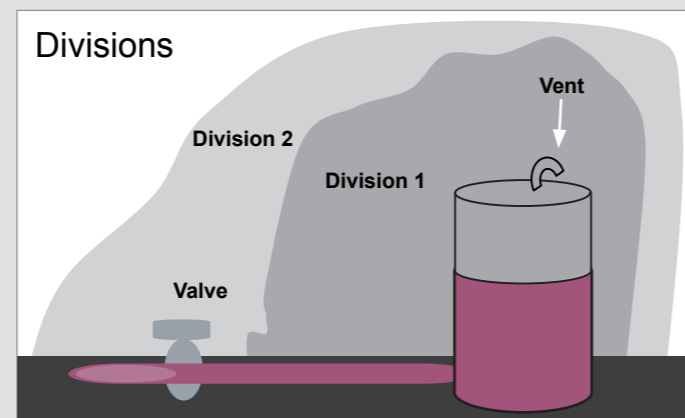
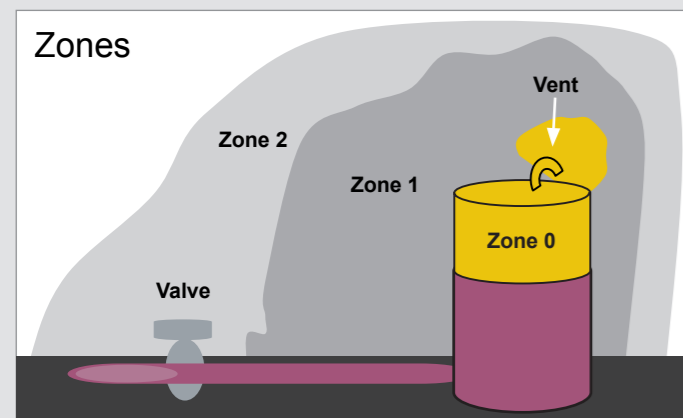


# HazLoc Hand Chart

Protection method	IEC/ EN (ATEX)				ATEX Category
	Ex Code	Standard	Gas	Dust	
Intrinsic Safety	ia	60079-11	Zone 0	Zone 20	1
	ib		Zone 1	Zone 21	2
	ic		Zone 2	Zone 22	3
Flameproof / Explosionproof	da	60079-1	Zone 0		1
	db		Zone 1		2
	dc		Zone 2		3
Enclosure	ta	60079-31		Zone 20	1
	tb			Zone 21	2
	tc			Zone 22	3
Purge and Pressurization	pxb	60079-2	Zone 1	Zone 21	2
	pyb		Zone 1	Zone 21	2
	pzc		Zone 2	Zone 22	3
Increased Safety	eb	60079-7	Zone 1		2
	ec		Zone 2		3
Encapsulation	ma	60079-18	Zone 0	Zone 20	1
	mb		Zone 1	Zone 21	2
	mc		Zone 2	Zone 22	3
Oil Immersion	ob	60079-6	Zone 1		2
	oc		Zone 2		3
Powder Filled	q	60079-5	Zone 1		2
Non Sparking & Restricted Breathing	nA	60079-15	Zone 2		3
	nC		Zone 2		3
	nR		Zone 2		3
Pressurized Room	px	60079-13	Zone 1	Zone 21	2
	py		Zone 1	Zone 21	2
	pz		Zone 2	Zone 22	3
Optical Radiation	op sh	60079-28	Zone 0		1
	op is		Zone 0		1
	op pr		Zone 1		2
<b>Reference Standards</b>					
General Requirements	IEC/EN 60079-0				
Classification of Hazardous Areas	IEC/EN 60079-10				
Electrical Installations	IEC/EN 60079-14				
Inspection & Maintenance	IEC/EN 60079-17				

Code	USA (NEC 500) FM & UL	Canada (CEC) CSA	Gas	Dust
IS	FM3610/ UL913 UL698A	C22.2 No. 157	Class I, Div 1 Class I, Div 2	Class II, Div 1 Class II, Div 2 Class III, Div 1,2
XP	FM3615 / UL1203 FM3616	C22.2 No. 30	Class I, Div 1 Class I, Div 2	Class II, Div 1 Class II, Div 2
Dusttight		C22.2 No. 25		Class II, Div 2 Class III, Div 1,2 Groups E, F & G
Type X	FM3620 / NFPA 496	C22.2 No. 60079-2	Class I, Div 1	Class II, Div 1
Type Y			Class I, Div 1	Class II, Div 1
Type Z			Class I, Div 2	Class II, Div 2
Hermetically Sealed			Class I, Div 2	Class II, Div 2 Class III, Div 1,2
NI		C22.2 No. 213	Class I, Div 2	Class II, Div 2 Class III, Div 1,2
	FM3611 NFPA 496		Class I, Div 2	
<b>Reference Standards</b>				
	NEC500	C22.2 No. 0		
	NEC500			
	NEC 501 to 504	C22.2 No. 174		
	NEC 501 to 504			

The following countries publish the IEC as National Standards with the following prefix in place of IEC: Australia/New Zealand = AS/NZ, Canada = E, USA = ISA. Other countries such as Argentina, Brazil, etc., have adopted the IEC standards.



## Temperature Ratings

Surface Temperature	IEC, EU (Europe) USA (NEC 505)	USA (NEC 500) Canada
450°C (842°F)	T1	T1
300°C (572°F)	T2	T2
280°C (536°F)		T2A
260°C (500°F)		T2B
230°C (446°F)		T2C
215°C (419°F)		T2D
200°C (392°F)	T3	T3
180°C (356°F)		T3A
165°C (329°F)		T3B
160°C (320°F)		T3C
135°C (275°F)	T4	T4
120°C (248°F)		T4A
100°C (212°F)	T5	T5
85°C (185°F)	T6	T6

## US NEMA & IP Ratings

Equipment Group	Zone	Equipment Category (ATEX)	EPL - Equipment Protection Level	Atmosphere
I (Mine with firedamp)	Not Applicable	M1	Ma	Methane & Dust
I (Mine with firedamp)		M2	Mb	Methane & Dust
II (above ground)	0 / 20	1G / 1D	Ga/Da	Gas, Vapour, Mist, Dust
	1 / 21	2G / 2D	Gb/Db	Gas, Vapour, Mist, Dust
	2 / 22	3G / 3D	Gc/Dc	Gas, Vapour, Mist, Dust

## Ingress Protection (IP) Ratings

First number Protection against solid bodies	Second number Protection against liquid
0 - No Protection	0 - No Protection
1 - Objects greater than 50mm	1 - Vertically dripping water
2 - Objects greater than 12mm	2 - Dripping water at 15°
3 - Objects greater than 2.5mm	3 - Sprayed water at 60°
4 - Objects greater than 1mm	4 - Splashed water
5 - Dust-Protected	5 - Water jets
6 - Dust-tight	6 - Heavy water jet
	7 - Temporary immersion
	8 - Indefinite immersion

## US NEMA & IP Ratings

NEMA	IP Approximate IEC/IP Classification	Abbreviated Description
1	IP20	General purpose indoors from contact with contents
3	IP55	Dust Protection/ Water Jets
3R	IP24	Indoors/Outdoors, rain, sleet & ice damage
3S	IP54	Outdoors, dust tight, rain tight, sleet, windblown dust & ice damage
4	IP65	Outdoor, windblown dust, rain, splashing & direct hose, icing
4X	IP66	NEMA 4 plus corrosive agents

## Gas Groupings

Gas, Dust or Fiber	IEC / Europe Canada (CEC)	USA NEC (505)	Canada (CEC) USA NEC (500)
Acetylene	Group IIC	Class I, Group IIC	Class I, Group A
Hydrogen			Class I, Group B
Ethylene	Group IIB	Class I, Group IIB	Class I, Group C
Propane	Group IIA	Class I, Group IIA	Class I, Group D
Methane	Group I	Class I, Group IIA	Class I, Group D
Metal Dust	Group IIIC		Class II, Group E (Div 1 only)
Coal Dust	Group IIIB		Class II, Group F
Grain	Group IIIB		Class II, Group G
Fibres	Group IIIA		Class II, Group H

## IEC / ATEX Dust

Dust	Temp °C (Cloud)	Temp °C (Layer)
Cellulose	520	410
Coal	380	225
Cocoa Powder	580	480
Flour	490	340
Grain	510	300
Polythene	420	Melts
Sugar	460	435
Tea	510	300

## Hazardous Area Equipment Mark

