Isocyanate – small tasks (flattening, SMART repair, welding, etc)

Respiratory protective equipment

Access
✓ Restrict access to trained staff who are under health surveillance.
✓ Keep members of the public away from all work with two-pack products.

Design and equipment
✓ These activities create mist. Reduce exposure to isocyanate as far as possible. Use an extracted booth or controlled area.
✓ You need an air speed between 1 and 1.5 metres per second into the booth. For controlled areas, you need a through draught.
✓ You can also use flexible extraction ducting or a mobile unit to capture dust, mist, fume or vapour.
✓ Ensure that respiratory protective equipment (RPE) is worn.
✓ Fit a compressed air or fresh air supply for RPE. Make sure the right amount of air is supplied, and that it is fit to breathe.
✓ Make sure 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.
✓ Discharge cleaned, extracted air to a safe place outside the building, away from doors, windows and air inlets.
✓ Keep away for at least 30 minutes for the paint to cure.
✓ Consult a qualified ventilation engineer to design new control systems (see Control guidance sheet FD14).

Small area repair technique (SMART)
○ This is using an airbrush or a mini spray gun for repairs that:
  ■ take 2 to 3 minutes;
  ■ use 5 to 10 ml paint;
  ■ cover an area less than 10 sq cm.

Welding
✓ Remove paint from surfaces before welding.

Flattening
✓ Rub down (flat) uncured paint inside a booth, with the ventilation running.
○ See Further information.

Maintenance
✓ Follow instructions in maintenance manuals.
✓ Keep equipment in effective and efficient working order.
✓ If the extraction system is faulty, stop work until it is repaired.
✓ Keep airline oil and water traps empty, and filters clean.
Examination and testing
✓ Look daily for signs of damage to the booth and airlines. Repair damage immediately.
✓ At least once a week, check that the extraction system and gauge work properly.
✓ 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.
✓ Visually check compressed airlines for signs of damage before use.
✓ Check the airflow and air quality (according to BS4275) to air-fed respiratory protective equipment at least once every three months. For mobile compressors, also make these checks every time you move the compressor.
✓ Ensure that users examine their RPE thoroughly and test it works properly every time they use it.
○ If everything is working properly, regular exposure measurement should not be needed. Use air monitoring to check the effectiveness of controls and biological monitoring to detect personal exposure for workers. Seek advice (see Further information).

Cleaning and housekeeping
✓ Every day, clean the areas where employees work all the time.
✓ Clean general workrooms once a week.
✓ Deal with spills immediately - absorb liquid spills with granules and decontaminate. This needs coveralls, a respirator and single-use gloves.
✓ Decontaminate contaminated wipes before disposal.
✓ Dispose of wastes safely.
○ Decontamination: ask your product supplier or read the safety data sheet. For two-pack isocyanate paints, you can use a solution of sodium carbonate (washing soda) in water, 50g per litre. Leave the mixture to stand for several days.

Personal protective equipment (PPE)
✓ Air-fed respiratory protective equipment (RPE) is always needed. Consult your supplier for advice.
✓ You need RPE with an Assigned Protection Factor (APF) of 20 or higher. Use an air-fed visor or air-fed welding mask appropriate to the job.
✓ Consider using a clear film over the visor to help remove paint overspray.
✓ Keep RPE clean and store it in a clean place - not in the mixing area or booth.
✓ Consider providing disposable coveralls. Discard these at the end of a day's work.
✓ Chemical protective gloves are needed. Use nitrile gloves. Single-use gloves are suitable.
✓ Throw away single-use gloves every time you take them off.
✓ 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.
Health surveillance
✓ Use health surveillance (see Control guidance sheet 402). There is a chance of asthma developing when using isocyanates, even with good controls in place.
✓ Use skin surveillance.
✓ Consult an occupational health professional (see Further information).

Training
✓ Tell your workers:
  ■ if two-pack paints and products contain isocyanates;
  ■ that isocyanates can cause asthma and dermatitis; and
  ■ it is often the mist that you can’t see that gets breathed in.
Tell them the signs to watch out for.
✓ Provide health and safety training. Include supervisors and managers. Ask your local Association of Colleges or your paint supplier for advice on training providers.
✓ 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.
✓ Where you have to use strong hand cleaners, train workers to wash off residues with soap and water.

Supervision
✓ Ensure that everyone using two-pack products is properly trained.
✓ Instruct workers never to remove their RPE (eg lift their ventilated visor) for any reason, during this work.
✓ 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.
✓ Check the proper procedures for decontamination are being followed.
Further information

- 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
- Biological monitoring for isocyanates: contact the Health and Safety Laboratory, Broad Lane, Sheffield, S3 7HQ (tel: 0114 2892000 or e-mail hslinfo@hsl.gov.uk)
- Buy tools with low vibration ratings. Use them only for short periods to reduce hand-arm vibration syndrome (HAVS). Electrically powered hand-held tools require Portable Appliance Testing (PAT).

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 unprotected people away from the work area while you are using two-pack products.
☐ Is the extraction switched on and working properly?
☐ Check the gauge.
☐ 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.
☐ Never remove your RPE or lift a ventilated visor for any reason, until you are well away from the work area.
☐ Clear up and decontaminate spills immediately. Clear them up as soon as possible and dispose of safely.
☐ Throw away single-use gloves every time you take them off.
☐ 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.