



PROCESS
INDUSTRY
PRACTICES

June 2021

Electrical

PIP ELEGL05
Lightning and Static Protection Guideline

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In an effort to minimize the cost of process industry facilities, this Practice has been prepared from the technical requirements in the existing standards of major industrial users, contractors, or standards organizations. By harmonizing these technical requirements into a single set of Practices, administrative, application, and engineering costs to both the purchaser and the manufacturer should be reduced. While this Practice is expected to incorporate the majority of requirements of most users, individual applications may involve requirements that will be appended to and take precedence over this Practice. Determination concerning fitness for purpose and particular matters or application of the Practice to a particular project or engineering situations should not be made solely on information contained in these materials. The use of trade names from time to time should not be viewed as an expression of preference but rather recognized as normal usage in the trade. Other brands having the same specifications are equally correct and may be substituted for those named. All Practices or guidelines are intended to be consistent with applicable laws and regulations including OSHA requirements. To the extent these Practices or guidelines should conflict with OSHA or other applicable laws or regulations, such laws or regulations must be followed. Consult an appropriate professional before applying or acting on any material contained in or suggested by the Practice.

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1. Scope

This Practice addresses lightning and static protection for facilities that process, manufacture, store, and handle flammable, non-flammable, combustible, and non-combustible products and materials. This practice will also address lightning and static protection of the electrical infrastructure used to support the manufacturing of these materials.

2. References

Applicable parts of the following industry codes and standards shall be considered an integral part of this Practice. Current editions as adopted by the state and owner's AHJ at the site location shall be used. Short titles are used herein where appropriate.

Industry Codes and Standards

- American Petroleum Institute (API)
 - API 650 - *Welded Steel Tanks for Oil Storage*
 - API RP 2003 - *Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents*
- CSA Group
 - CSA C22.1:21 - *Canadian Electrical Code (CEC), Part I*
- International Electrotechnical Commission (IEC)
 - IEC 62305-2 - *Protection against Lightning - Part 2: Risk Management*
- Institute of Electrical and Electronics Engineers (IEEE)
 - IEEE Std. 1100 - *IEEE Recommended Practice for Powering and Grounding Electronic Equipment*
 - IEEE C2 - *National Electrical Safety Code (NESC)*
- National Fire Protection Association (NFPA)
 - NFPA 70 - *National Electrical Code (NEC)*
 - NFPA 77 - *Recommended Practice on Static Electricity*
 - NFPA 780 - *Standard for the Installation of Lightning Protection Systems*

3. Definitions

ground (IEEE Std. 1100): A conducting connection, whether intentional or accidental, by which an electric circuit or equipment is connected to the earth or to some conducting body of relatively large extent that serves in place of the earth

Note: Grounds are used for establishing and maintaining the potential of the earth (or of the conducting body), or approximately that potential, on conductors connected to it and for conducting ground currents to and from earth (or the conducting body).

owner: The party who owns the facility wherein the specified equipment will be used