhill Lane
Solihull
Birmingham
B37 7BQ

Telephone: 0845 812 6400
Facsimile: 0845 812 6200

Date: **23 January 2012**

For a composite sample of

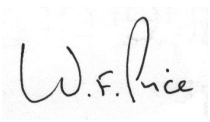
Aberthaw fly ash to BS EN 450-1
Fineness category:N, Loss on ignition category:A
prepared by Celtic Ash
and a composite sample of
Lagerdorf PC, EN 197-1 CEM I 52.5N
prepared by Lafarge Cement UK
each relating to product supplied during
October 2011
the results of test carried out in accordance with BS 196-1 on a 70:30 blend of the CEM I with the fly ash were

2 day strength	**19.5**	MPa
28 day strength	**46.0**	MPa

Based on equivalent results obtained for the last **1** 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**	**40**
42,5 N	**1**	**26**

For and on behalf of Lafarge Cement UK :



National Commercial Technical Manager

LAFARGE CEMENT
United Kingdom

Certificate of Conformity to BS 8500-2 Annex A

Technical Department

Portland House
Bickenhill Lane
Solihull
Birmingham
B37 7BQ

Telephone: 0845 812 6400
Facsimile: 0845 812 6200

Date: **23 January 2012**

For a composite sample of

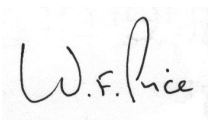
Aberthaw fly ash to BS EN 450-1
Fineness category:N, Loss on ignition category:A
prepared by Celtic Ash
and a composite sample of
Irish Cement - Platin PC, I.S.EN 197-1 CEM I 42.5R
prepared by Lafarge Cement UK
each relating to product supplied during
October 2011
the results of test carried out in accordance with BS 196-1 on a 70:30 blend of the CEM I with the fly ash were

2 day strength	**19.0**	MPa
28 day strength	**42.0**	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	**14**	**34**
42,5 N	**0**	**21**

For and on behalf of Lafarge Cement UK :



National Commercial Technical Manager