

# CSA INTERNATIONAL

# HAZARDOUS LOCATIONS

## GLOBAL TESTING AND CERTIFICATION SERVICES

### Explosive Dust Atmospheres Protection Concepts

Type of Protection	Code	Market	Application	Standard	Protection Principle
<b>General Requirements</b>		US	Class II, Division 1 & 2	FM 3600	Keep combustible dust out
		CA	Class II, Division 1 & 2	CSA C22.2 No. 0	
		US	Class III, Division 1 & 2	FM 3600	
		CA	Class III, Division 1 & 2	CSA C22.2 No. 0	
	Ex	US	Zone 20, 21, & 22	ISA 61241-0	
	EX	EU	Category 1D, 2D, & 3D	En 61241-0 or En 60079-0	
	* Ex	IEC	Zone 20, 21, 22 EPL Da, Db, & Dc	IEC 61241-0 or IEC 60079-0	
<b>Dust-Ignitionproof</b>	(DIP)	US	Class II, Division 1	UL 1203 / FM 3610	
		CA	Class II, Division 1	CSA C22.2 No. 25	
<b>Dust-Protected</b>	(NI)	US	Class II, Division 2	UL 913 / FM 3611	
		CA	Class II, Division 2	CSA C22.2 No. 25	
<b>Protection by Enclosure</b>	AEx tD	US	Zone 21	ISA 61241-1	
	DIP A21	CA	Class II, Division 1	CSA E61241-1-1	
	DIP A22	CA	Class II, Division 2	CSA E61241-1-1	
	Ex tD	EU	Category 2D	EN 61241-1	
	* Ex tD	IEC	EPL Db	IEC 61241-1	
	Ex ta	EU	Category 1D	EN 60079-31	
	* Ex ta	IEC	EPL Da	EN 60079-31	
	Ex tb	EU	Category 2D	EN 60079-31	
	* Ex tb	IEC	EPL Db	EN 60079-31	
	Ex tc	EU	Category 3D	EN 60079-31	
	* Ex tc	IEC	EPL Dc	EN 60079-31	
<b>Fiber &amp; Flying Protection</b>	(DIP)	US	Class III, Division 1 & 2	FM 3611	
		CA	Class III, Division 1 & 2	CSA C22.1	
<b>Encapsulation</b>	AEx maD	US	Zone 20	ISA 61241-18	
	Ex maD	EU	Category 1D	EN 61241-18	
	* Ex maD	IEC	EPL Da	IEC 61241-18	
	AEx mbD	US	Class II, Zone 21	ISA 61241-18	
	Ex mbD	EU	Category 2D	EN 61241-18	
	* Ex mbD	IEC	EPL Db	IEC 61241-18	

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Type of Protection	Code	Market	Application	Standard	Protection Principle
<b>Presurization</b>	(PX)	US	Class II, Division 1	FM 3620 (NFPA 496)	Keep combustible dust out
	(PX)	CA	Class II, Division 1	NFPA 496	
	(PY)	US	Class II, Division 1	FM 3620 (NFPA 496)	
	(PY)	CA	Class II, Division 1	NFPA 496	
	(PZ)	US	Class II, Division 2	FM 3620 (NFPA 496)	
	(PZ)	CA	Class II, Division 2	NFPA 496	
	AEx pD	US	Zone 21	ISA 61241-2	
	Ex pD	EU	Category 2D	EN 61241-4	
Ex pD	IEC	EPL Db	IEC 61241-4		
<b>Intrinsic Safety</b>	(IS)	US	Class II, Division 1	UL 913 / FM 3610	Limit energy of sparks and surface temperature
	(IS)	CA	Class II, Division 1	CSA C22.2 No. 157	
	AEx iaD	US	Zone 20	ISA 61241-11	
	Ex iaD	EU	Category 1D	EN 61241-11	
	* Ex iaD	IEC	EPL Da	IEC 61241-11	
	AEx ibD	US	Zone 21	ISA 61241-11	
	Ex ibD	EU	Category 2D	EN 61241-11	
	* Ex ibD	IEC	EPL Db	IEC 61241-11	
	(IS)	US	Class III, Division 1	FM 3610	
	(IS)	CA	Class III, Division 1	CSA C22.2 No. 157	

\* pending in Canada

*Note 1: For associated intrinsically safe apparatus suitable for installation in a hazardous location, the symbol for the type of protection "iaD" or "ibD" are enclosed within square brackets, e.g. AEx d [iaD] IIC T4.*

*Note 2: For associated 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 iaD" or "ibD" are enclosed within the same square brackets, e.g. [AEx iaD] IIC; in this case, a temperature class is not included.*



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