



# UL 844

## STANDARD FOR SAFETY

Luminaires for Use in Hazardous  
(Classified) Locations



UL Standard for Safety for Luminaires for Use in Hazardous (Classified) Locations, UL 844

Thirteenth Edition, Dated June 29, 2012

### **Summary of Topics**

***This revision to ANSI/UL 844 dated October 11, 2021 is being issued to correct errors in -60°C Explosion Test Wording; [26.18](#) and [Table 28.1](#)***

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The revised requirements are substantially in accordance with Proposal(s) on this subject dated September 3, 2021.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form by any means, electronic, mechanical photocopying, recording, or otherwise without prior permission of UL.

UL provides this Standard "as is" without warranty of any kind, either expressed or implied, including but not limited to, the implied warranties of merchantability or fitness for any purpose.

In no event will UL be liable for any special, incidental, consequential, indirect or similar damages, including loss of profits, lost savings, loss of data, or any other damages arising out of the use of or the inability to use this Standard, even if UL or an authorized UL representative has been advised of the possibility of such damage. In no event shall UL's liability for any damage ever exceed the price paid for this Standard, regardless of the form of the claim.

Users of the electronic versions of UL's Standards for Safety agree to defend, indemnify, and hold UL harmless from and against any loss, expense, liability, damage, claim, or judgment (including reasonable attorney's fees) resulting from any error or deviation introduced while purchaser is storing an electronic Standard on the purchaser's computer system.

No Text on This Page

**JUNE 29, 2012**  
(Title Page Reprinted: October 11, 2021)



**ANSI/UL 844-2021**

1

## **UL 844**

### **Standard for Luminaires for Use in Hazardous (Classified) Locations**

The First through Eighth editions were titled Electric Lighting Fixtures for Use in Hazardous Locations. The Ninth through Eleventh were titled Electric Lighting Fixtures for Use in Hazardous (Classified) Location.

Fifth Edition – August, 1969  
Sixth Edition – August, 1971  
Seventh Edition – June, 1972  
Eighth Edition – October, 1978  
Ninth Edition – November, 1984  
Tenth Edition – November, 1990  
Eleventh Edition – August, 1995  
Twelfth Edition – January, 2006

### **Thirteenth Edition**

**June 29, 2012**

This ANSI/UL Standard for Safety consists of the Thirteenth Edition including revisions through October 11, 2021.

The most recent designation of ANSI/UL 844 as an American National Standard (ANSI) occurred on October 11, 2021. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

The Department of Defense (DoD) has adopted UL 844 on June 6, 1989. The publication of revised pages or a new edition of this Standard will not invalidate the DoD adoption.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <https://csds.ul.com>.

UL's Standards for Safety are copyrighted by UL. Neither a printed nor electronic copy of a Standard should be altered in any way. All of UL's Standards and all copyrights, ownerships, and rights regarding those Standards shall remain the sole and exclusive property of UL.

**COPYRIGHT © 2021 UNDERWRITERS LABORATORIES INC.**

This is a preview. Click here to purchase the full publication.

No Text on This Page

## CONTENTS

### INTRODUCTION

1	Scope .....	7
2	General .....	7
3	Components .....	7
4	Units of Measurement .....	7
5	Undated References .....	8
6	Class, Zone, and Group Equivalency .....	8
6.1	Class I, Zone 1, Group IIA .....	8
6.2	Class I, Zone 1, Group IIB .....	8
6.3	Class I, Zone 1, Group IIB plus hydrogen.....	8
6.4	Class I, Zone 1, Group IIC .....	8
6.5	Class I, Zone 2, Group IIA .....	8
6.6	Class I, Zone 2, Group IIB .....	8
6.7	Class I, Zone 2, Group IIB plus hydrogen.....	8
6.8	Class I, Zone 2, Group IIC .....	8
6.9	Zone 20 and 21 .....	9
6.10	Zone 22 .....	9
7	Luminaires Subject to Deposits of Combustible-Paint Residue .....	9
8	Enclosure Types .....	9

### PART I – LUMINAIRES FOR CLASS I, DIVISION 1, GROUPS A, B, C, AND D, AND CLASS II, DIVISION 1, GROUPS E, F, AND G LOCATIONS

### CONSTRUCTION

9	Enclosure Material .....	9
10	Enclosure Thickness .....	10
10.1	Enclosures for Class I locations .....	10
10.2	Enclosures for Class II locations .....	10
11	Joints in Enclosures for Class I Locations .....	12
11.1	General.....	12
11.2	Luminaires for Class I, Groups C and D locations .....	14
11.3	Luminaires for Class I, Group B locations.....	19
11.4	Luminaires for Class I, Group A locations.....	19
12	Joints in Enclosures for Class II, Groups E, F, and G Locations .....	20
13	Holes in Enclosure .....	20
13.1	Luminaires for Class I locations .....	20
13.2	Luminaires for Class II locations.....	21
14	Shaft Openings .....	21
14.1	General.....	21
14.2	Luminaires for Class I locations .....	21
14.3	Luminaires for Class II locations.....	22
15	Guards of Luminaires for Classes I and II Locations .....	22
16	Nonmetallic External Parts .....	22
17	Supply Connections .....	22
17.1	Luminaires for Class I locations .....	22
17.2	Luminaires for Class II locations.....	25
17.3	Leads .....	26
18	Disconnecting Means .....	26
19	Protection Against Corrosion.....	26
20	Materials Applied to Joint Surfaces .....	27

21	Fuses .....	27
22	Grounding and Bonding .....	28
23	Porosity in Enclosure Materials .....	28
24	Luminaires for Wet Locations .....	28

## PERFORMANCE

25	Temperature Test .....	29
26	Explosion Tests .....	31
27	Tests on Luminaires with Fuses .....	35
28	Hydrostatic Pressure Test .....	35
29	Dust-Penetration Test .....	36
29A	Dust-Penetration Test .....	37
30	Thermal Shock Test .....	37
31	Rust-Resistance Test .....	37
32	Test for Secureness of Conduit Hubs .....	37
	32.1 General .....	37
	32.2 Pullout .....	38
	32.3 Bending .....	38
33	Vibration Test .....	39
34	Electrical Resistance Test .....	42
35	Non-Metallic Enclosure Materials Tests – Class I .....	42
	35.1 General .....	42
	35.2 Chemical compatibility by material samples .....	42
	35.3 Chemical compatibility by complete end product tests .....	43
	35.4 Test for Accumulation of Static Electricity .....	45
36	Tests on Sealing Compounds .....	45
37	Non-Metallic Enclosure Tests – Class II .....	46
38	Leakage Test on Factory-Installed Conduit Seals .....	47

## PART II – LUMINAIRES FOR CLASS I, DIVISION 2, GROUPS A, B, C, AND D LOCATIONS

### GENERAL

39	Details .....	47
----	---------------	----

### CONSTRUCTION

40	Enclosure .....	47
	40.1 General .....	47
	40.2 Supply connections .....	48
	40.3 Luminaires for wet locations .....	48
	40.4 Protection against corrosion .....	48
41	Arcing and Sparking Parts .....	48

### PERFORMANCE

42	Temperature Test .....	49
----	------------------------	----

## PART III– LUMINAIRES FOR CLASS II, DIVISION 2, GROUPS F AND G AND CLASS III LOCATIONS

### GENERAL

43	Details .....	50
----	---------------	----



**CONSTRUCTION**

44	Enclosure .....	50
45	Supply Connections .....	50
46	Control Devices.....	51
47	Protection Against Corrosion .....	51

**PERFORMANCE**

48	Temperature Test .....	52
49	Dusttight Enclosure Test .....	53
	49.1 General.....	53

**PART IV – PORTABLE LUMINAIRES****GENERAL**

50	Details .....	53
51	Protection of Glass Parts .....	53
52	Seal Between Lamp and Terminal Compartments .....	54
53	Supply Connections .....	54
	53.1 Cords, plugs, and provision for connection.....	54
54	Terminal enclosure .....	54
	54.1 Class I .....	54
	54.2 Class II .....	54
55	Cord Clamp and Strain Relief .....	55
56	Attachment of Parts .....	55
57	Hook and Handle .....	55
58	Casters and Wheels .....	55
59	External Metal Parts .....	55
60	Switches.....	55
61	Spacings .....	56

**PERFORMANCE**

62	Temperature Test .....	57
63	Accelerated Aging Test of Bushing.....	58
64	Thread-Wear Test .....	58
65	Strain-Relief Test.....	58
66	Rough-Usage Test.....	59
67	Drop Test.....	59
68	Impact Test .....	59
69	Overturning Test.....	59
70	Stability Test .....	60
71	Resistance Test.....	60

**PART V – MANUFACTURING AND PRODUCTION TESTS**

72	Bonding Test on Portable Luminaires .....	60
73	Hydrostatic Pressure Test .....	60

**PART VI – MARKING**

74	Details .....	60
75	Installation Instructions .....	67

75.1 General.....	67
75.2 Electronic medium for required instructions.....	67

## **SUPPLEMENT SA – INVESTIGATION OF ELASTOMERIC GASKETS**

SA1 Scope .....	69
SA2 General .....	69
SA3 Physical Properties .....	69
SA4 Accelerated Air-Oven Aging Test.....	69
SA5 Compression Set.....	70
SA5.1 General .....	70
SA5.2 Compression set determination.....	70
SA5.3 Dust penetration .....	71
SA6 Identification.....	72

## **SUPPLEMENT SB – ALTERNATIVE JOINTS IN ENCLOSURES**

SB1 General.....	73
SB2 Cemented Joints.....	73
SB3 Joints with Flamepaths Class I, Groups A, B, C, and D .....	73
SB4 Labyrinth Joints A, B, C, and D .....	74
SB5 Threaded Joints.....	74
SB5.1 General – Class I, Groups A, B, C, and D .....	74
SB5.2 Class I, Groups A and B.....	74
SB5.3 Class I, Groups C, and D .....	75
SB6 Straight (Flat or Cylindrical), and Rabbet Joints: Class I, Groups A, B, C, and D.....	75

## **SUPPLEMENT SC – ALTERNATIVE EXPLOSION TESTS**

SC1 Explosion Tests .....	83
---------------------------	----

## **SUPPLEMENT SD – LUMINAIRES INTENDED FOR FLUSH MOUNTING IN PAINT SPRAY AREAS**

SD1 Scope.....	89
SD2 Hip- or Ceiling-Mounted Luminaires Accessed from Outside a Down Draft Paint Spray Booth Only .....	89
SD3 Hip- or Ceiling-Mounted Luminaires Accessed from Inside a Down Draft Paint Spray Booth.....	89
SD4 Wall-Mounted Luminaires Accessed from Outside a Down Draft Paint Spray Booth Only .....	90
SD5 Wall-Mounted Luminaires Accessed from Inside a Down Draft Paint Spray Booth.....	90
SD6 Marking .....	91
SD7 Installation Instructions .....	91

## INTRODUCTION

### 1 Scope

1.1 These requirements cover fixed and portable luminaires for installation and use in hazardous (classified) locations, Class I, Divisions 1 and 2, Groups A, B, C, and D; Class II, Division 1, Groups E, F, and G; Class II, Division 2, Groups F and G; and Class III, Divisions 1 and 2, in accordance with the National Electrical Code, NFPA 70.

1.2 These requirements also cover luminaires for installation and use in Class I, Zones 1 and 2, Groups IIA, IIB, IIB plus Hydrogen, and IIC, and Zone 20, 21 and 22 hazardous (classified) locations in accordance with the National Electrical Code, NFPA 70.

1.3 These requirements cover luminaires for use only under the following atmospheric conditions:

- a) A minimum ambient temperature of minus 60°C (minus 58°F);
- b) An oxygen concentration not greater than 21 percent by volume; and
- c) A nominal barometric pressure of one atmosphere.

### 2 General

2.1 Luminaires for use in hazardous locations shall also comply with the applicable requirements for luminaires for use in unclassified locations.

2.2 Low-pressure sodium lamps shall not be used in a luminaire for use in Division 1 hazardous locations.

### 3 Components

3.1 Except as indicated in [3.2](#), a component of a product covered by this standard shall comply with the requirements for that component.

3.2 A component is not required to comply with a specific requirement that:

- a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, or
- b) Is superseded by a requirement in this standard.

3.3 A component shall be used in accordance with its rating established for the intended conditions of use.

3.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

### 4 Units of Measurement

4.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.