

Triad Hazardous Area LED Lighting

Making sure your needs are being met



Although specifically designed and toughened for harsh environments, traditional light fixtures are by nature fragile. They are vulnerable to damage from high vibrations and rough impacts and they produce sparks as part of their fundamental workings – none of which are ideal characteristics when dealing with hazardous area installations. Another concern is their thirst for energy. This, combined with the constant maintenance requirements, presents the ideal opportunity to consider LED lighting for your needs. Selection of the right luminaire is critical as this impacts not only safety, but also the lifetime and performance of the luminaire used in these applications

There is often a misunderstanding from our customers as they often request an explosion proof light for their needs when what they actually require is a fixture to meet a lower classification standard for their particular application. Electrical equipment that is approved for use in Class I, Div 1/Zone 0,1, areas is referred to as explosion proof meaning that the equipment has been designed and built to ensure that it will not become a source of ignition when used in a Class I, Gas and Vapour locations. Fixtures for other classified hazardous areas, such as Class 1, Div/Zone 2 are not required to meet these specifications.

Hazardous Location Definition

In the USA and Canada, the governing electrical codes prescribe the rules for which devices must be designed to meet minimal criteria. Four categories of criteria must be evaluated. These include:

- **Class Level:** defines the type of materials that may be present
- **Division/Zone Level:** defines the probability the materials may be present
- **Groups Definition:** defines the particular properties of the hazardous material
- **Temperature Class:** defines the max operating temp of the equipment within the area

Engineered to provide superior T-ratings, extreme vibration and cold resistance, and a lifespans lasting over 100,000 hours, you can count on 7 to 20 years of maintenance-free operation - even in the harshest offshore and land-based locations

Hazardous Location Classification Overview

Class	Division (NEC 500, <1998 CEC or >1998 CEC, NEC 505)	Groups	Temperature Class																																										
Class I Flammable Gases or Vapours	Division 1 – Exists under normal conditions	A IIC Acetylene* B IIB+H2 Hydrogen* C or IIB Ethylene* D IIA Propane*	<table border="1"> <thead> <tr> <th>Temperature Class</th> <th>°C</th> <th>°F</th> </tr> </thead> <tbody> <tr><td>T1</td><td>450</td><td>842</td></tr> <tr><td>T2</td><td>300</td><td>572</td></tr> <tr><td>T2A</td><td>280</td><td>536</td></tr> <tr><td>T2B</td><td>260</td><td>500</td></tr> <tr><td>T2C</td><td>230</td><td>446</td></tr> <tr><td>T2D</td><td>215</td><td>419</td></tr> <tr><td>T3</td><td>200</td><td>392</td></tr> <tr><td>T3A</td><td>180</td><td>356</td></tr> <tr><td>T3B</td><td>165</td><td>329</td></tr> <tr><td>T4</td><td>135</td><td>275</td></tr> <tr><td>T4A</td><td>120</td><td>248</td></tr> <tr><td>T5</td><td>100</td><td>212</td></tr> <tr><td>T6</td><td>85</td><td>185</td></tr> </tbody> </table>	Temperature Class	°C	°F	T1	450	842	T2	300	572	T2A	280	536	T2B	260	500	T2C	230	446	T2D	215	419	T3	200	392	T3A	180	356	T3B	165	329	T4	135	275	T4A	120	248	T5	100	212	T6	85	185
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Division 2 – Presence is an exception	Zone 0 – Exists under normal conditions Zone 1 - Likely to exist under normal conditions Zone 2 – Are an exception																																												
Class II Combustible Dusts	Division 1 – Exists under normal conditions	E IIIC Metal Dust* F or IIIB Carbon Dust* G IIIA Grain Dust*																																											
	Division 2 – Presence is an exception		Zone 20 – Exists under normal conditions Zone 21 - Likely to exist under normal conditions Zone 22 – Are an exception																																										
Class III Ignitable Fibres or Flying	Division 1 – Manufactured / Used																																												
	Division 2 – Stored / Handled																																												

* Please refer to NEC/CEC for further definition



7 Key Points on Hazardous Area Lighting

- Explosion Proof does not mean that the lighting source does not spark;** it means that the items susceptible to spark are isolated in explosion proof boxes that contain the ignition. It also does not mean your LEDs will survive an explosion, just that it won't be the cause of an external explosion.
- Long lasting investment** – Most LED lights have lifespans in excess of 50,000 hours (L70 or greater standards) resulting in reduced downtime and costs associated with traditional lamp and ballast replacements. With low power consumption requirements and high lumen output, these are efficient fixtures for dangerous work environments, regardless of the space or industry.
- Opportunity for operational savings** – It is well known that LEDs only use a fraction of the energy use consumed by conventional luminaires, but the savings from maintenance costs can be substantial as well. One study completed at several O&G end users provided an average time taken to replace a single luminaire at 5.1 hours using 1.9 people. When properly designed and selected, LED fixtures can reduce required maintenance by more than 67%, resulting in significant operational cost savings
- Hazardous Area LEDs are very energy efficient** – they use up to 90% of the energy to provide light and have no heat or conversion loss to account for. You save money on energy usage with better quality lighting than your current hazardous area fixtures.
- Hazardous Area LEDs are bump and break resistant** – they are stronger, use heat-resistant materials/tempered glass, work better within corrosive environments, produce less heat and hence result in much higher temperature class codes associated with the luminaire.
- LEDs offer superior performance** – LED lighting is highly directional and offers cleaner, sharper and more uniform illumination. It provided superior colour rendering compared to conventional light sources. This results in better workplace illumination, increased operator comfort and improved lighting quality, especially for precision tasks in heavy industry environments.
- The efficiency of an LED Luminaire is the cumulative efficiency of its diodes, heat sink, driver and optics** – All Triad Hazardous Area lighting is manufactured using high quality components to maximize efficiency, optimized performance and extend longevity to meet client expectations.



- Chemical Plants
- Oil and Gas
- Off-shore Refining
- Chemical and Paint Processing
- Mining
- Power Generation
- Wharves and Shipping Terminals
- Grain Storage
- Dusty Environments
- Hazardous Material Manufacturing

QUALITY • RELIABILITY • PERFORMANCE



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