



# FLASHLIGHT SAFETY STANDARDS



IECEX



RoHS



## UL Certification

Underwriters' Laboratories Inc.(UL) is an independent, not-for-profit product-safety testing and certification organization. They have been testing products for public safety for more than a century. In order for a product to bear the certified UL Mark, it must pass all UL requirements at their testing facility.

## CSA Certification

CSA Group offers you global solutions for product testing & certification that help streamline your access to markets in North America and around the world.

## IECEX Certification

The IECEX System is a certification system which verifies compliance with IEC international standards relating to safety in hazardous areas. It covers equipment, service facilities and the competency of personnel.

## ATEX Certification

The ATEX directive consists of two EU directives describing what equipment and work environment is allowed in an environment with an explosive atmosphere.

## RoHS - Restriction of Hazardous Substances Directive

Restriction of the use of certain hazardous substances in electrical and electronic equipment regulations implement by EU directive.

## CE – European Conformity

CE marking certifies that a product has met EU consumer safety, health or environmental requirements.

## Division 1&2:

- A-Acetylene
- B-Hydrogen
- C-Ethylene
- D-Propane



## Class I Flammable Gases, Vapors or Liquids

### US Classification

#### Division 1

Where ignitable concentrations of flammable gases, vapors or liquids can exist all of the time or some of the time under normal operating conditions

#### Division 2

Where ignitable concentrations of flammable gases, vapors or liquids are not likely to exist under normal operating conditions.

### Europe Classification

#### Zone 0

Where ignitable concentrations of flammable gases, vapors or liquids are present continuously or for long periods of time under normal operating conditions.

#### Zone 2

Where ignitable concentrations of flammable gases, vapors or liquids are not likely to exist under normal operating conditions

#### Zone 1

Where ignitable concentrations of flammable gases, vapors or liquids are likely to exist under normal operating conditions.

Groups	
<b>Division 1 &amp; 2:</b>	<b>Zone 0, 1 &amp; 2:</b>
A – Acetylene	IIC – Acetylene, Hydrogen
B – Hydrogen	IIC – Acetylene, Hydrogen
C – Ethylene	IIB – Ethylene
D – Propane	IIA – Propane



## Class II Combustible Dusts

### US Classification

#### Division 1

Where ignitable concentrations of combustible dusts can exist all of the time or some of the time under normal operating conditions

#### Division 2

Where ignitable concentrations of combustible dusts are not likely to exist under normal operating conditions.

### Europe Classification

#### Zone 20

Where combustible dusts or ignitable fibers and flyings are present continuously or for long periods of time in quantities sufficient to be hazardous.

#### Zone 22

Where combustible dust or ignitable fibers and flyings are not likely to occur under normal operation in quantities sufficient to be hazardous.

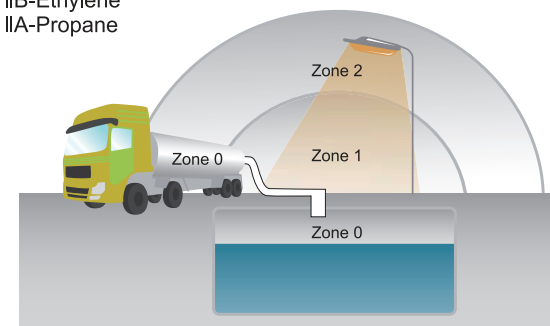
#### Zone 21

Where combustible dust or ignitable fibers and flyings are present continuously or for long periods of time in quantities sufficient to be hazardous.

Groups	
<b>Division 1 &amp; 2:</b>	<b>Zone 0, 1 &amp; 2:</b>
E – Metals – Div. 1 only	None
F – Coal	
G – Grain	

## Zone 0,1&2:

- IIC-Acetylene,Hydrogen
- IIC-Acetylene,Hydrogen
- IIB-Ethylene
- IIA-Propane



## Class III Ignitable Fibers and Flyings

### US Classification

#### Division 1

Where easily ignitable fibers or materials producing combustible flyings are handled, manufactured or used.

#### Division 2

Where easily ignitable fibers are stored or handled.

### Europe Classification

Groups
None

## Temperature Codes

US Classification		Europe Classification	
T1	< 450	T1	< 450
T2	< 300	T2	< 300
T2A	< 280		
T2B	< 260		
T2C	< 230		
T2D	< 215		
T3	< 200	T3	< 200
T3A	< 180		
T3B	< 165		
T3C	< 160		
T4	< 135		
T4A	< 120	T4	< 135
T5	< 100	T5	< 100
T6	< 85	T6	< 85

Information is obtain from Underwriters Laboratories Inc.