

FD2

COSHH essentials for foundries

Molten metal fume: Melting

Control approach 2 Engineering control



This information will help employers (including the self-employed) comply with the Control of Substances Hazardous to Health

Regulations 2002 (COSHH), as amended, to control exposure to metal fume and protect workers' health.

It is also useful for trade union safety representatives.

This sheet describes good practice using fume extraction.

It covers the points you need to follow to reduce exposure to an adequate level.

It is important to follow all the points, or use equally effective measures.

Molten metal fume (foundry fume) is hazardous to health. Ferrous foundry fume can cause lung cancer.

Some metal fumes cause metal fume fever. Lead and lead alloys have special provisions.

This advice does not cover fume from aluminium melting or from drossing

Main points

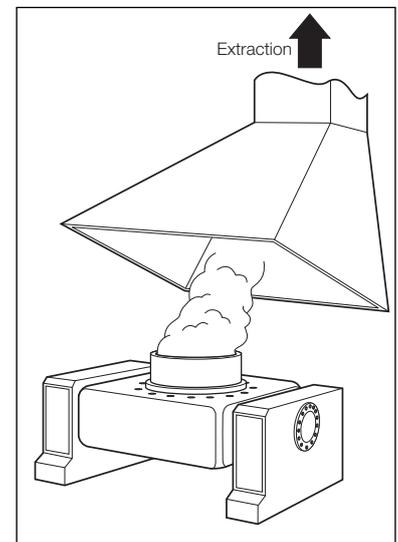
- Keep exposure to fume as low as possible using all the controls in this sheet.
- Make sure the controls work.
- Health monitoring is often needed. See sheet G401.

Access and premises

- ✓ Only allow access to authorised staff.

Equipment

- ✓ Keep foundry fume under control - don't let it contaminate the whole workshop.
- ✓ Provide an extractor hood above the furnace to capture as much fume as possible. Ensure moveable hoods are put in the right position.
- ✓ You need enough extraction to stop fume spilling out of the hood.
- ✓ Fit a manometer or pressure gauge 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.
- ✓ Discharge cleaned, extracted air to a safe place outside the building, away from doors, windows and air inlets.
- ✓ Have a supply of clean air coming into the workroom to replace extracted air.
- ✓ Consult a qualified ventilation engineer to design new control systems and to update current controls. See sheet G406.



Special Care

- ✓ Fume from metal recycling may contain dioxins.
- ✓ Slags or drosses could emit poisonous gases when wet.

Maintenance, examination and testing

- ✓ Follow instructions in maintenance manuals - keep equipment in effective and efficient working order.
- ✓ If extractor fans stop, or are faulty, get them repaired as soon as possible.
- ✓ Every day look for signs of damage. Noisy or vibrating fans can indicate a problem.
- ✓ At least once a week, check that the extraction system and gauge work properly.
- ✓ You need to know the manufacturer's specifications to check the extraction's performance.

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- ✓ If this information isn't available, hire a competent ventilation engineer to determine the performance needed for effective control.
 - ✓ The engineer's report must show the target extraction rates.
 - ✓ Keep this information in your testing log-book.
 - ✓ Get a competent ventilation engineer to examine the extraction thoroughly and test its performance at least once every 14 months, or six months for non-ferrous metals. See the HSE publication HSG54 - see 'Further information'.
 - ✓ Keep records of all examinations and tests for at least five years.

Personal protective equipment (PPE)

- ✓ Ask your supplier to help you select the right PPE.

Respiratory protective equipment (RPE)

- ✓ Respiratory protective equipment (RPE) may be needed for cleaning. If so:
 - Provide RPE with an assigned protection factor (APF) of at least 10. See sheet R2.
 - Disposable RPE is acceptable - throw this away at the end of the task.
 - Otherwise replace RPE filters as recommended by the supplier.

Other protective equipment

- ✓ Provide overalls that are suitable for work with molten metal.
- ✓ Use a contract laundry, or a suitable equivalent to wash work clothing.

Health monitoring

- ✓ You may need health monitoring for occupational lung disease. See sheet G401.
- ✓ Consult an occupational health professional. See 'Useful links'.

Cleaning and housekeeping

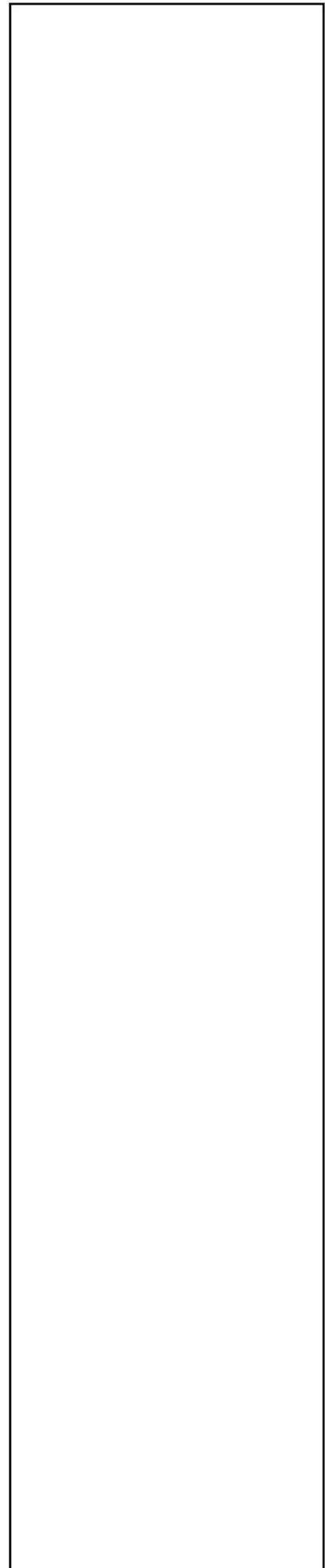
- ✓ Clean general workrooms once a week to stop dust being stirred up.
- ✓ Use a Type H vacuum cleaner fitted with a HEPA filter to clear up dust.
Caution: Don't use a brush or compressed air.

Training and supervision

- ✓ Tell workers that foundry fume can cause serious lung diseases.
- ✓ Working in the right way and using the controls correctly is important for exposure control. Train and supervise workers. See sheet FDO.

Further information

- *General ventilation in the workplace: Guidance for employers* HSG202 HSE Books 2000 ISBN 0 7176 1793 9
- *Respiratory protective equipment at work: A practical guide* HSG53 (Third edition) HSE Books 2005 ISBN 0 7176 2904 X
- For environmental guidelines see sheet FDO



Useful links

- For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk/. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.
- Contact the British Occupational Hygiene Society (BOHS) on 01332 298101 or at www.bohs.org for lists of qualified hygienists who can help you.
- Look in the Yellow Pages under 'Health and safety consultants' and 'Health authorities and services' for 'occupational health'.
- Also see www.nhsplus.nhs.uk.

Employee checklist

- Is the extraction in the right position, 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 monitoring.
- Use, maintain and store your protective equipment in accordance with instructions.
- Never use solvents to clean your skin.

This document is available at: www.hse.gov.uk/pubns/guidance/ and www.hse.gov.uk/coshh/essentials/

This document contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

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