

Safety Advisory for Handling of Fluorescent Lamps

The upcoming E-Waste Producer Responsibility Scheme kicking off on July 1st also includes collection of Consumer Lamps. These include the following categories:

Type 1
Incandescent Bulbs



Type 2
Light Emitting Diode
(LED)



Type 3
Compact Fluorescent
Light Bulbs (CFL)



Type 4
Fluorescent Tubes
(Long, Circular)

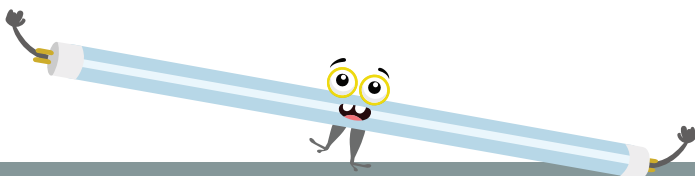


WHAT ARE FLUORESCENT LAMPS?

Categories 3 & 4 are commonly called fluorescent lamps. The glass tubes of the lamps contain a fluorescent coating, mercury, and argon fumes which helps to produce visible light. Once the power is switched on, the argon and mercury vapours produce ultraviolet (UV) light. The UV light interacts with the fluorescent coating on the tubes to produce the visible light we see. Over the lifetime of the lamps, most of the mercury vapour is found to get bound to the fluorescent powder on the glass.

HEALTH HAZARDS WHEN USING FLUORESCENT LAMPS:

As mentioned above, fluorescent lamps contain a small amount of mercury. On an average the fluorescent tubes contain less than 10 milligrams of mercury for straight and circular lamps, and less than 5 milligrams for CFLs.



No mercury is released when the lamps are intact. Care should be taken while handling these lamps as the mercury vapor and very small beads of mercury can be released when a lamp is broken, posing health risks.

(Reference: <https://www.epa.gov/cfl/what-are-connections-between-mercury-and-cfls>)

According to World Health Organisation, Exposure to mercury – even small amounts – may cause serious health problems, and is a threat to the development of the child in utero and early in life. Mercury may have toxic effects on the nervous, digestive, and immune systems, and on lungs, kidneys, skin, and eyes.

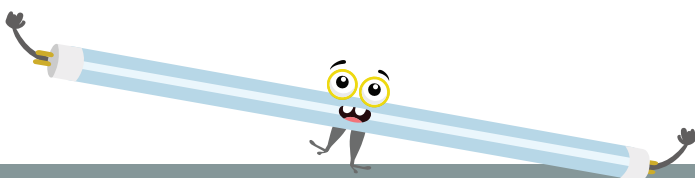
(Reference: <https://www.who.int/news-room/fact-sheets/detail/mercury-and-health>)

HOW TO HANDLE IF FLUORESCENT LAMPS BREAK:

When a fluorescent lamp is broken, the mercury fumes are released and they disperse rapidly. This further reduces the likelihood of any significant mercury exposure. Please take note that some mercury might still be attached to the phosphor powder and take precautions while handling the glass shards.

Make sure to follow the steps in case of broken lamps:

- 01** | Ventilate the room by opening the windows. This helps to dilute the mercury vapour to safer/ low-risk levels.
- 02** | Since it involves broken glass, secure the area by ensuring the public/family leaves the immediate area of the broken lamp quickly and safely.
- 03** | Make sure to equip yourself with Personal Protective Equipment (PPE) before starting to clear the area. It is advised to equip yourself with cut-resistant gloves to protect from the glass shards and to wear N95 masks to prevent inhalation of the mercury coated phosphor powder.
- 04** | Scoop up the broken glass and powder (using stiff paper or cardboard) or use a disposable brush to carefully sweep up the pieces.
- 05** | Carefully place pieces of glass into a container that can be sealed or wrap in paper/paper bags. Best advised not to use thin plastics to protect anyone from possible cuts from broken glass.



- 06** | For any remaining glass fragments and powder, use sticky tape or disposable wet cloth/fabric. It is best advised not to use a vacuum cleaner, if you do, please make sure to dispose of the vacuum bags immediately after the clean-up as they may contain trapped mercury, and clean up the hoses to remove any remains of the phosphor powder.
- 07** | Dispose of clean-up equipment like the PPE, brush, paper, wet cloth/fabric, or other cleaning equipment in sealed containers into the general waste bin.

HOW TO PREVENT BREAKAGE WHILE HANDLING THE LAMPS:

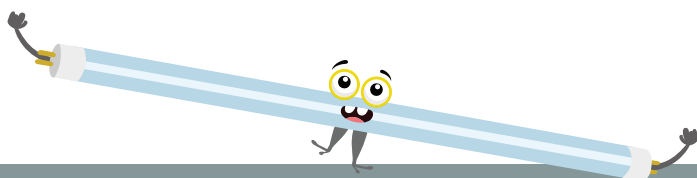
Lamps are classified as fragile, as they are primarily made of glass. Following are some tips to minimize breakage of the lamps during transportation of lamps to the drop-off locations

Do not throw away the original factory packaging of the lamps, as they are apt for the lamp size and provides excellent protection against breakage.

If you **KEEP** the original factory packaging, then:

- 01** | Insert the lamps carefully, each light bulb/light tube into its corresponding factory box.
- 02** | If the lamp is loose inside the package, immobilize it with extra padding around the glass using newspaper or packing paper.
- 03** | Close and seal the package by using packing tape to secure the lid.
- 04** | **(Only for CFLs- Type 3 in the image)** When you reach the respective E-Bins, please take the bulbs out from the packaging carefully and place them at the correct inlet.
- 05** | **(For Fluorescent tubes- Type 4 in the image)** To avoid the risk of breakage during transportation, we advise you to drop them off at our collection drives (E-Drives) happening in your area with the packaging if possible.

Stay up to date with the collection drive (E-Drive) information at www.alba-ewaste.sg



If you **DO NOT KEEP** the original factory packaging, then:

- 01** | Use bubble wrap, towel or similar cushioning material to cover the glass portion of the lamp and secure the wrap with packing tape
- 02** | Now, start packing by first placing the base of the lamp into a thick cardboard box or plastic bin of the right size.
- 03** | Immobilize the lamp by providing extra padding through packing the empty spaces in the bin/box with crushed or rolled newspapers /packing paper, etc.
- 04** | Do not stack heavy materials on top of packed lamps while transporting or for storing, as it can increase the risk of breakage.
- 05** | Avoid transporting the lamps in crowded spaces, and over long distances which may pose risks to breakage due to trips and falls, collisions, etc.
- 06** | **(Only for CFLs- Type 3 in the image)** When you reach the respective E-Bins, please take the bulbs out from the packaging carefully and place them at the correct inlet.
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In case of queries, please contact

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