



Flour and Ingredient Dust Control in Bakeries

The Health and Safety Executive (HSE) focus their inspections on industries that present a high risk of harm to workers. Because of the serious consequences of flour dust exposure, bakeries fall into this category and many will receive a visit.

No-one would argue that putting in place strict controls to protect bakery workers health is the right thing to do, but members are sometimes confused as to what are the best ways to reduce flour dust exposure.

Representatives at the Craft Bakers Association work closely with HSE to inform CBA members of the precautions inspectors will expect to see in place.

Will I be charged for a health and safety inspection?

Not necessarily but HSE Inspectors are legally bound to recover the costs of enforcement if a material breach is found. An example would be the routine cleaning-up of flour spills by dry sweeping.

If the officer asks you formally to rectify this in writing (e.g. by way of improvement and prohibition notices or letter) then HSE will recover all the costs of that intervention. The current hourly rate charged is £163 and it is not unusual for the total charge to be in excess of £1000.

What sort of illnesses and conditions can be caused by flour dust?

It can cause asthma (resulting in breathlessness, tightness in the chest or wheezing); dermatitis (resulting in redness, itching and blistering of the skin); rhinitis (resulting in an itchy runny nose) and conjunctivitis (resulting in eyes watering and pain).

If a worker becomes sensitised to a particular substance, a very small amount can cause a significant reaction and may result in them not being able to work with this substance again. Members are sometimes contacted by solicitors working on behalf of ex-employees seeking compensation on the basis that they can no longer work in the baking industry.

Is there a legal limit for the amount of flour dust in a bakery?

Yes. Flour dust has a workplace exposure limit (WEL) which is set at 10 mg/m³ (averaged over an 8 hour period). This is designed to limit workers' exposure over a full working day. There is also a short-term exposure limit (STEL) of 30 mg/m³ (averaged over a 15 minute period) designed to prevent high bursts of exposure that can cause workers to become allergic to flour more easily.

If measurements show that dust levels are less than the legal limits, it does not mean that no action needs to be taken. You have a legal duty to get as far below the WEL and STEL as is reasonably practicable. This means that, if there is a technically achievable and cost-effective precaution that reduces airborne flour dust, you must adopt it.

HSE believes that by complying with good control practice, exposures can be reduced to around 2 mg/m³ based on an 8 hour time-weighted average.

What is the best way to control dust levels?

The best and most efficient way of controlling flour dust is at source. If dust isn't being generated and released to the atmosphere, it is less of a hazard and money is saved on raw materials and cleaning.

You should consider minimising the use of flour as a lubricant and look at the suitability of using food grade oil instead, non-stick coatings on conveyor belts, greaseproof paper on trays and rice cones.

There are some excellent 'low-dust' flours that have been introduced to the market in recent years.

It is also a good idea to use flour improvers in paste or liquid form - as improvers that contain fungal or bacterial amylase are known to be respiratory sensitisers.

Which are the dustiest places in a bakery?

Some processes will naturally generate dust. You can identify dust sources in your bakery by using a dust lamp which directs a narrow beam of light onto a dust cloud which can then be seen by the naked eye.

Dust sources may include filling mixers from bags, bag disposal, weighing, mixing, adding ingredients by hand to hoppers containing flour, hand dusting at tables, using dough brake roll machines, maintenance activities and cleaning the workplace.

Where possible, you should separate dusty processes (e.g. weighing, dispensing and tipping areas) from the remainder of the production area using enclosures. The use of mixer lids or closed/semi-closed mixing equipment is a good idea or the use of sock devices to enclose the point where flour drops into the mixing bowl.

Do we need local exhaust ventilation and dust masks for bakers?

Bakeries must be well ventilated and provided with LEV (Local Exhaust Ventilation) and/or suitable RPE (Respiratory Protective Equipment) at processes that emit high levels of dust.

When the HSE inspectors visit, they will expect the following as a minimum.

Process	RPE only	RPE and LEV
Bulk sieving of flour	If operation less than 30 mins/shift	If operation more than 30 mins/shift
Bench dispensing & weighing of flour and improver enzymes	If operation 1-2 hrs per shift	If operation more than 2 hrs/shift
Tipping and transferring flour and powder improvers to mixers	If tipping less than 15 sacks/shift	If tipping more than 15 sacks/shift
Sack disposal	If disposing of sacks	
Mixer start up		If a substantial number of unlidded mixers are in operation and workers are exposed to the resulting dust
Bench dispensing & weighing of flour and improver enzymes	If operation 1-2 hrs per shift	If operation more than 2 hrs/shift
Dough brakes – lubricating pastry dough and conveyor with flour	If flour sprinkling more than 2 hours/shift	
Flour used as a lubricant for hand working dough	If flour cannot be substituted	LEV at the rear of the work table in larger bakeries
Flour sprinkled on product before baking	If carried out for more than 30 mins/shift	
Egg-spray glazing	For small scale and small duration activities	For more extensive operations
Clearing up large flour spills	When clearing	

LEV must be properly designed to ensure that the airflow at the point where dust is being generated is adequate to draw air away from the operator and that the hood captures the flour dust generated.

Regular maintenance checks must be carried out on LEV and include checking signs of damage to flexible ducting and hoods. A thorough examination and test of the LEV (local exhaust ventilation) equipment must be carried out at least every 14 months.

RPE may not be needed for tasks where installed LEV has been tested and proven to prevent exposure to flour dust. Proof in the form of an air monitoring survey carried out by a competent person would be needed.

What sort of dust masks are required?

Bakers should wear suitable RPE (Respiratory Protective Equipment) with a particulate filter (FFP3 protection factor) for routine dusty tasks and for any essential short non-routine dusty tasks e.g. cleaning up large spillages and maintenance activities.

You need to include a face-fit test by a competent person when selecting tight fitting respirators such as disposable masks, half masks and full face masks to ensure it will perform correctly for that team member. Tests should then be carried out regularly to take into account changes e.g. the wearing of glasses and loss and gaining of weight. Tight fitting masks are not suitable for workers with facial hair.

RPE must be maintained in good condition and checks carried out to make sure that filters are not clogged

What good working practices should be in place?

Changing working practices can greatly reduce exposure to dust. Suitable training should be given and appropriate supervision put in place to ensure that the working practices are consistently followed.

Training should cover:

- Not dropping flour from a height and using tipping boards when emptying flour into mixing bowls and ingredient bins.
- Using dredgers or sprinklers to spread dusting flour rather than hand throwing.
- Avoiding spillages of flour and, when they do occur, cleaning them up immediately.
- Maintaining a 'clean as you go' policy to reduce dust on surfaces.
- Starting up mixers on slow speed until wet and dry ingredients are combined.
- Avoiding damage to ingredients bags.
- Disposing of empty sacks by rolling the bag up from the bottom while tipping. Never folding or compacting sacks against our bodies.

How should we clean up flour?

Don't use brushes or dry-sweep dust. Instead you should use high-efficiency (Type M or Type H) industrial vacuum cleaners (suitably protected against explosion) for general cleaning and clearing up large spills.

Never use compressed air to move and clean up flour and other dust as this could increase the concentration of dust in the air to explosive levels.

Do bakers have to visit the doctor regularly to check for signs of occupational disease?

No, not if exposure to flour dust is adequately controlled. However, some form of health surveillance is legally required to identify early symptoms of asthma, dermatitis, rhinitis and conjunctivitis.

You need to train staff on the health risks and symptoms of flour dust conditions and the need to report symptoms to their manager straightaway.

Health screening of new employees should include a questionnaire about present or past symptoms associated with flour and ingredient dust. Another questionnaire should be completed for all workers after employment at 6 weeks, 12 weeks (or similar intervals) and at least annually thereafter to enquire about any developing symptoms.

All questionnaires should be checked by a responsible and trained person who understands the purpose and confidentiality requirements. Workers should be referred to an occupational health provider if there are any adverse findings from health screening questionnaires or staff report symptoms of flour dust conditions. A list of accredited providers searchable by postcode can be found at www.seqohs.org

A programme of higher level health surveillance should be introduced which includes lung function tests if exposure to flour dust is not adequately controlled or if there is a confirmed case of occupational asthma. Some occupational health providers will visit for free to carry out a needs analysis.

Where can I find further help?

Where additional controls have not solved a dust problem, you could engage a qualified occupational hygienist to:

- take background and personal exposure flour dust levels
- compare them with the workplace exposure limits (WEL)
- provide you with recommendations to reduce dust levels as low as is practicable

NB. A list of professional occupational hygienists can be found at www.bohs.org



How do the CBA help members comply with the law?

The Craft Bakers Association has a primary authority co-ordinated partnership with Horsham District Council which is recognised in law and Government approved.

A Health and Safety Manual has been developed by the CBA and examined by environmental health officers from Horsham District Council. They have agreed that it is a correct interpretation of health and safety legislation.

A member of the Craft Bakers Association that opts into this partnership, will benefit from:

- A practical and comprehensive guide to legal compliance
- More consistent enforcement from environmental health officers throughout the UK
- Assistance from Horsham District Council via the CBA if enforcers disagree with the advice

This assured advice is available to council officers on a central website. Before asking you to take action, they must give it due consideration. If you are following the assured advice and enforcers want you to do something differently, they must liaise with Horsham District Council.

This does not apply however if urgent enforcement action is required e.g. a prohibition notice. It also does not apply to premises that are enforced by the Health and Safety Executive.

The Health and Safety Manual includes:

- A health safety policy
- Safe methods and risk assessments customisable to your operation
- Example monitoring forms and records

Contact Information

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