



2. LEGAL BASES

The requirements of electrical equipment for explosive atmospheres are multifarious: national and international regulations, directives and standards must be observed and ensure maximum safety. The following chapter summarises the main legal requirements and recommendations worldwide, in the European Union and in North America to provide the reader with an overview.

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Table 3: Electrical equipment for use in hazardous areas

| | IEC | EN |
|--|--------------------|-----------------------|
| Equipment – General requirements | IEC 60079-0 | EN 60079-0 |
| Equipment protection through flameproof enclosure “d” | IEC 60079-1 | EN 60079-1 |
| Classification of areas – Gas explosion hazardous areas | IEC 60079-10-1 | EN 60079-10-1 |
| Classification of areas – Dust explosion hazardous areas | IEC 60079-10-2 | EN 60079-10-2 |
| Equipment protection by intrinsic safety “i” | IEC 60079-11 | EN 60079-11 |
| Equipment protection by pressurised rooms | IEC 60079-13 | EN 60079-13 |
| Project engineering, selection and installation of electrical systems | IEC 60079-14 | EN 60079-14 |
| Electrical equipment of protection type “n” | IEC 60079-15 | EN 60079-15 |
| Artificial ventilation for the protection of analysis rooms | IEC/TR 60079-16 | |
| Inspection and maintenance of electrical systems | IEC 60079-17 | EN 60079-17 |
| Equipment protection by encapsulation “m” | IEC 60079-18 | EN 60079-18 |
| Equipment repair, overhaul and recycling | IEC 60079-19 | EN 60079-19 |
| Equipment protection by pressurised enclosure “p” | IEC 60079-2 | EN 60079-2 |
| Material characteristics for classifying gases and vapours – test methods and data | IEC 60079-20-1 | EN 60079-20-1 |
| Intrinsically safe systems | IEC 60079-25 | EN 60079-25 |
| Equipment with equipment protection level (EPL) Ga | IEC 60079-26 | EN 60079-26 |
| Protection from devices and transmission systems which work with optical radiation | IEC 60079-28 | EN 60079-28 |
| Gas detectors – Performance requirements of detectors for flammable gases | IEC 60079-29-1 | EN 60079-29-1 |
| Gas detectors – Selection, installation, use and maintenance of detectors for flammable gases and oxygen | IEC 60079-29-2 | EN 60079-29-2 |
| Gas detectors – Guidance on functional safety of fixed gas detection systems | IEC 60079-29-3 | EN 60079-29-3 |
| Gas detectors – Open path apparatus: general requirements and test methods | IEC 60079-29-4 | EN 60079-29-4 |
| Electrical resistance trace heating – General and testing requirements | IEC 60079-30-1 | EN 60079-30-1 |
| Electrical resistance trace heating – Application guide for design, installation and maintenance | IEC 60079-30-2 | EN 60079-30-2 |
| Dust explosion protection by enclosure “t” | IEC 60079-31 | EN 60079-31 |
| Electrostatic hazards – Test methods | IEC 60079-32-2 | EN 60079-32-2 |
| Danger due to electrostatic discharges | IEC/TS 60079-32-1 | |
| Equipment protection by special protection type “s” | IEC 60079-33 | |
| Intrinsically safe systems with electronically controlled spark duration | IEC/TS 60079-39 | |
| Equipment protection by powder filling “q” | IEC 60079-5 | EN 60079-5 |
| Equipment protection by oil immersion “o” | IEC 60079-6 | EN 60079-6 |
| Equipment protection by increased safety “e” | IEC 60079-7 | EN 60079-7 |
| Material characteristics – Test methods for combustible dust | ISO/IEC 80079-20-2 | EN ISO/IEC 80079-20-2 |
| Safety equipment for safe operation of equipment with respect to explosion hazards | | EN 50495 |