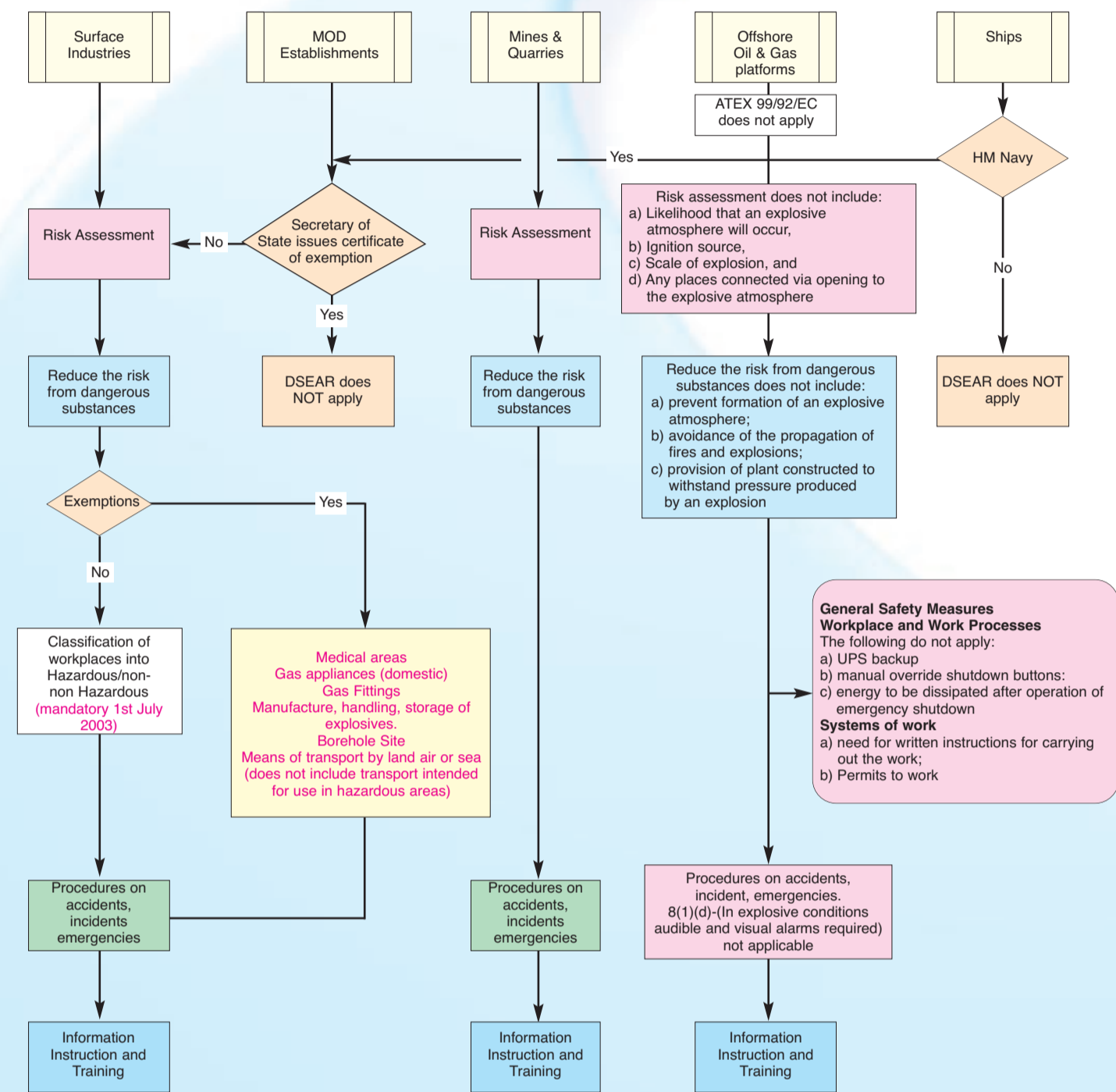


ATEX DIRECTIVE: USE

99/92/EC

Directive 99/92/EC (ATEX 137) requires employers to protect workers from the risk of explosive atmospheres. An explosive atmosphere is defined as a mixture with air, under atmospheric conditions, of dangerous substances in the form of gases, vapours, mist or dust in which after ignition has occurred, combustion spreads to the entire unburned mixture. ATEX 137 implemented in the UK as DSEAR:

Dangerous Substances and Explosive Atmosphere Regulations 2002 Statutory Instrument 2002 No. 2776 (Mandatory from 9th December 2002)



DSEAR applies to all dangerous substances at nearly every business in GB. It sets minimum requirements for the protection of workers from fire and explosion risks from dangerous substances and potentially explosive atmospheres. DSEAR complements the requirement to manage risks under the Management of Health and Safety at Work Regulations 1999.

Summary of the main requirement for DSEAR is given below.

- Carry out a risk assessment of any work activities involving dangerous substances;
- Provide technical and organisational measures to eliminate or reduce to, as far as is reasonably practical, the identified risks;
- Provide equipment and procedures to deal with accidents and emergencies;
- Provide information and training to employees;
- Classify places where explosive atmospheres may occur into zones, and mark the zones where necessary.

Overall, DSEAR can be seen as an expansion of the general duty to manage risk under the Management of Health and Safety at Work Regulations 1999.

Other than for certain maritime activities, DSEAR applies whenever the following conditions have been satisfied:

- 1) There is work being carried out by an employer or self-employed person;
- 2) A dangerous substance is present or liable to be present at the workplace;
- 3) The dangerous substance presents a risk to the safety of persons (as opposed to a risk to health).

The requirements of DSEAR concerning zoning and co-ordination of safety measures in shared workplaces (Regulation 7 & 11 of DSEAR) do not apply to all workplaces where other legislation is in place.

Warning signs for places where explosive atmospheres may occur

Distinctive features:

- a) Triangular shape
- b) Black letters on yellow background with black edging (the yellow part to take at least 50% of the area of the sign).



Useful Standards

EN 1127-1	Explosion Prevention and Protection Basic concepts and methodology.
EN 60079-10	Classification of Hazardous areas (Gas).
EN 61241-3	Classification of areas where combustible dusts are or may be present.
EN 60079-14	Electrical Installations in Hazardous areas (other than mines)
EN 60079-17	Inspection and maintenance of electrical installations in hazardous areas (other than mines).
EN 60079-19	Repair and overhaul for apparatus used in explosive atmosphere (other than mines).



Epsilon Compliance (UK)
54 Drury Lane, Drury,
Buckley, CH7 3DU, UK.
Tel: +44(0)1244 541551
Fax: +44(0)1244 543888
E-mail: info@epsilon-ltd.com
Internet: www.epsilon-ltd.com

Epsilon Compliance (USA)
1300, Sherwood Forest,
Caledonia House, Houston,
Texas, 77043, USA.
Tel: 001(832)3582080
Fax: 001(832)3581165

ATEX DIRECTIVE: PRODUCTS

94/9/EC

Directive 94/9/EC (ATEX 95) Equipment and Protective Systems for use in potentially explosive atmospheres. Covers electrical and non-electrical products intended for use in hazardous areas (gas, vapours or dust atmospheres). ATEX 95 implemented in the UK as:

The Equipment and Protective Systems Intended for USE in Potentially Explosive Atmospheres Regulations 1996 Statutory Instrument 1996 No. 192

Zoning Definitions

Zones		Definitions	Categories	
Gas	Dust		ATEX Cat.	Typical Zone Suitability
EN 60079-10 0	EN 50281-3 20	A place in which an explosive atmosphere is continually present	1G 1D	Equip. suitable for zone 0 Equip. suitable for zone 20
1	21	A place in which an explosive atmosphere is likely to occur in normal operation occasionally	2G 2D	Equip. suitable for zone 1 Equip. suitable for zone 21
2	22	A place in which an explosive atmosphere is not likely to occur in normal operation, but if it does only occurs for short periods.	3G 3D	Equip. suitable for zone 2 Equip. suitable for zone 22

IP Code

1st numerical Protection against solid bodies	2nd numerical Protection against liquid
0 No protection	0 No protection
1 Objects > 50mm	1 Vertically dripping water
2 Objects > 12mm	2 Drops of liquid (75° to 90°)
3 Objects > 2.5mm	3 Sprayed water
4 Objects > 1mm	4 Splashed water
5 Dust-protected	5 Water jets
6 Dust-tight	6 Heavy seas
	7 Effects of immersion
	8 Indefinite immersion

Dusts

Zone	ATEX Category BSEN 50281-1-1/2	IP Rating
20	Requires 1D equipment	IP6X
21	Requires 1D or 2D equipment	IP6X
22	Requires 3D, 2D or 1D equipment	IP5X*

* Must be IP6X if dust is electrically conductive

Types of Protection

Type of Protection	CENELEC Code	EN Standard	Type n equipment containing:	Additional code letter	T-Class	Max surface temp in °C
Intrinsic Safety	EEx ia & ib	EN 60079-11	Enclosed break device	C	T1	450
Increased Safety	EEx e	EN 60079-7	Non-incandive component	C	T2	300
Flameproof	EEx d	EN 60079-1	Hermetically sealed device	C	T3	200
Pressurisation	EEx p	EN 60079-2	Sealed device	C	T4	135
Powder Filling	EEx q	EN 60079-5	Encapsulated device	C	T5	100
Encapsulation	EEx m	EN 60079-18	Energy limited apparatus and circuits	L	T6	85
Oil Immersion	EEx o	EN 60079-6	Restricted breathing enclosure	R		
Type n	EEx n	EN 60079-15	Simplified pressurisation	P		
			Non sparking	A		

Non-electrical equipment (concepts)

EN 13463-1	Basic methods & requirements	
EN 13463-2	Flow restricting enclosure	fr
EN 13463-3	Flame-proof enclosure	d
EN 13463-4	Inherent safety	g
EN 13463-5	Constructional Safety	c
EN 13463-6	Control of ignition sources	b
EN 13463-7	Pressurisation	p
EN 13463-8	Liquid immersion	k

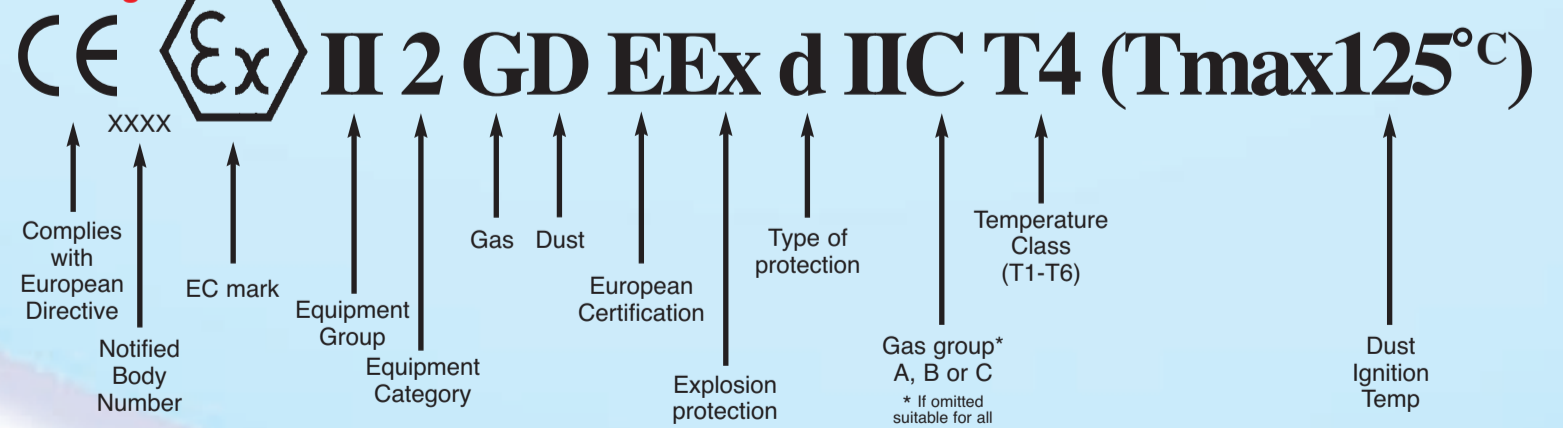
* Notes:
1 "Global Approach" OJEC No.L220, 1993
2 ATEX Directive 94/9/EC
3 Suffix (E) refers to electrical equipment and internal combustion engines
Suffix (N) refers to non-electrical equipment
4 Technical Files to be deposited with a notified body

KEY
✓ = mandatory unless Unit Verification is used
O = optional as an alternative to other modules
Y = one of two production phase modules for the equipment category to be chosen by the manufacturer

Conformity Assessment 'Quality Modules'

	Module	Annex	Equipment Category *3						Protective System
			M1	M2	M2 (E)	1	2	3	
Design Phase									
EC-Type Examination	B	III	✓	✓	✓	✓	✓	✓	✓
Internal Control of Production	A	VIII		✓*4		✓*4		✓	
Unit Verification	G	IX	O	O	O	O	O	O	O
Production Phase									
Production Quality Assurance	D	IV	Y		Y			Y	
Product Quality Assurance	E	VII	Y		Y			Y	
Product Verification	F	V	Y		Y			Y	
Conformity to Type	C	VI	Y		Y			Y	
Internal Control of Production	A	VIII		✓		✓	✓		
Unit Verification	G	IX	O	O	O	O	O	O	O

Marking



Epsilon are acknowledged industry experts in the field of explosion protection. Using our expertise and real world approach to compliance, Epsilon can guide and assist your company through every aspect of the new legislation in the most cost effective and timely manner.

- ATEX DESIGN
- ATEX CERTIFICATION
- DSEAR IMPLEMENTATION
- ATEX & DSEAR TRAINING