

DCM0

COSHH essentials: Working
with dichloromethane (DCM)
based products

Advice for Managers

The Control of Substances Hazardous to Health Regulations 2002 (COSHH) require employers to ensure that exposure is prevented or, where this is not reasonably practicable, adequately controlled. This guidance gives practical advice on how this can be achieved by applying the principles of good practice for the control of exposure to substances hazardous to health, as required by COSHH.

It is aimed at people whose responsibilities include the management of substances hazardous to health at work, eg occupational health specialists, anyone undertaking COSHH assessments and supervisors. It is also useful for trade union and employee safety representatives. It will help you carry out COSHH assessments, review existing assessments, deliver training and supervise activities involving substances hazardous to health.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, 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.

See Essential information near the end of this sheet.

Introduction

The DCM series of control guidance sheets describes good practice for controlling exposure to dichloromethane (DCM), also known as methylene chloride (CAS number 75-09-2), at transient and permanent industrial workplaces. The sheets cover the key points you need to follow to reduce exposure to an adequate level. This is achieved by following good control practice (ie follow all points described in the sheets or use equally effective measures), and by reducing DCM exposure to below the relevant workplace exposure limit (WEL).

Main points

- ✓ DCM is a highly volatile solvent. Small volumes will readily give off large amounts of vapour, even at room temperature. DCM vapour is colourless with a low odour so you may be unaware you are at serious risk.
- ✓ DCM vapour is heavier than air and will therefore tend to accumulate at lower levels in the workplace.
- ✓ Exposure to high concentrations of DCM vapour has caused impaired consciousness and death, eg when using DCM-based adhesives to lay bathroom floor tiles and clearing debris from alloy wheel stripping tanks.
- ✓ Paint stripping solutions can also contain hydrofluoric acid (HF) which can cause serious burns and eye damage.
- ✓ DCM- and HF-based products are very hazardous so avoid their use whenever reasonably practicable, by using suitable and safer alternative products or methods.
- ✓ **DCM-based products should ONLY be used in well ventilated areas to prevent the build-up of vapour.** Examples of poorly ventilated areas can include bathrooms, cellars, stairwells and sheeted enclosures.
- ✓ Obtain specialist advice for selecting the right personal protective equipment (PPE). This is because DCM can penetrate through gloves and respirator filters very quickly, therefore they usually only provide protection for a very short time.
- ✓ Avoid working alone. If this cannot be avoided, ensure regular and frequent contact with someone else.
- ✓ For paint stripping at transient workplaces, only those trained and holding an official Certificate of Competence are allowed to use DCM-based paint strippers. A certificate can be obtained from the Health & Safety Executive following the successful completion of training and an online exam (see Essential information, Dichloromethane – Certificate of Competence). A certificate is not required for the use of DCM-based adhesives, although the risks are similar.
- ✓ Seek competent specialist advice before working with DCM-based products if you are unsure how the task can be done safely.

What the sheets cover

The DCM series of sheets (listed below) describes good control practice for controlling exposure to DCM vapour, when using DCM-based adhesives and DCM-based products for stripping surface coatings (eg paints and varnishes) off workpieces.

DCM0	Advice for Managers
DCM1	Brushing or spraying of adhesives and paint strippers at permanent industrial workplaces
DCM2	Brushing or spraying of adhesives and paint strippers at transient workplaces
DCM3*	Stripping surface coatings from alloy wheels at permanent industrial workplaces

* DCM3 replaces the withdrawn SR28 and will provide some guidance on suitable controls for dipping other workpieces, eg wooden doors.

You should also consider any specific requirements/constraints for your task. You may need competent specialist advice.

Reducing exposure to an adequate level always involves a mixture of equipment and ways of working. This means employers should:

- choose the most effective and reliable control measures;
- make sure they are used properly by instructing, training and supervising workers;
- use regular maintenance to make sure control measures keep on working;
- check and review all elements of control measures regularly for their continued effectiveness.

Each sheet gives advice on how to achieve this for a particular task.

Hazards

- ✓ Breathing in DCM vapour can affect the central nervous system, causing symptoms such as headaches, lethargy, lack of coordination, nausea and impaired consciousness (narcosis).

At high concentrations DCM can cause death.

- ✓ DCM breaks down to carbon monoxide within the body, which reduces the flow of oxygen. This may aggravate symptoms for those with heart and/or lung problems.
- ✓ DCM is suspected of causing cancer.
- ✓ DCM can be absorbed through the skin.
- ✓ DCM can burn the skin, or cause irritation leading to dermatitis.
- ✓ DCM can irritate and burn the eyes.
- ✓ Other substances likely to be encountered when stripping surface coatings from alloy wheels include hydrofluoric acid (HF), methanol and sodium hydroxide.
- ✓ HF can cause severe burns and serious eye damage. Exposure to HF is of particular concern since if it comes into contact with the skin, pain may not be felt immediately.

Caution: HF is very dangerous. Ensure workers understand the steps they need to take if stripping solution containing HF comes into contact with the skin. In case of burns get immediate medical help. Stock calcium gluconate gel. For advice on emergency treatment see Essential information – National Poisons Information Service guidance – Emergency treatment of hydrofluoric acid (HF) burns and injury prior to transfer to hospital.

- ✓ Methanol can cause irritation leading to dermatitis.
- ✓ Sodium hydroxide can cause serious eye and skin damage.
- ✓ The WEL for DCM and other substances mentioned in this series are detailed in HSE publication EH40/2005.

How to use the sheets

- Consider the processes/tasks and hazardous substances in your workplace.
- Look for opportunities to substitute with less hazardous materials.
- Examine the advice sheets for each of the tasks.
- Examine the Essential information listed on each advice sheet.
- Compare operations in your workplace with recommendations in the advice sheets for all of the relevant tasks.
- Record significant findings (this forms part of your risk assessment).
- Record any actions you need to take, covering: issues identified, planned actions, target completion date, person responsible, status of any issues and a review of their effectiveness.
- Keep a record of your actions to prevent or reduce exposure of workers to hazardous substances.

You may have to change old working practices or spend money on new controls. Decide how best to make any changes required 'across the board'. If you are in doubt, seek expert help. Ask your trade association or trade union, or contact a competent consultant (see Further information).

Essential information

Dichloromethane – Certificate of Competence website
<https://dcm.hsl.gov.uk/>

Emergency treatment of hydrofluoric acid (HF) burns and injury prior to transfer to hospital Chemical Industries Association/Health and Safety Executive/National Poisons Information Service 2012
www.npis.org/Download/HFguidance.pdf

EH40/2005 Workplace exposure limits HSE 2020
www.hse.gov.uk/pubns/books/eh40

Further information

You can find the full COSHH essentials series at
www.hse.gov.uk/coshh/essentials/index.htm

Respiratory protective equipment at work: A practical guide HSG53 (Fourth edition) HSE 2013 www.hse.gov.uk/pubns/books/hsg53.htm

Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV) HSG258 HSE 2017
www.hse.gov.uk/pubns/books/hsg258.htm

Managing skin exposure risks at work HSG262 (Second edition)
HSE 2015 www.hse.gov.uk/pubns/books/hsg262.htm

Removing single-use gloves without contaminating your hands
<https://www.hse.gov.uk/skin/videos/gloves/index.htm>

Control of substances hazardous to health: The Control of Substances Hazardous to Health Regulations 2002. Approved Code of Practice and guidance L5 (Sixth edition) HSE 2013
<https://www.hse.gov.uk/pubns/books/l5.htm>

Personal Protective Equipment at Work: Personal Protective Equipment at Work Regulations 1992 Guidance on Regulations L25 (Third edition) HSE 2015 <https://www.hse.gov.uk/pubns/books/l25.htm>

DCM paint stripping incidents. European Association for Safer Coatings Removal <http://www.eascr.com/dcm incidents.html>

Restriction on use of Dichloromethane. Annex VII to REACH – Conditions of Restriction. Entry 59. From European Chemicals Agency (ECHA) <https://echa.europa.eu/documents/10162/0ea58491-bb76-4a47-b1d2-36faa1e0f290>

The REACH Enforcement (Amendment) regulations 2014. SI 2014/2882 <https://www.legislation.gov.uk/uksi/2014/2882/regulation/2>

Dichloromethane. General Information. Public Health England document https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/614328/Dichloromethane_general_information.pdf

British Occupational Hygiene Society (BOHS) Directory of Occupational Hygiene Services
<https://www.bohs.org/information-guidance/>

For information about health and safety visit <https://books.hse.gov.uk> or www.hse.gov.uk

You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

To report inconsistencies or inaccuracies in this guidance email: commissioning@wlt.com