

Uniclass L6129:C506	EPIC F122:Y44	Jan 08
CI/SIB	Yp4	(U47)

Health and Safety data sheet



**Health & Safety guidelines for the use of:
Castle BS EN 450 Fly Ash**

1. Identification of Substance

An odourless grey powder slightly soluble in water. When mixed with Portland cement it becomes a binder for construction applications and the Health & Safety precautions for Portland cement should be applied (details available from Castle Cement Technical Helpline, tel: 0845 722 7853).

2. Supplier/manufacturer

Castle Cement Limited
Park Square
3160 Solihull Parkway
Birmingham Business Park
Birmingham
B37 7YN

Castle Cement Technical Helpline
tel: 0845 722 7853
fax: 01780 727154
e-mail: technical.help@castlecement.co.uk

3. Composition/information on ingredients

3.1 Chemical description

The principal constituent of fly ash is a vitrified mixture of silicates and aluminates with small quantities of ferro-silicates, ferro-aluminates, alkalis, calcium oxide, magnesium oxide, sulfates and chlorides.

3.2 Hazardous Ingredients

There is no known significant content of hazardous substances. The combustion process modifies the silica to a vitrified material which is markedly less biologically active compared with crystalline silica. Trace amounts of crystalline silica may be detected in the respirable fraction but control to the level of 4mg/m³ 8 hr Time Weighted Average is considered to be an adequate safeguard without the need for specialist determination of crystalline silica.

4. Hazards identification

4.1 There is no known specific hazard associated with fly ash other than those risks that apply to any non-toxic dust.

4.2 Fly ash, when mixed with cement and water to form concrete, mortar, render or grout, will produce a mixture that releases alkalis into solution. Contact with the wet mixture may cause serious burns and ulceration to eyes or skin. The eyes are particularly vulnerable and damage will increase with contact time. Strong alkaline solutions in contact with the skin tend to damage the nerve endings first before damaging the skin, therefore chemical burns can develop without the pain being felt at the time. See Castle Cement Health and Safety datasheet for Portland Cements, etc.

4.3 Mixtures of fly ash with cement and water for concrete, mortar, render or grout may, until set, cause irritant dermatitis:

- Irritant contact dermatitis is due to a combination of the wetness, alkalinity and abrasiveness of the constituent materials.

If used outside of the declared shelf life of the cement, there may be a risk of allergic dermatitis (see Castle Cement Health and Safety datasheet for Portland Cements, etc.).

- Allergic dermatitis is caused mainly by the sensitivity of an individual's skin to soluble chromium (VI) released from the cement.

5. First aid measures

In all cases should exposure to fly ash be excessive, or symptoms develop, seek medical advice.

5.1 Eye contact

Wash eyes immediately with plenty of clean water for at least 15 minutes.

5.2 Skin contact

Wash affected areas thoroughly with soap and water.

5.3 Ingestion

Wash out mouth with water and give plenty of water to drink.

5.4 Inhalation

If irritation occurs, move to fresh air. Carefully remove excess dust from nasal passages and rinse mouth with water until clear.

6. Fire-fighting measures

6.1 Fly ash is not flammable and will not facilitate combustion with other materials.

7. Accidental release measures

7.1 Personal precautions

See 9.3

7.2 Cleaning up

Recover the spillage. Minimise generation of airborne dust, adding water if necessary. Keep children away from clean up operation.

8. Storage and handling

8.1 Storage

Bulk fly ash should be stored in purpose built silos.

8.2 Handling

When handling fly ash appropriate personal protective clothing should be used (see 9.3).

9. Exposure controls/personal protection

9.1 Workplace Exposure Limit (WEL)

WEL 8 hr Time Weighted Average (TWA)
10mg/m³ total inhalable dust
4mg/m³ respirable dust.

9.2 Engineering measures

Where reasonably practicable dust exposures should be controlled by engineering methods.

9.3 Personal protective equipment

- a) Respiratory protection – suitable respiratory protection should be worn to ensure that personal exposure is less than the WEL.
- b) Hand and skin protection – protective clothing should be worn which prevents prolonged skin contact with fly ash.
- c) Eye protection – dust-proof goggles should be worn whenever there is a risk of fly ash entering the eye.

10. Physical/chemicals properties

10.1 Physical data

Physical state	Particulate
Mean particle size	5-50 microns
Odour	Not Applicable (N/A)
pH	pH of wet fly ash 9-10
Viscosity	N/A
Freezing point	N/A
Boiling point	N/A
Melting point	N/A
Flash point	N/A (not flammable)
Explosive properties	N/A (not explosive)
Density	2000-2200kg/m ³
Solubility	N/A

10.2 Chemical compounds

A vitrified mixture of:

- Silicates
- Aluminates
- Ferrites
- CaO
- MgO

Contains less than 1% crystalline silica.

11. Stability and reactivity

Conditions contributing to chemical instability: none

Hazardous decomposition products: none

Special precautions: none

12. Toxicological information

12.1 Short term effects

- a) Eye contact – fly ash will cause abrasive irritation. Prolonged, excessive exposure can lead to ulceration of the eye.
- b) Skin contact – fly ash might cause irritant contact dermatitis in susceptible individuals.
- c) Ingestion – the swallowing of small amounts of fly ash is unlikely to cause any significant reaction. Larger doses may result in irritation to the gastrointestinal tract.
- d) Inhalation – the inhalation of small amounts of fly ash is unlikely to cause any significant reaction.

12.2 Chronic effects

Extensive testing has shown fly ash to be non-toxic.

13. Ecological information

13.1 Aquatic toxicity rating

LC50 aquatic toxicity rating not determined.

13.2 Biological Oxygen Demand (BOD)

Not applicable.

14. Disposal considerations

Dispose of surplus fly ash to a place authorised to accept builders' waste. Keep out of the reach of children.

15. Transport information

Classification for conveyance – not required.

16. Regulatory information

16.1 The Chemicals (Hazard Information & Packaging) Regulations

Classification – Non-classified.

16.2 Risk/safety phrases

Risk Phrases

- Contact with fly ash when present in a wet mixture of concrete, mortar, render or grout may cause irritation, dermatitis or burns.

Safety Phrases

- Avoid eye and skin contact by wearing suitable eye protection, clothing and gloves.
- Avoid breathing dust.
- Keep out of the reach of children.
- In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice.
- After contact with skin wash immediately with soap and water.

17. Legislation and other information

- Health and Safety at Work etc Act 1974
- Control of Substances Hazardous to Health (Regulations)
- HSE Occupational Exposure Criteria Document Summaries 1993 Edition (ISBN 01 18821202)
- HSE Guidance Note EH26 (Occupational Skin Diseases - Health and Safety Precautions)
- HSE Guidance Note EH40 (Workplace Exposure Limits)
- Any authorised manual on First Aid by St. John's/St. Andrew's/Red Cross
- Manual Handling Operations Regulations
- Environmental Protection Act

For further information please contact:

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Park Square 3160 Solihull Parkway
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Birmingham B37 7YN

Technical Helpline:

tel: 0845 722 7853
(calls charged at local rate)
fax: 01780 727154

technical.help@castlecement.co.uk

Customer Services:

tel: 0845 600 1616
(calls charged at local rate)
fax: 0121 606 1436

customer.services@castlecement.co.uk

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