A Health and Safety Solution

Spray painting – Safely spraying isocyanate paints

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What is the problem?

Spraying motor vehicles with two-pack polyurethane paints containing isocyanates (eg polyisocyanates) presents a risk to workers' health.

What are the risks?

Spraying generates a mist that may be inhaled and cause respiratory sensitisation and occupational asthma. Once a person is sensitised, exposure to trace amounts of isocyanates can trigger asthma symptoms, which means the person can no longer work with isocyanates.

Organic solvents and thinners used to clean spray guns can also cause dermatitis and if the solvent or thinner vapours are inhaled, the central nervous system and other organs can be affected.

What is a solution to the problem?

The risks can be eliminated or reduced by:

- using non-isocyanate-containing paints
- using spray techniques that minimise overspray
- using a fully enclosed spray booth that vents safely outside, ensuring that:
  - air velocities for down-draught and side-draught booths are 0.25m/s and 0.5m/s respectively
  - the booth is run for at least five minutes after spraying to allow spray mist to clear
  - the spray booth is regularly checked, tested and maintained (eg replacing filters) to ensure it is operating properly
- using a full face airline respirator when spraying isocyanates, ensuring that the respirator is disconnected and removed outside the booth
- maintaining respirator air quality by:
  - checking that the compressor air intake is located away from sources of contamination such as motor vehicle exhaust fumes
  - replacing consumable filters, such as particulate, coalescing and charcoal filters, in accordance with manufacturer's recommendations.
  - keeping records of compressor and filter system servicing/maintenance
- carrying out colour matching under local exhaust ventilation (LEV)
- cleaning spray guns using an automated gun wash system or under LEV
- wearing suitable gloves (see material safety data sheet) if skin contact with 'gunwash' solvent is likely
- placing lids on open containers of thinners and solvent soaked rags to prevent unnecessary exposure to solvent vapours
- eliminating ignition sources where flammable solvents are used or stored
- storing paints and thinners properly (ie flammable liquids storage cabinets for small quantities or a designated storage room with adequate ventilation, intrinsically safe lighting and bunding)
- providing health surveillance, including lung function testing under the supervision of a doctor.

Further information

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