

SAFETY DATA SHEET

Wheat Flour

Introduction

Flour (of any variety: wheat, rice, chickpea, etc.), is derived from substances occurring in nature and is not viewed as a chemical substance according to the definition under REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation) and therefore this takes it entirely out of the scope of REACH. Furthermore, as the Classification, Labelling and Packaging (CLP) Regulation uses the same definition of a substance, it also means that flour is outside the scope of CLP.

However, Section 6(4)(c) of the Health and Safety at Work etc. Act 1974, states it shall be the duty of any person who manufactures, imports or supplies any substance: to take such steps as are necessary to secure that persons supplied by that person with the substance are provided with adequate information about any risks to health or safety to which the inherent properties of the substance may give rise, about the results of any relevant tests which have been carried out on or in connection with the substance and about any conditions necessary to ensure that the substance will be safe and without risks to health at all such times as are mentioned in paragraph 6(4)(a) and when the substance is being disposed of.

It is up to suppliers how they convey this information to their customers. Whilst it might make sense to use the standard SDS format, this is entirely at the supplier's discretion.

This generic safety data sheet provides suppliers of wheat flour with a template for meeting the requirements of section 6(4)c of the Health and Safety at Work Act.

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Wheat Flour

1. Identification of Substance/Preparation and Company

Product: Wheat flour

Product name: Wheat flour of all grades

Use of substance: Food ingredient

Company:

Address:

Email:

Website:

Emergency telephone:

2. Hazards Identification

Prolonged or repeated inhalation of flour dust may affect the respiratory system and may cause sensitisation and/or lung damage
May cause dermatitis in rare cases
Capable of forming an explosive atmosphere when roused as a dust cloud at a concentration of $> 50\text{g/m}^3$

Classification of substance

Respiratory sensitisation Category 1.
Skin sensitisation Category 1.

Hazard statements

May cause allergy or asthma symptoms, or breathing difficulties if inhaled.
May cause an allergic skin reaction.

Precautionary statements

Avoid breathing dust.
In case of inadequate ventilation wear respiratory protection.
Contaminated clothing should not be allowed out of the workplace.
Wear protective gloves/clothing/eye/face protection.

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3. Composition/Information on Ingredients

Wheat Flour is produced by milling cleaned wheat grain or endosperm of cleaned wheat grain.

Flour is mainly used in the manufacture of bread, biscuits, confectionery, and other foodstuffs and for various industrial purposes.

4. First Aid Measures

Description of first aid measures

Inhalation: Remove affected person from area of exposure preferably into fresh air. Anyone who has asthmatic symptoms from an exposure to dust should seek medical advice. The symptoms normally disappear if the sufferer avoids further exposure.

Ingestion: No known health effects are known under normal use. However, if individual shows signs of sensitisation, allergy reaction or other adverse effects, seek medical attention.

Eyes: Wash eyes with running water for several minutes. Medical advice should be sought if the discomfort persists.

Skin: If on skin, wash off with plenty of water. There should be no adverse response from exposure to skin. It is only very rarely, if ever, the cause of dermatitis (see 8. Exposure and Controls below).

Most important symptoms & effects both acute and delayed

Inhalation: Prolonged or excessive inhalation of flour dust may affect the respiratory system and may cause sensitisation and/or lung damage.

Ingestion: No known health effects, however may cause allergic reaction in rare cases.

Eyes: May cause irritation as a foreign body. Symptoms would be redness of eyes and tears.

Skin: Slight drying of skin. May cause dermatitis in rare cases.

5. Fire Fighting Measures

Suitable fire extinguishing media

Foam, powder.

Unsuitable extinguisher media

Water: Water jet from the water hose has the potential to spread the fire around

CO₂: A blast from the extinguisher has the potential to create a dust cloud and add to the possibility of an explosive atmosphere.

Hazards arising from fire

A large concentration of dust in the air could create an explosive atmosphere which, if ignited the shockwaves could dislodge dust from ledges and beams creating dust clouds which could set off secondary explosions.

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6. Accidental Releases

Waste should be removed dry. Do not hose down and do not allow to enter drainage system.

Vacuuming is the preferred method of cleaning; the vacuums must be suitable for the environment & comply with relevant legislation (*see HSE guidance at www.hse.gov.uk/food/dustexplosionapp1.htm*).

Compressed air is not suitable for cleaning tasks. It is dangerous and it spreads the problem to areas which are harder to clean and possibly into unexpected sources of ignition.

7. Handling and Storage

Storage: Bulk flour should be stored at ambient temperatures in dry bins. Bagged flour should be stored in cool, dry conditions. Flour is usually supplied either by bulk tanker or in paper bags.

Specific end use: It is recommended that the product is used for food production only.

Static Electricity: Though static electricity has been shown not to be a major ignition risk for flour dust, the pneumatic intake of flour from bulk tankers can give rise to static electricity. Accordingly it is essential for blow lines to be earthed; suitable earthing points must be provided at the discharge point.

Manual Handling: All manual handling operations, including those involving flour bags, should be the subject of risk assessment appropriate to the environment and the physical characteristics of the handlers. Hands should be kept clean of flour. Creation of dust clouds should be avoided.

8. Exposure and Controls

Workplace Exposure Limit (WEL)

8hr TWA – 10mg/m³. 15min STEL – 30mg/m³.

To comply with the Control of Substances Hazardous to Health Regulations and the assigned WEL, and for general health reasons outlined below, it is necessary to reduce - so far as reasonably practicable - personal exposure to any dust through enclosure, local exhaust ventilation and the provision and use of personal protective equipment. The HSE expects duty holders, via good control methods, to reduce exposures below 2mg/m³.

Exposure Controls

So far as is reasonably practicable, dust formation should be minimised during handling to prevent inhalation and reduce skin contact. Dust clouds are most likely to arise from emptying & disposing of bags, machinery maintenance, and malfunctions, such as chokes etc. Assessment of working methods should be undertaken to find ways of reducing risk.

Spillages should be removed without delay to maintain hygiene standards and to minimise the level of dust in the atmosphere. Vacuum cleaning equipment (M-type) should be used wherever possible.

As the lowest form of control, wear suitable, individually face-fitted, respiratory protective equipment (RPE) with a particulate filter, which has assigned protection factor (APF) of 20, e.g. FFP3 for any essential short non-routine dusty tasks.

It is unusual for contact with clean flour dust to cause dermatitis. However, high standards of personal hygiene should be maintained to avoid the possibility of dermatitis or product contamination.

Health surveillance should be provided for the early detection of signs of occupational ill health.

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9. Physical and Chemical Properties

Appearance

White/brown free flowing powder.

Particle Size

Will vary with flour type e.g., in white flour a large majority of particles will be smaller than 150 microns, 50% of particles being smaller than 50 microns. For fine cake flours, about 50% of particles will be below 25 microns. In wholemeal flour, some particles will be greater than 300 microns.

Kst Values

Comprehensive tests on flours indicate a range of between 53 and 120 bar m/sec, depending on the flour type, particle size and moisture content. (Thus, flour is classified as ST1, the lowest class of explosible dusts; the upper limit of ST1 is 200 bar m/sec and this figure is often used for determining suitable vent size.)

Explosive Concentrations

Minimum explosive limit 50g/m³

(Upper explosive limit concentrations are not well defined for combustible dusts.)

Minimum Ignition Energy

Comprehensive tests on flours indicate MIE >1000mJ.

Ignition Temperatures

A cloud of flour in air can be ignited by surfaces at temperatures of about 400C. Layers of flour on a hot surface can smoulder at around 200C, leading to flame and ignition.

Density

Usually between 450 and 560 kg/m³.

Specific Heat

0.42 J/gm C.

10. Stability & Reactivity

Stability: Stable under normal conditions.

Possibility of hazardous reactions: None under normal conditions. However, there is a possibility of an explosive atmosphere should the flour dust in the air reach a concentration of 50g/m³; and note should be taken of ignition temperatures as set out in section 9 above.

Conditions to avoid: Formation of dust clouds in the air.

Incompatible materials: None known.

Hazardous decomposition products: None known.

11. Toxicological

This product is non-toxic.

Ingestion: Safe for human ingestion.

Inhalation: Repeated exposure may cause sensitisation and asthma.

Eye: (see 8. Exposure and control)

Skin: May cause discomfort as a foreign body/matter. Slight drying of skin. May cause dermatitis in rare cases.

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12. Ecological

None available at this time.

13. Disposal Considerations

Dispose of according to national and local regulations.

14. Transport Considerations

This product is not classified as dangerous goods.

15. Regulatory Information

Flour is produced so as to comply with the prevailing requirements of the Food Safety Act 1990 and the Bread and Flour Regulations 1998.

16. Other Information

Hazard statements in full

May cause an allergic skin reaction.

May cause allergy or asthma symptoms, or breathing difficulties if inhaled.

Precautionary statements in full

Avoid breathing dust.

In case of inadequate ventilation wear respiratory protection.

Contaminated clothing should not be allowed out of the workplace.

Wear protective gloves/clothing/eye/face protection.

Wash contaminated clothing before reuse.

IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF experiencing respiratory symptoms: call a POISON CENTER or doctor/physician.

IF ON SKIN: Wash with plenty of soap and water.

IF SKIN irritation or rash occurs: Get medical advice/attention.

Dispose of waste in accordance with local authority requirements.

Under CoSHH Regulations the user is under a legal obligation to carry out suitable and sufficient assessment of the health and safety risks which this material may present.

Reference should be made to:

Occupational Exposure Limits EH40/current year;

Handling of Combustible Dusts HSG 103.

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of issue below. The information is for guidance in safe handling, use, storage, transportation, disposal and release and is not in itself a warranty or quality specification. The information relates only to the products identified. This Material Safety Data Sheet may not be valid for such product used in combination with other substances or processes which must be assessed separately.