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IEEE Standard for Electrical Safety Practices in Electrolytic Cell Line Working Zones

IEEE Industry Applications Society

Sponsored by the
Petroleum and Chemical Industry Committee

IEEE
3 Park Avenue
New York, NY 10016-5997
USA

IEEE Std 463™-2013
(Revision of
IEEE Std 463-2006)

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Abstract: Means for improved safeguarding of personnel while operating or maintaining equipment located in electrolytic cell line working zones are provided. Included are related requirements for equipment and electrical conductor installations. The general types of electrolytic cells covered include, but are not limited to, the direct current cells used in the production of aluminum, cadmium, sodium chlorate, chlorine, copper, fluorine, hydrogen peroxide, magnesium, sodium, and zinc.
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Introduction

This introduction is not part of IEEE Std 463™-2013, IEEE Standard for Electrical Safety Practices in Electrolytic Cell Line Working Zones.

In 1974, the Electrical Cell Line Working Group of the Petroleum and Chemical Industry Committee prepared a trial-use standard for Electrical Safety Practices in Electrolytic Cell Line Working Zones. Comments on the trial-use standard were incorporated into a full-use IEEE standard, which was published as IEEE Std 463-1977. The standard was developed to provide electrical safety practices for the unique conditions of the working areas of electrolytic cell installations. It defines the extent of the area covered and sets forth means of improved safeguarding of personnel in the area. The means are based on many years of successful experience in the industry.

This standard covers conditions that are different from the general safety requirements for electrical installations stated in IEEE Std 141™-1993, IEEE Recommended Practice for Electric Power Distribution for Industrial Plants (The Red Book) [B2][a]; and IEEE Std 142™-1991, IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems (The Green Book) [B3]. The standard was used as a source document for Article 668, Electrolytic Cells, of the National Electrical Code® (NEC®) (NFPA 70-2011); and Chapter 3, Safety Requirements for Special Equipment, of the Standard for Electrical Safety in the Workplace (NFPA 70E-2012).

This standard shall be applied with judgment. The requirements are of necessity general to cover the widely varied conditions of electrolytic cell areas. The selection of safeguards shall include consideration of the nature and exposure of an electrical hazard as well as unnecessary restriction of operation of the plant.

In 2005, a working group was formed for the purpose of reviewing and updating the standard.

[a] The numbers in brackets correspond to those of the bibliography in Annex B.

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IEEE Standard for Electrical Safety Practices in Electrolytic Cell Line Working Zones

1. Overview

Means of improved safeguarding of personnel while operating or maintaining equipment located in electrolytic cell line working zones are provided. Included are related requirements for equipment and electrical conductor installations. The general types of electrolytic cells covered include, but are not limited to, the direct current cells used in the production of aluminum, cadmium, sodium chlorate, chlorine, copper, fluorine, hydrogen peroxide, magnesium, sodium, and zinc.

1.1 Scope

This standard covers means of improved safeguarding of personnel while operating or maintaining equipment located in electrolytic cell line working zones. Included are related requirements for equipment and electrical conductor installations. The general types of electrolytic cells covered include, but are not limited to, the direct current (dc) cells used in the production of aluminum, cadmium, sodium chlorate, chlorine, copper, fluorine, hydrogen peroxide, magnesium, sodium and zinc.

This standard does not cover the following:

- Any electrical equipment that is neither part of the electrolytic process equipment nor installed or used in the cell line working zone
- Electroplating and anodizing facilities