SLOVENSKI STANDARD
oSIST prEN 17059:2026

01-december-2026

Linije za galvanizacijo in eloksacijo - Varnostne zahteve

Plating and anodizing lines - Safety requirements

Galvanik- und Anodisieranlagen - Sicherheitsanforderungen

Lignes de traitement de surface et d'anodisation - Prescriptions de sécurité

Sample Document

Ta slovenski standard je istoveten z: **prEN 17059**

---

get full document from standards.iteh.ai

ICS:

25.220.20 Površinska obdelava Surface treatment

oSIST prEN 17059:2026 **en,fr,de**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

Sample Document

get full document from standards.iteh.ai

oSIST prEN 17059:2026

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 17059

December 2026

ICS 25.220.20

Will supersede EN 17059:2018

English Version

Plating and anodizing lines - Safety requirements

Lignes de traitement de surface et d'anodisation - Prescriptions de sécurité

Galvanik- und Anodisieranlagen - Sicherheitsanforderungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 271.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

Standards Document
Document not for sale - Document from standards.iteh.ai



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

© 2026 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. prEN 17059:2026 E

oSIST prEN 17059:2026 • https://standards.iteh.ai/catalog/standards/sist/db8f6cff-e153-4d6a-8e0f-9edf28061dec/osist-pren-17059-2026

oSIST prEN 17059:2026

Contents

Page

European foreword 5
Introduction 6
1 Scope 7
2 Normative references 8
3 Terms and definitions 12
4 Requirements 17
4.1 General 17
4.2 Mechanical safety requirements 17
4.2.1 General 17
4.2.2 Measures against shearing, crushing, cutting, drawing in and impact hazards 18
4.2.3 Safety measures against loss of stability 19
4.2.4 Safety measures against entanglement and entrapment 21
4.2.5 Safety measures against slipping, tripping and falling 22
4.2.6 Safety measures against hazards by pressurized materials 22
4.3 Electrical safety requirements 22
4.3.1 General 22
4.3.2 Safety measures against electric shock 22
4.3.3 Protective measures against external effects on electrical equipment 23
4.3.4 Protective measures against electric sparks / arcs 23
4.4 Safety requirements and protective measures against thermal hazards 23
4.4.1 General 23
4.4.2 Measures against skin contact with hot surfaces 24
4.4.3 Measures against skin contact with hot fluids 24
4.4.4 Measures against thermal radiation and/or thermal convection 24
4.4.5 Measures against overheating of process chemistries 25
4.5 Safety requirements and protective measures against noise 26
4.6 Hazardous substances 27
4.6.1 General 27
4.6.2 Health 29
4.6.3 Explosion 31
4.7 Safety measures against fire 34
4.7.1 General 34
4.7.2 Ignition sources 34
4.7.3 Constructive measures 35
4.7.4 Procedural measures 35
4.7.5 Thermal load 35
4.7.6 Fire alarm and extinguishing system 36
4.7.7 Additional measures 36
4.7.8 Information for use 36
4.8 Safety requirements against hazards by failure of energy supply or control 36
4.9 Safety requirements for control systems 37
4.9.1 Safety functions 37
4.9.2 Equipment 39
4.9.3 Failure or malfunction of control systems 41

Sample Document

oSIST prEN 17059:2026 • https://standards.iteh.ai/catalog/standards/sist/db8f6cff-e153-4d6a-8e0f-9edf28061dec/osist-pren-17059-2026

oSIST prEN 17059:2026

4.10 Maintenance 41
5 Determination of compliance with safety requirements and / or protective measures 41
5.1 General 41
5.2 Mechanical hazards 41
5.3 Electrical hazards 42
5.4 Thermal hazards 42
5.5 Noise 42
5.6 Hazardous substances 42
5.6.1 General 42
5.6.2 Health 43
5.6.3 Explosions 43
5.7 Fire 44
5.8 Failure of energy supply 44
5.9 Safety requirements for control systems 44
6 Information for use 44
6.1 General 44
6.2 Instruction handbook 45
6.2.1 Minimum information of the instruction handbook 45
6.2.2 Information relating to the use of plating lines 48
6.2.3 Maintenance 49
6.3 Marking 50
Annex A (informative) Significant hazards 51
A.1 General 51
A.2 Mechanical hazards 51
A.3 Electrical hazards 53
A.4 Thermal hazards 53
A.5 Hazards generated by noise 53
A.6 Hazards resulting from dangerous substances 54
A.7 Fire 55
A.8 Hazards caused by failure of energy supply or control system 55
Annex B (informative) Examples of transporter units 56
Annex C (informative) Examples of working areas 61
Annex D (normative) Calculation of required minimum air flow rates for tanks with lids, open tanks, enclosing hoods, tunnels and transporter systems 64
D.1 Introduction 64
D.2 Calculation of the required minimum air flow rate 64
Annex E (normative) Required minimum air capture velocities (mean speed) in the main processes used in plating and anodizing industry 77
E.1 Method for the determination of the required minimum air velocity 77
Annex F (informative) Energy-efficiency and reduction of environmental impact 97
F.1 General 97
F.2 Machinery 97

Sample Document
get full document from standards.iteh.ai

oSIST prEN 17059:2026 • https://standards.iteh.ai/catalog/standards/sist/db8f6cff-e153-4d6a-8e0f-9edf28061dec/osist-pren-17059-2026

oSIST prEN 17059:2026

Annex ZA (informative) Relationship between this European Standard and the essential requirements of Regulation (EU) 2023/1230 aimed to be covered 99

Bibliography 108

Sample Document

get full document from standards.iteh.ai

oSIST prEN 17059:2026 • https://standards.iteh.ai/catalog/standards/sist/db8f6cff-e153-4d6a-8e0f-9edf28061dec/osist-pren-17059-2026

oSIST prEN 17059:2026

European foreword

This document (prEN 17059:2026) has been prepared by Technical Committee CEN/TC 271 “Surface treatment equipment - Safety”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 17059:2018.

prEN 17059:2026 includes the following significant technical changes with respect to EN 17059:2018:

a) requirements for the calculation of required minimum air flow rates for tanks with lids, open tanks, enclosing hoods, tunnels and transporter systems have been modified (Annex D);

b) required minimum air capture velocities (mean speed) in the main processes used in plating and anodizing industry have been modified (Annex E);

c) required category of explosion protection for equipment used in plating and anodizing lines with open tanks and/or with tanks with lids has been added (subclause 4.6.3.3.4);

d) a new Annex F (informative) on Energy-efficiency and reduction of environmental impact has been added;

e) the Annex ZA (informative) has been updated to include the relationship between this European Standard and the essential requirements of Regulation (EU) 2023/1230 aimed to be covered.

Sample Document

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

oSIST prEN 17059:2026 • https://standards.iteh.ai/catalog/standards/sist/db8f6cff-e153-4d6a-8e0f-9edf28061dec/osist-pren-17059-2026

oSIST prEN 17059:2026

Introduction

This document is a type-C standard as stated in EN ISO 12100:2010.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

— machine manufacturers (small, medium and large enterprises);

— health and safety bodies (regulators, accident prevention organizations, market surveillance, etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

— machine users/employers (small, medium and large enterprises);

— machine users/employees (e.g. trade unions);

— service providers, e.g. for maintenance (small, medium and large enterprises);

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the Scope of this document.

When requirements of this type-C standard are different from those which are stated in type-A or type-B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

Sample Document
get full document from standards.iteh.ai

oSIST prEN 17059:2026 • https://standards.iteh.ai/catalog/standards/sist/db8f6cff-e153-4d6a-8e0f-9edf28061dec/osist-pren-17059-2026

oSIST prEN 17059:2026

1 Scope

This document describes all significant hazards, hazardous situations and events relating to plating and anodizing lines, when used as intended and in compliance with the foreseeable conditions of the manufacturer. In addition, procedures for testing and measuring safety requirements, marking of equipment and minimum operation requirements are specified.

For reference to plating lines and anodizing lines, the term plating line is used in this document.

This document applies to the design and construction of plating lines and anodizing lines, including its transporter systems, for surface treatment of industrial products by means of inorganic or organic electrolytes or by means of other process chemistries.

Plating lines and anodizing lines in terms of this document are arrangements of process tanks for:

— electrolytic treatment of workpieces (e.g. electrocleaning, passivation, electroetching, burnishing, electrolytic polishing and brightening);

— wet chemical treatment of workpieces (e.g. degreasing, passivation, chemical polishing, etching, pickling, blackening);

— electrolytic and electro-less metal deposition, even on non-metallic workpieces made electrically conductive by corresponding treatment;

— changing of substance composition on the surface of metallic workpieces, e.g. burnishing, blackening, phosphating, chromating; and

— anodizing (anodic oxidation);

Sample Document

including rinsing tanks, the corresponding transporter equipment (e.g. transporter systems, handling gantry, bean, etc.), where the products are lifted in and out of tanks, and drying equipment.

get full document from standards.iteh.ai

This document distinguishes between the following types of plating lines:

— Type 1: manual lines;

— Type 2: semi-automatic lines;

— Type 3: fully automatic lines.

Furthermore, it specifies equipment marking and requirements on user information.

This document does not deal with hazards resulting from plating lines parts above category 1 of PED (Pressure Equipment Directive).

This document is not applicable to:

— transporter systems of carrousel lines (see EN 618:2002+A1:2010 and EN 15095:2007+A1:2008);

— equipment for the preparation and treatment of water and wastewater;

— machinery for dip coating and electro-deposition of organic liquid coating material (see EN 12581:2005+A1:2010);

— horizontal plating lines (e.g. printed circuit board, etching, reel to reel, continuous plating lines);

— machinery for surface cleaning and surface pre-treatment of industrial items using liquids or vapours (EN 12921-1:2005+A1:2010, EN 12921-2:2005+A1:2008, EN 12921-3:2005+A1:2008, EN 12921-4:2005+A1:2008).

NOTE Machinery for surface cleaning and surface pre-treatment (see EN 12921 series) could be part of a plating line.

oSIST prEN 17059:2026 • https://standards.iteh.ai/catalog/standards/sist/db8f6cff-e153-4d6a-8e0f-9edf28061dec/osist-pren-17059-2026

oSIST prEN 17059:2026

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 179:2008, *Building hardware — Emergency exit devices operated by a lever handle or push pad, for use on escape routes — Requirements and test methods*

EN 619:2022, *Continuous handling equipment and systems — Safety requirements for equipment for mechanical handling of unit loads*

EN 809:1998+A1:2009,[1] *Pumps and pump units for liquids — Common safety requirements*

EN 981:1996+A1:2008, *Safety of machinery — System of auditory and visual danger and information signals*

EN 1570-1:2024, *Safety requirements for lifting tables — Part 1: Lifting tables serving up to two fixed landings*

EN 1125:2008, *Building hardware — Panic exit devices operated by a horizontal bar, for use on escape routes — Requirements and test methods*

EN 1127-1:2019, *Explosive atmospheres — Explosion prevention and protection — Part 1: Basic concepts and methodology*

Sample Document

EN 1677-1:2000+A1:2008, *Components for slings — Safety — Part 1: Forged steel components, Grade 8*

get full document from standards.iteh.ai

EN 1677-2:2000+A1:2008, *Components for slings — Safety — Part 2: Forged steel lifting hooks with latch, Grade 8*

EN 1677-3:2001+A1:2008, *Components for slings — Safety — Part 3: Forged steel self-locking hooks, Grade 8*

EN 1677-4:2000+A1:2008, *Components for slings — Safety — Part 4: Links, Grade 8*

EN 12433-1:1999, *Industrial, commercial and garage doors and gates — Terminology — Part 1: Types of doors*

EN 12433-2:1999, *Industrial, commercial and garage doors and gates — Terminology — Part 2: Parts of doors*

EN 12453:2017+A1:2021, *Industrial, commercial and garage doors and gates — Safety in use of power operated doors — Requirements and test methods*

EN 12921-1:2005+A1:2010, *Machines for surface cleaning and pre-treatment of industrial items using liquids or vapours — Part 1: Common safety requirements*

EN 12921-2:2005+A1:2008, *Machines for surface cleaning and pre-treatment of industrial items using liquids or vapours — Part 2: Safety of machines using water based cleaning liquids*

[1] As impacted by EN 809:1998+A1:2009/AC:2010.

oSIST prEN 17059:2026 • https://standards.iteh.ai/catalog/standards/sist/db8f6cff-e153-4d6a-8e0f-9edf28061dec/osist-pren-17059-2026

oSIST prEN 17059:2026

EN 12921-3:2005+A1:2008, *Machines for surface cleaning and pre-treatment of industrial items using liquids or vapours — Part 3: Safety of machines using flammable cleaning liquids*

EN 12921-4:2005+A1:2008, *Machines for surface cleaning and pretreatment of industrial items using liquids and vapours — Part 4: Safety of machines using halogenated solvents*

EN 12978:2024, *Industrial, commercial and garage doors and gates and pedestrian doorsets — Protective devices for power operated doors and gates — Requirements and test methods*

EN 13445-1:2026, *Unfired pressure vessels — Part 1: General*

EN 13445-2:2026, *Unfired pressure vessels — Part 2: Materials*

EN 13445-3:2026, *Unfired pressure vessels — Part 3: Design*

EN 13445-4:2026, *Unfired pressure vessels — Part 4: Fabrication*

EN 13445-5:2026, *Unfired pressure vessels — Part 5: Inspection and testing*

EN 13445-8:2026, *Unfired pressure vessels — Part 8: Additional requirements for pressure vessels of aluminium and aluminium alloys*

EN 13480-1:2024, *Metallic industrial piping — Part 1: General*

EN 13480-2:2024, *Metallic industrial piping — Part 2: Materials*

EN 13480-3:2024, *Metallic industrial piping — Part 3: Design and calculation*

EN 13480-4:2024, *Metallic industrial piping — Part 4: Fabrication and installation*

EN 13480-5:2024, *Metallic industrial piping — Part 5: Inspection and testing*

EN 13861:2011, *Safety of machinery — Guidance for the application of ergonomics standards in the design of machinery*

EN 14462:2015, *Surface treatment equipment — Noise test code for surface treatment equipment including its ancillary handling equipment — Accuracy grades 2 and 3*

EN 14597:2012, *Temperature control devices and temperature limiters for heat generating systems*

EN 50110-1:2023, *Operation of electrical installations — Part 1: General requirements*

EN 60204-1:2018,[2] *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2016)*

EN 60825-1:2014,[3] *Safety of laser products — Part 1: Equipment classification and requirements (IEC 60825-1:2014)*

EN 61310-1:2008, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, acoustic and tactile signals (IEC 61310-1:2007)*

[2] As impacted by EN 60204-1:2018/A1:2025

[3] As impacted by EN 60825-1:2014/A11:2021, EN 60825-1:2014/AC:2017-06 and EN 60825-1:2014/A11:2021/AC:2022-03.

oSIST prEN 17059:2026 • https://standards.iteh.ai/catalog/standards/sist/db8f6cff-e153-4d6a-8e0f-9edf28061dec/osist-pren-17059-2026

oSIST prEN 17059:2026

EN IEC 61340-5-1:2024, *Electrostatics — Part 5-1: Protection of electronic devices from electrostatic phenomena — General requirements (IEC 61340-5-1:2024)*

EN IEC 61340-5-3:2022, *Electrostatics — Part 5-3: Protection of electronic devices from electrostatic phenomena — Properties and requirements classification for packaging intended for electrostatic discharge sensitive devices (IEC 61340-5-3:2022)*

EN IEC 60079-0:2018, *Explosive atmospheres — Part 0: Equipment — General requirements (IEC 60079-0:2017)*

EN IEC 61000-6-1:2019, *Electromagnetic compatibility (EMC) — Part 6-1: Generic standards — Immunity standard for residential, commercial and light-industrial environments (IEC 61000-6-1:2016)*

EN IEC 61000-6-3:2026, *Electromagnetic compatibility (EMC) — Part 6-3: Generic standards — Emission standard for equipment in residential environments (IEC 61000-6-3:2026)*

EN IEC 61000-6-4:2019, *Electromagnetic compatibility (EMC) — Part 6-4: Generic standards — Emission standard for industrial environments (IEC 61000-6-4:2018)*

EN IEC 61496-1:2020, *Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests (IEC 61496-1:2020)*

EN IEC 61496-2:2020, *Safety of machinery — Electro-sensitive protective equipment — Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPDs) (IEC 61496-2:2020)*

Sample Document

EN IEC/IEEE 82079-1:2020, *Preparation of instructions for use — Structuring, content and presentation — Part 1: General principles and detailed requirements (IEC 82079-1:2020)*

Text from Document from standards.iteh.ai

EN ISO 4413:2010, *Hydraulic fluid power - General rules and safety requirements for systems and their components (ISO 4413:2010)*

EN ISO 4414:2010, *Pneumatic fluid power - General rules and safety requirements for systems and their components (ISO 4414:2010)*

EN ISO 10218-2:2025, *Robotics — Safety requirements — Part 2: Industrial robot applications and robot cells (ISO 10218-2:2025)*

EN ISO 11688-1:2009, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1:1995)*

EN ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction (ISO 12100:2010)*

EN ISO 13732-1:2008, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces (ISO 13732-1:2006)*

EN ISO 13849-1:2023, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2023)*

EN ISO 13849-2:2012, *Safety of machinery — Safety-related parts of control systems — Part 2: Validation (ISO 13849-2:2012)*

EN ISO 13850:2015, *Safety of machinery — Emergency stop function — Principles for design (ISO 13850:2015)*

oSIST prEN 17059:2026 • https://standards.iteh.ai/catalog/standards/sist/db8f6cff-e153-4d6a-8e0f-9edf28061dec/osist-pren-17059-2026

oSIST prEN 17059:2026

EN ISO 13854:2019, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body (ISO 13854:2017)*

EN ISO 13856-1:2013, *Safety of machinery — Pressure-sensitive protective devices — Part 1: General principles for design and testing of pressure-sensitive mats and pressure-sensitive floors (ISO 13856-1:2013)*

EN ISO 13856-2:2013, *Safety of machinery — Pressure-sensitive protective devices — Part 2: General principles for design and testing of pressure-sensitive edges and pressure-sensitive bars (ISO 13856-2:2013)*

EN ISO 13856-3:2013, *Safety of machinery — Pressure-sensitive protective devices — Part 3: General principles for design and testing of pressure-sensitive bumpers, plates, wires and similar devices (ISO 13856-3:2013)*

EN ISO 13857:2019, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2019)*

EN ISO 14118:2018, *Safety of machinery — Prevention of unexpected start-up (ISO 14118:2017)*

EN ISO 14119:2025, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection (ISO 14119:2024)*

EN ISO 14120:2015, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards (ISO 14120:2015)*

Sample Document

EN ISO 14122-1:2016, *Safety of machinery — Permanent means of access to machinery — Part 1: Choice of fixed means and general requirements of access (ISO 14122-1:2016)*

get full document from standards.iteh.ai

EN ISO 14122-2:2016, *Safety of machinery — Permanent means of access to machinery — Part 2: Working platforms and walkways (ISO 14122-2:2016)*

EN ISO 14122-3:2016, *Safety of machinery — Permanent means of access to machinery — Part 3: Stairs, stepladders and guard-rails (ISO 14122-3:2016)*

EN ISO 14122-4:2016, *Safety of machinery — Permanent means of access to machinery — Part 4: Fixed ladders (ISO 14122-4:2016)*

EN ISO 80079-36:2016,[4] *Explosive atmospheres — Part 36: Non-electrical equipment for explosive atmospheres — Basic method and requirements (ISO 80079-36:2016)*

HD 60364-4-41:2017,[5] *Low-voltage electrical installations — Part 4-41: Protection for safety — Protection against electric shock (IEC 60364-4-41:2005, modified)*

ISO 20560-1:2024, *Safety information for the content of piping systems and tanks — Part 1: Piping systems*

[4] As impacted by EN ISO 80079-36:2016/AC:2019.
[5] As impacted by HD 60364-4-41:2017/A11:2017 and HD 60364-4-41:2017/A12:2019.

oSIST prEN 17059:2026 • https://standards.iteh.ai/catalog/standards/sist/db8f6cff-e153-4d6a-8e0f-9edf28061dec/osist-pren-17059-2026

oSIST prEN 17059:2026

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp/

— IEC Electropedia: available at https://www.electropedia.org/

3.1
draining area
area (e.g. drip tray also as part of the transporter system) where runoff excess chemistry or rinsing liquids from the work piece are collected outside treatment tanks

3.2
additive
admixture added to the coating chemistry at a specified volume ratio

Note 1 to entry: Additives influence the deposition and the coating characteristics of the deposited layers.

3.3
anode
metal in the form of plates, rods, balls (spheres), sections, pellets, billets dipping into the treatment tank and which is suspended at an anode rod or which is filled in baskets attached to an anode hook and suspended, hung or immersed in the tank

Sample Document
Use is subject to applicable standards.iteh.ai

Note 1 to entry: In electroplating, the workpiece is the cathode (connected to the negative pole of the rectifier). In anodizing, the workpiece is the anode (connected to the positive pole of the rectifier). In electrolytic cleaning, the workpiece can either be the anode ("anodic cleaning") or the cathode ("cathodic cleaning").

Note 2 to entry: Non-dissolvable anodes are metals such as stainless steel, steel, titanium, etc. in form of rods, plates, expanded metal plates serving as pure power-supplying electrodes (positive electrode) and are made of graphite. They do not have the task of emitting metallic atoms to the treatment tank.

3.4
type of plating lines
are characterized by their different constructions and are distinguished by the following description:

— type 1: manual plating lines;

— type 2: semi-automatic lines;

— type 3: fully automatic lines

3.5
operating modes
intended operation of type 3 (fully automatic line) plating lines, and, if applicable, type 2 (semi-automatic line) which can include the following operating modes:

— automatic mode: automatic, programmed and continuous mode of the plating lines providing the possibility of manual and automatic loading by means of a transporter system until the program or the operator stops the machine;

oSIST prEN 17059:2026 • https://standards.iteh.ai/catalog/standards/sist/db8f6cff-e153-4d6a-8e0f-9edf28061dec/osist-pren-17059-2026

oSIST prEN 17059:2026

— setting mode: operating mode during which settings for the next working processes are performed; this is an optional operating mode for manual work under restricted operating conditions;

— service mode: operating mode for service and maintenance works; this is an optional operating mode for manual work under restricted operating conditions

Note 1 to entry: The setting mode is also referred to as TIP mode.

Note 2 to entry: The service mode is also referred to as MANUAL mode.

Note 3 to entry: Other operating modes are possible as long as they meet the safety objectives laid down in the Regulation (EU) 2023/1230 (2023/1230, Annex III, B, chapter 1.2.5).

3.6
thermal load
sum of thermal energies capable of being released during combustion of all flammable substances associated with machinery and their production including raw and auxiliary materials

3.7
flammable substance
gas, vapour, liquid, solid, or mixtures thereof able to undergo an exothermic reaction with air when ignited

3.8
enclosure
equipment enclosed on all sides with the exception of closable access ports for loading and unloading of workpieces and having access doors and openings for fire protection reasons, e.g. roof openings

Sample Document

3.9
exposure limits
concentration limits of hazardous substances in air required by worker health legislation

get full document from standards.iteh.ai

3.10
explosive atmosphere
mixture with air, under atmospheric conditions, of flammable substances in the form of gases, vapours, mists or dusts in which, after ignition has occurred, combustion spreads to the entire unburned mixture

[SOURCE: EN 14034-1:2004+A1:2011, definition 3.4]

3.11
plating line
totality of machinery, i.e. complex installations, which together form the coating or treatment equipment

Note 1 to entry: Metal deposition or surface treatment from inorganic and/or organic liquid electrolytes on the work piece is performed here.

Note 2 to entry: Plating lines may consist of the following units:

— load and unload stations;

— transporter systems consisting of transport hoist with lifting and lowering devices;

— extraction hood at transporter system;

— flight bar including barrel, rack, jig, basket for product reception;

oSIST prEN 17059:2026 • https://standards.iteh.ai/catalog/standards/sist/db8f6cff-e153-4d6a-8e0f-9edf28061dec/osist-pren-17059-2026