



Control approach 2

Bag opening and tipping, and dough mixing (craft bakery)

FL01

Engineering control



This guidance sheet is for employers including the self-employed to help them

comply with the requirements of the Control of Substances Hazardous to Health Regulations 2002 (COSHH) by controlling exposure to chemicals and protecting workers' health.

The sheet is part of HSE guidance *COSHH essentials: easy steps to control chemicals*. It describes the key points you need to follow to help reduce exposure to an adequate level. It is important to follow all the points, or use equally effective measures.

Flour dust can cause asthma.

Exposure to substances with the potential to cause occupational asthma should be prevented, or if that is not reasonably practicable, control exposure to prevent exposed workers from developing asthma. This applies to short-term high exposures as well as long-term exposures. If an individual develops occupational asthma, exposure must be controlled to prevent triggering further attacks. Suitable levels are likely to be well below any exposure limit.

Control approach 2 (engineering control) is recommended to control flour dust in opening and tipping ('rip and tip') and dough mixing.

The dust is combustible - build-up on ledges etc can result in dust explosions. Extraction helps to reduce this risk.

For environmental advice see Further information on the back page.

Access

- ✓ Restrict access to those staff who need to be there.

Design and equipment

- ✓ Reduce flour dust in air as much as possible. Use dust extraction for flour tipping and dough mixing.
- ✓ A permanent dust extraction system is preferred, though a stand-alone mobile system is acceptable.
- ✓ Where the mixer has extraction fitted, you need an air speed between 1 and 2.5 metres per second into the mixer with the hood lowered.
- ✓ If using an 'immaterial lid', you need an extraction volume flow between 250 and 350 cubic metres of air per hour for it to work properly.
- ✓ If dust extraction is impossible, use a solid lid on the mixer.
- ✓ Ensure a manometer or pressure gauge is fitted near the extraction point, to show that the extraction is working properly.
- ✓ Always confirm that the extraction is turned on and working at the start of work. Check the gauge.
- ✓ Keep extraction ducts short and simple - avoid long sections of flexible duct. It is easily damaged.
- ✓ Ensure workers tip flour gently - never dump it. They should tip flour with the open end of the bag facing away.
- ✓ Bag crushing creates a lot of dust. Workers should roll up empty bags with the open end in the extraction zone.
- ✓ Ensure workers add other ingredients gently, trickle water down the side of the mixer bowl and start the mixer on a slow speed.
- ✓ Good lighting will help you see escapes of dust.
- ✓ Consult a qualified ventilation engineer to design new control systems (see Control guidance sheet FD14).

Maintenance

- ✓ Follow instructions in maintenance manuals.
- ✓ Keep equipment in effective and efficient working order.
- ✓ Repair faulty extraction systems immediately. Meanwhile, wear respiratory protective equipment (RPE).

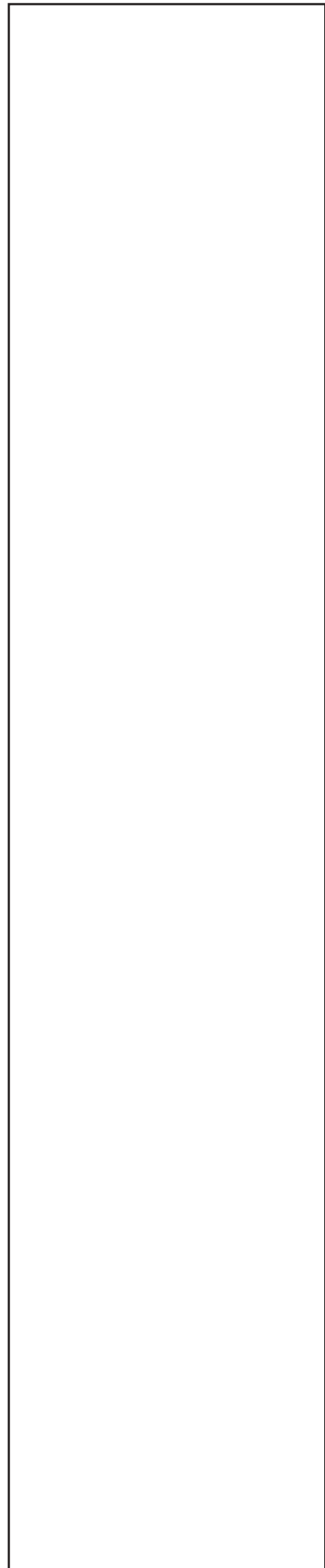
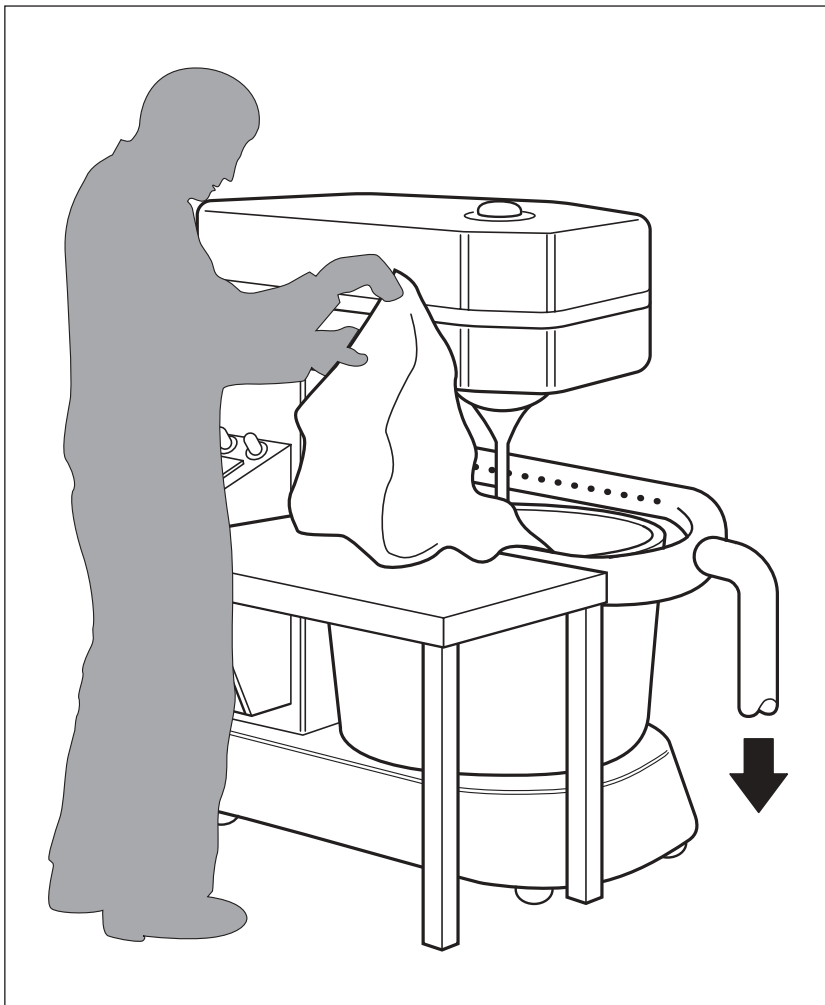
Examination and testing

- ✓ Look daily for signs of damage to the ducting and air filter. Repair damage immediately.
- ✓ At least once a week, check that the extraction system and gauge work properly, with no dust leaks.
- ✓ You need to know the manufacturer's performance specification to know if extraction is working properly.

- ✓ If this information isn't available, hire a competent ventilation engineer to determine its performance.
- ✓ The engineer's report must show the target air speeds.
- ✓ Keep this information in your testing logbook.
- ✓ Get a competent ventilation engineer to examine the system thoroughly and test its performance at least once every 14 months (see HSE publication HSG54).
- ✓ Keep records of all examinations and tests for at least five years.
- ✓ Review records to see if there are failure patterns that make planning maintenance easier.
- ✓ If you cannot fit extraction, commission a dust sampling survey to help you decide where RPE is needed. See Further information.

Cleaning and housekeeping

- ✓ Every day, clean the workroom. Stop dust being stirred up and reduce slip hazards.
- ✓ Clean general workrooms once a week. Remember to clean overhead beams, heating pipes and light fittings to reduce the risk of secondary dust explosion.
- ✓ Use a Type H vacuum cleaner fitted with a HEPA filter to clear up dust.
- ✓ Deal with spills immediately. This needs a dust mask. Shovel large spills carefully into a waste bag.
- ✗ Don't clean up with a brush or with compressed air.
- ✓ Store empty bags outside workrooms.



Personal protective equipment (PPE)

- ✓ Respiratory protective equipment (RPE) should not be needed if the extraction is designed correctly and working properly.
- ✓ RPE is needed for maintenance and cleaning.
- ✓ Use a P2 or P3 standard of RPE. Consult your supplier for advice.
- ✓ Replace RPE filters as recommended by your supplier. Throw away disposable masks after one use.
- ✓ Keep RPE clean and store it away from dust.
- ✓ Skin creams are important for skin protection and help in washing contamination from the skin. These are **not** 'barrier creams'. After work creams help to replace skin oils.
- ✗ Never allow compressed air use for removing dust from clothing.

Health surveillance

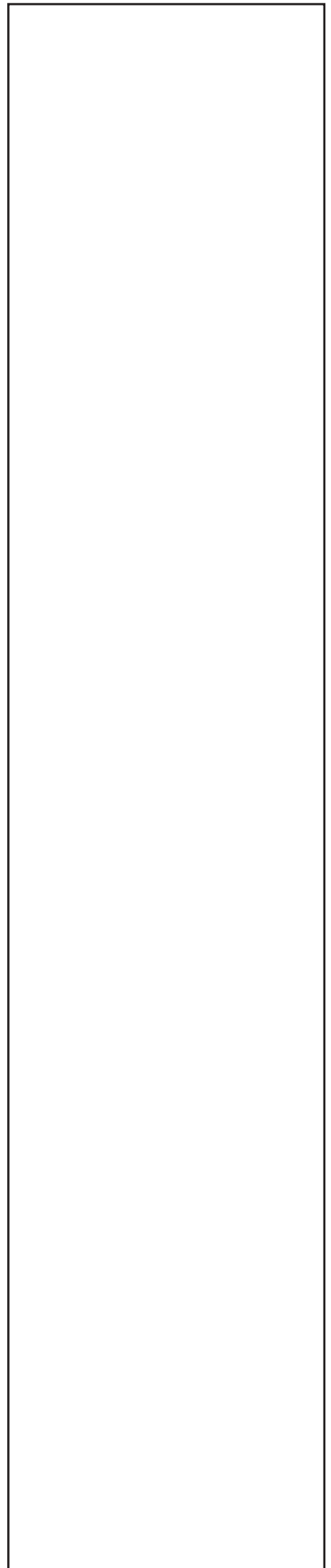
- ✓ There is a chance of asthma developing, even with good controls in place. Use health surveillance (see Control guidance sheet 402).
- ✓ Consult an occupational health professional (see Further information).

Training

- ✓ Tell workers that flour dust can cause asthma, and what the early signs of asthma are.
- ✓ Provide health and safety training. Include supervisors and managers.
- ✓ Ensure training includes how to keep exposures low; how to check that the extraction is working; how to use and look after PPE and RPE; and what to do if something goes wrong.

Supervision

- ✓ Check that the extraction is working properly; PPE is being used properly; and the rules on personal hygiene are being followed.
- ✓ Ensure the health surveillance programme is being carried out for everyone that needs it.
- ✓ Ask your workers to check their skin for dryness or soreness every six months. If these effects appear, check the proper use of skin creams and PPE.



Further information

- *Maintenance, examination and testing of local exhaust ventilation* HSG54 (Second edition) HSE Books 1998 **ISBN 0 7176 1485 9**
- *An introduction to local exhaust ventilation* HSG37 (Second edition) HSE Books 1993 **ISBN 0 7176 1001 2**
- *The selection, use and maintenance of respiratory protective equipment: A practical guide* HSG53 (Second edition) HSE Books 1998 **ISBN 0 7176 1537 5**
- *Reducing injuries caused by sack handling in the food and drink industries* Food Information Sheet FIS31 HSE Books 2001
- *Breathe easy* Training package Federation of Bakers 1998 includes *Guidance on dust control and health surveillance in bakeries* available from www.bakersfederation.org.uk
- *Design specification for 'immaterial lid'* Report IR/WQ/004/97 HSL 1997 HSE Infoline, phone 08701 545500 or email hseinformationservices@natbrit.com
- Health and safety consultants: the BOHS Faculty of Occupational Hygiene keeps lists of qualified hygienists who can help you. Contact BOHS on 0133 229 8087 or at www.bohs.org/
- Occupational health professionals: details of doctors and nurses can be found in the Yellow Pages under 'Health and safety consultants' and 'Health authorities and services'. Also visit the NHS website at www.nhsplus.nhs.uk

Depending on the scale of work, releases into the atmosphere may be regulated within the pollution prevention and control (PPC) framework. You should consult your local authority or the Environment Agency. In Scotland, consult the Scottish Environment Protection Agency (SEPA). They will advise you if PPC legislation applies to your company, and about air cleaning and discharging emissions into the air. Otherwise, minimise emissions into the air.

Employee checklist

- Always follow the standard operating procedures.
- Is the extraction switched on and working properly?
- Check the gauge.
- Look for signs of leaks, wear and damage.
- If you find any problems, tell your supervisor. Don't just carry on working.
- Co-operate with health surveillance schemes.
- Use, maintain and store your PPE in accordance with instructions.
- Clear up spills immediately.
- Wash your hands before and after eating, drinking, smoking and using the lavatory.
- Use skin creams provided as instructed.



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