



Lamp Phosphor Production Technology

Overview

Lamp Phosphor (Red Phosphor) is a high-performance rare earth-based luminescent material used in fluorescent lighting applications requiring high brightness, colour stability, and long service life.

Based on the laboratory-scale technology developed at BARC, the process has been successfully upscaled to Pilot Scale at IREL (India) Limited, RETTP, Bhopal. The technology enables the production of high-quality lamp phosphor under controlled conditions with emphasis on product quality, process stability, optical performance, and resource optimization.

Process

The hydrometallurgical process has been developed to ensure reliable operation, consistent product quality, and high production efficiency. The produced lamp phosphor exhibits high purity, excellent luminescent properties, and consistent performance. When combined with suitable green and blue phosphors (RGB phosphor combination), it enables the generation of high-quality white light for lighting applications.

Salient features

- Indigenous technology for commercial-scale lamp phosphor production.
- Suitable for RGB phosphor combinations.
- Reliable process with high production efficiency.
- Environmentally responsible manufacturing practices.

Advantages

- Production of high-purity phosphor with excellent luminescent properties.
- High brightness and colour stability.

Areas of application

- Fluorescent lamps.
- Compact fluorescent lamps (CFLs).
- Specialty lighting products.
- Operation Theatre lighting.

Facilities required

- Industrial building and production area.
- Electrical power supply.
- Water supply and utility systems.
- In-house quality control laboratory.
- Environmental management facilities.
- Material handling and storage facilities.
- Utility services and maintenance facilities.