

DISPOSAL OF LARGE QUANTITIES OF FLUORESCENT AND HIGH INTENSITY DISCHARGE LAMPS

Fluorescent and other discharge lamps contain a relatively small quantity of mercury. The amount of mercury contained in a fluorescent lamp is roughly proportional to its length, being about 10-15 milligrams per foot. For example, a standard four foot lamp contains about 50 mg of mercury. Mercury and metal halide high pressure discharge lamps contain between 13 and 250 mg mercury per lamp, the amount increasing along with the wattage. Several of these lamps placed in ordinary trash should not appreciably effect the nature or method of disposal of the trash. However, under some circumstances disposal of larger numbers of lamps, particularly the high intensity discharge types, may be regulated.

Federal regulations (under the Resource Conservation and Recovery Act) currently in effect define certain wastes containing mercury as hazardous if they have more than a specified amount of leachable mercury. Although fluorescent and HID lamps contain enough mercury that if it were all leachable it would exceed that amount, the mercury is nearly all in elemental form, very insoluble and does not appreciably leach. Tests conducted on both new and used lamps, under the "extraction procedure" demonstrate that they would not be classified as a hazardous waste, due to the mercury.

For tests conducted using the "toxic characteristic leachate procedure", a review of our data and that available from other lamp manufacturers and commercial labs indicate considerable variability in test results, making it impossible to classify the waste status of fluorescent lamps at this time.

High intensity discharge type lamps (mercury vapor, metal halide and high pressure sodium lamps) use lead solder on the base of the lamp. A Toxic Characteristic Leaching Procedure Test (TCLP) conducted on an HID lamp for lead could cause the lamp to be classified as a hazardous waste.

Conducting these tests is difficult and the application of leach tests to a product, like lamps, is not clearly defined. The method of obtaining a representative sample of an article is not set forth in the regulation. GE used entire fluorescent lamps which were crushed and then analyzed, or in the case of high intensity discharge lamps, the arc tubes were crushed, analyzed, and the results extrapolated to the entire lamp. Lamps used under several different operating conditions were tested. Therefore, we believe the results should be representative and typical of most GE lamps operated under normal conditions. A synopsis of these results is available upon request. Tests run on lamps operated under different conditions or for longer periods of time than those tested may yield different results.

While small numbers of these lamps placed in ordinary trash should not appreciably effect the nature or method of disposal of the trash, under some circumstances disposal of large quantities may be regulated.

The status of lamps under local and state regulations that follow the federal scheme should be the same. However, some jurisdictions control waste based on the absolute percentage by weight of the regulated material. For example, in California waste containing more than 20 milligrams mercury per kilogram of waste is considered hazardous. A typical four foot fluorescent lamp contains 50 milligrams and weighs about 270 grams. Following is a table of similar data for typical mercury, metal halide and high pressure sodium lamps. The weights listed should not be considered as the exact weight for any one lamp, but as representative of the approximate weight of that lamp type.

| <u>Lamp Type</u> | <u>mg Mercury</u> | <u>Lamp weight</u> |
|------------------|-------------------|--------------------|
| HR175DX39 | 30 | 150 g |
| HR400A23 | 82 | 260 |
| MVR175/U | 26 | 150 |
| MVR400/C/U | 62 | 270 |
| MVR/HOR | 62 | 270 |
| LU400 | 23 | 160 |

These amounts should be compared to local standards where they are in effect. Lamp disposal in these locations should follow applicable regulations.

REVISION 1

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