

A General Theatre Assessment Guide
on
COSHH
THE CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH
REGULATIONS 1988

ABTT members work in a wide variety of venues: Theatres; Opera Houses; Municipal Halls; Education; Night Clubs. None have been considered high risk activities in so far as COSHH is concerned. However the HSE have recently brought a successful prosecution against a theatre producing company who had not assessed the 'risk' of a particular product.

COSHH requires assessments to be made wherever substances hazardous to health are used, processed, manufactured, given off or produced.

All substances which have a potential for causing harm to people's health are covered by the regulations. A survey carried out by Update during 1993 found 70% of theatres and other entertainment centres were not carrying out COSHH assessments!

COSHH Regulations 1988 (forming part of the Health and Safety at Work Regulations) involve all employees, HOD's and Theatre Managers in an assessment to prevent a health risk that may arise from a substance 'Hazardous to Health'. There is a difference between 'hazard' and 'risk'. Hazard is the potential properties of a substance for causing harm to the user or environment. Substances may be breathed in, swallowed or cause irritation to skin. Providing potential hazards are properly and adequately controlled, the risk to health is minimal. However, even on low toxicity products if no controls are exercised then the 'risk' of causing harm is high. So far as COSHH assessments are concerned it is the risk within particular areas of theatres that has to be addressed.

Data sheets are a useful tool when assessing potential product hazards and can be obtained from your supplier or manufacturer. However, some data sheets may require specialist knowledge and should only be used by a person competent to interpret the information.

All entertainment establishments must comply in some degree. This guide is intended to strike a balance between theatres doing too much and doing nothing at all, in order to comply. What follows should be altered to suit local conditions. The ABTT would be interested to hear from anybody with anything to say and also to read your own theatre's assessment. In order that other theatre workers might benefit.

Geoffrey Joyce

Assessment: Essential requirement for all employers.

Production Departments:

Wardrobe: In the making and running wardrobe a lot of substances are used, like cleaning fluids, hats and head dressing stiffening fluids, shellac, glues and sprays. Industrial Washing powders may cause dermatitis on peoples hands. Dry cleaning solvents - spotting agents can contain very nasty substances.

Wigs: Ventilation for cleaning compounds and hair spray. Hair spary should not pass close to a smouldering object like a cigarette.

Carpentry: In the workshop all wood dust has Maximum dust Exposure Limit (MEL) hard wood has lower MEL and is known to be a high nasal carcinogenic. Wood dust from machines should be assessed.

Props: Containers holding products such as polyurethane, Evo stick and latex should be properly stored. Empty containers should be disposed of properly and not be thrown in the dustbin. Use of large quantities of White Spirit may affect breathing. Where possible replace solvent based products with water based ones. Use of expanding foam etc.

Paints: aerosol paints can be especially nasty. Change to water based paints. For spraying, a special protected area may be required where high concentration of substances are used over long periods of time. When ever possible use low toxicity water based products.

Precautions: means adequate control:

- Elimination - Substitution
- Total/Partial enclosure with Local Extracted Ventilation
- Wood Working Machinery Extraction
- General Ventilation - Limit contamination
- Cleaning - separate facilities
- Limit numbers and time of exposure
- Protective clothing
- Respiratory protection.
- Smoking should not be allowed within all these areas.
- Assessment: The risk to theatre staff may be considered as medium.

The Stage:

Dry Ice machines are used extensively in Pop Concerts, Ballet, Opera and Pantomime. Solid Carbon Dioxide is immersed into hot water and is usually directed by a fan and ducting across the stage. Often the dry ice is purchased in pellet form or solid blocks and when broken up into smaller pieces allows a more rapid vaporization which increases the low lying dry ice effect.

The effect produces a solid white cloud mist over the stage. Carbon dioxide does not support life. CO₂ is heavier than air and can exclude the oxygen in the air by flowing into low-lying confined spaces; anyone breathing in these conditions for only a short time will at best become drowsy and at worst is liable to suffocation.

Smoke Machines:

Fog fluids are usually created by mixing glycol with water. The glycol is colourless and is introduced into the heat exchanger where it is instantly heated to a temperature near to vaporisation point. The heated and pressurised liquid is then discharged into the atmosphere where it vaporises and upon mixing with cooler air forms a fog/mist atmosphere consisting of millions of fine particles. Glycol 'Smoke Machines' are safer alternative to the older oil-mist technology.

It is important to note that not all commercial glycol fog formulae are the same grade of chemicals, nor are they made up from identical ingredients.

It is therefore, very important that the correct fluid type is used in a specific piece of equipment.

The data sheets provided with the machines should be studied carefully. Daily doses may be small, but exposure on a regular basis i.e. in a disco, (usually to enhance the lighting) may constitute a risk, albeit a low one. Machines should be operated and maintained by a competent person who is experienced with the machines and aware of any potential risks with over exposure or over heating of the machine.

General Assessment: there is a low risk to health of people on stage; no risk to the audience.

The Health & Safety Executive has produced a guide Carcinogenicity of Mineral Oils for oil based machines.¹

Maintenance Departments:

Usually undertaken by a small staff using household paints, quantities of release oil, lubricating oils and grease. Graffiti remover and drain cleaners are the most hazardous materials used. All materials must be properly stored when not in use.

Welding and grinding require protective clothing.

Precautions: the wearing of protective gloves. Eye protection and respiratory protection should be available for use with certain operations.

General Assessment: there is no risk to health if proper precautions are taken.

Services: Water plants such as air conditioning or refrigeration require chemicals to protect against legionaires disease. Chemicals must be stored away. Servicing of boilers & water plants would usually be carried out by specialist contractors.

Precautions: If theatre staff handle chemicals suitable protection should be provided.

General Assessment: The risk to theatre staff is remote.

Electrical Departments:

- Hazard might arise out of the continual use of flux soldering.
- Correct disposal of old lamps is important for environmental reasons rather than directly related to COSHH.
- Batteries associated with emergency lighting give off hydrogen when charging. There is the
- possibility of acid burns and explosion should a spanner bridge the battery terminals.

Precautions: For batteries, the wearing of protective gloves, apron and goggles.

Good ventilation for soldering

General Assessment: There is a potential risk to health associated with batteries.

Sound Department: Head cleaners should be used sparingly and in a well ventilated area. Skin contact should be avoided.

Good ventilation for soldering

General Assessment: There is a low risk to health

Cleaning:

Carefully monitor - Agents for toilets, theatre seats and carpets. Note should be kept of chemicals used in the substances. Details should be found on the containers. If in doubt ask for a data sheet from your supplier or the manufacturer. Strippers, such as polish stripper or bleach, are likely to be the most hazardous every day material used. Do not mix substances and lock all cleaning materials away. Be aware of Dermatitis on people's hands which might come from detergents in cleaning agents.

Precautions: the wearing of protective gloves.

General Assessment: There is a low risk to health if proper precautions are taken.

Offices:

Typing correcting fluid can be toxic, but is only used in small amounts. The photocopier should be kept in a well ventilated area, to avoid the exposure to ozone. Toner is not regarded as hazardous.

General Assessment: There is a very low risk to health.

Catering:

Mostly detergents and cleaning materials of a household variety. They should be used with reference to the safety instructions on the container.

General Assessment: There is a low risk to health.

Contractors:

Contractors who come on to your premises must also comply with the COSHH Regulations

Monitoring

1. Where deterioration or failure of controls could result in a **SERIOUS** health effect.
2. If you are using particularly hazardous substances such as Isocyanate, found in expanded foam and some spray paints, you need to check on people's breathing.

Occupational Exposure Standard (OES) is a level where there is no harm to health. The duty is to reduce to the OES, or to plan to bring it down in a reasonable time scale.

Maximum Exposure Limit (MEL) is a level beyond which exposure should not go. You have a duty to reduce the MEL to as low as reasonably possible. Measurement is necessary to determine exposure level.

Training

It is important for staff to be aware of the hazards associated with the substances they are using. Train people in how to use respiratory protective equipment. A poorly fitted mask will simply allow the dangerous substance to come over the top or under the mask. The importance of safe handling and proper storage should be known. Information from data sheets should be recorded and passed on to employees.

Data Sheets

Companies are legally obliged to supply information. You should ask for 'Hazard Data Sheets' for a particular product.

Engineering

Engineering controls used as a requirement of the COSHH Regulations ie; additional extraction systems (known as Local Exhaust Ventilation) should be examined regularly, to ensure they are working satisfactorily and have not developed any blockages or leaks.

Storage

A maximum of 50lt. of flammable products is allowed in any one metal cupboard. Safe storage will provide separation from other classes of material which should be stored correctly in relation to each other.

Activities in the auditorium, orchestra pit, dressing rooms, crew rooms and stage areas do not usually require use of hazardous substances.

WHAT COSHH REQUIRES

- * Assessing the risk to health arising from your work ;
- * Deciding what precautions are needed. You must not carry out any work which could expose employees to hazardous substances unless you have assessed both the risk and the necessary precautions. Unless you have judged the risk correctly, you are unlikely to decide on the right precautions;
- * Preventing or controlling the risk. The advice in this and in the other guidance below, will help you get the assessment right, but remember that even a perfect assessment achieves nothing unless its conclusion are put into practice;
- * Ensuring that control measures are used and maintained properly, and that any safety procedures that have been laid down are followed;
- * Monitoring exposure of working with hazardous substances and carrying out appropriate health surveillance, where necessary;
- * Informing, instructing and training employees about the risk and the precautions needed.

1. Health and Safety Executive - The Carcinogenicity of Mineral Oils EH 58. 1990

Publications

HSE - A Step by Step Guide to COSHH Assessment.

The COSHH Subject Catalogue: available free:

HSE Books, PO Box 1999, Sudbury, CO10 6FS

Note: The ABTT publishes this guide in good faith. Neither the ABTT nor its members, nor its employees can be held responsible for the accuracy or for any liability arising therefrom.

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Association of British Theatre Technicians