

General Information

International - IEC / CENELEC Standards



A

International Electrotechnical Commission (IEC)

The International Standard IEC 60079-10 defines the guidelines for classifying hazardous areas into zones based upon the frequency of the occurrence and duration of an explosive gas atmospheres.

Zone 0 : An area in which an explosive gas atmosphere is present continuously or for long periods.

Zone 1 : An area in which an explosive gas atmosphere is likely to occur in normal operation.

Zone 2 : An area in which an explosive gas atmosphere is not likely to occur in normal operation and, if it does occur, is likely to do so only infrequently and will exist for a short period only.

The European Committee for Electrotechnical Standardization (CENELEC)

Due to the different standards for equipment used in hazardous locations had effect of creating trade barriers within the European Community. Then, the members of the European Community decided to establish uniform standards for hazardous location apparatus and to accept each other's product certificates.

The harmonized European Standards were developed by CENELEC, based on IEC recommendations, are called EN European Standard (Europäische Norm).

Classification Comparison

Zone Classification

| Explosive Atmospheres | USA (NEC) Canada (CEC) | International (IEC) | Europe (CENELEC) |
|---|---------------------------|---------------------|------------------|
| Continuous present | Cl. I Div. 1 (gas) | Zone 0 (gas) | Zone 0 (gas) |
| | Cl. II Div. 1 (dust) | Zone 20 (dust) | |
| | Cl. III Div. 1 (fiber) | | |
| Intermittent present (normal operation) | Cl. I Div. 1 (gas) | Zone 1 (gas) | Zone 1 (gas) |
| | Cl. II Div. 1 (dust) | Zone 21 (dust) | |
| | Cl. III Div. 1 (fiber) | | |
| Occasional present (abnormal operation) | Cl. I Div. 2 (gas) | Zone 2 (gas) | Zone 2 (gas) |
| | Cl. II Div. 2 (dust) | Zone 22 (dust) | |
| | Cl. III Div. 2 (fiber) | | |

Gas Groups

| Place of use | USA (NEC) Canada (CEC) | IEC / CENELEC | Representative gas |
|------------------------------|---------------------------|---------------|--------------------|
| Mine susceptible to firedamp | Gaseous mines | I | Methane |
| Surface industries | Cl. I Group A | II C | Acetylene |
| | Cl. I Group B | | Hydrogen |
| | Cl. I Group C | II B | Ethylene |
| | Cl. I Group D | II A | Propane |

Maximum Surface Temperature

| Max. Temp. (°C) | Temp. Class | |
|-----------------|-------------|-------------|
| | NEC | IEC/CENELEC |
| 450 | T1 | T1 |
| 300 | T2 | T2 |
| 280 | T2A | |
| 260 | T2B | |
| 230 | T2C | |
| 215 | T2D | |
| 200 | T3 | T3 |
| 180 | T3A | |
| 165 | T3B | |
| 160 | T3C | |
| 135 | T4 | T4 |
| 120 | T4A | |
| 100 | T5 | T5 |
| 85 | T6 | T6 |