

Table 1: Flammable Gases & Vapors *Classification Focus: NEC Class I / ATEX & IECEx Group II*

Substance Type	NEC Group	ATEX / IECEx Subgroup	Hazard Frequency	NEC Division	ATEX / IECEx Zone
Acetylene	Group A	IIC	Continuously present or present for long periods	Division 1	Zone 0
			Occasionally present under normal operating conditions	Division 1	Zone 1
			Present only during abnormal conditions	Division 2	Zone 2
Hydrogen or equivalent	Group B	IIC	Continuously present or present for long periods	Division 1	Zone 0
			Occasionally present under normal operating conditions	Division 1	Zone 1
			Present only during abnormal conditions	Division 2	Zone 2
Ethylene or equivalent	Group C	IIB	Continuously present or present for long periods	Division 1	Zone 0
			Occasionally present under normal operating conditions	Division 1	Zone 1
			Present only during abnormal conditions	Division 2	Zone 2
Propane or equivalent	Group D	IIA	Continuously present or present for long periods	Division 1	Zone 0
			Occasionally present under normal operating conditions	Division 1	Zone 1
			Present only during abnormal conditions	Division 2	Zone 2

Table 2: Combustible Dusts *Classification Focus: NEC Class II / ATEX & IECEx Group III*

Substance Type	NEC Group	ATEX / IECEx Subgroup	Hazard Frequency	NEC Division	ATEX / IECEx Zone
Metal dusts (aluminum, magnesium)	Group E	IIIC	Continuously present or present for long periods	Division 1	Zone 20
			Occasionally present under normal operating conditions	Division 1	Zone 21
			Present only during abnormal conditions	Division 2	Zone 22
Carbonaceous dusts (coal)	Group F	IIIC or IIIB*	Continuously present or present for long periods	Division 1	Zone 20
			Occasionally present under normal operating conditions	Division 1	Zone 21
			Present only during abnormal conditions	Division 2	Zone 22
Non-conductive dusts (grain, flour, sugar)	Group G	IIIB	Continuously present or present for long periods	Division 1	Zone 20
			Occasionally present under normal operating conditions	Division 1	Zone 21
			Present only during abnormal conditions	Division 2	Zone 22

*Note: Can fall under either Group IIIC or IIIB depending on their specific electrical conductivity

Table 3: Ignitable Fibers & Flyings *Classification Focus: NEC Class III / ATEX & IECEx Group IIIA*

Substance Type	NEC Group	ATEX / IECEx Subgroup	Hazard Frequency	NEC Division	ATEX / IECEx Zone
Combustible fibers	—	IIIA	Materials are handled, manufactured, or used (Continuously present or present for long periods)	Division 1	Zone 20
			Materials are stored or handled occasionally (Occasionally present under normal operating conditions)	Division 2	Zone 21
			Materials are stored or handled only in abnormal conditions (Present only during abnormal conditions)	Division 2	Zone 22

Disclaimer: This matrix is provided for preliminary planning and educational reference only. Hazardous area standards are subject to regional variations and updates. Always consult a certified safety engineer or your local Authority Having Jurisdiction (AHJ) for final site classifications.

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