



Control approach 2

Pickling bath (large scale)

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Engineering control



This guidance sheet is aimed at 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 the HSE guidance pack *COSHH essentials: easy steps to control chemicals*. It can be used where the guide recommends control approach 2 (engineering control) as the suitable approach for your chemical(s) and task(s).

This sheet provides good practice advice on pickling using a large-scale pickling bath. It describes the key points you need to follow to help reduce exposure to an adequate level.

It is important that all the points are followed.

Some chemicals can also be flammable or corrosive. Where they are, your controls must be suitable for those hazards too. Look at the safety data sheet for more information.

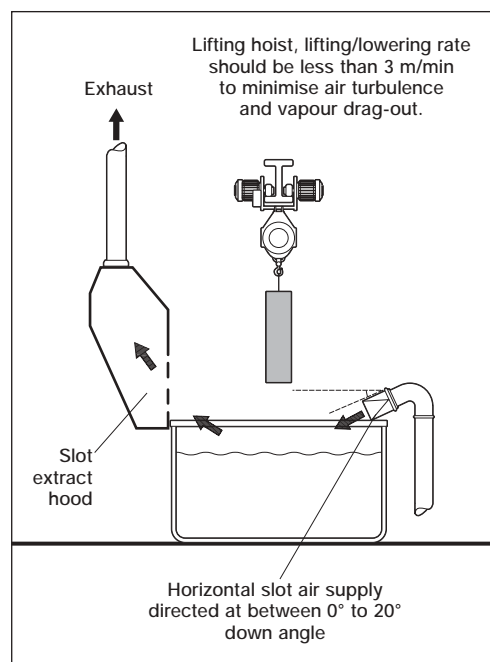
Depending on the scale of work, releases into the atmosphere may be regulated within the pollution prevention and control (PPC) framework. You should consult your local authority or the Environment Agency. In Scotland, consult the Scottish Environment Protection Agency (SEPA). They will advise you if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

Access

- ✓ Restrict access to the work area to authorised staff only.

Design and equipment

- ✓ Ensure a jet airflow across the surface of the tank directs the vapour, mist etc away from the operator.
- ✓ Airflow at the extraction hood slots should be at least 10 metres per second. This airflow must be greater than that of the supplied airflow.
- ✓ Avoid the use of air agitation for the tank.
- ✓ Consider the need for corrosion resistant ductwork and hoods.
- ✓ Ensure incompatible exhaust gases are segregated, such as acidic vapours, alkali mists, oil vapour etc.
- ✓ Consider using plastic balls/beads, anti-foams or chips etc to reduce vapour and mist formation on the surface of the tank.
- ✓ For an electroplating bath, select plating solutions that reduce electrode gassing.
- ✓ Where possible, locate the work area away from doors, windows and walkways to stop draughts interfering with the ventilation and spreading vapours.
- ✓ Provide an air supply to the workroom to replace extracted air.
- ✓ Keep ducts short and simple, and avoid long sections of flexible duct.
- ✓ Provide an easy way of checking the control is working, eg a manometer, pressure gauge or tell-tale.
- ✓ Discharge extracted air to a safe place away from doors, windows and air inlets.
- ✗ With vapours, air re-circulation is not recommended.



Maintenance

- ✓ Maintain the equipment as advised by the supplier/installer, in efficient and effective working order.

Examination and testing

- ✓ Get information on the design performance of the ventilation equipment from the supplier. Keep this information to compare with future test results.
- ✓ Visually check the ventilation equipment at least once a week for signs of damage.
- ✓ Have ventilation equipment examined and tested against its performance standard - generally at least every 14 months (see HSE publication HSG54).
- ✓ Keep records of all examinations and tests for at least five years.

Cleaning and housekeeping

- ✓ Clean work equipment and the work area daily. Clean other equipment and the workroom regularly - once a week is recommended.
- ✓ Deal with spills immediately.
- ✓ Store containers in a safe place and dispose of empty containers safely (see CGS 101).
- ✓ Put lids on containers immediately after use.

Personal protective equipment (PPE)

- ✓ Chemicals in **hazard group S** can damage the skin and eyes, or enter the body through the skin and cause harm. See CGS S100 and S101 for more specific advice. Check the safety data sheets to see what personal protective equipment is necessary.
- ✓ Ask your safety clothing supplier to help you select suitable protective equipment.
- ✓ Respiratory protective equipment should not be necessary for routine operations. It may be necessary for some cleaning and maintenance activities, eg cleaning up spills.
- ✓ Keep PPE clean, and replace it at recommended intervals.

Training

- ✓ Give your workers information on the harmful nature of the substance.
- ✓ Provide them with training on: handling chemicals safely; checking controls are working and using them; when and how to use any PPE you provide; and what to do if something goes wrong.

Supervision

- ✓ Have a system to check that control measures are in place and being followed.

Further information

- Safety data sheets
- *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**
- *Industrial ventilation: a manual of recommended practice* American Conference of Governmental Industrial Hygienists 2001 **ISBN 1 882417 42 9**
- *Workplace welfare in the electroplating industry* EIS4 HSE Books 1998
- *Immersion and cold cleaning of engineering components* EIS21 HSE Books 1998
- Control guidance sheets 101, S100 and S101

Employee checklist for making the best use of the controls

- Make sure the ventilation system is switched on and is working.
- Make sure it is running properly; check the manometer, pressure gauge or tell-tale.
- Look for signs of damage, wear or poor operation of any equipment used. If you find any problems, tell your supervisor. Do not carry on working if you think there is a problem.
- Make sure the tanks are covered when not in use.
- Wash your hands before and after eating, drinking or using the lavatory.
- Do not use solvents to clean your skin.
- Clear up spills immediately. For liquids, contain or absorb with granules or mats. Dispose of spills safely.
- Use, maintain and store any PPE provided in accordance with instructions.



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