



Material Safety Datasheet

FLUE DUST PORTLAND CEMENT

It is important that you, or any persons working for you or to whom you have supplied Flue dust Portland cement, become familiar with the information given on both pages of this datasheet before handling, using or disposing of the material.

1. Identification of substance/preparation and supplier

Supplier/manufacturer: CEMEX UK Operations Ltd
CEMEX House, Evreux Way,
Rugby, Warwickshire CV21 2DT
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Substance/preparation: Flue dust Portland cement
Revision date: October 2009

Hazard information

2. Composition/information on ingredients

Flue dust Portland cement: Odourless white to grey nodules or powder.

2.1 Chemical Description:

A complex combination of finely divided inorganic particles separated from the exit gases formed during the manufacture of cement clinker which is produced by thermal processing of raw materials (naturally occurring minerals and/or alternative raw materials) and fuels (fossil and/or alternative)

The composition is based on the EINECS entry for "Flue dust, Portland cement" (EC number 270-659-9 and CAS number 68475-76-3). All known constituents in concentrations above 10% (w/w) are given:

Total clinker phases: 0-100%

- Alite ($3\text{CaO}\cdot\text{SiO}_2$ or C_3SiO_3), belite ($2\text{CaO}\cdot\text{SiO}_2$ or C_2SiO_4), aluminate ($3\text{CaO}\cdot\text{Al}_2\text{O}_3$ or $\text{C}_3\text{Al}_2\text{O}_3$), ferrite ($4\text{CaO}\cdot\text{Al}_2\text{O}_3\cdot\text{Fe}_2\text{O}_3$ or $\text{C}_4\text{Al}_2\text{Fe}_2\text{O}_{10}$)
- Other clinker phases: CaO , CaAl_2O_4 , $\text{Ca}_2\text{Al}_2\text{SiO}_7$, CaAl_4O_7 , $\text{Ca}_2\text{Al}_6\text{SO}_{16}$, $\text{CaAl}_{12}\text{O}_{19}$, $\text{Ca}_{12}\text{Al}_{14}\text{Cl}_2\text{O}_{32}$, $\text{Ca}_{12}\text{Al}_{14}\text{F}_2\text{O}_{32}$, $\text{Ca}_{12}\text{Al}_{14}\text{O}_{33}$, $\text{C}_2\text{Al}_2\text{F}_2\text{O}_{10}$, $\text{C}_6\text{Al}_4\text{Fe}_2\text{O}_{15}$, $\text{C}_2\text{Fe}_2\text{O}_5$ and other intermediate calcium aluminates and calcium silicates

Raw materials (eg CaCO_3 , SiO_2 , MgCO_3 , $\text{Ca}(\text{OH})_2$): 1-100%
Alkaline chlorides (eg KCl , NaCl , CaCl_2): 0-55%
Alkaline sulfates (eg CaSO_4 , K_2SO_4): 0-55%
Other minerals (MgO , $(\text{Ca},\text{Na})_2(\text{Al},\text{Mg})[(\text{Si},\text{Al})_2\text{O}_7]$, $\text{Ca}_3\text{Mg}(\text{SiO}_4)_2$, $\text{Ca}_5(\text{SiO}_4)_2\text{CO}_3$): 0-40%

2.2 Hazardous Ingredients:

- The lime, calcium silicates and alkalis within the dust are partially soluble and when mixed with water will give rise to a potentially hazardous alkaline solution.
- Hexavalent chromium salts may be present, which give rise to a potentially hazardous solution when mixed with water.

3. Hazards identification

3.1 When Flue dust Portland cement is mixed with water, or becomes damp from contact with sweat or tears, a strong alkaline solution is produced. If this comes into contact with the eyes or skin it may cause serious burns and ulceration. 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 pain being felt at the time. Heat may also be generated on wetting with possible evolution of steam.

3.2 Moist Flue dust Portland cement may cause dermatitis.

- Irritant contact dermatitis is due to a combination of the wetness, alkalinity and abrasiveness of the constituent materials
- Soluble, hexavalent chromium salts may induce allergic contact dermatitis depending upon the sensitivity of an individual's skin.

Emergency action

4. First aid measures

- Eye contact:
Do not rub eyes, remove any contact lenses. Wash eyes immediately with plenty of clean water for at least 15 minutes and seek medical advice without delay.
- Skin contact:
Wash the affected area thoroughly with soap and water before continuing. If irritation, pain or other skin conditions occur, seek medical advice. Clothing contaminated by wet Flue dust Portland cement should be removed and washed thoroughly before use.
- Ingestion:
Do not induce vomiting. Wash out mouth with water and give patient plenty of water to drink. Seek medical attention.
- Inhalation:
If irritation occurs, move to fresh air. If nose or airways become inflamed seek medical advice.

5. Fire fighting measures

Flue dust Portland cement is not flammable and will not facilitate combustion with other materials. Water used for fire extinguishing, which has been in contact with the material, may have high alkalinity.

6. Accidental release measures

- Personal Precautions (See 8.3.)
- Cleaning Up:
Recover the spillage in a dry state if possible. Minimise generation of airborne dust. The product can be slurried by the addition of water but may subsequently set as a hard material. Keep children away from clean up operation.
- Environmental Measures:
Prevent from entering drains, sewers or water courses.

WARNING

WET FLUE DUST PORTLAND CEMENT MAY CAUSE ALKALI BURNS if in direct contact with skin.
You MUST wear the appropriate protective clothing at all times when handling the material.

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Precautions

7. Storage & handling

7.1 Storage:

Flue dust Portland cement should be preferably stored in silos that are waterproof, dry and protected from contamination. To prevent burial or suffocation, do not enter a confined space, such as a silo, bin, bulk truck or other storage container or vessel that stores or contains Flue dust Portland cement without taking the proper safety measures. The material can build up or adhere to the walls of a confined space and collapse or fall unexpectedly. If stored in open areas, Flue dust Portland cement may give rise to airborne dust problems.

7.2 Handling:

Appropriate personal protective clothing (see 8.3) should be used whilst handling.

7.3 Wetting

Do not mix with water in a sealed container as possible steam evolution could lead to risk of explosion.

8. Exposure controls/personal protection

8.1 Workplace Exposure Limits:

Workplace Exposure Limits (WEL's) of 10mg/m³ total inhalable dust and 4mg/m³ respirable dust (8 hour TWA) are listed in EH40 for Portland Cement, calcium silicate, fly ash and limestone. Chromium (VI) compounds are listed with a WEL of 0.05mg/m³ (8 hour TWA), whilst iron salts have a short term WEL of 2mg/m³ (15 minute reference period) and a long term WEL of 1mg/m³ (8 hour TWA).

8.2 Engineering Measures:

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

8.3 Personal Protective Equipment:

Do not eat drink or smoke during work to avoid dry or wet dust coming into contact with skin or mouth. Immediately after working with Flue dust Portland cement, workers should wash or shower with pH neutral soap and water.

a. Respiratory Protection:

Suitable respiratory protection (HSE approved standard) should be worn to ensure that personal exposure is less than the workplace exposure limit values. Always ensure good ventilation.

b. Hand and Skin Protection:

Protective clothing should be worn which ensures that Flue dust Portland cement, or any mixture of it with water does not come into contact with the skin e.g. waterproof gloves, waterproof trousers and waterproof footwear. Particular care should be taken to ensure that wet dust does not enter the boots and persons do not kneel on wet dust so as to bring it into contact with unprotected skin. Should wet dust get inside boots, gloves or other protective clothing then this protective clothing should be immediately removed and the skin thoroughly washed as well as the protective clothing / footwear.

c. Eye Protection:

Dust-proof goggles (HSE approved standard) should be worn whenever there is a risk of the dry powder or any dust/water mixture entering the eye. Suitable protection is advisable where there is a risk of material splashing.

Product information

9. Physical & chemical properties

Detailed properties vary according to:

- The source of the dust and
- The point in the process from which it has been abstracted (e.g. final or by-pass filters).

9.1 Physical Data:

Physical state	Nodules or powder
Odour	N/A
pH	pH of wet dust 12-14
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
Dry bulk density	500-700kg/m ³
Solubility	N/A

9.2 Chemical Compounds:

See 2.1

10. Stability & reactivity

Conditions contributing to chemical instability: None

Hazardous decomposition products: None

Special precautions: None

Reacts with moisture to become alkaline.

Heat may be generated on addition of water, together with evolution of steam.

11. Toxicological information

11.1 Short Term Effects:

a. Eye Contact:

Flue dust Portland Cement is a severe eye irritant. Mild exposure can cause soreness. Gross exposures or untreated mild exposures can lead to chemical burning and ulceration of the eye.

b. Skin:

Dust or any dust/water mixture may cause irritant contact dermatitis, allergic (chromium) dermatitis, and/or burns.

c. Ingestion:

The swallowing of small amounts of any dust/water mixtures is unlikely to cause significant reaction. Large doses may result in irritation to the gastro intestinal tract.

d. Inhalation:

Flue dust Portland cement powder may cause inflammation of mucous membranes.

11.2 Chronic Effects:

High repeated exposures in excess of the WEL have been linked with trinitis and coughing. Skin exposure has been linked to allergic (chromium) dermatitis. Allergic dermatitis more commonly arises through contact with dust/water mixtures than dry powder.

11.3 Medical conditions aggravated by exposure:

Inhaling respirable dust may aggravate existing respiratory system disease(s) and/or dysfunctions such as emphysema or asthma and may aggravate existing skin and/or eye conditions.

12. Ecological information

12.1 Aquatic Toxicity Rating:

LC50 aquatic toxicity rating not determined. The addition of Flue dust Portland cement to water will, however, cause the pH to rise and may therefore be toxic to aquatic life in some circumstances.

12.2 Biological Oxygen Demand (BOD):

Not applicable

13. Disposal considerations

If dry, avoid exposure to dust or release of airborne dust. If wetted, allow to cake or harden, avoid entry in sewage and drainage systems or into bodies of water (e.g. streams).

Dispose of according to the local legislation. Dispose of hardened material as concrete waste.

EWC entries: Flue dust Portland cement may be hazardous 10 13 12* (solid wastes from gas treatment containing dangerous substances) or non-hazardous 10 13 13 (solid wastes from gas treatment other than those mentioned in 10 13 12) or 10 13 04 (wastes from calcination and hydration of lime) or 10 13 14 (waste from manufacturing of cement – waste concrete or concrete sludge).

Additional information

14. Transport information

Classification for conveyance – not required.

15. Regulatory information

15.1 Chemicals (Hazard Information and Packaging for Supply) Regulations. Classification: Irritant.

15.2 Risk/safety phrases:

Risk Phrases:

- R37/38 Irritating to respiratory system and skin
 - R41 Risk of serious damage to eyes
 - R43 May cause sensitization by skin contact
- Safety Phrases:
- S22 Do not breathe the dust
 - S24/25 Avoid contact with skin and eyes
 - S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
 - S37/39 Wear suitable gloves and eye/face protection
 - S2 Keep out of reach of children

15.3 Legislation

Health & Safety at Work, etc. Act 1974 Control of Substances Hazardous to Health Regulations (COSHH) 2002

Control of Substances Hazardous to Health (Amendment) Regulations 2004

Environmental Protection Act 1990

Manual Handling Operations Regulations 1992 (as amended)

15.4 REACH requirements

Flue dust Portland cement is a substance according to REACH and is subject to registration and an exposure scenario. The necessary exposure scenarios will be added in the annex to this SDS after completion of the registration process.

16. Other information

- CONIAC Health Hazard Information Sheet No 26 (CEMENT)
 - HSE Guidance Note EH40 (Workplace Exposure Limits)
 - Any authorised manual on First Aid by St.John's/St. Andrews/Red Cross
 - Manual Handling Operations Regulations 1992 (as amended)
- Prepared in accordance with UK REACH Competent Authority Information
Leaflet 13 - REACH and SDS - May 2008.

Guidance references

Available from HMSO, HSE area offices, or local authority Environmental Health Departments:

- EH40/: Workplace Exposure Limits
- A step-by-step guide to COSHH Assessment (HS[G]97)

IMPORTANT NOTES

The purpose of this datasheet is to provide Health, Safety and Environmental guidance on the safe handling, use and disposal of Flue dust Portland cement supplied by subsidiary or affiliate companies of CEMEX in the United Kingdom.

The information contained in this datasheet is correct at the date of, and applies only in relation to, the supply of material referred to in the delivery docket to which this datasheet is attached and forms part.

This datasheet should alert purchasers and/or users to the usual hazards in handling the supplied material when using it within the ordinary range of uses for which such material is normally supplied. If you have purchased or arranged the supply on behalf of a third party who will work with the material supplied it is your duty to pass this information on to them BEFORE such work commences.

For the avoidance of doubt the datasheet DOES NOT constitute the user's own assessment of workplace risk as may be required by other safety legislation and nothing herein shall be construed or relied upon as relieving the purchaser, user or any intermediate supplier or third party from any statutory or other legal duty which may apply to them or from taking care or precautions to protect themselves or others to whom they owe a duty of care.

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