

Process and design

Fluorescent lamps are energy efficient and extremely long-lasting. In Germany for example, approximately 70% of the lighting requirements are provided via this type of lamp. While the commercial and industrial sectors are almost completely served by fluorescent lamps, the household sector is served by simple standard light bulbs except the countries where the use of energy saving lamps is already required by law. Fluorescent lamps (straight tubes), depending upon their size, ordinarily contain between 5 - 30 mg of Mercury, which is necessary for creating the lighting effect. Energy Saving Lamps respectively Compact Fluorescent Lamps contains Mercury as well but smaller amounts.

For all Mercury containing lamps it is illegal to dispose of via regular household waste or communal waste tips. Due to the presence of the Mercury, the fluorescent lamps and tubes are considered to be hazardous waste and may only be disposed of at a separate and specialised collection point.

The econ industries process for recycling of used fluorescent lamps allows the handling and processing of all kind of lamp types, and enables the recovery of a standardised soda-lime glass for further re-use in lamp manufacture. This result is achieved amongst others through the use of a special crusher combined with a multi-staged roller sieve and two metal-separators. The separation of the fluorescence generating powder and the cleaning of the glass will be achieved via a wet washing process. The resulting sewage sludge, containing the mercury, can be treated by a small Thermal Desorption unit to recover elementary Mercury.



Key facts

Effective throughput capacity:	1.5 – 2.0 t/h; capacity to be adapted to client's requirements
Average operation availability:	In excess of 6,000 h/a possible
Input material:	Straight or special shaped tubes, CFL, HQL
Output fractions glass:	Cleaned fractions of soda-lime glass, lead glass and mixed glass
Output fractions metal:	Aluminium caps, other metal parts
Output fractions washing process:	Sewage sludge containing mercury, fine glass and fluorescent powder

Greatest benefits of the fluorescent lamps recycling system

- No manual separation of different lamp sizes and types
- Treatment of all types and sizes of lamps possible
- Treatment of glass breakage or lamp production waste possible
- Recovery of mono-glass fractions: Soda-lime glass and lead glass for further recycling
- Extremely low residual mercury content due to wet washing process
- Optional recovery of pure mercury by indirect heated thermal desorption process possible

Imagine – Zero industrial waste ... !