

POLARIS LIGHT

FREE GUIDE FOR UK SITES

ATEX lighting in the UK

A practical guide to hazardous area zones, Ex marking and compliant LED upgrades, with a buyer's checklist

Written for maintenance, HSE and site managers who need to specify, replace or check lighting in areas where flammable gas, vapour or combustible dust may be present.

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Who this guide is for, and how to use it

A light fitting in a hazardous area must not become a source of ignition. Choosing the right one depends on facts about your site that only your risk assessment can give.

This guide explains the terms you will meet on drawings, certificates and fitting labels: zones, equipment groups and categories, equipment protection levels (EPL), gas and dust groups, temperature classes and protection concepts. It then gives a checklist for buying ATEX and UKEX lighting and an overview of installation and inspection.

Five steps from risk assessment to inspection



Each step relies on the records from the step before it.

What this guide is not

It is general information, not a hazardous area classification, a design or legal advice for your site. Zones and equipment requirements must come from a competent person's assessment of your own workplace.

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The law in Great Britain: DSEAR, EPS, ATEX and UKEX

Two sets of rules apply. One covers the **workplace**, the other covers the **equipment**.

Rules	What they cover
DSEAR 2002 Dangerous Substances and Explosive Atmospheres Regulations	Duties on employers to eliminate or control risks from dangerous substances. DSEAR puts Directive 99/92/EC (ATEX 137, the workplace directive) into effect in Great Britain.
EPS Regulations 2016 Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres	Equipment placed on the GB market for use in explosive atmospheres. They implement the requirements of Directive 2014/34/EU (ATEX 114, the equipment directive) in Great Britain.

What DSEAR asks of employers with explosive atmospheres

- [ ] **Classify** areas where hazardous explosive atmospheres may occur into zones.
- [ ] **Select equipment** for zoned areas to meet the 2016 EPS Regulations, unless the risk assessment finds otherwise.
- [ ] **Mark entry points** to zoned areas with the "EX" sign, where necessary.
- [ ] **Provide suitable clothing**, for example anti-static footwear, where the risk assessment calls for it.
- [ ] **Verify overall explosion safety** through a competent person before a workplace with zoned areas comes into operation for the first time.

ATEX, UKEX, CE, UKCA and IECEx

"UKEX" is the common name for equipment that meets the GB EPS Regulations and carries the **UKCA** marking. Since 1 October 2024, GB law recognises the **CE** marking indefinitely, so ATEX equipment with CE marking can also be placed on the GB market. Equipment must also carry the specific marking of explosion protection (the Ex hexagon) with its equipment group and category.

IECEx is an international certification scheme based on the IEC 60079 standards and is widely used outside Europe. It is not a GB legal marking on its own, but an IECEx certificate is useful evidence when you compare products.

> ### Existing equipment
>
> HSE guidance says equipment already in use before July 2003 can continue to be used indefinitely, provided a risk assessment shows it is safe to do so. A relighting project is a good moment to review it.

Hazardous area zones

DSEAR Schedule 2 classifies hazardous places into zones by how often, and for how long, an explosive atmosphere occurs.

Zone	Definition in DSEAR Schedule 2
Zone 0	Explosive atmosphere of gas, vapour or mist present continuously or for long periods or frequently.
Zone 1	Explosive atmosphere of gas, vapour or mist likely to occur in normal operation occasionally.
Zone 2	Explosive atmosphere of gas, vapour or mist not likely to occur in normal operation but, if it does occur, will persist for a short period only.
Zone 20	Cloud of combustible dust in air present continuously, or for long periods or frequently.
Zone 21	Cloud of combustible dust in air likely to occur in normal operation occasionally.
Zone 22	Cloud of combustible dust in air not likely to occur in normal operation but, if it does occur, will persist for a short period only.

DSEAR notes that layers, deposits and heaps of combustible dust must be considered as any other source which can form an explosive atmosphere.

How zones sit around a source of release (example only)

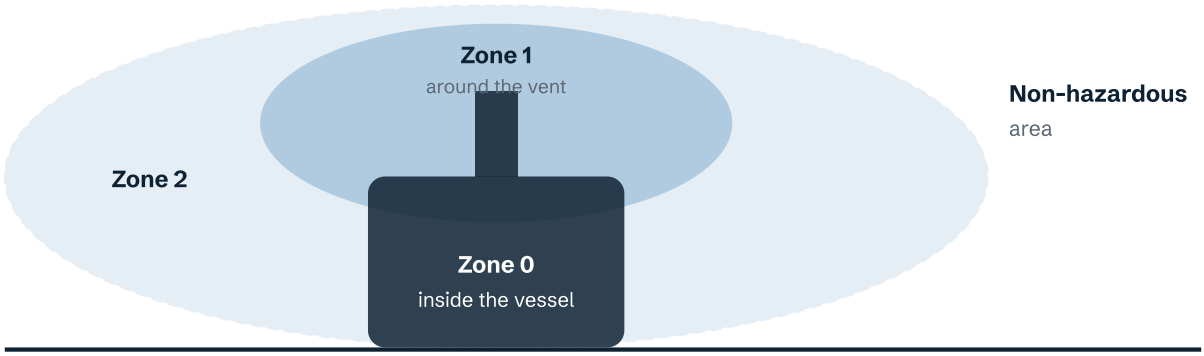


Illustration only. The type and extent of each zone come from your area classification, for example to BS EN 60079-10-1 (gas) and BS EN 60079-10-2 (dust).

Equipment groups, categories and EPLs

The EPS Regulations define two **equipment groups**: Group I for mines, and Group II for all other places liable to be endangered by explosive atmospheres. Lighting for surface industry is Group II.

Within Group II, equipment has a **category** of 1, 2 or 3, followed by G for gas or D for dust. DSEAR Schedule 3 sets which categories may be used in each zone. The IEC standards express the same idea as an **equipment protection level** (EPL): a for the highest protection, c for the lowest.

Zone	Categories allowed (DSEAR Sch. 3)	EPL allowed
Zone 0	**1**G	Ga
Zone 1	**1**G or **2**G	Ga or Gb
Zone 2	**1**G, **2**G or **3**G	Ga, Gb or Gc
Zone 20	**1**D	Da
Zone 21	**1**D or **2**D	Da or Db
Zone 22	**1**D, **2**D or **3**D	Da, Db or Dc

The rule of thumb

Equipment of a higher category (a lower number) can be used in a less hazardous zone, never the other way round. A category 2G fitting is suitable for Zones **1** and **2**; it is not suitable for Zone **0**.

What the categories mean in practice

Category 1 / EPL a
Very high protection
Zones 0 and 20 and below

Category 2 / EPL b
High protection
Zones 1, 2, 21 and 22

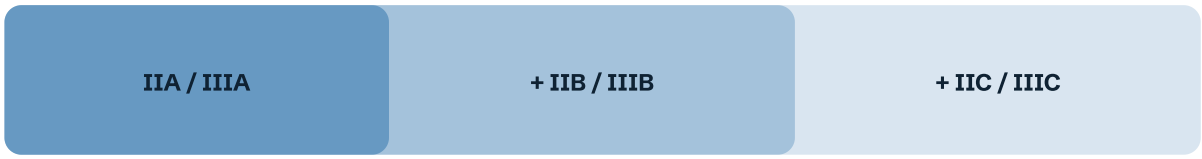
Category 3 / EPL c
Normal protection
Zones 2 and 22 only

Gas groups and dust groups

Group II (gas) and Group III (dust) are each split into A, B and C. C needs the highest degree of protection. Gases are grouped by how little energy it takes to ignite them; dusts by their type and electrical conductivity.

Gas group	Typical gases (examples)	Equipment marked for it also covers
IIA	Propane, methane, ammonia, acetone, toluene	IIA
IIB	Ethylene, ethylene oxide, hydrogen sulphide	IIB and IIA
IIC	Hydrogen, acetylene, carbon disulphide	IIC, IIB and IIA

Dust group	Type of dust	Equipment marked for it also covers
IIIA	Combustible flyings (fibres)	IIIA
IIIB	Non-conductive dust	IIIB and IIIA
IIIC	Conductive dust	IIIC, IIIB and IIIA



Equipment certified for a higher group can be used for the groups below it.

Check the substance, not the label on the drum

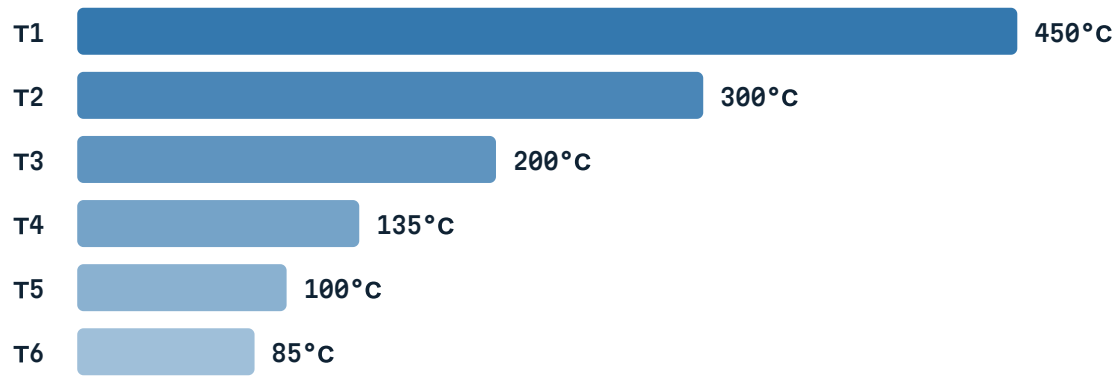
The gas or dust group for each area should be on your area classification record. If hydrogen or acetylene can be present, you need IIC equipment.

Examples from the FIA guide on equipment for use in explosive atmospheres (2022), Table 3 and Annex A.

Temperature classes

A hot surface can ignite a gas without any spark. The **T class** on a gas marking states the maximum surface temperature of the equipment. It must be below the ignition temperature of the gas or vapour in the area.

T class	Maximum surface temperature	Suitable for gases with an ignition temperature above
T1	450 °C	450 °C
T2	300 °C	300 °C
T3	200 °C	200 °C
T4	135 °C	135 °C
T5	100 °C	100 °C
T6	85 °C	85 °C



Maximum surface temperature by T class, to scale. Source: HSE, Hazardous area classification and control of ignition sources.

Dust markings give a temperature in °C

For dust, the marking states the maximum surface temperature directly, for example **T95°C**. Compare it with the ignition temperatures of the dust cloud and dust layer on your site, which your assessment should record.

Ambient temperature

If a fitting's marking gives no ambient temperature range, it is intended for use from **−20 °C** to **+40 °C**. Check the marked range for hot roof spaces, process areas or outdoor use.

How to read an Ex marking

Example: the gas marking of our PS-ATEX-HIGHBAY.

II	2G	Ex db	IIB	T5	Gb
Group II: not mines	Category 2, gas: Zones 1 and 2	Flameproof enclosure	Gas group IIB (covers IIA)	Max surface 100 °C	EPL: high protection, gas

And its dust marking: **II 2D Ex tb IIIC T95°C Db**. Category 2 dust (Zones **21** and **22**), protection by enclosure "tb", all dust groups, maximum surface temperature **95 °**C, EPL Db.

Where to find it on a label



Generic example for illustration only. Real labels vary by manufacturer; always read the label and certificate of the fitting.

Protection concepts you will see on lighting

Code	Protection concept	Standard	How it protects
d	Flameproof enclosure	BS EN 60079-1	Contains an internal explosion so it cannot ignite the outside atmosphere.
e	Increased safety	BS EN 60079-7	Extra measures to prevent arcs, sparks and hot surfaces.
i	Intrinsic safety	BS EN 60079-11	Limits electrical energy below what could cause ignition.
n	Type of protection "n"	BS EN 60079-15	For Zone **2** equipment.
t	Protection by enclosure (dust)	BS EN 60079-31	Keeps dust out and limits surface temperature.

Look for an "X" after the certificate number

An X means the certificate has **specific conditions of use**. Read them before installation; they can cover things like cable entries, mounting or cleaning.

Also on the label: the conformity marking (UKCA or CE), the Ex hexagon, the manufacturer, the certificate reference and the ambient temperature range.

Buyer's checklist for ATEX and UKEX lighting

- [ ] **Current DSEAR risk assessment** and hazardous area classification drawing for each area to be lit.
- [ ] **Zone** for each area: gas 0, 1 or 2; dust 20, 21 or 22.
- [ ] **Gas or dust group** and **ignition temperature** (or required T class) for the substances present.
- [ ] **Category and EPL** on the fitting match the zone (for example 2G / Gb for Zone 1).
- [ ] **Group and T class** on the fitting cover the substances in the area.
- [ ] **Conformity marking**: UKCA (UKEX) or CE (ATEX), the Ex hexagon, and the declaration of conformity on file.
- [ ] **Certificate conditions**: any "X" conditions read and met.
- [ ] **Ambient temperature range** suits the location.
- [ ] **IP and IK ratings** suit the environment: washdown, dust, impact, outdoor exposure.
- [ ] **Corrosion resistance** for chemical, coastal or offshore-type sites.
- [ ] **Cable glands and entries** certified for the same protection concept.
- [ ] **Light levels** planned for each task area; see our UK lux levels guide for BS EN 12464-1:2021 values.
- [ ] **Emergency lighting** in the zoned areas, also certified for the zone.
- [ ] **Competent installer** and an **initial inspection** recorded before first use.
- [ ] **Warranty** and spares plan.

> ### Ask for the paperwork with the quote
>
> The certificate, declaration of conformity and installation instructions should come with any proposal for hazardous area lighting, so you can check them against your classification before you order.

Installation and inspection

BS EN 60079-14 covers the design, selection and erection of electrical installations in explosive atmospheres. **BS EN 60079-17** covers their inspection and maintenance.

Before first use

- An **initial detailed inspection** of the equipment and the installation, to verify it meets all the requirements.
- A **verification dossier** for the installation, showing compliance with the equipment certificates and BS EN 60079-14. Keep it on site, or leave a note on site saying where it is kept.

Grades of inspection in BS EN 60079-17

Grade	What it finds
Visual	Defects apparent to the eye, without access equipment or tools.
Close	As visual, plus defects such as loose bolts that are apparent only with access equipment, for example steps, and tools. Does not normally require opening the enclosure or de-energising the equipment.
Detailed	As close, plus defects such as loose terminations that are apparent only by opening the enclosure and/or using tools and test equipment.

The interval and grade of periodic inspections should be set from the standard, the manufacturer's instructions and the condition of your installation, and recorded.

> ### Polaris supplies and installs
>
> Polaris Light supplies and installs lighting in hazardous areas, from survey and fitting selection to installation and handover records.

The Polaris ATEX range

Both fittings are certified to ATEX, UKEX and IECEx, for gas Zones **1** and **2** and dust Zones **21** and **22**. Every Polaris product carries a 5-year warranty.

	PS-ATEX-HIGHBAY	PS-ATEX-FLOOD
Type	Flameproof LED high bay	Flameproof LED floodlight
Power	100 W or 200 W	100 W or 200 W
Efficacy	160 lm/W	160 to 170 lm/W
Gas marking	II 2G Ex db IIB T5 Gb	II 2G Ex db IIB T4 Gb
Dust marking	II 2D Ex tb IIIC T**95°**C Db	II 2D Ex tb IIIC T**130°**C Db
Protection	IP65, IK10	IP66, IK10, WF2 finish
Warranty	5 years	5 years

Not for Zone **0** or Zone **20**, and not for gas group IIC (hydrogen, acetylene). Source: Polaris spec sheets, October 2026.



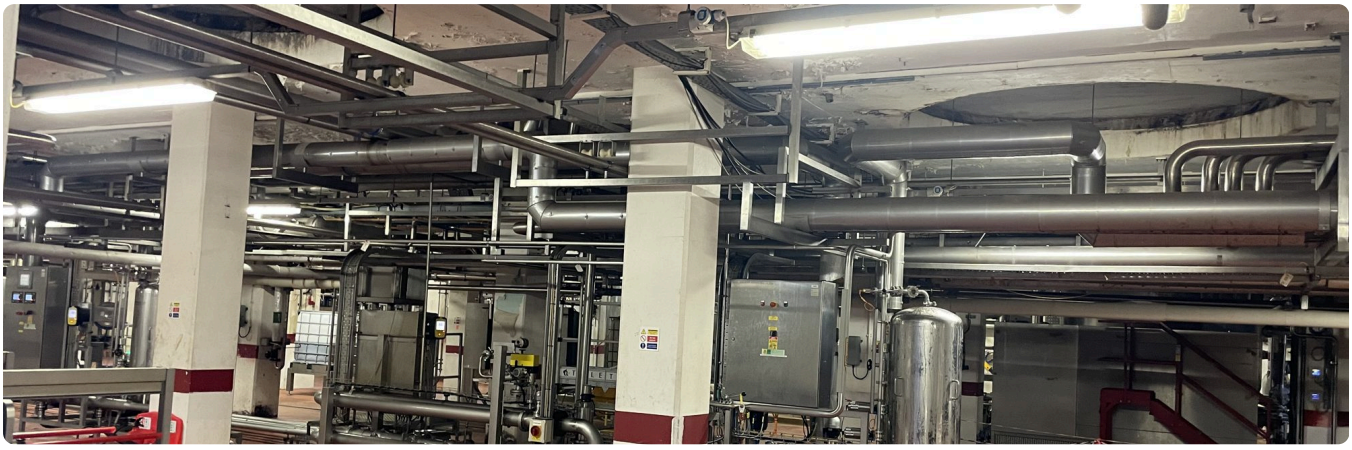
PS-ATEX-HIGHBAY



PS-ATEX-FLOOD

ATEX emergency lighting is also available for hazardous areas. Ask us for the right fitting for your zones.

Book a free hazardous area lighting survey



ATEX lighting on a Polaris Light project.

Free survey and lighting proposal

Share your area classification drawing and tell us about your site. We survey it, select fittings that match your zones, groups and temperature classes, and send you a proposal. Polaris Light supplies and installs.

Every Polaris product carries a 5-year warranty.

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Sources

- The Dangerous Substances and Explosive Atmospheres Regulations 2002, Schedules 2 and 3. legislation.gov.uk/uksi/2002/2776
- HSE, ATEX and explosive atmospheres. hse.gov.uk/fireandexplosion/atex.htm
- HSE, Hazardous area classification and control of ignition sources. hse.gov.uk/comah/sragtech/techmeasareaclas.htm
- HSE, Electricity in potentially explosive locations: definitions and technical standards. hse.gov.uk/electricity/atex
- The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016. legislation.gov.uk/uksi/2016/1107
- OPSS / DBT, EPS Regulations 2016 guidance for Great Britain. gov.uk
- Fire Industry Association, FIA guide on equipment for use in explosive atmospheres (ATEX), 2022. fia.uk.com
- IECEx, Installation and inspection, 2026 symposium. iecex.com
- IEC 60079-17:2023, abstract and terms (IEC webstore). BS EN 60079 series (BSI).
- Polaris Light spec sheets: PS-ATEX-HIGHBAY and PS-ATEX-FLOOD, October 2026.

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