LAMP MATERIAL INFORMATION SHEET
PIN BASED COMPACT FLUORESCENT

MATERIAL SAFETY DATA SHEET (MSDS)
Information and Applicability

The Material Safety Data Sheet (MSDS) requirements of the Occupational Safety and Health Administration (OSHA) for chemicals are **not** applicable to manufactured articles such as lamps. No material contained in a lamp is released during normal use and operation.

The following information is provided as a service to our customers. This Lamp Material Information Sheet contains the Material Safety Data Sheet information that is applicable.

SECTION 1: PRODUCT IDENTIFICATION

Trade Name: SATCO HYGRADE

- This data sheet covers all SATCO HYGRADE brand pin based compact fluorescent lamps for general lighting applications.
- This data sheet does not cover linear fluorescent, High Lumen CFL (2G11 base) or integrated lamp and ballast/adapter units

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SECTION 2: LAMP MATERIALS AND HAZARDOUS INGREDIENTS

Glass & Metal
The glass tube used in a standard compact fluorescent lamp is Lead Free Glass. The coils in the lamps (called filaments or cathodes) are made of tungsten. An emitter material covers the tungsten coil. This emitter material consists of triple oxide (BaO, CaO, SrO) + ZrO2 in a quantity of 6-10 mg/lamp depending on type. Other than the usual concerns of broken glass, these materials do not pose a hazard in the event that the lamp breaks.

Phosphor
The phosphor system uses a mixture of rare earth elements such as lanthanum and yttrium as either an oxide or as a phosphate, along with a barium/aluminum oxide. These phosphors produce better lamp efficiency and color rendition. The phosphor components may vary slightly depending on the color of the lamp (cool white, warm white, etc.).Total phosphor weight will vary by lamp size and type.

Mercury
Mercury is present in small amounts in all fluorescent lamps. For SATCO HYGRADE CFL – weight of mercury in the form of amalgam is less than 0.017% of the total.

Plastic Material
The plastic housing is typically made of PBT (Polybutylene–terephthalate) fire retarded plastic. This product consists primarily of high molecular weight polymers that are not hazardous.

Glow Switch which contains Krypton 85
Krypton-85 is only found in the glass encapsulated starting switch mounted in the base of 2pin lamps and not in 4pin lamps.

SECTION 3: PHYSICAL/CHEMICAL PROPERTIES

Not Applicable to Intact lamp.

SECTION 4: FIRE AND EXPLOSION HAZARDS

Not applicable. Under extreme high temperatures, the glass might crack.

SECTION 5: REACTIVITY DATA

Stability: Stable
Incompatibility: None for intact lamp
Hazardous Polymerization: Not applicable

SECTION 6: HEALTH HAZARDS

EXPOSURE TO INTACT LAMPS DOES NOT POSE ANY KNOWN HEALTH HAZARDS

Glass
Take normal care with broken glass.

Phosphor
There have been no significant adverse effects reported in humans by any of these Phosphors during many years of its manufacture and use. The phosphor is somewhat similar to the inert mineral apatite's (calcium phosphate-fluorides) that occur in nature. Antimony, manganese, yttrium and tin compounds are characterized by OSHA as hazardous chemicals, as are most metals. However, they have low toxicity, are insoluble, and are present in very small amounts in the lamp; therefore these compounds are not a significant hazard in the event that the lamp breaks.

Mercury
Neither the mercury nor the phosphor concentration in air produced as a result of breaking one or a small number of compact fluorescent lamps should result in significant exposures to the individual. If large numbers of lamps are broken, clean-up personnel should use appropriate industrial hygiene monitoring and controls to minimize airborne or surface contamination levels. Personal protective equipment may be needed. Lamp recycling when large quantity lamp disposal is required. See: www.lamprecycle.org for a list of lamp recyclers.

Glow Switch which contains Krypton 85

The radiation emitted by Kr-85 is 99.6% beta which is completely absorbed by the glass envelope of the glow switch and 0.4% gamma which is not. The radiation is, however, 100 to 200 times less than that allowable for clocks and watches. In the unlikely event of the glow switch breaking, the traces of krypton-85 gas immediately disperse in the air. Krypton gas and its radio active isotope are inert (they do not react chemically with other substances) and are not absorbed by the body.

SECTION 7: DISPOSAL CONCERNS

Take normal precautions for broken glass. Avoid generating dust; personal protective equipment may be needed.

TCLP

Toxicity Characteristic Leaching Procedure (TCLP) test conducted on traditional compact fluorescent lamp designs for mercury could possibly cause the lamps to be classified as a hazardous waste due to the mercury content .While small numbers of these lamps placed in ordinary trash may not appreciably affect the nature or method of disposal of the trash, under many circumstances disposal of large quantities may be regulated. Lamp recycling is recommended for large quantity disposal. Review your waste handling practices to assure that lamps are disposed properly and contact your state environmental department for any regulations that may apply. To check state regulations or to locate a recycler, go to www.lamprecycle.org

Lamps which pass EPA's TCLP test are considered non hazardous waste in most states. Always review your local and state regulations which can vary. Based upon the EPA standards testing protocol SATCO HYGRADE pin based lamps pass the TCLP test .The lamps also meet with RoHS (Restriction of Hazardous Substances) EC directive.

Plastic Material

The plastic material used in a compact fluorescent lamp can be recycled during the lamp recycling process**.**