

Application Status and Development Trend of Plastics in China's Lighting Electrical Appliance Industry

1. Application Status

1. Lighting electrical appliance industry comprises: light source manufacturing, lighting manufacturing and lighting electrical appliance manufacturing.

2. Basic requirements for technical performance of plastics: resistance to high temperature and UV ageing, and fire retardance.

3. Applications:

Light-Source Products

These products are extensively used in fluorescent products such as: straight-tube lamps, energy-saving lamps (compact fluorescent lamps) and loop-shaped fluorescent lamps. In 2008, the gross output of fluorescent products in China registered 551.13396 million, of which including 161.4644 million straight-tube lamps, 375.21303 million energy-saving lamps and 14.45653 million ring-shaped fluorescent lamps. PBT materials are applied to the lighting source's casing, lamp head, lamp holder and lamp leg with temperature resistance up to 170°C.

Lighting Products

These products are mainly used in decorative lightings, fluorescent light fittings and road lights. In 2008, the gross output of various lightings in China registered 1.61 billion (set/unit/), with a sales income up to RMB110 billion.

- PMMA(organic glass) and ABS (engineering plastics) for decorative lightings;
- PMMA(organic glass) for fluorescent light fittings;
- PMMA(organic glass) and polycarbonate for road lights.

Accessories of Lighting Electrical Appliances

These products are mainly used to the framework of inductance ballast, the circuit board of electronic ballast and casing of trigger. In 2008, the gross output of various ballasts in China registered about 15 billion. These products are mainly made of PBT materials (resisting temperature up to 170°C), epoxy resin and glass epoxy board.

LED Products

LED has recently been used in common lighting sector and developed rapidly with a bright prospect. Now, it's mainly employed for indication, display and decoration. PE (high-pressure ethene) materials are primarily used for decorative lighting strips, and PMMA (organic glass) and silicon rubber used for LED lens.

2. Development Trend

The lighting electrical appliance industry grows annually by 15%~20% in recent years. Despite of financial crisis last year, the production was recovered in the second half of this year. So, it's predicted that the consumption of plastics will grow by 15%~20%.

Main materials: PBT material (resisting temperature up to 170°C), PMMA(organic glass), PE (high-pressure ethene), silicon rubber, polycarbonate, epoxy resin and glass epoxy board.

From the future development of lighting technology, T8 and T5 straight-tube fluorescent lamps and energy-saving lamps will grow at a rate over 20%, primarily owing to the fact that incandescent lamps will be phased out in China from 2012 and replaced by energy-saving lamps. The gross output of incandescent lamps in 2008 amounted to 4.343 billion. While LED light sources will be introduced into lighting field with the upgrading of technology and performance and reduction of price, the consumption of PE and silicon rubber will increase accordingly.

Source : Shanghai Illumination Electric Appliance Trade Association