



## Intrinsically Safe Devices

Any areas where flammable vapors are present under normal operating conditions are subject to restrictions on electrical and electronic equipment and devices. Many of the devices are portable and small, so it's not surprising that they often are overlooked as possible ignition sources.

One way to determine if a device may safely be used in a hazardous location is to check for a UL Listing that states the device is intrinsically safe for use in that area. (The National Fire Protection Association (NFPA) defines an intrinsically safe apparatus as, 'An apparatus in which all the circuits are intrinsically safe.' and an intrinsically safe circuit as, '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.'

A lot of devices are battery powered and are classified as low voltage; however, it is incorrect to assume that because the device is battery powered and/or low voltage that it is an intrinsically safe device. The voltage is only one of many factors that determine if a device is intrinsically safe.

NFPA 70, National Electrical Code, does mention a voltage limit for intrinsically safe devices; however, this voltage limit applies only to a simple apparatus. The NFPA 70 definition includes, 'An electrical component or combination of components of simple construction with well-defined electrical parameters that does not generate more than 1.5 volts, 100 milliamperes, and 25 milliwatts, or a passive component that does not dissipate more than 1.3 watts and is compatible with the intrinsic safety of the circuit in which it is used.'

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