METHOD FOR RECYCLING LEDs

KEYWORDS: Depolymerization, Separation, Lixiviation, Recycling of LED, Recycling of precious metals.

BACKGROUND

In 2019, Light Emitting Diodes (LED) sales reached a critical milestone, achieving a record number of sales of over 10 billion units, including all types of light sources (bulbs, tubes, modules…). With a lifespan of 5-10 years, end-of-life LEDs will enter the waste stream in the next few years. To date, only a small portion of LED lamps are recycled as small household appliances waste, which limits the recovery of components and causes the loss of significant amounts of precious metals and other valuable materials.

DESCRIPTION

The innovative LED recycling process recovers the different elements of LEDs. It comprises two main steps:

The first step consists in selectively degrading the plastic layer which covers the LED, allowing to extract the luminophore and opening access to the metal parts that make up the LED.

In the second step, the metal parts are separated from the rest of the LED by leaching and recovered by a hydrometallurgical process, filtration, precipitation, or electrodeposition in the form of pure metals (gold, silver, copper, tin, aluminum, iron ...).

COMPETITIVE ADVANTAGES

- Recovery of luminophore
- Recovery of precious materials
- Simple operation and use

PRINCIPAL MARKET

- Waste Recycling
- LED Manufacturing
- Electronic devices and components

FIELDS OF APPLICATION

- Recycling of LED components
- Recycling of printed electronic components

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INTELLECTUAL PROPERTY

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