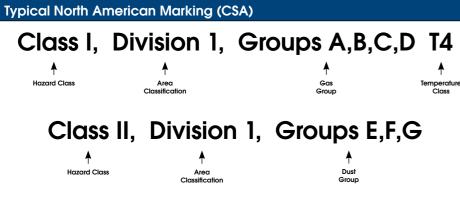




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# c**CSA**us

**Protection Concepts** 



Class I,	Zone 0,	AEx	ia	IIC	<b>T4</b>
<b>^</b>	<b>^</b>	<b>^</b>	<b>^</b>	<b>^</b>	<b>^</b>
Hazard Class	Area Classification	Approved to US Standards	Protection Concept	Gas Group	Temperature Class

Division / Zone Standard

Country Class

	1					
Electrical Equipme	ent for Flammal	ole Gas, Va	pors and Mis	sts - Class I		
		US	Class I	Division 1 & 2	FM 3600	
General	AEx	CA	Class I	Division 1 & 2	-	
Requirements	Ex	US	Class I	Zone 1 & 2	ISA 60079-0	
		CA	Class I	Zone 1 & 2	CSA 60079-0	
Increased	AEx e	US	Class I	Zone 1	ISA 60079-7	
Safety	Ex e	CA	Class I	Zone 1	CSA C22.2 No. 60079-7	
Non-Incendive	(NI)	US	Class I	Division 2	ISA 12.12.01 / FM 3611	No arcs, sparks
Non-incentive	(NI)	CA	Class I	Division 2	C22.2 No. 213	or hot surfaces
	AEx nA	US	Class I	Zone 2	ISA 60079-15	]
Non-Sparking	Ex nA	CA	Class I	Zone 2	CSA C22.2 No. 60079-15	
	_	-	-			
Explosion Proof	(XP)	US	Class I	Division 1	UL 1203 / FM 3615	
	(XP)	CA	Class I	Division 1	C22.2 No. 30	
	AEx d	US	Class I	Zone 1	ISA 60079-1	0 1 - 1 - 1 -
Flameproof	AEx d	US	Class I	Zone 1	UL 1203 / FM 3615	Contain the
	Ex d	CA	Class I	Zone 1	CSA 60079-1	explosion and
	AEx q	US	Class I	Zone 1	ISA 60079-5	extinguish the
Powder Filled	Exq	CA	Class I	Zone 1	CSA C22.2 No. 60079-5	flame
	+ '	-				
Enclosed Break	AEx nC	US	Class I	Zone 2	ISA 60079-15	
Enologo a Broak	Ex nC	CA	Class I	Zone 2	CSA C22.2 No. 60079-15	
	(IS)	US	Class I	Division 1	UL 913 / FM 3610	
	(IS)	CA	Class I	Division 1	C22.2 No. 157	
	AEx ia	US	Class I	Zone 0	ISA 60079-11 / FM 3610	Limit energy
Intrinsic Safety	AEx ib	US	Class I	Zone 1	ISA 60079-11 / FM 3610	
				7one 0	_	of sparks
	EX ia	CA	Class I		CSA C22.2 No. 60079-11	and surface
	Ex ib	CA	Class I	Zone 1	CSA C22.2 No. 60079-11	temperature
Limited Energy	AEx nC	US	Class I	Zone 2	ISA 60079-15	
Littineu Litelyy	Ex nL	CA	Class I	Zone 2	CSA C22.2 No. 60079-15	
	Туре Х	US	Class I	Division 1	NFPA 496 (FM 3620)	
	Type X	CA	Class I	Division 1	NFPA 496	
	Type X	US	Class I	Division 1	NFPA 496 (FM 3620)	
	1					
	Type Y	CA	Class I	Division 1	NFPA 496	
	Type Z	US	Class I	Division 2	NFPA 496 (FM 3620)	
Pressurised	Type Z	CA	Class I	Division 2	NFPA 496	
	AEx px	US	Class I	Zone 1	ISA 60079-2	
	Ex px	CA	Class I	Zone 1	CSA C22.2 No. 60079-2	
	AEx py	US	Class I	Zone 1	ISA 60079-2	
	Ex py	CA	Class I	Zone 1	CSA C22.2 No. 60079-2	Keep
	AEx pz	US	Class I	Zone 2	ISA 60079-2	flammable
	Ex pz	CA	Class I	Zone 2	CSA C22.2 No. 60079-2	gas out
D t-1 - t 1	+ '	+	-			-
Restricted	AEx nR	US	Class I	Zone 2	ISA 60079-15	
Broathina						l
piediliilið	Ex nR	CA	Class I	Zone 2	CSA C22.2 No. 60079-15	ļ
preditiiliğ	AEx ma	US	Class I	Zone 2 Zone 0	CSA C22.2 No. 60079-15 ISA 60079-18	
-		_				
· · · · · ·	AEx ma	US	Class I	Zone 0	ISA 60079-18	
-	AEx ma AEx m	US US	Class I	Zone 0 Zone 1	ISA 60079-18 ISA 60079-18	
-	AEx ma AEx m Ex m AEx mb	US US CA US	Class I Class I Class I Class I	Zone 0 Zone 1 Zone 1 Zone 1	ISA 60079-18 ISA 60079-18 CSA C22.2 No. 60079-18 ISA 60079-18	
Encapsulated	AEx ma AEx m Ex m AEx mb AEx o	US US CA US	Class I Class I Class I Class I Class I	Zone 0 Zone 1 Zone 1 Zone 1 Zone 1	ISA 60079-18 ISA 60079-18 CSA C22.2 No. 60079-18 ISA 60079-18	
Encapsulated  Oil Immersion	AEx ma AEx m Ex m AEx mb AEx o Ex o	US US CA US US CA	Class I Class I Class I Class I Class I Class I	Zone 0 Zone 1 Zone 1 Zone 1 Zone 1 Zone 1 Zone 1	ISA 60079-18 ISA 60079-18 CSA C22.2 No. 60079-18 ISA 60079-18	
Encapsulated  Oil Immersion	AEx ma AEx m Ex m AEx mb AEx o Ex o	US US CA US US CA	Class I Class I Class I Class I Class I Class I	Zone 0 Zone 1 Zone 1 Zone 1 Zone 1 Zone 1 Zone 1	ISA 60079-18 ISA 60079-18 CSA C22.2 No. 60079-18 ISA 60079-18	
Encapsulated Oil Immersion	AEx ma AEx m Ex m AEx mb AEx o Ex o	US US CA US US CA	Class I Class I Class I Class I Class I Class I	Zone 0 Zone 1 Zone 1 Zone 1 Zone 1 Zone 1 Zone 1	ISA 60079-18 ISA 60079-18 CSA C22.2 No. 60079-18 ISA 60079-18	
Encapsulated  Oil Immersion  Electrical Equipme	AEx ma AEx m Ex m AEx mb AEx o Ex o	US US CA US US CA US CA	Class I	Zone 0 Zone 1	ISA 60079-18 ISA 60079-18 CSA C22.2 No. 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6	
Encapsulated Oil Immersion Electrical Equipme	AEx ma AEx m Ex m AEx mb AEx o Ex o	US US CA US US CA US US CA	Class I	Zone 0 Zone 1	ISA 60079-18 ISA 60079-18 CSA C22.2 No. 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6	
Encapsulated Oil Immersion Electrical Equipme	AEx ma AEx m Ex m AEx mb AEx o Ex o	US US CA US US CA  US CA  US CA  US CA  US CA  US US CA  US	Class I Class II Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6 FM 3600 CSA C22.2 No.0 FM 3600	
Encapsulated Oil Immersion Electrical Equipme	AEx ma AEx m Ex m AEx mb AEx o Ex o	US US CA US US CA ### US CA US CA US CA US CA US CA	Class I Class I Class I Class I Class I Class II Class II Class II Class III Class III	Zone 0 Zone 1 Division 1 & 2	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No.0 FM 3600 CSA C22.2 No.0	
Encapsulated Oil Immersion  Electrical Equipme  General  Requirements	AEx ma AEx m Ex m AEx mb AEx o Ex o	US US CA US CA ###################################	Class I Class I Class I Class I Class I Class I Class II Class II Class III Class III Class III Class III	Zone 0 Zone 1 Zone 2 Division 1 & 2 Zone 20, 21, 22	ISA 60079-18 ISA 60079-18 CSA C22.2 No. 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No.0 FM 3600 CSA C22.2 No.0 ISA 60079-0	
Encapsulated Oil Immersion Electrical Equipme General Requirements Dust Ignition	AEx ma AEx m Ex m AEx mb AEx o Ex o	US US CA US CA Hible Dust a US CA US CA US CA US CA US CA US US	Class I Class I Class I Class I Class I Class II Class II Class III Class III Class III Class III	Zone 0 Zone 1 Zone 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No.0 FM 3600 CSA C22.2 No.0 ISA 60079-0 UL 1203 / FM 3616	
Encapsulated  Oil Immersion  Electrical Equipme  General  Requirements  Dust Ignition	AEx ma AEx m Ex m AEx mb AEx o Ex o	US US CA US CA ###################################	Class I Class I Class I Class I Class I Class I Class II Class II Class III Class III Class III Class III	Zone 0 Zone 1 Zone 2 Division 1 & 2 Zone 20, 21, 22	ISA 60079-18 ISA 60079-18 CSA C22.2 No. 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No.0 FM 3600 CSA C22.2 No.0 ISA 60079-0	
Encapsulated  Oil Immersion  Electrical Equipme  General  Requirements  Dust Ignition  Proof	AEx ma AEx m Ex m AEx mb AEx o Ex o	US US CA US CA Hible Dust a US CA US CA US CA US CA US CA US US	Class I Class I Class I Class I Class I Class II Class II Class III Class III Class III Class III	Zone 0 Zone 1 Zone 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No.0 FM 3600 CSA C22.2 No.0 ISA 60079-0 UL 1203 / FM 3616	
Encapsulated  Oil Immersion  Electrical Equipme  General  Requirements  Dust Ignition  Proof	AEx ma AEx m Ex m AEx mb AEx o Ex o	US US CA US CA tible Dust an US CA US CA US CA US CA US CA US CA US	Class I Class II Class II Class III Class III Class III Class III Class III Class II	Zone 0 Zone 1 Zone 2 Division 1 & 2 Division 1	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No.0 FM 3600 CSA C22.2 No.0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No.25	
Encapsulated  Oil Immersion  Electrical Equipme  General  Requirements  Dust Ignition  Proof	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o Ex c	US US CA	Class I Class II Class II Class III Class III Class III Class II	Zone 0 Zone 1 Zone 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 1 Division 2 Division 2	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25	
Encapsulated  Oil Immersion  Electrical Equipme  General  Requirements  Dust Ignition  Proof	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o Ex a  AEx a  AEx a  AEx a  AEx a	US US CA US	Class I Class II Class II Class III Class III Class III Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31	
Encapsulated  Oil Immersion  Electrical Equipme  General  Requirements  Dust Ignition  Proof  Dust Protected	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o Ex a  AEx ta AEx ta AEx tb	US US CA US	Class I Class II Class II Class III Class III Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 20 Zone 21	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31	
Encapsulated  Oil Immersion  Electrical Equipme  General  Requirements  Dust Ignition  Proof  Dust Protected	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o Ex ta AEx ta AEx ta AEx tc	US US CA US	Class I Class II Class II Class III Class III Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 20 Zone 21 Zone 22	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31	
Encapsulated  Oil Immersion  Electrical Equipme  General  Requirements  Dust Ignition  Proof  Dust Protected	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o Ex ta AEx ta AEx ta AEx ta AEx ta AEx ta	US US CA	Class I Class II Class II Class III Class III Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 20 Zone 21 Zone 22 Zone 20	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31	
Encapsulated  Oil Immersion  Electrical Equipme  General  Requirements  Dust Ignition  Proof  Dust Protected	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o Ex ta AEx ta AEx ta AEx tc	US US CA US	Class I Class II Class II Class III Class III Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 20 Zone 21 Zone 22	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31	
Encapsulated  Oil Immersion  Electrical Equipme  General  Requirements  Dust Ignition  Proof  Dust Protected	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o Ex ta AEx ta AEx ta AEx ta AEx ta AEx ta	US US CA	Class I Class II Class II Class III Class III Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 20 Zone 21 Zone 22 Zone 20	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31	Keep
Encapsulated  Oil Immersion  Electrical Equipme  General Requirements  Dust Ignition  Proof  Dust Protected  Protection by  Enclosure	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o Ex to  AEx ta AEx ta AEx tb AEx tc Ex ta Ex tb	US US CA CA CA CA	Class I Class I Class I Class I Class I Class I Class II Class II Class II Class III Class III Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 2 Division 2 Zone 20 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31	Keep combustible
Encapsulated  Oil Immersion  Electrical Equipme  General Requirements  Dust Ignition  Proof  Dust Protected  Protection by  Enclosure	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o Ex to  AEx ta AEx ta AEx tb AEx tc Ex ta Ex tb	US US CA CA CA CA	Class I Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 2 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 20	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31	'
Encapsulated  Oil Immersion  Electrical Equipme  General Requirements  Dust Ignition  Proof  Dust Protected  Protection by  Enclosure	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o  AEx to AEx ta AEx ta AEx ta AEx ta Ex ta	US US CA CA CA CA CA CA	Class I Class I Class I Class I Class I Class I Class II Class III Class III Class III Class III	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 22 Division 1 & 2 Division 1 & 2	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25	combustible
Encapsulated  Oil Immersion  Electrical Equipme  General  Requirements  Dust Ignition  Proof  Dust Protected  Protection by Enclosure  Fiber & Flying Protection	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o  AEx to AEx ta AEx tb AEx tc Ex ta Ex tb Ex tc  AEx ta AEx ma AEx ma AEx mb	US US CA US US CA CA CA CA US CA US CA CA US CA CA US CA CA US CA US CA CA US CA CA US CA US CA US	Class I Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Zone 20	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-18	combustible
Encapsulated  Oil Immersion  Electrical Equipme  General  Requirements  Dust Ignition  Proof  Dust Protected  Protection by Enclosure  Fiber & Flying Protection	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o  AEx ta AEx ta AEx ta AEx ta Ex ta Ex ta Ex ta Ex ta Ex ta AEx ta AEx ma AEx maD AEx maD AEx mbD	US US CA US US	Class I Class II Class III	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 20 Zone 21 Zone 20 Zone 20 Zone 20 Zone 21	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 ISA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-18 ISA 60079-18	combustible
Encapsulated  Oil Immersion  Electrical Equipme  General Requirements  Dust Ignition  Proof  Dust Protected  Protection by Enclosure  Filber & Flying Protection	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o  AEx to AEx ta AEx tb AEx tc Ex ta Ex tb Ex tc  AEx ta AEx ma AEx ma AEx mb	US US CA US US CA CA CA CA US CA US CA CA US CA CA US CA CA US CA US CA CA US CA CA US CA US CA US	Class I Class I Class I Class I Class I Class I Class II Class III Class III Class III Class III	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Zone 20	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-18	combustible
Encapsulated  Oil Immersion  Electrical Equipme  General Requirements  Dust Ignition  Proof  Dust Protected  Protection by Enclosure  Filber & Flying Protection	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o  AEx ta AEx ta AEx ta AEx ta Ex ta Ex ta Ex ta Ex ta Ex ta AEx ta AEx ma AEx maD AEx maD AEx mbD	US US CA US US	Class I Class II Class III	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 20 Zone 21 Zone 20 Zone 20 Zone 20 Zone 21	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 ISA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-18 ISA 60079-18	combustible
Encapsulated  Oil Immersion  Electrical Equipme  General  Requirements  Dust Ignition  Proof  Dust Protected  Protection by Enclosure  Fiber & Flying Protection	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o  AEx ta AEx ta AEx tb AEx tc Ex ta Ex tb Ex tc  AEx maD AEx mbD (PX)	US US CA US US CA US US CA US US CA US US US CA US US CA US US US CA US US US CA US US US US	Class I Class II Class III	Zone 0 Zone 1 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 2 Zone 20 Zone 21 Zone 20 Zone 21 Division 1 & 2 Zone 20 Zone 21 Division 1 & 2 Zone 20 Zone 21 Division 1	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18	combustible
Encapsulated  Oil Immersion  Electrical Equipme  General Requirements  Dust Ignition  Proof  Dust Protected  Protection by Enclosure  Fiber & Flying Protection  Encapsulation	AEx ma AEx m Ex m AEx m Ex m AEx o Ex o Ex o  AEx ta AEx ta AEx tb AEx tc Ex ta Ex tc  AEx maD AEx mbD (PX) (PX)	US US CA	Class I Class II Class III Class II	Zone 0 Zone 1 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Division 1 & 2 Division 1 Division 1 Division 1 Division 1	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 ISA 622.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 496 (FM 3620) INFPA 496	combustible
Encapsulated  Oil Immersion  Electrical Equipme  General Requirements  Dust Ignition  Proof  Dust Protected  Protection by Enclosure  Fiber & Flying Protection  Encapsulation	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o  AEx ta AEx ta AEx tb AEx tc Ex ta Ex tb Ex tc  - AEx maD AEx mbD (PX) (PY) (PY)	US US CA	Class I Class II	Zone 0 Zone 1 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Division 1 & 2 Division 1 & 2 Division 1	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 00 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-18 ISA 60079-19 INFPA 496 (FM 3620) INFPA 496	combustible
Encapsulated  Oil Immersion  Electrical Equipme  General Requirements  Dust Ignition  Proof  Dust Protected  Protection by Enclosure  Fiber & Flying Protection  Encapsulation	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o  AEx ta AEx ta AEx tb AEx tc Ex ta Ex tc  - AEx mb  AEx mb  (PX) (PX) (PY) (PY) (PZ)	US US CA CA CA CA CA CA CA CA US	Class I Class II	Zone 0 Zone 1 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Division 1 & 2 Division 1 & 2 Division 1 Division 2	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 00 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 960 (FM 3620) NFPA 496 NFPA 496 (FM 3620) NFPA 496 NFPA 496 (FM 3620)	combustible
Encapsulated  Oil Immersion  Electrical Equipme  General Requirements  Dust Ignition  Proof  Dust Protected  Protection by Enclosure  Fiber & Flying Protection  Encapsulation	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o  AEx ta AEx ta AEx tb AEx tc Ex ta Ex tb Ex tc  - AEx maD AEx mbD (PX) (PY) (PY) (PY) (PZ) (PZ)	US US CA	Class I Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Division 1 & 2 Division 1 & 2 Division 1 Division 2 Division 2 Division 2	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 ISA 622.2 No. 60079-6  FM 3600 CSA C22.2 No. 00 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 496 ISPA 496	combustible
Encapsulated  Oil Immersion  Electrical Equipme  General Requirements  Dust Ignition  Proof  Dust Protected  Protection by Enclosure  Fiber & Flying Protection  Encapsulation	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o  AEx ta AEx ta AEx tb AEx tc Ex ta Ex tc  - AEx mb  AEx mb  (PX) (PX) (PY) (PY) (PZ)	US US CA CA CA CA CA CA CA CA US	Class I Class II	Zone 0 Zone 1 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Division 1 & 2 Division 1 & 2 Division 1 Division 2	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 00 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 960 (FM 3620) NFPA 496 NFPA 496 (FM 3620) NFPA 496 NFPA 496 (FM 3620)	combustible
Encapsulated  Oil Immersion  Electrical Equipme  General Requirements  Dust Ignition  Proof  Dust Protected  Protection by Enclosure  Fiber & Flying Protection  Encapsulation	AEx ma AEx m Ex m AEx mb AEx o Ex o Ex o  AEx ta AEx ta AEx tb AEx tc Ex ta Ex tb Ex tc  - AEx maD AEx mbD (PX) (PY) (PY) (PY) (PZ) (PZ)	US US CA	Class I Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Division 1 & 2 Division 1 & 2 Division 1 Division 2 Division 2 Division 2	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 ISA 622.2 No. 60079-6  FM 3600 CSA C22.2 No. 00 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 496 ISPA 496	combustible
Encapsulated  Oil Immersion  Electrical Equipme  General Requirements  Dust Ignition  Proof  Dust Protected  Protection by Enclosure  Fiber & Flying Protection  Encapsulation	AEx ma AEx m Ex m AEx o Ex o Ex o Ex	US US CA US	Class I Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 Division 2 Division 2 Zone 21	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 00 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 60079-31 UL 1703 / ISA 12.12.01 CSA C22.2 No. 60079-31 UL 1203	combustible
Coll Immersion  Electrical Equipme  General Requirements  Dust Ignition  Proof  Dust Protected  Protection by Enclosure  Fiber & Flying Protection  Encapsulation  Pressurisation	AEx ma AEx m Ex m AEx m AEx o Ex o Ex o  Ex	US US CA US US US US	Class I Class II	Zone 0 Zone 1 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Division 1 & 2 Division 1 Division 2 Division 2 Division 2 Division 2 Division 2 Division 1 Division 1 Division 1 Division 2 Division 2 Zone 21 Division 2 Division 1	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-18 ISA 60079	combustible dust out
Encapsulated Oil Immersion  Electrical Equipme General Requirements  Dust Ignition Proof  Dust Protected  Protection by Enclosure  Filber & Flying Protection  Encapsulation  Pressurisation	AEx ma AEx m Ex m AEx m AEx o Ex o Ex o  Ex	US US CA US	Class I Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Division 1 & 2 Division 1 & 2 Division 1 Division 1 Division 1 Division 1 Zone 20 Zone 21 Division 1 Division 1 Division 1 Division 1 Division 1 Division 2 Division 2 Division 1 Division 1 Division 1 Division 2 Division 2 Division 2 Division 1 Division 1 Division 2 Division 2 Zone 21 Division 1	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 00 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-19 ISA 496 ISA 61241-2 UL 913 / FM 3610 CSA C22.2 No. 157 ISA 60079-11	combustible dust out  Limit energy of sparks
Encapsulated  Oil Immersion  Electrical Equipme  General Requirements  Dust Ignition Proof  Dust Protected  Protection by Enclosure  Filber & Flying Protection  Encapsulation  Pressurisation	AEx ma AEx m Ex m AEx m AEx o Ex o Ex o Ex	US US CA CA US CA CA US CA	Class I Class II	Zone 0 Zone 1 Division 1 & 2 Division 1 & 2 Division 1 & 2 Division 1 & 2 Zone 20, 21, 22 Division 1 Division 2 Division 2 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Zone 20 Zone 21 Zone 22 Division 1 & 2 Division 1 Division 2 Division 2 Division 1 Division 1 Division 1 Division 2 Division 2 Division 2 Division 2 Division 1 Division 1 Division 1 Division 2 Division 1	ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-18 ISA 60079-6 CSA C22.2 No. 60079-6  FM 3600 CSA C22.2 No. 0 FM 3600 CSA C22.2 No. 0 ISA 60079-0 UL 1203 / FM 3616 CSA C22.2 No. 25 ISA 12.12.01 / FM 3611 CSA C22.2 No. 25 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 ISA 60079-31 CSA C22.2 No. 60079-31 CSA C22.2 No. 60079-31 UL 1203 / ISA 12.12.01 CSA C22.2 No. 25 ISA 60079-18 ISA 60079	combustible dust out

# SIRA 13 ATEX 1234 Name of Notified Body performing EC-type examination Serial Number Serial Number Serial Number Name of Body Performing IECEX Certification Serial Number

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

Classification of Divisions and Zones				
Type of Area	NEC and CEC*	ATEX and IEC	Definitions	
Continuous hazard	Division 1	Zone 0 / Zone 20 Cat 1	A place in which an explosive atmosphere is continuously present	
Intermittent hazard	Division 1	Zone 1 / Zone 21 Cat 2	A place in which an explosive atmosphere is likely to occur in normal operation	
Hazard under abnormal conditions	Division 2	Zone 2 / Zone 22 Cat 3	A place in which an explosive atmosphere is not likely to occur in normal operation, but may occur for short periods	

<b>Equipment Great</b>	oups (AT	EX and	IECEx)	Equipment Groups (ATEX and IECEx)				
Equipment Group	Equipment Category	Equipment Protection Level	Atmosphere	Protection Level	Required Protection Performance & Operation			
I (Mines with firedamp)	M1	Ма	Methane & Dust	Very High	Two Faults, Remain energised and functioning			
I (Mines with firedamp)	M2	Mb	Methane & Dust	High	Severe normal operation, De-energise in explosive atmosphere			
II (all other areas)	1	Ga / Da	Gas, Vapour, Mist, Dust	Very High	Two Faults			
II (all other areas)	2	Gb / Db	Gas, Vapour, Mist, Dust	High	One Fault			
II (all other areas)	3	Gc / Dc	Gas, Vapour, Mist, Dust	Low	Normal operation			

First	Number (protect from solid bodies)	Seco	Second Number (protect from water)		
0	No protection	0	No protection		
1	Objects > 50mm	1	Vertical drip		
2	Objects > 12.5mm	2	Angled drip		
3	Objects > 2.5mm	3	Spraying		
4	Objects > 1.0mm	4	Splashing		
5	Dust-protected	5	Jetting		
6	Dust-tight	6	Powerful jetting		
		7	Temporary immersion		
		8	Continuous immersion		

Туре	Area	Brief Definition
1900	1	
1	Indoor	General purpose
2	Indoor	Protection against angled dripping water
3, 3R, 3S	Indoor / Outdoor	Protection against rain, snow
4, 4X	Indoor / Outdoor	Protection against rain, snow, hose directed water
5	Indoor	Protection against angled dripping water, dust, fibers, flyings
6	Indoor / Outdoor	Protection against temporary submersion
6P	Indoor / Outdoor	Protection against prolonged submersion
12, 12K	Indoor	Protection against circulating dust, fibers, flyings
13	Indoor	Protection against circulating dust, fibers, flyings, seepage

Apparatus Groups (ATEX and IECEx)					
Group	Environment	Location	Typical Substance		
		Coal Mining	Methane (Fire damp)		
IA	Gases, Vapours	Surface and other	Acetic acid, Acetone, Ammonia, Butane, Cyclohexane, Gasoline (petrol), Kerosene, Methane (natural gas) (non-mining), Methanol (methyl alcohol), Propane, Propan-2-ol (iso-propyl alcohol), Toluene, Xylene		
IB		locations	Di-ethyl ether, Ethylene, Methyl ethyl ketone (MEK), Propan-1-ol (n-propyl alcohol), Ethanol (ethyl alcohol)		
IC			Acetylene, Hydrogen, Carbon disulphide		
IIA		Surface	Combustible flyings		
IIB	Combustible Dusts	and other	Non-conductive		
IIC		locations	Conductive		

Apparatus Groups (US / CAN)			
Substance	Hazard Class	NEC 500	NEC 505
Acetylene		Group A	IIC
Hydrogen		Group B	IIC
Ethylene	Class I Flammable Gases	Group C	IIB
Propane	Tidiffinable edies	Group D	IIA
Methane (mining)		Group D	-
Combustible Metal Dusts		Group E	-
Combustible Carbonaceous Dusts	Class II Combustible Dusts	Group F	-
Combustible Dusts not in Group E or F (Flour, Grain, Wood, Plastics, Chemicals)	- Combanion Duna	Group G	-
Combustible Fibers and Flyings	Class III Fibers and Flyings	-	-

Note: For associated intrinsically safe apparatus suitable for installation in a hazardous location, the symbol for the type of protection "ia" or "ib" are enclosed within square brackets on the marking, e.g. AEx d (ia) IIC T4.

Class III Division 1

CSA C22.2 No. 157

Note: For intrinsically safe apparatus not suitable for installation in a hazardous location, both the symbol "Ex" or "AEx" and the symbol for the type of protection "io" or "ib" are enclosed within the same square brackets on the marking, e.g. (AEx iq) IIC; in this case, a temperature class is not included.











# **ATEX & IECEX**

pical ATEX & IEC	CEx Mark	king (*ATE	X only)		
C	0518	⟨£x⟩	II	2	G
1	<b>A</b>	<b></b>	<b>A</b>	<b>^</b>	<b>^</b>
*Complies with European Directives	Body Mo Number Ex	Specific "E arking for xplosion rotection		Equipment * Category	Environment
E	x d	b II	C T	4 G	b
1	4	<b>^</b>		•	<b>^</b>
Explo Protec					uipment on Level (EPL)
Ex	tb	IIIC	T13	5°C	Db
<b>^</b>	<b>^</b>	<b>A</b>		<b>A</b>	<b>A</b>
Explosion Protection	Type of Protection	Dust Type		erature ss (°C)	Equipment Protection Level

Type of		Typical	Typical		Basic Concept	
Protection	Symbol	IEC EPL	Zone(s)	IEC Standard	of Protection	
Electrical Equipment for Gases, Vapo	urs and Mi	ists (G)				
General Requirements	-	-	-	IEC 60079-0	-	
Optical Radiation	Op pr Op sh Op is	Gb Ga Ga	1, 2 0, 1, 2 0, 1, 2	IEC 60079-28	Protection against ignition from optical radiation	
Increased Safety	eb ec	Gb Gc	1, 2 2	IEC 60079-7	No arcs, sparks or hot surfaces. Enclosure IP54	
Type `n' (non-sparking)	nA	Gc	2	IEC 60079-15	or better	
Flameproof	da db dc	Ga Gb Gc	0, 1, 2 1, 2 2	IEC 60079-1	Contain the explosion, quench the flame	
Type 'n' (enclosed break)	nC	Gc	2	IEC 60079-15		
Quartz / Sand Filled	q	Gb	1, 2	IEC 60079-5	Quench the flame	
Intrinsic Safety	ia ib ic	Ga Gb Gc	0, 1, 2 1, 2 2	IEC 60079-11	Limit the energy of spark and surface temperature	
Pressurised	px py pz	Gb Gb Gc	1, 2 1, 2 2	IEC 60079-2		
Type 'n' (sealing & hermetic sealing)	nC	Gc	2	IEC 60079-15	1	
Type 'n' (restricted breathing)	nR	Gc	2	IEC 60079-15	Keep the flammable ga	
Encapsulation	ma mb mc	Ga Gb Gc	0, 1, 2 1, 2 2	IEC 60079-18	out	
Oil Immersion	ob oc	Gb Gc	1, 2 2	IEC 60079-6		
Electrical Equipment for Combustible	Dusts (D)					
General Requirements	-	-	-	IEC 60079-0	-	
Optical Radiation	Op pr Op sh Op is	Db Da Da	21, 22 20, 21, 22 20, 21, 22	IEC 60079-28	Protection against ignitions from optical radiation	
Enclosure	ta tb tc	Da Db Dc	20, 21, 22 21, 22 22	IEC 60079-31	Standard protection for dusts, rugged tight enclosure	
Intrinsic Safety	ia ib ic	Da Db Dc	20, 21, 22 21, 22 22	IEC 60079-11	Limit the energy of sparks and surface temperatures	
Encapsulation	ma mb mc	Da Db Dc	20, 21, 22 21, 22 22	IEC 60079-18	Protection by encapsulation of incendive parts	
Pressurised	pD	Db Dc	20, 21, 22 21, 22	IEC 61241-4	Protection by pressurisation of enclosure	
Non-Electrical Equipment						
	-	-	-	EN 13463-1		
General Requirements	h	Ga, Gb, Gc Da, Db, Dc	0, 1, 2 20, 21, 22	IEC 80079-36	Low potential energy	
Flow Restricted Enclosure	fr	-	-	EN 13463-2	Relies on tight seals, close	
Flameproof Enclosure	d	-	-	EN 13463-3	matched joints and toug enclosures to restrict the breathing of the enclosu	
Constructional Safety	С	-	0, 1, 2 20, 21, 22	EN 13463-5	Ignition hazards eliminated by good	
	h	Ga, Gb, Gc Da, Db, Dc	0, 1, 2 20, 21, 22	IEC 80079-37	engineering methods	
Control of low War C	b	-	-	EN 13463-6	Control equipment fitted	
Control of Ignition Source	h	Ga, Gb, Gc Da, Db, Dc	0, 1, 2 20, 21, 22	IEC 80079-37	to detect malfunctions	
Pressurisation	р	-	1, 2 21, 22	EN 60079-2 EN 61241-4	Enclosure is purged and pressurised to prevent igniti sources from arising	
Liquid Immersion	k	-	0, 1, 2 20, 21, 22	EN 13463-8	Enclosure uses liquid	
Liquid Immersion	h	Ga, Gb, Gc	0, 1, 2	IEC 80079-37	to prevent contact with explosive atmosphere	

		ximum surface temperatur nic Equipment (T Class).	es	700°	
IIA	TI	Ammonia	630°	— 600°	$^{\circ}C$
IIC	T1	Hydrogen	560°	_	
IIA	T1	Methane	537°	500°	
IIA	T1	Propane	470°	_	450°
IIB	T2	Ethylene	425°	400°	
IIA	T2	Butane	372°		
IIC	T2	Acetylene	305°	300°	—T2 300°
IIA	T3	Cyclohexane	259°	_	
IIA	Т3	Kerosene	210°	200°	—13 200°
IIB	T4	Di-ethyl Ether	160°		- 14 135°
IIC	T6	Carbon Disulphide	95°	100°	T6 85°

South Clause					
Dusts	Cloud	Layer			
Aluminium	590 °C	>450 °C			
Coal dust (lignite)	380 °C	225 °C			
Flour	490 °C	340 °C			
Grain dust	510 °C	300 °C			
Methyl cellulose	420 °C	320 °C			
Phenolic resin	530 ℃	>450 °C			
Polythene	420 °C	(melts) °C			
PVC	700 °C	>450 °C			
Soot	810 °C	570 °C			
Starch	460 °C	435 °C			
Sugar	490 °C	460 °C			

# Quality Assurance

Quality Assurance is concerned with the continued monitoring of systems and processes in relation to manufacturers of Ex products, and is concerned mainly with post-compliance activities.

CSA Group offers the full range of QA services including ATEX & IECEx Product & Production Quality Assurance, Certification of Service Facilities involved in repair and overhoul of Ex

# Equipment and technical auditing services. The routes to market for ATEX and IECEx:

- ATEX QAN (Quality Assurance Notification): Quality system certification for the manufacture of cateaory 1 and cateaory 2 electrical equipment (refer IEC/ISO 80079-34 and ATEX Directive
- IECEx QAR (Quality Assessment Report): Required together with the EXTR (test report) to enable issue of an IECEx Certificate of Conformity (refer IEC/ISO 80079-34 and IECEx Scheme Rules).
- ATEX Conformity-to-Type Notification: Certification for the manufacture of category 2 electrical equipment (refer ATEX Directive Annexes VI).
- ATEX Product Verification: Certification for the manufacture of category 1 equipment 100% verification by the Notified Body (refer ATEX Directive Annexes V).

  ATEX or IECEx Unit Verification: Certification covering design and manufacture of equipment 100% verification by the Notified Body (refer ATEX Directive Annexes IX and IECEx Scheme Rules).



# ATEX & IEC Training & Competence

CSA Group has been at the forefront of hazardous area training for over 25 years, utilising the skills and experience of our highly specialised engineers and lecturers to 'transfer knowledge'.

This detailed knowledge and vast experience allows us to offer a comprehensive range of training courses and competence schemes that can be delivered as part of our 'open' training programme or tailored to your needs and delivered on-site at your premises.

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  Hazardous Area Training (ATEX, DSEAR & IEC)
- Functional Safety Training
   Fnvironmental & MCERTS Training
- Environmental & MCERTS Training
   Competence Certification (CoPC)
- Competence Certification (CoPC)
   IECEx Certification of Personnel Competence Scheme
- For further details please contact CSA Group on: + 44 1244 670 900 or Email: training@siraconsulting.com





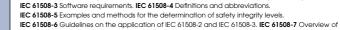
# Functional Safety

CSA Group is a leading provider of functional safety certification. IEC 61508 is the international standard for electrical, electronic and programmable electronic safety (E/E/PE) related systems. It sets out the requirements for ensuring that systems are designed, implemented, operated and maintained to provide the required safety integrity level (SIL). Four SILs are defined according to the risks involved in the system application, with SIL4 being used to protect against the highest risks. The standard specifies a process that can be followed by all links in the supply chain so that information about the system can be communicated using common terminology and system.

### parameters. The standard consists of the following parts:

The standard consists of the following parts:

IEC 61508-1 General requirements. IEC 61508-2 Requirements for E/E/PE safety-related systems.





IEC 61511 Process industries. IEC 61513 Nuclear power plants. IEC 62061 Machinery sector and ISO 13849. IEC 61800-5-2 Power drive systems. EN 50272 and EN 50402 Functional safety requirements for portable and fixed gas detection systems. EN 50495 safety devices requirements for safe operation of equipments with respect to explosion risks.

