



NIGHTSTICK INTRINSICALLY SAFE vs. EXPLOSION PROOF

Bayco intrinsically safe flashlight products, XPR-9850/60 and XPR-9810/20 meet the strict requirements of Underwriters Laboratories Hazardous Location Services for intrinsic safety. Intrinsic safety is very different from explosion proof.

XPR-9850/60
Class I, Division 1&2, Groups C&D

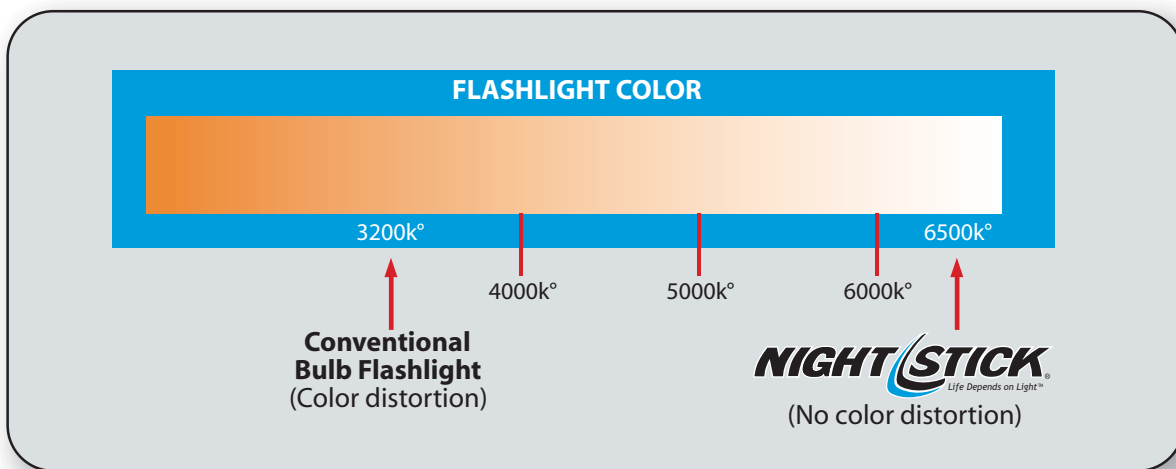
XPR-9810/20
Class I, Division 1&2, Groups C&D
Class II, Division 1&2, Groups E,F,G
Class III, Division 1&2

BULBS vs. LEDs

Generally speaking a flashlight with an explosion proof rating is an incandescent light that has a high temperature element (filament) generating the light and it is encased in a transparent bottle (bulb). An electric current from a power source heats the filament until it gives off visible light making the bulb very hot. Filling the bulb with xenon, krypton or halogen, allows the filament to run at hotter temperatures giving off a brighter, less yellow light. Filament based lights are fragile and easily break from shock and vibration. The high operating temperature of the bulb limits their useful life from 30 to 100 hours.

The NIGHTSTICK XPR-9850/60 and XPR 9810/20 use solid-state Light Emitting Diodes (LED), which are semiconductors and have no filament. LEDs are illuminated solely by the movement of electrons in the semiconductor material. Because LEDs are very efficient converting battery energy into light, they generate very little heat compared to bulbs.

NIGHTSTICK combines brilliant white-light LEDs, that are unaffected by impact and vibration, have a life up to 50,000 hours and illuminate the object with no color distortion.



INTRINSICALLY SAFE

The XPR-9850/60 and XPR 9810/20 hand-held lights are intrinsically safe apparatus as defined by UL: "Apparatus in which all the circuits are intrinsically safe." (See UL 913)

An Intrinsically Safe Circuit is "A circuit in which any spark or thermal effect is *incapable of causing ignition* of a mixture of flammable or combustible material in air under prescribed test conditions." (See UL 913)



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XPR-9850/60 and XPR 9810/20

EXPLOSION PROOF

In the context of a conventional bulb type light utilizing a filament light source in a bottle, explosion proof apparatus is an "Apparatus enclosed in a case that is capable of withstanding an explosion of a specified gas or vapor that may occur *within it* and of preventing the ignition of a specified gas or vapor surrounding the enclosure by sparks, flashes or explosion of the gas or vapor within and that operates at such an external temperature that a *surrounding* flammable atmosphere will not be ignited thereby." (See NFPA 70).

In plain terms, the high temperature light source is contained in a very durable glass vessel. If the ignitable gas enters the vessel and the bulb ignites it, the vessel will contain the explosion to the inside of the vessel.



Source: Western Technology

CONCLUSION

The terminology that defines the meaning of explosion proof is not applicable XPR-9850/60 and XPR 9810/20 because these lights have no bulbs to generate light and as a result cannot cause an ignition that would lead to an explosion in the Class, Division and Group categories they are listed in.

In hazardous environments that are prone to explosion, Bayco's intrinsically safe lights are the best choice for the workplace *when explosion proof is not good enough*.

FOR MORE INFORMATION

Visit

Underwriters Laboratories Definitions of Commonly Used Hazardous Locations Terminology
www.ul.com/hazloc/define.htm

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UL Hazardous Location Service Brochure: www.ul.com/appliances/resources/HazLocbrochure.pdf