

Waste Xenon Lamps



Storage, Collection & Treatment Guidance

Recolight offer the following guidance to our Producer Members, end users, and Recolight contracted lamp recyclers and hauliers.

Xenon lamps contain low level radiation from Thorium 232.
They are highly pressurised.

Such waste lamps are routinely collected and treated in the UK.

- ✓ Recolight finances the treatment of its Producer Members' obligated xenon lamps. This must be arranged in advance with the Recolight Customer Services Department.
- ✓ End users will need to make their own arrangements for transporting the end of life lamps this includes:
 - Pre-announcing to the Recolight Customer Services Department all shipments.
 - Following all legal requirements and official guidance for the shipment of hazardous lamps.
 - Delivering to a recycler nominated by Recolight.

✗ They cannot be taken to a Recolight Network drop off point.

Xenon lamps for cinema applications contain less than 2000 Bq, with a maximum product weight of around 2Kg. For comparison, HID lamps (which are widely collected and recycled) typically contain 70 or less Bq but weigh around 200g. As a result, the activity levels per Kg are broadly equivalent.

[The HSE have issued an exemption for the storage](#), handling and treatment of HID lamps containing Krypton- 85, which recognises the minimal risk associated with lamps containing low level radiation. A similar exemption effectively exists in the UK for Thorium containing lamps as the material is not added specifically for its radiation properties.

Storing

The lamps are highly pressurised and present a risk of flying glass if they were to break.

- All end of life xenon lamps should be stored and transported in the primary packaging in which they were delivered as new lamps, packed individually in a safe inner packaging.
- The individually wrapped/package lamps should be placed in a suitable container that ensures they cannot move excessively, up to the limit of an exempt consignment.

Recolight recommend that xenon lamps are stored separately and not mixed with gas discharge or LED lamps at any time.

Transporting

For transportation of lamps the movement of goods is covered by international regulations The ADR limits on transport of materials containing low levels of radioactivity apply to the labelling and transportation of goods.

- A shipment of end of life Xenon lamps containing 5 lamps, will be below the 10,000 Bq limit to qualify as an exempt consignment.
- Shipments above 5 lamps may require marking with "UN2911" on the transport package, the word "RADIOACTIVE" inside on one side of the outer package and the text "UN2911" in the transport document.
- The manufacturer's stated activity of all the waste lamps should be considered when determining if a package is exempt.
- Except for an exempt consignment, the lamps should be transported by a company with a proper consignment note indicating "UN2911" in the text.

The end user and transporter should follow any other guidance provided and by the lamp producer, with attention to the use of personal protective equipment and care in handling.

End of life Xenon lamps should

- ✘ not be intentionally broken by the end user.
- ✔ be left intact and stored safely and securely pending collection.

Treatment

[The Health Protection Agency undertook a study](#) (HPA-CRCE-021) commissioned by the European Lamp Companies federation into the transport and treatment of lamps containing tritium, krypton, and thorium. Although the study did not directly consider the compressed gas (noble gas) in the recycling of xenon cinema lamps, the conclusions it comes to are nevertheless helpful in assessing the implications for recyclers of treating xenon cinema lamps, given that they contain Th-232, which was considered under the study.

- The study indicates that the most appropriate method of disposal is to recycle the lamps along with other gas discharge lamps. This blending has the effect of diluting the already very small quantities of radioactivity.
- Recyclers should undertake their own risk assessments relating to all aspects of the receipt, storage, treatment, and disposal of such lamps, including the output fractions. Attention should be paid to operator health and safety.
- Given the high-pressure nature of these lamps, and the consequent risk of flying glass in the event of breakage, Recolight recommends that this should include full face, neck, and body protection for those operators who may have to handle the lamps.
- The HPA study specifically noted that such lamps are “too large to be processed by the machinery in lamp recycling facilities...” and so recyclers should also take all necessary steps to satisfy themselves that the recycling equipment they use is able to process the lamps appropriately before accepting the lamps for treatment.

For more information refer to the [Radiation: PHE-CRCE report series](#)

A Series of reports from the PHE Centre for Radiation, Chemicals and Environmental Hazards (CRCE)

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