

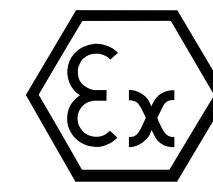
APPARATUS GROUPS & TEMPERATURE CLASSES FOR COMMON FLAMMABLE MATERIALS

Gas/Vapour	Apparatus group	Temperature class	Dusts	Typical Ignition Temperature (°C)	
				Cloud	Layer
Acetic Acid	IIA	T1	Aluminium	590	>450
Acetone	IIA	T1	Coal dust (lignite)	380	225
Acetylene	IIC	T2	Flour	490	340
Ammonia	IIA	T1	Grain dust	510	300
Butane	IIA	T2	Methyl cellulose	420	320
Cyclohexane	IIA	T3	Phenolic resin	530	>450
Ethanol (ethyl alcohol)	IIA	T2	Polythene	420	(melts)
Ethylene	IIB	T2	PVC	700	>450
Hydrogen	IIC	T1	Soot	810	570
Kerosene	IIA	T3	Starch	460	435
Methane (natural gas) (non-mining)	IIA	T1	Sugar	490	460
Methanol (methyl alcohol)	IIA	T2			
Methyl ethyl ketone (MEK)	IIB	T2			
Propane	IIA	T1			
Propan-1-ol (n-propyl alcohol)	IIB	T2			
Propan-2-ol (iso-propyl alcohol)	IIA	T2			
Tetrahydrofuran (THF)	IIB	T3			
Toluene	IIA	T1			
Xylene	IIA	T1			



sira
CERTIFICATION

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ATEX 95
Directive 94/9/EC



ATEX 137
99/92/EC & DSEAR

PROTECTION CONCEPTS

Electrical	Protection concept code used on Sira certificates	Symbol Gas/ Dust	Typical zone(s)	IEC/EN *Draft Only ** Due 2006 Standard (status at Jan 2006)		Basic concept of protection
				Gas	Dust	
Increased safety Type 'n' (Non-sparking)	3	e	1,21	EN 50019 / 60079-7	61241-1	No arcs, sparks or hot surfaces
	4	nA	2,22	EN 50021 / 60079-15		
Flameproof Type 'n' (Enclosed break) Quartz/sand filled	1	d	1,21	EN 50018 / 60079-1	61241-1	Contain the explosion, quench the flame
	4	nC	2,22	EN 50021 / 60079-15		
	7	q	1,21	EN 50017 / 60079-5*		
Intrinsic safety Intrinsically safe Type 'n' (Energy limitation)	2	ia / iaD	0,20	EN 50020/39 / 60079-11*	61241-11	Limit the energy of sparks and surface temperatures
	4	ib / ibD	1,21	EN 50020/39 / 60079-11*		
Pressurised Type 'n' (Restricted breathing) Type 'n' (Simple pressurised) Encapsulation Oil immersion	1	p/pD	1,21,22	EN 50016 / 60079-2	61241-2	Keep the flammable gas out
	4	nR	2,22	EN 50021 / 60079-15		
	4	nP	2,22	EN50021 / 60079-15	61241-18	
	5	ma/ maD	0,20	EN 50028 / 60079-18		
	5	mb/ mbD	1,21	EN 50028 / 60079-18		
7	o	1,21	EN 50015 / 60079-2			
Enclosure	9	tD	20,21,22		61241-1	Protection by enclosure

Non-electrical	Protection concept code used on Sira certificates	Symbol	Typical zone(s)	EN * Draft only Standard (status at Jan 2006)	Basic concept of protection
Flameproof enclosure	6	d	1,21	EN 13463-3	
Inherent safety	6	g	1,21	prEN 13463-4*	Low potential energy
Constructional safety	6	c	1,21	EN 13463-5	Ignition hazards eliminated by specification of the equipment
Control of ignition sources	6	b	1,21	EN 13463-6	Control equipment fitted to detect malfunctions
Pressurisation	6	p	1,21	prEN 13463-7*	Enclosure purged and pressurised
Liquid immersion	6	k	1,21	EN 13463-8	Enclosure uses liquid to restrict ex atmosphere contact

TEMPERATURE CLASS (GROUP II)

Maximum surface temperature	T. Codes
	CENELEC IEC
450°C	T1
300°C	T2
200°C	T3
135°C	T4
100°C	T5
85°C	T6

N.B. For Group I applications apparatus has rigid 150°C and 450°C limits rather than 'T' classes.

SIRA CERTIFICATE NUMBER

SIRA 06 ATEX 1 234

Serial number
Protection concept code
Reference to ATEX 95 directive
Year of certification
Name of notified body performing EC-type examination

Suffixes:
U – component certification
X – special conditions for safe use apply

DSEAR COMPLIANCE SERVICES

How safe is your workplace?
Are you meeting the health & safety regulations?

Sira offers the full range of services that you might need to comply with the Dangerous Substances & Explosive Atmospheres Regulations (DSEAR) or ATEX 137, namely:

- Risk Assessment
- Area Classification
- Inspection of Installed Equipment
- Preparation of Risk Assessment Records
- Training & Competence

TYPICAL EQUIPMENT MARKING

Marking for non-electrical equipment differs slightly from the example shown above, in that Gas Group, Symbol and Temperature Classes are combined with Equipment Group and Category marking.

INGRESS PROTECTION CODE (IP)

Sira can offer a full range of testing services, including Ingress Protection (IP) Testing.

Please request an application form via email or on our website.



WHEN IS DIRECTIVE 94/9/EC APPLICABLE?

Situation	Analysis			Result
	Equipment with Own Potential Source of Ignition	Equipment to be used in or in Relation to Potentially Explosive Atmosphere	Equipment where an Intended Internal Explosive Atmosphere is Present	
A	YES	YES	YES	YES
B	NO	YES	YES	NOa)b)
C	YES	NO	YES	NOa)b)
D	YES	YES	NO	YES
E	NO	NO	YES	NOa)b)
F	YES	NO	NO	NOb)
G	NO	YES	NO	NOb)
H	NO	NO	NO	NOb)

a) but YES for products inside the internal potentially explosive atmosphere. Moreover it has to be considered that the equipment as a whole has to be capable of functioning in conformity with the operational parameters established by the manufacturer and ensuring the required level of protection according to Annex II, Item I.0.1 (Principles of integrated explosion safety)

b) but YES for devices according to Article 1.2 of the directive

COMPLIANCE ROUTES AND EQUIPMENT SELECTION

Zone	Gas	Dust	Equipment Category	Relevant ATEX Annexes for Compliance	Group	Hazardous Area Characteristics
0		20	1	III and IV or V	II	Present continuously or long periods or frequently (>1000 hours/year)
1		21	2*	III and VII or VI		Likely to occur in normal operation occasionally (>10 <1000 hours/year)
			2**	VIII#		
2		22	3	VIII	I	Not likely to occur in normal operation or infrequently and for short periods (<10 hours/year)
Mining			M1	III and IV or V		Explosive atmosphere present – equipment remains energised
			M2*	III and VII or VI		Explosive atmosphere present – equipment de-energised
			M2**	VIII#		
Any			Any	IX#	Any	-

* Electrical equipment and internal combustion engines only
** Non-electrical equipment only # and communicate the technical file to a notified body
Alternative Route for any product

IEC 61508 FUNCTIONAL SAFETY SYSTEMS

IEC 61508 covers functional safety and constitutes good practice for safety systems whose failure can impact on the safety of persons and the environment.

Sira offers a range of functional safety services which include:

- Certifying the overall Capability of a Company (Functional Safety Capability Assessment)
- Systems Certification
- Product Certification
- Training and Consultancy in all areas of Functional Safety

Sira is accredited by UKAS for the certification aspects above



Training

Sira can offer a variety of comprehensive training courses or technical sessions targeted to meet the needs of the manufacturer, integrator or user:

- ATEX Product Directive
- DSEAR Incorporating Area Classification
- Machinery, Marine, EMC and Pressure Directives
- Functional Safety and IEC 61508
- Self Certification
- Legislation Requirements



All courses can be tailored to your own needs and can be delivered at your own site Call Sira Training on +44(0) 1244 670 900



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Accredited certification and EU Notified Body activities are undertaken by Sira Certification Service