

P23

COSHH essentials for printers



This information is intended to help employers in the printing industry comply with the requirements of the Control of Substances

Hazardous to Health Regulations 2002 (COSHH), as amended, to control exposure to chemicals and protect workers' health.

It is also useful for trade union safety representatives.

This sheet describes good practice for using isocyanate-based inks.

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

Isocyanate-based inks can cause dermatitis and asthma. Consider using isocyanate-free products.

Prevent exposure to substances that can cause occupational asthma. If that isn't reasonably practicable, control exposure to stop asthma developing.

If a worker develops occupational asthma, avoid further exposure.

Main points

- Avoid skin contact and inhaling isocyanate-based products - these can cause dermatitis and asthma.
- Carry out health surveillance for asthma and dermatitis.

Printing with isocyanate-based inks

Screen printing

Access and premises

- ✓ Only allow staff under health surveillance to work with isocyanates.
- ✓ Provide good facilities for washing, skin care, and for taking refreshments.

Equipment

- ✓ Provide a good standard of general ventilation. Use powered wall- or window-mounted fans to supply fresh air - five to ten air changes per hour, with a through draught.
- ✓ Provide splash-resistant gloves.

Mixing

- ✓ Extraction of vapour should not be needed if mixing only small amounts of ink, eg less than 500 ml per day per workshop.
- ✓ For larger amounts, extraction will be needed. Seek specialist advice - see 'Useful links'.
- ✓ Wipe up dribbles and spills immediately. Decontaminate the wipes - see 'Cleaning and housekeeping'.

Manual printing with rack drying/curing

- ✓ Position the drying rack inside an extracted booth.
- ✓ Locate the booth away from doors, windows and walkways. Draughts may interfere with the extraction.
- ✓ You need an air flow between 0.5 and 1 metre per second into the booth.

Semi-automatic printing with oven drying/curing

- ✓ You need an air flow between 0.5 and 1 metre per second into the oven openings.
- ✓ Wire in the extraction with the printing unit. You may need flameproof fittings.
- ✓ Make sure the oven is kept below atmospheric pressure when in use.

All extraction

- ✓ Fit a manometer, pressure gauge or tell-tale to show that extraction is working.
- ✓ Discharge extracted air to a safe place in the open air, away from doors, windows and air inlets.

Special care

- ✓ Avoid products containing HDI, IPDI or TDI - check the safety data sheet. If you do need to use an isocyanate-based product, choose one containing MDI, which is less volatile.

Maintenance, examination and testing

- ✓ Follow the instructions in the maintenance manual - keep equipment in effective and efficient working order.
- ✓ Noisy or vibrating fans indicate a problem. Do repairs as necessary.
- ✓ If the machine extraction stops, or is faulty, get it repaired straight away.
- ✓ Don't alter, add or remove extraction without specialist advice.
- ✓ Check transfer hoses and connectors regularly for leaks.
- ✓ At least once a week, check that the extraction system and gauges work properly.
- ✓ You need to know the manufacturer's performance specifications to know if extraction is working properly.
- ✓ 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 logbook.
- ✓ Get a competent ventilation engineer to examine the extraction 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.
- ✓ Biological monitoring for isocyanates may be required. See sheet P47.

Personal Protective Equipment (PPE)

- ✓ Provide storage for PPE to prevent damage or contamination when not in use.

Respiratory protective equipment (RPE)

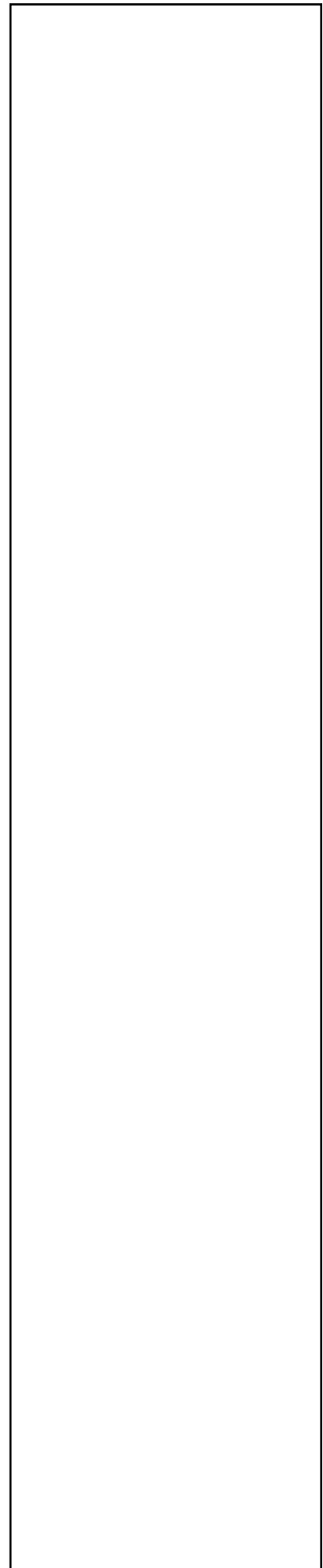
- ✓ RPE should not be needed for routine use.
- ✓ Air-fed RPE may be needed for use in emergencies, eg cleaning up spillages. This needs a supply of clean compressed air.
- ✓ Provide an LDM2 air-fed half-mask for clearing up spills, blockages, maintenance, etc. See sheet P49.

Gloves

- ✓ Use splash-resistant gloves where there is a risk of skin contact. Single-use nitrile gloves 0.2 mm thick are acceptable.
- ✓ Ensure that workers wear them.
- ✓ Tell workers to dispose of single-use gloves every time they take them off.

Other equipment

- ✓ Cotton overalls to minimise clothing contamination.
- ✓ Change contaminated overalls immediately and ensure they are laundered before reuse.



Asthma management

- ✓ There is a chance of asthma developing, even with good controls in place.
- ✓ Health surveillance for occupational asthma is required. See sheet P46.
- ✓ Seek advice from an occupational health professional.
- ✓ Start surveillance for new workers within six weeks of their starting work. Then check as advised by your health professional.

Skin management

- ✓ Skin contact with isocyanates may cause dermatitis.

Skin care

- ✓ Keep hands clean and in a good condition.
- ✓ Using pre-work creams helps make removing chemicals easier. However, pre-work creams should not be seen as a substitute for gloves.
- ✓ If you need to use hand cleansers to remove ink, ensure that the cleanser is rinsed off afterwards.
- ✓ Provide after-work creams (moisturisers) to replace skin oils.
- ✓ Never allow solvents to be used for cleaning skin.

Skin surveillance/checks

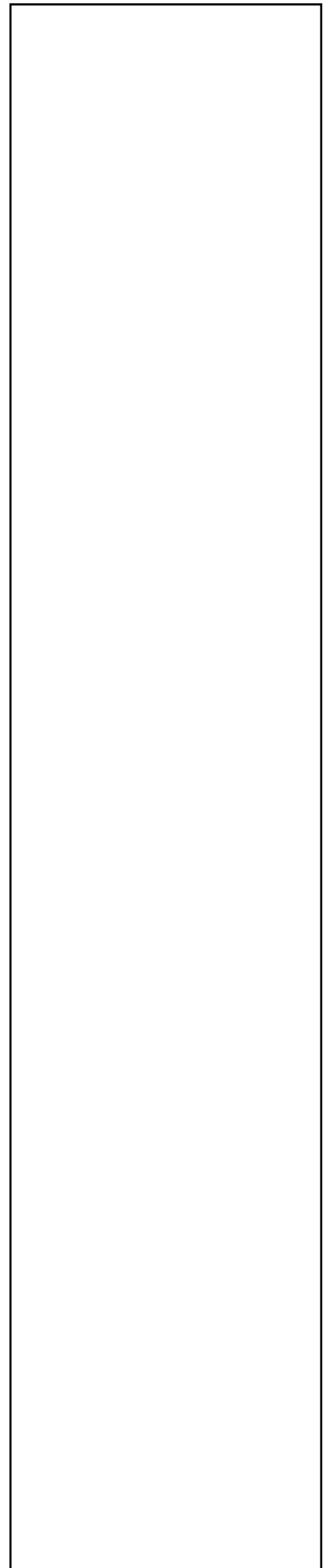
- ✓ Health surveillance for dermatitis is required. See sheet P45.
- ✓ Seek advice from an occupational health professional in setting up a health surveillance programme.
- ✓ Start surveillance for new workers within six weeks of their starting work. Then check at monthly intervals or as advised by your health professional.

Cleaning and housekeeping

- ✓ Keep the work area tidy, clean and free of combustible materials.
- ✓ Clean the workroom at least once a week.
- ✓ Store containers in a safe place, securely closed.
- ✓ Handle containers with care and replace caps. Wipe off any liquid on the outside of the container.
- ✓ Clean up spills immediately with absorbent granules or cloths. Use new nitrile gloves 0.4 mm thick. Throw away gloves once used.

Decontamination

- ✓ Store contaminated cloths, wipes and gloves in fire-resisting, closed, metal containers. Decontaminate promptly.
- ✓ Decontaminate empty containers.
- ✓ Dispose of waste solvent and decontaminated wipes, containers, etc as hazardous waste.
- ✓ Use a contract laundry or a suitable equivalent to wash work clothing. Don't do this at home.
- ✓ Ask your supplier, or read the safety data sheet.
- ✓ You can use a solution of sodium carbonate (washing soda) in water, 50 g per litre. Mix with the contaminated waste and leave it to stand for a few days.



Training and supervision

- ✓ Working in the right way is important for exposure control. Train and supervise workers - see details in sheet P0.
- ✓ Warn about the dermatitis and asthma risks from isocyanates.

Environmental guidelines

Releases into the air may be regulated within the Pollution Prevention and Control (PPC) framework. Your Local Authority or the Environment Agency will advise you if PPC applies to your company, and about air cleaning and discharging emissions. In Scotland, consult the Scottish Environment Protection Agency (SEPA). For more information, see www.environment-agency.gov.uk/netregs/sectors.

Further information

- *The printer's guide to health and safety (Second edition)* HSE Books 2002 ISBN 0 7176 2267 3
- *Skin problems in the printing industry* Leaflet IACL101(rev1) HSE Books 2002 (single copy free or priced packs of 15 ISBN 0 7176 2322 X)
- *General ventilation in the workplace: Guidance for employers* HSG202 HSE Books 2000 ISBN 0 7176 1793 9
- *Maintenance, examination and testing of local exhaust ventilation* HSG54 (Second edition) HSE Books 1998 ISBN 0 7176 1485 9
- *Preventing asthma at work: How to control respiratory sensitisers* L55 HSE Books 1994 ISBN 0 7176 0661 9
- *Fire and explosion: How safe is your workplace? A short guide to the Dangerous Substances and Explosive Atmospheres Regulations* Leaflet INDG370 HSE Books 2002 (single copy free or priced packs of 5 ISBN 0 7176 2589 3)

Useful links

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 Yellow Pages under 'Health and safety consultants' and 'Health authorities and services' for occupational physicians (doctors and nurses). Also see www.nhsplus.nhs.uk.

Contact the Health and Safety Laboratory at hslinfo@hsl.gov.uk for help on biological monitoring for isocyanates.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance as illustrating good practice.

Employee checklist

- Is the workroom ventilation switched on and working properly?
- Is the machine extraction switched on and working properly?
- Look for signs of wear and damage.
- If you find any problems, tell your supervisor or safety/employee representative. Don't just carry on working.
- Wear your protective equipment as directed.
- Throw away single-use gloves every time you take them off.
- Don't use damaged gloves.
- Never use solvents to clean your hands - only use proprietary skin cleansers.
- Use skin creams provided, as instructed.
- Check your skin regularly for dryness or soreness - tell your supervisor if these appear.
- Co-operate with health surveillance for asthma and dermatitis.
- Wash your hands before eating and drinking and before you leave work.
- Don't smoke in the work area.