



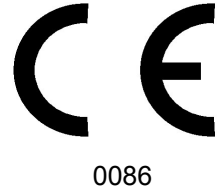
# Fly ash Test Report

United Kingdom

Technical Department

Portland House  
Bickenhill Lane, Solihull  
Birmingham. B37 7BQ

Telephone: 0845 812 6400  
Facsimile: 0845 812 6200



Date: **06 September 2010**

**Aberthaw** Fly ash BS EN 450-1  
Fineness category:N, Loss on ignition category:A  
Monthly average data for **May 2010**

## A) Physical and chemical properties of the fly ash sample

Test Property	Test result	BS EN 450-1
Fineness (%)	<b>14.6</b>	declared value 22.0
Sulfuric anhydride (%)	<b>0.2</b>	max 3.0
Loss on ignition (%)	<b>3.4</b>	0.0 to 5.0
Chloride (%)	<b>0.02</b>	max 0.1
Calcium oxide (%)	<b>2.79</b>	max 10.0
SiO <sub>2</sub> +Al <sub>2</sub> O <sub>3</sub> +Fe <sub>2</sub> O <sub>3</sub> (%)	<b>87.1</b>	min 70.0
Free Lime (%)	<b>0.34</b>	max 1.0
Acid soluble alkali (%)	<b>2.44</b>	max 5.0
Additional information:		
Declared particle density (kg/m <sup>3</sup> )	<b>2200</b>	

## 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): **195**  
PC 28 day strength (MPa)

Test Property	Test result	BS EN 450-1
Activity index @ 28 days	<b>80</b>	min 75
Initial Setting Time (min)	<b>260</b>	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



United Kingdom

## Certificate of Conformity to BS 8500-2 Annex A

Technical Department

Portland House  
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Solihull  
Birmingham  
B37 7BQ

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Facsimile: 0845 812 6200

Date: **06 September 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

**May 2010**

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	<b>20.6</b>	MPa
28 day strength	<b>47.0</b>	MPa

Based on equivalent results obtained for the last **11** 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	<b>20</b>	<b>40</b>
42,5 N	<b>0</b>	<b>28</b>

For and on behalf of Lafarge Cement UK :

National Commercial Technical Manager



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Facsimile: 0845 812 6200

Date: **06 September 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

**May 2010**

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	<b>19.8</b>	MPa
28 day strength	<b>47.7</b>	MPa

Based on equivalent results obtained for the last **11** 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	<b>19</b>	<b>39</b>
42,5 N	<b>4</b>	<b>26</b>

For and on behalf of Lafarge Cement UK :

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Portland House  
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Date: **06 September 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

**May 2010**

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	<b>18.0</b>	MPa
28 day strength	<b>45.4</b>	MPa

Based on equivalent results obtained for the last **11** 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	<b>15</b>	<b>32</b>
42,5 N	<b>0</b>	<b>22</b>

For and on behalf of Lafarge Cement UK :

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Date: **06 September 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

**May 2010**

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	<b>20.1</b>	MPa
28 day strength	<b>47.2</b>	MPa

Based on equivalent results obtained for the last **7** 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	<b>18</b>	<b>39</b>
42,5 N	<b>0</b>	<b>27</b>

For and on behalf of Lafarge Cement UK :

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Date: **06 September 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

**May 2010**

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 **12** 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	<b>18</b>	<b>37</b>
42,5 N	<b>0</b>	<b>24</b>

For and on behalf of Lafarge Cement UK :

National Commercial Technical Manager



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Date: **06 September 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

**May 2010**

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 **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	<b>22</b>	<b>41</b>
42,5 N	<b>0</b>	<b>30</b>

For and on behalf of Lafarge Cement UK :

National Commercial Technical Manager