

# Technical Information: Hazardous Areas Classification Comparison

## A.3 Areas Classification Comparison (Class and Zone)

Two different standards for hazardous area classification can be compared and summarized as tables below:

### Comparison of areas classification for Class and Zone

| Explosive Atmospheres                                | NEC or CEC                        | IEC or EN             |
|------------------------------------------------------|-----------------------------------|-----------------------|
| Continuously, for long period, frequently            | Class I Div.1 (gas)               | Zone 0 (gas)          |
|                                                      | Class II Div.1 (dust)             | Zone 20 (dust/ fiber) |
|                                                      | Class III Div.1 (fibers/ flyings) |                       |
| Occasionally                                         | Class I Div.1 (gas)               | Zone 1 (gas)          |
|                                                      | Class II Div.1 (dust)             | Zone 21 (dust/ fiber) |
|                                                      | Class III Div.1 (fibers/ flyings) |                       |
| Not occur in normal operation, only for short period | Class I Div.2 (gas)               | Zone 2 (gas)          |
|                                                      | Class II Div.2 (dust)             | Zone 22 (dust/ fiber) |
|                                                      | Class III Div.2 (fibers/ flyings) |                       |

### Comparison of representative gas groups for NFPA and IEC

| Representative Gases | Explosion Group/<br>NFPA 497 | Explosion Group/<br>IEC 60079-20 |
|----------------------|------------------------------|----------------------------------|
| Acetylene            | A                            | IIC                              |
| Carbon disulphide    | B                            | IIC                              |
| Hydrogen             | B                            | IIC                              |
| Ethylene oxide       | B(C)*                        | IIB                              |
| Hydrogen sulfide     | C                            | IIB                              |
| Ethylene             | C                            | IIB                              |
| Acrylonitrile        | D                            | IIB                              |
| Industrial methane   | D                            | IIA                              |
| Propane              | D                            | IIA                              |
| Ethyl acetate        | D                            | IIA                              |

\* Group classification shown in parentheses is permitted if equipment is isolated by sealing in all conduits ½ inch or larger.

### Comparison of surface temperature classification NEC and IEC

| Temperature class<br>NEC art.500,<br>CEC sec.18 | Temperature class<br>IEC, EN,<br>NEC art.505 | Maximum permissible<br>surface temperature of<br>equipment (°C) | Ignition temperature of<br>flammable substance (°C) |
|-------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------|
| T1                                              | T1                                           | 450                                                             | 450 < Ign. Temp.                                    |
| T2                                              | T2                                           | 300                                                             | 300 < Ign. Temp.                                    |
| T2A                                             |                                              | 280                                                             | 280 < Ign. Temp.                                    |
| T2B                                             |                                              | 260                                                             | 260 < Ign. Temp.                                    |
| T2C                                             |                                              | 230                                                             | 230 < Ign. Temp.                                    |
| T2D                                             |                                              | 215                                                             | 215 < Ign. Temp.                                    |
| T3                                              | T3                                           | 200                                                             | 200 < Ign. Temp.                                    |
| T3A                                             |                                              | 180                                                             | 180 < Ign. Temp.                                    |
| T3B                                             |                                              | 165                                                             | 165 < Ign. Temp.                                    |
| T3C                                             |                                              | 160                                                             | 160 < Ign. Temp.                                    |
| T4                                              | T4                                           | 135                                                             | 135 < Ign. Temp.                                    |
| T4A                                             |                                              | 120                                                             | 120 < Ign. Temp.                                    |
| T5                                              | T5                                           | 100                                                             | 100 < Ign. Temp.                                    |
| T6                                              | T6                                           | 85                                                              | 85 < Ign. Temp.                                     |