

HIDden Hazard

High Intensity Discharge lights (HID) are commonly found in warehouses or other "high bay" storage areas. These are usually larger oval bulbs, and use Sodium or Mercury to facilitate an electric arc, which is how illumination is generated. These bulbs are very efficient, more so than even many fluorescent fixtures.

However, some types of HID bulbs have a lurking hazard. It relates to the design of certain bulbs, and how they are used. Much of this is found in the OSHA Technical Information Bulletin TIB 00-09-13, *Possible Failure of Metal Halide Lamps*.

These HID bulbs have an inner quartz glass capsule - where the arc occurs - and under certain conditions this can spontaneously shatter. If this were to occur, very hot metal and quartz will rain down onto objects below. Now if this is concrete or metal, no harm done. However, if this is combustibles such as cardboard boxes, you have the ingredients of a fire.

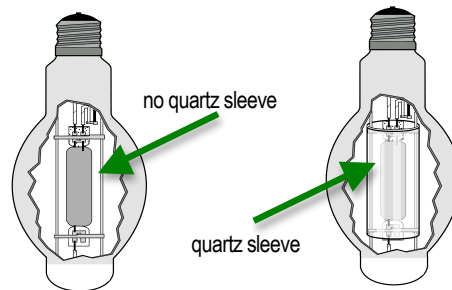
There are two ways to prevent this. The first is to just look at the light fixtures that are installed. If they have a lower cover or shield, made of borosilicate or soda-lime glass, you should be okay. These glass covers act as containment should the inner capsule shatter.



The second option is to examine the bulbs and the box they came in. The box for the bulb should have a marking of either:

- E** - Enclosed fixture required.
- S** - Open fixture restricted burning position (normally $\pm 15^\circ$) otherwise an enclosed fixture is required.
- O** - Open fixture permissible.

Bulbs designed for open fixtures have an inner quartz sleeve, which surrounds the arc capsule. If the capsule shatters, the sleeve contains the energy of the implosion, so that the main bulb does not shatter. The capsule is shown in the diagrams below. The cutaway view gives the details, but many bulbs are frosted so that it is hard to see if a quartz sleeve is in place. However, on most bulbs the bottom is not opaque, so if you look at the bulb's insides this way, the quartz sleeve can be plainly seen.



App Corner - GESTIL ILV

The German *Institut für Arbeitsschutz der Deutschen Gesetzlichen (Institute for Occupational Safety and Health of the German Social Accident insurance, IFA)* publishes an App that lists the international exposure limit values for chemical agents.

Called GESTIS ILV, it contains the occupational limit values for hazardous substances, from 29 countries: various EU member states, to Australia, Canada (Ontario and Québec), Japan, and the United States.

Limit values of close to 2,050 substances are listed, and the App is kept updated. And it's free.

Substance:	Acetone
CAS No.:	67-64-1
Limit value - Eight hours	
	mg/m ³
Australia	500
Austria	500
Belgium	500
Canada - Ontario	500
Canada - Québec	500
Denmark	250
European Union	500
France	500
Germany (AGS)	500
Germany (DFG)	500
Hungary	1210
Ireland	500
Italy	500
Japan	750
Latvia	500
New Zealand	500
Poland	600
Singapore	750
South Korea	500