

# **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.

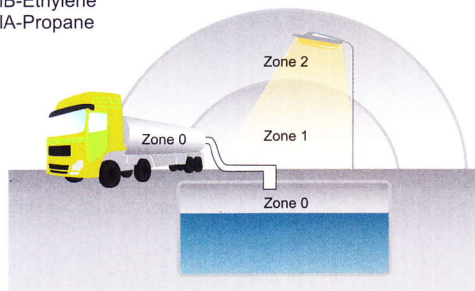
## Division 1&2:

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



## Zone 0,1&2:

IIC-Acetylene, Hydrogen  
IIC-Acetylene, Hydrogen  
IIB-Ethylene  
IIA-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 B – Hydrogen C – Ethylene D – Propane	IIC – Acetylene, Hydrogen IIC – Acetylene, Hydrogen IIB – Ethylene 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 F – Coal G – Grain	None



## 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.