

Technical Information Bulletin



U.S. Department of Labor
Occupational Safety and Health Administration

Possible Failure of Metal Halide Lamps

TIB 00-09-13

Purpose

The purpose of this Technical Information Bulletin (TIB) is:

1. to alert users of metal halide lamps that these lamps operate at high pressures and extremely high temperatures and that the lamps' quartz arc tubes can rupture unexpectedly creating potential hazards;
2. to inform users that special metal halide lamps designated for open luminaires are commercially available; and
3. to recommend that users comply with the lamp manufacturers' warnings and follow operating instructions supplied by the manufacturer.

Background

In September 1986, the Directorate of Technical Support issued a Hazard Information Bulletin (HIB) on the possible failure of metal halide lamps manufactured by a particular company; however, all metal halide lamps manufactured by a variety of companies, may have the same potential for failure. This TIB supersedes the 1986 HIB to make available manufacturers' recommendations for reducing the possibility of lamp failure.

Description of Hazard

Metal halide lamps use quartz arc tubes, which operate at high pressures and extremely high temperatures (as high as 1832 °F, 1000 °C). These arc tubes can rupture unexpectedly due to internal causes or external factors. If the outer jacket of the lamp shatters, the hot quartz arc tube particles and

This TIB is not a new standard or regulation and it creates no new legal obligations. It is advisory in nature, informational in content, and is intended to assist employers in providing a safe and healthful workplace.

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outer jacket glass particles will be discharged against the luminaire's enclosure or into the environment. Many metal halide lamps require an enclosed metal halide luminaire designed to contain particles in the event of an arc tube rupture. Enclosed metal halide luminaires must comply with UL 1572, "UL Standard for Safety for High Intensity Discharge Lighting Fixtures."

Recommendations

The National Electrical Manufacturers Association recommends that (1) metal halide lamps be turned off for a minimum of 15 minutes at least once each week and (2) lamps be replaced at or before the end of their rated lives.

To reduce the possibility of an arc tube rupture, all maintenance personnel, contractors, and other users should understand and comply with the manufacturers' warnings and operating instructions supplied with each lamp. This information includes

luminaire and operating position requirements for the particular lamp, along with other important instructions.

Special metal halide lamps, which are designed to contain all particles in the event of a rupture, are commercially available. These lamps are designed so that the outer jacket remains intact if an arc tube ruptures. Users may wish to consider using these lamps as another option for open luminaires. These lamps can be found in the lamp manufacturer's literature or by contacting lamp suppliers.

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Important Information on the Nature and Effect of Technical Information Bulletins

OSHA's Directorate of Technical Support (DTS) issues Technical Information Bulletins (TIBs) to provide information about occupational hazards and /or to provide information about noteworthy, innovative, or specialized procedures, practices and research that relate to occupational safety and health. DTS selects topics for TIBs from recognized scientific, industrial hygiene, labor, industry, engineering, and/or medical sources.

The *Occupational Safety and Health Act* requires employers to comply with hazard-specific safety and health standards. In addition, employers must provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm under Section 5(a)(1), the General Duty Clause of the Act. Employers can be cited for violating the General Duty Clause if there is a recognized hazard and they do not take appropriate steps to prevent or abate the hazard. However, the failure to implement TIB recommendations is not, in itself, a violation of the General Duty Clause. Citations can only be based on standards, regulations, and the General Duty Clause.

Further information about this bulletin may be obtained by contacting OSHA's Directorate of Technical Support at 202-693-2200