



Control approach R



This guidance sheet is for **employers** 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.

Molten metal fume (foundry fume) is hazardous to health. Ferrous foundry fume can cause lung cancer. This sheet does not apply to aluminium.

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

Hot moulds also give off hazardous fumes. This sheet does not apply to isocyanate bonded moulds.

Control approach R (respiratory protective equipment) with control approach 1 (general ventilation) is recommended to control foundry fume in pouring metal and casting.

You need also to control exposure to noise.

For environmental advice see Further information on the back page.

Foundry fume when ladle pouring

Respiratory protective equipment

FD03

Access

- ✓ Restrict access to those staff who need to be there.
- ✓ Ensure other workers stand well clear of moving ladles and casting operations.

Design and equipment

- ✓ Respiratory protective equipment (RPE) is needed.
- ✓ Organise work so pouring and casting is done in a designated area with effective fume dispersal.
- ✓ To reduce fume, keep the ladle covered during transport whenever possible. Use a refractory tundish to help suppress fume.

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

- ✓ At least once a week, check visually that the roof vents or the extractor fan are clearing the fume properly.
- ✓ Noisy or vibrating fans can indicate a problem. Repair damage immediately.
- ✓ Ensure that users examine their RPE thoroughly and test it works properly every time they use it.

Cleaning and housekeeping

- ✓ Every day, clear up accumulations of dirt in areas where people work all the time.
- ✓ Clean general workrooms once a week to stop dust being stirred up and to reduce slips.
- ✓ Use a Type H vacuum cleaner fitted with a HEPA filter to clear up dust.
- ✗ Don't clean up with a brush or with compressed air.

Personal protective equipment (PPE)

- ✓ Ask your safety-clothing supplier to help you get the right PPE.
- ✓ Respiratory protective equipment (RPE) is needed for casting molten metal, and for maintenance and cleaning.
- ✓ Use a P3 standard of RPE (Assigned Protection Factor 20). 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.
- ✓ Protective gloves are needed for maintenance and cleaning.

- ✓ 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.
- ✗ Workers must not take their coveralls home for washing. Use a contract laundry.

Health surveillance

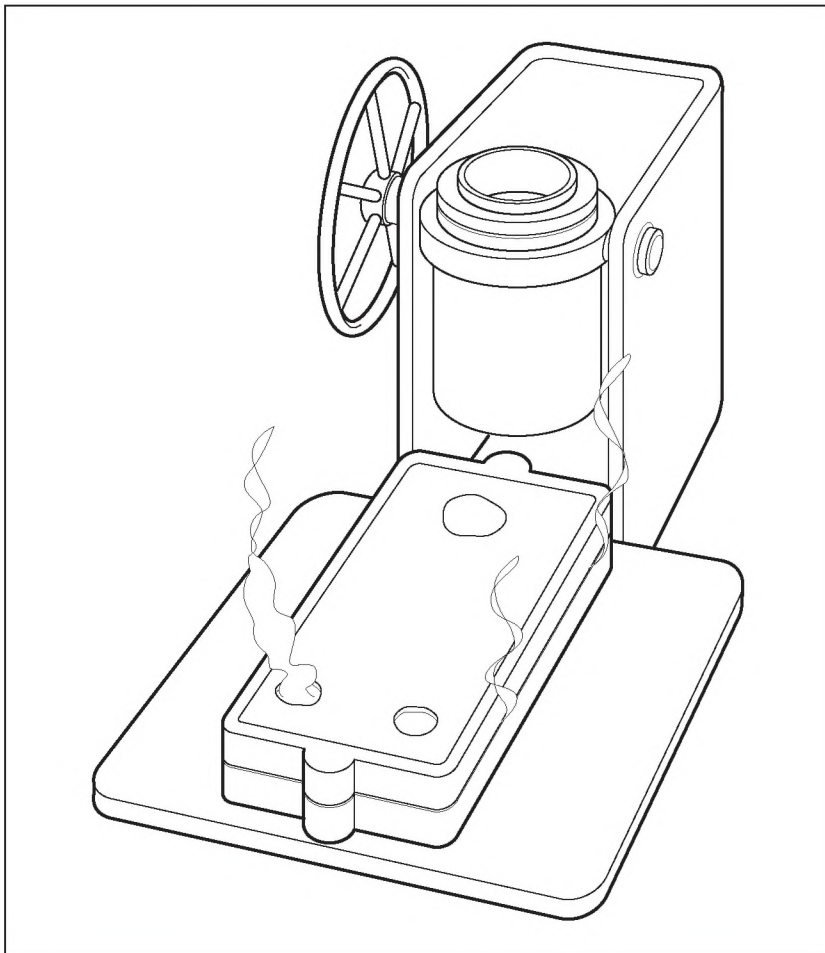
- ✓ Consider health surveillance for lung function and other health effects.
- ✓ Consult an occupational health professional (see Further information).

Training

- ✓ Tell workers that foundry fume is hazardous to health when breathed in.
- ✓ Provide health and safety training. Include supervisors and managers.
- ✓ Ensure training includes how to keep exposures low; how to check that the extraction system is working; how to use and look after PPE and RPE; and dealing with spills etc.

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

- *The selection, use and maintenance of molten metal protective clothing*
Guidance HSE Books 1996 **ISBN 0 7176 1162 0**
- *The selection, use and maintenance of respiratory protective equipment: A practical guide* HSG53 (Second edition) HSE Books 1998 **ISBN 0 7176 1537 5**
- *Lead and you: A guide to working safely with lead* Leaflet INDG305(rev1)
HSE Books 1998 (single copy free or priced packs of 15 **ISBN 0 7176 1523 5**)
- *Controlling airborne contaminants in the workplace* Technical Guide TG7
British Occupational Hygiene Society 1987 **ISBN 0 9059 2742 7**
- 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.
- ☐ Keep away from casting operations, if possible.
- ☐ Look for signs of leaks, wear and damage.
- ☐ Check that your RPE works properly every time you put it on.
- ☐ 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.
- ☐ Wash your hands before and after eating, drinking, smoking and using the lavatory.
- ☐ Never use solvents to clean your skin.
- ☐ Use skin creams provided as instructed.



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