



## RECOMMENDED PRACTICE FOR HANDLING FLUORESCENT LAMPS

### INTRODUCTION

Fluorescent lamps contain mercury and phosphor, which are potentially harmful substances. Accordingly, care must be taken when storing, changing and disposing of lamps. This document contains some practical guidance for the storage, changing and disposal of lamps. It is provided, however, on the basis that users of fluorescent lamps will make their own determinations and seek their own independent advice as to the appropriate way to handle fluorescent lamps in their particular circumstances and in compliance with applicable legal, safety and environmental regulations.

### PRODUCT DESCRIPTION

#### OPERATION

Fluorescent lamps are low-pressure discharge lamps that operate on the following principle: After ignition, mercury vapour in the glass tube emits UV radiation. This radiation is converted by the phosphors on the inside of the glass tube into visible light, the colour of the visible light emitted depends on the phosphors used.

#### CONSTRUCTION

Regardless of the configuration (linear or compact) each lamp is comprised of a glass tube, a cathode assembled on each end of the tube and a cap or contact assembly to facilitate effective contact with the lampholder. Inside this tube are phosphor powders and mercury. Phosphor powders and mercury are potentially harmful substances, and all care should be taken to avoid contact with such substances when lamps become broken. Inhaling mercury or mercury compounds in vapour or powder form can lead to health problems, and mercury can also be absorbed through the skin. Consult Worksafe Australia for information related to exposure standards for mercury.

#### STORAGE

The Storage of any fluorescent lamp/tube, new or used, must be done in a manner that will prevent the accidental breakage of the bulbs. Fluorescent lamps should be stored flat and in the shipping materials supplied by the manufacturer. Do not store fluorescent lamps together without their packaging material as this will increase the chance of breakage. Do not store linear lamps vertically as damage is possible to the two pins on the metal cap on the end.

## HANDLING & CHANGING LAMPS

### INTACT LAMPS

No special precautions are needed for physically handling lamps which are intact or for changing them at the end of their life (do not work, flickering, low light output), however it is good practice to wear eye protection at all times when handling lamps.

NOTE: It is good practice to change the starter at the same time lamps are replaced. 'Rapid Start' lamps do not require external starters

### BROKEN LAMPS

If lamps are broken, care must be taken to minimise exposure to the dust and broken glass. Maintain a lamp spill kit consisting of a plastic bucket with lid, heavy duty rubbish bags, small hand broom, dustpan, protective spectacles, cut-proof gloves, vacuum cleaner (with a HEPA filter) and face masks near the used lamps. This will facilitate in the clean up in the event of a breakage.

To avoid health risks, the following procedure should be followed in the event of a lamp breaking:

- The broken lamp and spilt substances should be removed, using the techniques described below;
- The room or area should be ventilated carefully
- All broken lamp components should be removed from the luminaire before reusing the luminaire.

Where concentrations of spilt mercury are unknown the services of an occupational hygienist should be engaged to assist with clean up. Contact the Australian Occupational Industrial Hygienists Association for more details at <http://www.aioh.org.au/>



Wet mopping techniques should be used to clean up phosphor powder deposits. If there is a considerable amount of phosphor powder & glass shards to be collected, a vacuum cleaner with a HEPA filter should be used; do not use domestic vacuum cleaners.

#### PPE requirements-Broken lamp below Eye level

Hands	Use cut-proof or nitrile gloves with close fitting tops (or consider taping the gloves closed)
Eye & Face	use protective spectacles approved to AS/NZS1337.
Respiratory	Use a half face respirator with filters rated at P1 or better. Consult AS/NZS1715 for more information on selection, use and maintenance of respiratory protective equipment

#### PPE requirements –Broken lamp above Eye level

Hands	Use cut-proof or nitrile gloves with close fitting tops (or consider taping the gloves closed)
Eye & Face	use a full face shield that includes a 'brow guard'

Respiratory Use a half face respirator with filters rated at P1 or better. Consult AS/NZS1715 for more information on selection, use and maintenance of respiratory protective equipment

NOTE: Where bulk quantities of fluorescent lamps are used/stored consideration should be made to keeping an adequately resourced cleanup kit ready to be deployed. Contents of this kit could include:

- An aspirator bulb or suction device to collect mercury beads (Do not use a vacuum unless equipped with a HEPA filter). By using a scraper or a piece of cardboard you can consolidate the mercury beads.
- Hg decontaminating powder to be used to mop up mercury. Commercial mercury spill cleanup sponges and spill kits are available through various laboratory safety equipment suppliers.
- Filters for half face respirators with mercury absorbing characteristics. MSA and 3M are two companies with such products in their range.

## DISPOSAL

Used (broken and intact) lamps should be disposed of in an environmentally responsible manner, in accordance with all legal requirements and regulations. Some recycling companies have dedicated fluorescent lamp recycling processes (crush and separation technologies) in place, which should be used where significant quantities of lamps are being disposed of.

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This document is intended to provide general information and guidance about the safe handling of fluorescent lamps. It is not a complete manual for the use and disposal of fluorescent lamps, and must be read in conjunction with applicable legal requirements for the use and disposal of fluorescent lamps, including occupational health and safety and environmental requirements. Where a particular workplace has circumstances that have specific challenges in assessing/meeting their obligations to occupational health and safety and environmental legislation in the respective state jurisdictions, a risk assessment should be conducted by the managers concerned and each aspect addressed.

Subject to change without notice.