Work equipment, tools and cleaners

Cleaners work in all industry sectors and workplaces, from hotels to hospitals and factories to farms. They work inside and outdoors, including in public areas. Often working at night or in the early morning, sometimes alone, cleaners are found in every setting and the work they do is essential[1].

Cleaners may either be employed directly, working in their employer's premises, or they may work in a location run by a third party. They may be employed by public services, private enterprises, or they may be self-employed. Cleaners may also be employed by a contractor, working at several locations over the course of a week. Contract, or industrial, cleaning is a multi-million Euro industry employing millions of workers across Europe.

Most cleaners are women and work part time. A significant proportion of workers come from ethnic minorities[2]. Staff turnover is generally high, caused by a high level of temporary work and short fixed-term contracts[3]. Although these employment patterns can cause difficulties, harm to cleaning workers can and must be prevented.

About this E-Fact

Cleaners are best defined by task rather than as a sector or group. Common tasks are surface cleaning – mopping, dusting, vacuuming, polishing floors and work surfaces – and routine housekeeping. While cleaning work can include tasks such as window and street cleaning, the focus of this E-fact is on the prevention of harm to paid workers carrying out general cleaning.

This E-Fact is intended to inform employers, supervisors, workers and their representatives, particularly those in small and medium enterprises (SMEs), about the dangers involved in cleaning and how harm to cleaners can be prevented. It should be noted that as cleaners work in all types of workplace, it is not possible for all issues to be covered. Readers should check relevant legislation in their own Member State and, if in doubt, seek further assistance from appropriate bodies.

How and why cleaning workers are injured using their equipment?

Cleaning workers use a wide range of equipment, including brooms, brushes, buckets, dusters, rags, rotary disc machines, steam cleaners, steps, ladders, scrubbers, driers, vacuum cleaners and wet pick-up machines. The hazards associated with the most commonly used cleaning equipment are summarised in the table below.

Equipment	Hazards
Mops and brushes	Over-extension, awkward postures, repetitive motions Slips and trips during wet mopping Chemical hazards from cleaning solutions Dust inhalation during sweeping
Buckets	Slips and trips Manual handling – heavy lifting
Ladders and steps	Over-extension Falls from height Manual handling
Rags and dusters	Over-extension, awkward postures, repetitive movements Chemical hazards – exposure to polishes and cleaning solutions Dust inhalation during dry dusting
Rotary disc scrubbers and polishing machines	Over-extension, repetitive motions, high forces Vibration Slips – when used for wet cleaning Trips – trailing cables Chemical hazards from cleaning solutions Manual handing – equipment can be heavy and awkward to transport around a building or from site to site Electrical shock
Vacuum cleaners	Awkward postures, pushing/pulling, repetitive motions Trips – trailing cables Noise Dust inhalation during emptying Electric shock
Steam cleaners	Awkward posture, repetitive motions Trips – trailing cables Scalds from steam Electrical shock

Musculoskeletal disorders – a big problem

Studies have shown that musculoskeletal disorders (MSDs) are the biggest cause of time off work among cleaners[4]. Cleaning work is physically demanding and labour intensive. About 80% of cleaning is done manually using non-powered tools; for example, dusting, sweeping and mopping[5]. Many of these tasks require reaching, repetitive motions, awkward postures high forces, and create a high load on the lower limbs, all of which contribute to MSDs. Even the simplest of equipment such as mops should be considered

in terms of the user-requirements of the cleaner. Important indications of MSD problems in the workplace include:

- increased sickness absence
- reports of pain and discomfort from cleaners
- reports of problems from safety/union representatives
- cleaners adapting their own equipment
- unwillingness to perform certain tasks.

Once problems emerge, employers have to take measures to prevent further harm to workers, but it is far better if the employer is proactive by identifying and addressing the risks before a worker is harmed.

Symptoms may occur suddenly, or there may be a more gradual onset. Initial symptoms include:

- tingling and numbness
- aches and pains
- muscle spasms
- swelling and soreness.

Serious cases of MSDs can result in permanent disability. Staff should report the symptoms as early as possible so they can receive prompt medical treatment and their working condition could be improved so that they can return to work as soon as possible without a risk of recurrence of the problem.

Legislation

Laws exist in all Member States to protect workers. Many of these laws come from European directives[i] that set minimum standards of protection. This legislation sets out requirements for worker protection and how the protection should be achieved. These directives include:

- **Framework Directive (Directive 89/391/EEC)** on the introduction of measures to encourage improvements in the safety and health of workers at work
- **Workplace Directive (89/654/EEC)** on measures designed to improve the working environment in order to guarantee a better standard of health and safety protection
- **Work Equipment Directive (89/655/EEC)** on the minimum safety and health requirements for the use of work equipment by workers at work.

[i] [i] Access to all EU legislation, including the directives referred to here in all official languages can be found at: http://eur-lex.europa.eu

Prevention of injuries and accidents

The first step in preventing harm to cleaning workers, including from work equipment, is identifying the dangers through a suitable risk assessment. The guiding principles that should be considered throughout the risk assessment process can be broken down into a series of steps.

Step 1: identifying hazards and those at risk

Looking for those things at work that have the potential to cause harm and identifying workers who may be exposed to the hazards.

The equipment used by cleaners is varied, ranging from a simple bucket and mop to rotary buffers and ride-on scrubber/drier machines. The work can be demanding and labour intensive, and may result in exposure to hazards and risks. These include:

- manual handling – cleaning workers are frequently required to move heavy awkward objects such as furniture and cleaning equipment, which can lead to muscle strain and back pain;
- working in awkward postures, over-extension, and carrying out repetitive tasks can be causal factors for musculoskeletal disorders (MSDs) – a variety of problems affecting the muscles, joints and nerves;
- high load on the lower limbs contributing to tiredness, discomfort, swelling, and pain in the legs;
- slips and trips – wet mopping of floors and trailing cables;
- exposure to vibration to the hand and arm from commonly used vibrating equipment such as rotary disc machines;
- exposure to noise – depending on the level of exposure, noise produced by some cleaning equipment such as industrial vacuum cleaners can be potentially damaging;
- exposure to chemicals – some cleaning solutions used in machines can be hazardous;
- accidents from contact with machines – electric shocks from faulty electrical appliance or a machinery hazard; for example, injuries to hands caught in machines.

Step 2: evaluating and prioritising risks

Estimating the existing risks – their severity or probability, for example – and prioritising them. It is essential that any work to eliminate or prevent risks is prioritised. When looking at the risks to workers, consider whether the diversity of workforce puts some workers at particular risk. For example, are all workers able to understand verbal and/or written instructions?

Step 3: deciding on preventive action
Identifying the appropriate measures to eliminate or control the risks, taking into consideration the diversity of the workforce. For example, can working times be adjusted to help workers who find some shift patterns difficult?

Step 4: taking action
Putting in place the preventive and protective measures through a prioritisation plan (most probably all the problems cannot be resolved immediately) and specifying who does what and when, when a task is to be completed and the means allocated to implement the measures.

Cleaning work is frequently conducted at anti-social times of day, early in the morning or late at night, and cleaners may work alone. Measures to be put in place should include actions to minimise harm in the event of an accident or incident. How will a worker get help in the event of an accident?

Step 5: monitoring and reviewing
The assessment should be reviewed at regular intervals to ensure it remains up to date. It has to be revised whenever significant changes occur in the organisation or as a result of the findings of an accident or "near miss" investigation.

Where possible, the risks to workers have to be removed; for example, through the replacement of dangerous substances with those that that are safer for use. Many of the risks associated with the equipment hazards described above can be minimised by controlling the risks identified during the risk assessment process. Controls may include selecting the right equipment for the cleaning task.

Two case studies in preventing harm

Case study – provision of equipment to accommodate all workers

Task
Cleaners in one organisation mopped for approximately two hours a day in different locations; for example, corridors, kitchens, showers and bathrooms.

Problem
Taller cleaning workers were frequently reporting shoulder and back pain to the health and safety representative. They thought this was due to the bending involved in the mopping task, such as cleaning under tables and chairs, as well as the actual mopping movement.

Figure 1: Picture of wet mop cleaning in progress

Assessing the risk and finding a solution

The most important problems identified were:

- when stooping to mop under furniture, cleaning workers were bending a long way forward
- cleaners were observed reaching forward more than 40 cm
- cleaners had to stretch to reach some areas
- cleaners often had to adopt awkward shoulder postures
- cleaners were twisting when using the mop.

A simple solution was implemented: the taller cleaning workers were given mops with longer handles.

Result

- Cleaners who used the longer handled mops were happier with the way they could do the task and reported their back pain had eased.
- Fitting the 1.5m-handle in place of the 1.2m-handle allowed workers to remain more upright while working.
- Health and safety personnel observed that the cleaners were working with their backs in more upright postures.
- The longer handles cost only a little more money.

Lessons

- Matching equipment to the user proved very effective in reducing pain, discomfort and postural problems. This would also apply to shorter workers who require a shorter length mop.
- An alternative solution would be to provide mops with extendable handles; these are available from a number of manufacturers. Longer

wands (using extension tubing) can also reduce bending during vacuuming and providing longer handled equipment has been found to reduce back strain during sweeping[6].

- It is important to ensure that cleaning workers know how to operate and use equipment properly. Training and information should be given to staff. This must include instruction on how to adjust the equipment to suit individual needs.

Once the right equipment has been selected to minimise risk, it is vital to ensure that the equipment is well maintained to ensure that hazards do not develop such as excessive vibration of buffers due to worn discs or electrical hazards from worn cables.

Case study – maintenance of equipment

Figure 2: Picture of typical rotary buffer

Task

A team of cleaning workers carried out daily floor buffing in a number of large retail outlets.

Problem

The buffing machines had been used in the workplace for many years. A number of the cleaners complained of tingling in their hands and that their fingers felt numb and looked white after using the buffing machine. These are symptoms of hand-arm vibration syndrome.

Assessing the risk and finding a solution

When the buffing machines were inspected a number of machine parts were found to be worn. It was thought that the cleaners' discomfort was a result of the vibration from the buffers. But on further investigation it was found that the problem was not limited to the buffing machines; other pieces of equipment were found to be in similar states of disrepair.

A number of solutions were considered and it was decided to put in place a maintenance programme that includes the regular inspection and service of equipment and the replacement of older items.

A system for reporting equipment problems was set up so cleaning workers could get a quick reply on when equipment would be serviced, mended or replaced.

Result

The occurrence of hand-arm vibration syndrome was reduced.

- Although the original problem lay with the faulty buffing machines, the maintenance and reporting system was applied to all equipment used by the cleaners.
- Cleaners were given a realistic idea of when equipment would be returned to them and arrangements were made for the temporary replacement of equipment being serviced or repaired.
- Well-maintained equipment cleans better and is less likely to cause problems for the user in terms of control, operation, vibration and electrical safety.

Lessons

- Like all electrical equipment, buffing machines need to be regularly maintained and checked. It is important to ensure all parts of the equipment such as pads and brushes are properly fitted and in good working order to ensure excessive forces are not needed to operate the equipment [78].
- It is essential to have a regular maintenance schedule in place to identify machines, equipment and parts that need replacing, reconditioning or repairing. This will reduce problems such as pain and discomfort in the arms and hands due to excessive vibration caused by poor maintenance or wearing out of the parts.
- There should be an easy-to-use reporting system for cleaners to record problems with equipment, with built-in follow-up action.

Employers have a duty under the workplace equipment directive to ensure equipment is well maintained. Annual electrical portable appliance (PAT) testing can be used to address general electrical hazards associated with

cleaning equipment such as vacuum cleaners and rotary buffers[9]. For high-risk equipment such as rotary disc machines where damage to cables is common[10], a brief visual check of electrical cables before each use of the equipment may be prudent.

Action checklist

Checklists can be useful tools for ascertaining whether hazards exist or action needs to be taken. However, they cannot cover all aspects of an issue and there may be issues not covered by the checklist. The following list highlights some of the key issues relating cleaners.

- Has a risk assessment that considered the risks from work equipment been carried out recently?
- Are appropriate aids being used, such as a long-handled mops for tall cleaning workers?
- Are cleaners provided with safe, well-maintained equipment, such as steps that allow them to clean high surfaces without stretching?
- Is sufficient time allocated for tasks so that cleaners use work equipment properly and safely?
- Is work adequately organised so that cleaners have sufficient time to rest?
- Is all equipment provided both suitable and easy to handle?
- Is there a danger that machinery (either being cleaned or being used for cleaning) can start unintentionally?
- Have manual handling risk assessments been conducted?
- Do workers have to lift or carry heavy equipment?
- Are staff trained how to lift safely and use equipment correctly?
- Is low-vibration cleaning equipment purchased?
- Are dangerous parts of machines appropriately protected?
- Is electrical cleaning equipment maintained and checked?
- Have assessments been carried out on cleaning chemicals?
- Are procedures in place to ensure that cleaning chemicals are not mixed?
- Are cleaning chemicals clearly labelled to identify hazards?
- Do workers work with chemicals in a form that is a greater risk to health, for example, with sprays or powders rather than those in liquid or granulated form?
- Have the workers been informed of the risks to their health from the chemicals with which they work?
- Are the safety data sheets available for workers and their representatives?
- Are workers provided, free of charge, with appropriate personal protective equipment, such as gloves?
- Where personal protective equipment is required, is there supervision to ensure that it is used appropriately and replaced as required?

- Are there procedures in place to ensure the safety of cleaners who work alone?

Further reading

- European Agency for Safety and Health at Work, *Healthy Workplace Initiative checklist on cleaning* http://hwi.osha.europa.eu/ra_tools_checklists/service_sector/checklist_cleaning
- Health & Safety Executive *Manual handling – solutions you can handle*, HSG115 ISBN 0 7176 0693.
- International Labour Organization, 'International hazard datasheets on occupation – cleaner (industrial premises)', http://www.ilo.org/public/english/protection/safework/cis/products/hdo/htm/cleaner.htm
- European Agency for Safety and Health at Work, E-fact 16 - Hazards and risks leading to work-related neck and upper limb disorders (WRULDs), 2007
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- European Agency for Safety and Health at Work, E-fact 9 - Work-related musculoskeletal disorders (MSDs): an introduction, 2007, http://osha.europa.eu/publications/e-facts/efact09
- European Agency for Safety and Health at Work, Factsheet 73 - Hazards and risks associated with manual handling of loads in the workplace, 2007, http://osha.europa.eu/publications/factsheets/73
- European Agency for Safety and Health at Work, Factsheet 72 - Work-related neck and upper limb disorders, 2007, http://osha.europa.eu/publications/factsheets/72
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[9] Website pat-testing.info, *Pat testing information and portable appliance testing information – legal requirements*, http://www.pat-testing.info/legal.htm
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