1.0 GENERAL DESCRIPTION

1.1 Introduction

The manufacture of ready mixed concrete consists of blending coarse aggregate, fine aggregate, and cementitious material with water. Appendix 2 is a schematic diagram of the dry batch production of ready mixed concrete. The mix varies according to the type of concrete being produced and this is controlled from the batch cabin. The materials are batched dry into a truck mixer, which delivers the concrete to the point of use.

1.1.1 Plant Structure

The batching plant comprises:
- Batch Control Cabin
- Aggregate Receiving Hopper
- Aggregate Feed Conveyor to Storage Bins
- Aggregate Storage Bins
- Cement Storage Silos
- Cement and Aggregates Weigh Hopper
- Loading Chute
- Loading Area under Plant

1.1.2 Ancillary facilities

The ancillary facilities include:
- Water storage tank
- Vehicle washout bay
- Water settlement chambers
- Fuel storage tank
- Office/messroom
- Toilets
- Compressor House
- Admixture Tanks

1.1.3 Staffing

The plant is manned by 2 operatives who supervise aggregate and cement delivery, control materials handling and batch the ready mixed concrete.
The Company operates a competence based training scheme for plant operatives known as the Plant Operator Training Scheme (POTS). The scheme comprises 13 separate training modules. The POTS scheme meets with the quality assurance requirements of the Quality Scheme for Ready Mixed Concrete which is described in more detail in Section 4. In addition to this a wide range of training courses are available for plant operators and other operational staff.

Administrative, management, technical and maintenance support are provided by staff from the Company's Head Office, Area Office, Laboratory and Workshop.

1.2 Materials Handling

1.2.1 Cementitious material

Cementitious materials are delivered to the site in bulk tankers and transferred pneumatically, powered by a compressor on the tanker, to enclosed storage silos via flexible hosing using standard sealed couplings.

The internal transfer of cementitious material from the silo to the weigh hopper, which is totally enclosed within the plant building, is by a combination of gravity and screw feed.

The cementitious materials which may be used at the plant are:

- Ordinary Portland Cement (OPC)
- Pulverised Fuel Ash (PFA)
- Ground Granulated Blast Furnace Slag (GGBFS)
- Sulphate Resisting Cement (SRC)
- Pre Blended PFA/OPC
- White Cement
- Pre Blended GGBFS/OPC

1.2.2 Aggregates

Aggregates are delivered to the site in bulk tipper lorries, discharged to a receiving hopper, and transferred via a conveyor to storage bins above the weigh hopper.

The pre-weighted materials are then transferred to the loading point.
3.0 TECHNIQUES AND MONITORING USED TO PREVENT OR MINIMISE AIRBORNE DUST EMISSIONS

3.1 Loading of Cementitious Material into Silos

The cement is loaded into the cement silo under pressure and air is released from the silo through self cleaning bag filters to minimise dust emissions. The design capacity of the filters is such that the concentration of particulate matter in the expelled air should not exceed 100 mg/m³. The cementitious materials silo capacities and the filter systems being used on the silos are as follows:

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The inlet pipes to the silos are kept locked and the key is held by the plant operator so that no unsupervised deliveries can be made.

Visual assessments of air emissions during cementitious deliveries are made which are to be logged on a daily inspection sheet. The delivery will be stopped until repairs have been undertaken should any visual emissions of dust be observed.

Regular monthly maintenance checks are carried out on the filters and filter seals which are replaced or repaired when problems are found. All maintenance checks are recorded on maintenance inspection sheets. Silos are equipped with high level alarms to prevent overfilling, which gives both visual and audio warnings.

3.2 Delivery, Storage and Transfer of Aggregates

The following measures are undertaken to prevent or minimise dust emissions resulting from material handling:

i) The sand and gravel are damp when delivered and while held in storage and therefore dust emissions are prevented. Typical moisture contents of sand are in the range of 5-8%
ii) The aggregate materials are discharged directly into the receiving hopper in order that the and transfer handling of materials on site is minimised.

iii) Aggregate feed conveyors are fitted with wind boards to reduce wind whipping.

The aggregates are managed to ensure that overfilling of storage bays and bins which could result in spillage and exposure of aggregates to the wind does not occur. This includes supervision of all aggregate deliveries and daily checks on aggregate stocks. The aggregate levels within the storage bins are monitored by visual inspection.

3.3 Batching of Materials

The truck mixers are loaded with water, cementitious materials and aggregates by the plant operator in a manner so as to prevent or minimise dust emissions. This includes the delivery of water before, during and after the loading of cementitious materials materials and aggregates and the slow release of these materials to reduce the rate of air displacement from the truck mixer.

Other techniques used to prevent and minimise dust emissions include: -

The truck mixer loading area is enclosed in order to hold any dust emissions within the loading area.

The rubber sock which delivers cementitious material extends into the truck mixer to minimise dust emissions.
3.4 Vehicle Movements

The yard area is surfaced and is kept clean by using hoses to ensure that dusty materials are not allowed to collect on the yard which could dry and generate dust through wind or traffic movements. In wet conditions the yard is still kept clean to prevent residue being carried out of the site on to the public highway by road vehicles.

4.0 WORKING PROCEDURES, QUALITY CONTROL AND ENVIRONMENTAL AUDIT

The Company works to high operating standards according to strict written procedures which meet the requirements of the Quality Scheme for Ready Mixed Concrete (QSRMC). This conforms to the Quality Management Systems of BS 5750 Part 1. QSRMC is an independent body which accredits the operations of ready mixed concrete manufacturers. In meeting with this standard the ready mixed concrete plants undergo daily, weekly and monthly maintenance checks and annual internal and QSRMC plant audits. In addition to the above maintenance checks safety audits are carried out annually.

The Company also undertakes annual environmental audits of all its operational sites to assess the environmental aspects of their operations, raise standards and promote greater environmental awareness. The audits assess the operations with reference to the compliance with planning conditions, authorisation conditions, legislation, recognised good practice and their environmental implications. This is carried out in conjunction with the RMC Group’s Environmental Manager who is responsible for the environmental monitoring of all the Group’s developments.

These checks, together with follow-up actions, ensure that the requirements for technical, production, safety and environmental quality control are met.

5.0 ENVIRONMENTAL IMPACT

Dust emissions of cementitious or aggregate material are the only possible air emissions to come from the operation of the ready mixed concrete manufacturing plant. The Company through the measures indicated within this application intend to prevent and minimise dust emissions to meet with the BATNEEC objective under the Environmental Protection Act 1990.
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BRACKLEY

BRACKLEY INDUSTRIAL ESTATE

EXISTING SITE

SITE LOCATION PLAN 1:2500

CLIENT

PROJECT

BRACKLEY

TITLE

SITE PLAN

SCALE 1

DRAWN Y

TRACED

CHECKED

Martin Consu
AGGREGATE STORAGE BAYS

BAYS TO BE REMOVED

LORRIES TO REVERSE IN

AGGREGATE STORAGE BAYS

AGGREGATE STORAGE BAYS

RADIAL CONVEYOR & LOADING HOPPER

RAMP

COMPRESSOR

CEMENT SILO

WATER TANK

MOBILE PLANT

CONTROL OFFICE

SILO

NEW 200 Tonne Storage Hoppers

LORRY WASH

FUEL

MESS ROOM & TOILETS

STORE

OFFICE

ENTRANCE

ROAD

SITE LAYOUT OF PROCSS

5
APPLICATION FOR AUTHORISATION FOR A PROCESS UNDER SECTION 3.1 CEMENT AND LIME MANUFACTURE AND ASSOCIATED PROCESSES PART B
THE BATCHING OF READY MIXED CONCRETE AT MIXCONCRETE LIMITED BRACKLEY PLANT, NORTHANTS.
PIONEER GROUP
OF COMPANIES

ENVIRONMENTAL PROTECTION ACT 1990, PART I
THE ENVIRONMENTAL PROTECTION (PRESCRIBED
PROCESSES AND SUBSTANCES) REGULATIONS 1991, SI 472
THE ENVIRONMENTAL PROTECTION (APPLICATIONS,
APPEALS AND REGISTERS) REGULATIONS 1991, SI 507

APPLICATION FOR AUTHORIZATION UNDER SECTION 6
OF THE ENVIRONMENTAL PROTECTION ACT 1990

1. Process for which authorization is sought.
   Section 3.1 Cement and Lime Manufacture and Associated Processes Part B
   The Batching of Ready Mixed Concrete

2. (a) name, address and telephone number of applicant* (or address of
   applicant's principal place of business - for mobile plant).
   Mixconcrete Limited, Brackley Plant
   Shires Road, Buckingham Road Industrial Estate
   Brackley, Northants NN13 5EX
   0280 702911

   (b) name, number and registered office of applicant company* (if
   applicable).
   Pioneer Concrete (UK) Limited, Reg. No. 371217 / Mixconcrete Limited
   Reg. No. 838308. Pioneer House 56-60 Northolt Road, South Harrow,
   Middlesex HA2 0EY

   *the person/consultant who will operate the process, not eg the
   person/consultant who is writing the application on the operator's
   behalf.

   (c) address for correspondence (if different from a) or b) above)

   See Section 2(A)

3. Name and address of premises where process is or will be carried on
   (not applicable to mobile processes)

   Mixconcrete Limited
   Shires Road, Buckingham Road Industrial Estate
   Brackley, Northants NN13 5EX

4. Name of local authority in whose area the process will be operated
   (or local authority area in which the operator has his principal
   place of business - for mobile plant).
   South Northants District Council
5. List of maps or plans enclosed with the application showing the location of the premises where the process will be carried on.

   (5.1) Drg. No. 085/01 Site Layout 1:260 scale with elevations and location plan 1:2500 or 1:1250 scale pin pointing the process location.

   Where the process is or will be carried on on only part of the premises whose address is given at 3 above, either describe which part of the premises or list the plan(s) which identifies these parts.

   Drg. No. 085/01

6. List of attached documents comprising part of the application.

   6.1 Description of Process
   6.2 Process & Workings
   6.3 Process Flow Diagram
   6.4 Site Organisation
   6.5 Maintenance Scheme
   6.6 List of Prescribed Substances
   6.7 Techniques to be used for Preventing Releases Into the Air
   6.8 Proposals for monitoring any release and the environmental consequences of any such release of a prescribed substance.
   6.9 Statement of matters relied upon to achieve objectives in Section 7(2) and implied by Section 7(4).
   6.10 Company Profile.
   6.11 Relation of Operating Company with Group, Corporate Structure.

7. Name of newspaper in which it is proposed to advertise the application.
   Brackley & Towcester Advertiser

8. Fee enclosed (cheques made payable to South Northants Dist. Council)

   £

   I hereby certify that all the information contained in this application is, to the best of my knowledge, correct.

   [Signature]

   Derek Alan Cole
   Development Manager

   3 FEB 1992
DESCRIPTION OF PROCESS

Brackley Plant

Coarse and fine aggregates are moved from ground storage bays by a hydraulic loading shovel and transported to a ground receiving hopper.

A troughed conveyor belt moves the aggregates to an overhead storage bin at the top of the plant approximately 6 metres above the ground.

The Batcher weighs up coarse and fine aggregates plus cement which is stored in bulk sealed silos.

The ingredients are then transported by a separate conveyor and feed screw into the truck mixer. At the same time a precise amount of water is added to the mix together with any liquid additives that may be required.

During this charging procedure a water curtain is activated around the mixer receiving hopper, thereby minimising any dust that may be caused by the mixer drum rotating causing turbulence.

The cement storage silos are charged from bulk tankers.

A Plant Operator is always present during the filling of the silos from the tanker and both he and the Tanker Driver can halt the delivery at any time should a fault occur which could result in the release of dust into the atmosphere.
PROCESS AND WORKINGS

Brackley Plant

The on-site facilities at Brackley plant include the following:

1. Office
2. Mess Room
3. Toilets
4. Batch Control Cabin
5. Entrance/Exit

Approximate maximum production rates of the process are:

- 55,000 cubic metres per annum.
- 5,000 cubic metres per month.
- 40 cubic metres per hour.

The normal working hours of this depot are:

- 7.30 a.m. to 5.30 p.m. Monday - Friday.
- 7.30 a.m. to 12.00 Noon Saturday.

This plant does not normally work on Sundays or Bank Holidays.
Ready Mix Concrete By Road

Mix Concrete Stone

By Road

Cement

By Water Screw Conveyor

Loading Tank Point

Aggregate Storage

Stone And Sand

By Road

Cement By Screw Conveyor

Mixer Loading Point

Tank

Stone And Sand By Belt Conveyor

Cement Silos

Aggregate Bins

Receiving Hopper

Stone And Sand By Front End Loader

Sand By Belt Conveyor

Stone And Sand By Belt Conveyor
SITE ORGANISATION

Area Manager

Technical Manager

Plant Manager

Shipper

Batcher

F.E.L Driver

Yardman

Brackley Plant
COMPANY MAINTENANCE SCHEME

The company operates a comprehensive maintenance scheme at every one of its ready mixed concrete plants in the UK.

The purpose of this is to ensure the proper efficient and accurate working of the plant at all times consistent with ensuring uninterrupted supplies of the company’s product to its customers.

The prevention of the releases of cementitious dust into the atmosphere is given a high priority and on a DAILY BASIS all filter socks on the plant are shaken out to maintain them in efficient working order.

EVERY WEEK dust seals on hoppers are checked for wear, exhaust pipes and vent bags are checked to ensure that they are working correctly.

All pipework, charging pipes, interconnecting pipes etc. etc. are examined for leaks.

EACH MONTH all cement silos are inspected for signs of leaks etc.

The attached Form No. PG152 Maintenance of Plant and Equipment is used as a standard instrument throughout the Division and all maintenance and checks are carried out under the supervision of the Plant Manager/Production Manager. Area Managers view the schedules for compliance on routine visits and the copies of the forms are held on a log record at the plant and are available for inspection by senior company management at all times.
Maintenance of Plant and Equipment

Plant: ____________  Month: ____________

DAILY

Ensure weight hoppers empty properly.
Zero dial pointers and clean dials.
Shake out filter socks & maintain in efficient working order.
Drain water traps on air lines and ensure correct working pressure.
Routine servicing loading shovel. Report defects.

WEEKLY

Ensure weight hoppers empty properly.
Zero dial pointers and clean dials.
Shake out filter socks & maintain in efficient working order.
Drain water traps on air lines and ensure correct working pressure.
Routine servicing loading shovel. Report defects.

MONTHLY

Ensure all storage bin gates and hoppers work efficiently. Grease hinges & pivots.
Check conveyor tracking, rollers, skirts & scrapers, and lubricate.
Routine servicing loading shovel. Report defects.
Routine servicing compressor. Report defects.
Check dust seals on hopper for wear, exhaust pipe & vent bag work efficiently.

QUARTERLY

Ensure all storage bin gates and hoppers work efficiently. Grease hinges & pivots.
Check conveyor tracking, rollers, skirts & scrapers, and lubricate.
Routine servicing loading shovel. Report defects.

* by STOCK RECONCILIATION as follows:

\[ \begin{align*}
\text{Opening stock} (x) & \quad \text{Aggregate Scale} \\
+ \text{Purchases} (y) & \quad \text{Concrete Scale} \\
\text{Total} (x+y) & \\
\text{Issues} (z) & \text{Issues} (z) \\
\text{Theoretical} (\text{Total} - \text{Issues}) - (x+y) - (z) & \\
\text{Physical Stock} (a) & \\
\text{Difference} (\text{Theoretical} - \text{Physical}) = (x+y-z) - (a) & \\
\% \text{Error} = \frac{|\text{Difference} - \text{Purchases} \times 100|}{\text{Purchases}} & \\
\end{align*} \]

Let either > 3% Action Taken:

Signed: ____________  Plant Manager

Checked: ____________  Area Manager

Ref. North West/Yorkshire Region: November 1988

Form No. PG152 (8/89) Revd.
LIST OF PRESCRIBED SUBSTANCES NORMALLY STORED AND USED AT BRACKLEY PLANT

Cementitious

1. Ordinary Portland Cement
2. Ground Granulated Blast Furnace Slag

Coarse Aggregates

1. Carboniferous Limestone

Fine Aggregates

1. Pit Sand
TECHNIQUES FOR PREVENTING THE RELEASES INTO THE AIR OF PRESCRIBED SUBSTANCES

Brackley Plant

The substances used on the ready mixed concrete plant which may generate airborne dust emissions are:

Coarse aggregates, cement and cementitious material such as pulverised fuel ash and ground granulated blast furnace slag.

Fine aggregate (sand) is invariably delivered to the depot wet and is not considered a source of airborne dust emission.

Coarse Aggregate is delivered to the site and stored in storage bays which have side walls, partition walls and a back wall. The aggregates including sand are transported by hydraulic shovel and tipped directly into a ground receiving hopper/bin prior to transferring to a multi-partitioned overhead storage holding bin in the main plant.

Depending on the process for producing the sized coarse aggregate and weather conditions, the material is received damp, wet or dry at the plant.

Where the first two conditions prevail dust emissions will not occur. In the latter situation the plant operator would ensure that the material is kept in a damp state by spraying with water to prevent dust being created.

In any event we do not consider that dust emissions from the coarse aggregate would present a serious risk to air pollution. Due to the weight of the coarse aggregate dust particles the height of the disturbance into the air would be low, usually not more than 4 metres when completely dry. Any wind blown settlement would take place within the confines of the plant yard.

Cement and Cementitious Materials

These materials are delivered to site in bulk pressure tanker "on off" road vehicles.

The material is discharged under controlled circumstances and stored in sealed purpose made steel silos.

Transfer from the silos to the lorry mounted mixer via the plant is carried out by covered air slides and sealed screw conveyors. The final stages of discharge is by gravity through a rubber sock which hangs down inside the receiving hopper of the charging point on the mixer.

All silos are fitted with pressure relief valves. The setting and seating of these valves are checked regularly to ensure proper functioning and sealing.

Venting of the silos is by manual and automatic reverse jet air filters. The filter bags or elements allow air from inside the silo to pass to atmosphere whilst leaving the entrained particles of the cementitious material to cake on the filter media.

In the case of manual filters the particles are shaken off the filter bags manually, whereas reverse jet filters allow induced air to pass through the filter bag elements from outside to inside and then to atmosphere. At preset timed intervals a short burst of high pressure air is released down the inside of the bag in the opposite direction to the filtered flow. Local air is drawn in by
the high pressure jet and momentary reverse flow is created which pulses the bag to dislodge the accumulated dust and cake. In a typical reverse jet cleaning cycle the diaphragm valves are operated singly at 15 second intervals in a continuous sequence and are open for approximately 150 milliseconds each.

The condition of the filter media is checked frequently by the plant staff as part of the routine maintenance scheme to ensure satisfactory working.

The blow up pipes on the silos are locked to prevent unauthorised unsupervised charging of cement or cementitious material at any time into the silos.

During the charging the tanker driver is stood by his machine and is able to stop the charging process at any time should a malfunction occur.

A plant operator is on site during charging and would usually be able to see any emission of dust from the silo and halt the process if this happened.

A further source of potential dust emission is at the truck mixer charging point and can take place when the batched material coarse and fine aggregate plus cement and cementitious material are being charged into the receiving hopper of the truck mixer.

The mixer barrel rotates at between 6 and 8 revolutions per minute whilst charging and because of this a certain amount of turbulence is created. As the dry materials are being induced into the mixer, water is introduced at the same time. This substantially cuts down any emission. However there still can be a visible amount of dust created and in order to contain or minimise the emission a water spray curtain surrounding the discharge pipe is fitted and operated throughout charging.
PROPOSALS FOR MONITORING ANY RELEASE AND THE ENVIRONMENTAL CONSEQUENCES OF ANY SUCH RELEASES OF A PRESCRIBED SUBSTANCE

It is proposed to visually monitor and assess any releases of a prescribed substance (cement and other cementitious material) which may be emitted into the atmosphere as a result of carrying on the prescribed process.

This monitoring will normally take place when bulk deliveries are made to the plant.

Remedial action will be initiated where any visible emissions are observed.

A log will be kept at the plant recording the monitoring of the arrestment equipment on the silos and any necessary remedial action taken.

Environmental Consequences

In the unlikely event of a malfunction a small amount of cementitious dust could be released into the air, and depending upon weather conditions would either fall back onto the silo top and/or onto the plant yard where it would be cleaned up. If there was a wind the dust could be dispersed over a larger area, but because of the amount and nature of the substance the effect on the environment would be minimal.

PRODUCT INFORMATION

Please see the attached Product Health & Safety Information Sheets for the following materials:

Cement

Ground Granulated Blast Furnace Slag

Pulverised Fuel Ash

Please note that although the plant will change suppliers of cement and cementitious material from time to time the products will essentially be the same. The Product Health & Safety Information sheets attached are typical.
Blue Circle Cement

Product Health and Safety Information:
Portland Cements

APPEARANCE
White to grey amorphous powder.

ODOUR
Odourless

PHYSICAL DATA
Relative density 2.9 - 3.2
Mean particle size 5-20 micron

INGREDIENTS
Predominantly compounds of calcium silicate
and calcium aluminate with a small proportion
of gypsum.

SPILLAGE
Collect and remove for re-use. Suitable
respiratory protection equipment should be
worn to protect against airborne dust.
Care should be taken to avoid contamination of
cement recovered after spillage.

FIRE RISK
Portland cement is not flammable and will not
support the combustion of other materials.

EXPOSURE LIMITS
10mg/m³ total inhalable dust and 5mg/m³
respirable dust on a time-weighted average
exposure of 8 hours.

LEGISLATION
Health and Safety at Work etc., Act 1974.
Control of Substances Hazardous to Health

REFERENCES
HSR Guidance Note EH26
HSE Guidance Note EH40
HSE leaflet MS(B)9 Save Your Skin;
Advice to Employers 1987.
Construction Industry Advisory Committee.
Hazard Information Sheet 1.

This product Health and Safety information sheet covers the
following Blue Circle cements:
- Ordinary Portland cement
- Portland rapid-hardening cement
- Sulphate resisting Portland cement
- Gypsum Binder
- Portland-pulverized fuel ash cement
- White masonry cement
- Wall cement
- Microcement Portland cement

HEALTH HAZARD
Dry cement powders in normal use have no
harmful effect on the dry skin. As with any
dusty material, there may be ill effects from the
inhalation or ingestion of cement dust and
suitable precautions should be taken.

When cement is mixed with water, alkali is
released. Precautions should therefore be taken
to prevent dry cement entering the eyes, mouth
and nose and to avoid skin contact with wet
concrete and mortar.

Repeated skin contact with wet cement over a
period may cause irritant contact dermatitis.
The abrasiveness of the mortar or concrete
constituents can aggravate the effect. Some
skins are sensitive to the small amounts of
chromate which may be present in cements
and can develop allergic contact dermatitis, but this
is rare.

Continued contact with the skin can result in 'cement burns' with ulceration.

HANDLING PRECAUTIONS
Protection for the eyes, mouth and nose should
be worn in circumstances when dry cement
may become airborne.

When working with wet concrete or mortar,
suitable protective clothing should be worn
such as long sleeved shirts, full length trousers,
waterproof gloves with cotton liners and
wellington boots.

Clothing contaminated with wet cement,
mortar or concrete should be removed and
washed before further use. Should concrete or
mortar get into wellington boots, remove them
IMMEDIATELY and thoroughly wash the skin
and the inside of the boots before proceeding
with the job.

If cement enters the eye it should be washed
out immediately and thoroughly with clean
water and medical advice sought.

Concrete or mortar elsewhere on the skin
should also be washed off immediately.
Whenever there is persistent or severe irritation
or pain a doctor should be consulted.

FIRST AID
Skin contact - wash with soap and water
immediately. If there is irritation or pain seek
medical advice.

Eye contact - wash with plenty of clean water
and seek medical advice.
Ground Granulated Blastfurnace Slag (GGBS) - Health & Safety

Produced since 1969, to British Standard 6699 from 1986 and Agrément Certificate 90/2561 by Frodingham Cement Co. Ltd., Brigg Road, SCUNTHORPE, South Humberside DN16 1AW.

Description and Use

GGBS is a finely ground off-white powder used as an ingredient of concretes, mortars and grouts; it is stored on site in bulk silos and bags.

Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fineness</td>
<td>400m²/kg approx.</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>1000 - 1300kg/m³ approx.</td>
</tr>
<tr>
<td>Melting point</td>
<td>1350°C approx.</td>
</tr>
<tr>
<td>(GGBS is non-combustible)</td>
<td></td>
</tr>
<tr>
<td>Composition</td>
<td>A compound consisting principally of the oxides of calcium, silicon, aluminium and magnesium with low solubility in water giving a weak alkaline solution.</td>
</tr>
</tbody>
</table>

Hazard

GGBS is a fine powder of nuisance dust classification. However direct contact may irritate skin, eyes and respiratory system.

When mixed with water the resultant liquid will be alkaline of pH about 12.0. Alkaline materials can defat the skin and are likely to make it more vulnerable to contract dermatitis in susceptible individuals.

GGBS may be hot when delivered in bulk.

PROTECTIVE MEASURES

See Environment Hygiene Guidance Notes EH40 (Government Publication available from HMSO). Take the normal precautions necessary with fine powders. Use gloves, overalls, face mask, boots and respiratory protection as appropriate to working environment.

Avoid contact with concretes, mortars and grouts containing GGBS or any mixtures of GGBS and water; wear adequate impervious protective clothing when contact is unavoidable.

EMERGENCY FIRST AID

Ingestion Wash out mouth with water.

Eyes Irrigate with water immediately.

Skin Wash off with water immediately if in contact with GGBS concretes, mortars and grouts and with minimum delay if in contact with GGBS dry powder.

In all cases of doubt or where symptoms or discomfort persist medical advice should be obtained.
HEALTH AND SAFETY PRODUCT DATA SHEET

PRODUCT
Pozzolan - pfa complying with BS3892 Part 1 1982.

USES
Pozzolan is used as a cementitious component in construction materials such as ready-mixed concrete and concrete products.

PHYSICAL DESCRIPTION
Pozzolan is Pulverised Fuel Ash produced by the combustion of pulverised coal at approximately 1600°C electricity generating power station boilers. The residual dust held within the flue gases is removed by electrostatic precipitators and provides the raw material from which Pozzolan is selected or classified.

Appearance - Fine powder-gray/brown colour.
Odour - Virtually odourless.

SG - Approximately 2.0 - 2.5.
Partical Size - Max 12.5% retained on 45 microns.

CHEMICAL COMPOSITION TYPICAL ANALYSIS %
(expressed as oxides)
Silica : SiO₂ 52.5
Alumina : Al₂O₃ 27.5
Iron : Fe₂O₃ 8.5
Lime : CaO 1.8
Magnesia : MgO 1.9
Soda : Na₂O 0.9
Pozzah : K₂O 3.2
Sulphate : SO₃ 0.3
Moisture : H₂O 0.2
LOI : Carbon 3.0

In addition to the water insoluble aluminosilicate glasses, smaller amounts of other materials such as mullite, magnetite and quartz may also be present but because of high temperatures during combustion these are also converted to rounded chemically inactive particles. The water soluble fraction, less than 2.0%, consist mainly of calcium, sodium and potassium sulphates. The leachable amounts of potentially toxic elements eg boron, molybdenum, arsenic, copper and selenium are below the limits of any immediate health hazard and pfa can be regarded as non toxic.

HEALTH HAZARD
If inhaled over extended periods respirable dust containing quartz can constitute a long term health hazard. Contact with eyes and skin may cause minor irritation.

PRECAUTIONS FOR USE
Keep total dust exposures below 10mg/m³ and respirable dust levels below 5mg/m³. Avoid inhalation and direct contact to skin or eyes.

PROTECTIVE CLOTHING
Respiratory protective equipment to BS2091 should be worn to meet requirements for half masks and to BS5016 for disposable filtering mask respirators. Long sleeved overalls, gloves and boots should also be worn where direct contact is likely and eye protection to BS2092 is recommended.

FIRE HAZARD
No fire or explosion hazard.

TRANSPORTATION AND STORAGE
The carriage of Pozzolan is not subject to dangerous substances conveyance regulations and vehicle/package labelling is not required. Storage of dry powder should be restricted to enclosed containers or silos fitted with suitable filtration systems or in sealed bags.

SPILLAGE AND DISPOSAL
Dry sweeping should be avoided. Water spray or vacuum systems are recommended. Entry of material to water courses should be avoided and disposal should be in accordance with local legal requirements.

SUMMARY
Pozzolan should be treated as a “nuisance particulate”, as defined by the Health and Safety Executive and should therefore present no health hazards provided that dust levels are controlled to below the 10mg/m³ standard.
DECLARATION OF INTENTION TO ACHIEVE THE
OBJECTIVE IN SECTION 7 (2) AND COMPLIANCE
WITH THE CONDITION IMPLIED IN SECTION 7 (4)

In making this application for authorisation we are committed to ensuring that in carrying on a prescribed process, the best available techniques not entailing excessive cost will be used:

(i) For preventing the release of substances prescribed for any environmental medium into that medium or, where that is not practical by such means, for reducing the release of such substances to a minimum and for rendering harmless any such substances which are so released, and

(ii) For rendering harmless any other substances which might cause harm if released into any environmental medium.

In the granting of an authorisation of the prescribed process we will comply with the implied general conditions to which the authorisation refers.

In particular, we will use filters and filtration medium of an appropriate size and type on all vent points fitted to cementitious material storage silos.

The transfer of cementitious materials from such silos will be by enclosed screws, air slides, purpose made rubber or similar tube etc. The final discharge point for the introduction of cementitious materials into the mixer will be covered and/or fitted with a water spray curtain to prevent dust rising into the air due to turbulence created by the rotation of the mixer barrel.

All coarse and fine aggregates will be kept in a damp wetted down condition to prevent dust rising during material transfer.

All as described fully in Section 6.7 of this application.
THE PIONEER GROUP OF COMPANIES HAS BEEN OPERATING IN THE UNITED KINGDOM FOR 28 YEARS.

THE GROUP'S ACTIVITIES INCLUDE OVER 140 READY MIXED CONCRETE PLANTS OPERATED BY PIONEER CONCRETE (UK) LTD AND MIXCONCRETE LTD. 8 MORTAR PLANTS OPERATED BY PIONEER MORTARS (UK) LTD. 1 BAGGED PRODUCTS FACTORY OPERATED BY PIONEER SUPAMIX LTD. 7 ASPHALT PRODUCTION UNITS OPERATED BY PIONEER ASPHALTS (UK) LTD. 8 N.A.T.L.A.S. APPROVED LABORATORIES OPERATED BY PIONEER TESTING SERVICES LTD. 25 QUARRYING OPERATIONS OPERATED BY PIONEER AGGREGATES (UK) LTD. 15 WHARFS OPERATED THROUGH JOINT VENTURE WITH UNITED MARINE AGGREGATES LTD AND 10 DREDGER VESSELS OPERATED IN JOINT VENTURE WITH UNITED MARINE DREDGING LTD.