भारतीय मानक

Indian Standard

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औद्योगिक भट्टियाँ और संबंधित संसाधन उपस्कर — शब्दावली

(दूसरा पुनरीक्षण)

Industrial furnaces and associated processing equipment — Vocabulary

(Second Revision)

ICS 01.040.25; 25.180.01

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NATIONAL FOREWORD

This Indian Standard (Second Revision) which is identical to ISO 13574 : 2015 'Industrial furnaces and associated processing equipment — Vocabulary' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Industrial Fuel-Fired Furnaces Sectional Committee and approval of the Metallurgical Engineering Division Council.

This standard was first published in 1978 and subsequently revised in 1991. This revision has been undertaken to align it with ISO 13574 : 2015 under dual numbering system to harmonize it with the latest developments that have taken place at international level.

The text of ISO standard has been approved as suitable for publication as an Indian Standard without deviations. Certain terminologies and conventions are, however, not identical with those used in Indian Standard. Attention is especially drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, it should be read as 'Indian Standard'; and

b) Comma (,) has been used as a decimal marker, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical-values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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Introduction

The purpose of this vocabulary is:

— to provide pertinent terms having a specific meaning in industrial furnaces and associatedprocessing equipment technology (hereinafter "TPE"),

— to include common dictionary or engineering terms only when they are a generic root for a series ofterms specific to TPE technology,

— to refer synonymous terms to the preferred term,

— to list deprecated terms, but to define and clearly mark these terms as such and to indicate thepreferred term,

— to provide terms and definitions applied to International Standards developed by

ISO/TC 244. The following conventions are used:

— (deprecated) indicates that a term should no longer be used;

— in the fr and de texts;

  — "m" indicates words of masculine gender,

  — "f" indicates words of feminine gender; and "n" indicates words of neutral gender;

— "Adj" or "adj" indicates an adjective.

Terms and definitions in English are authorised by ISO/TC 244.

For each language covered in this International Standard, an analysis of terminological usage in thesubject field is required by the member of ISO/TC 244 and/or the national standardisation body.

If American and/or Australian terms differ from the original English terms, they are added separately.

Indian Standard

INDUSTRIAL FURNACES AND ASSOCIATED PROCESSING EQUIPMENT — VOCABULARY

(Second Revision)

1 Scope

This International Standard establishes the vocabulary for all industrial furnaces and associated processing equipment (TPE).

This International Standard provides terms and definitions which are intended to be applied to thefollowing documents:

— ISO 13577 (all parts);

— ISO 13579 (all parts).

NOTE In addition to terms used in English and French (two of the three official ISO languages), this documentgives the equivalent terms in Chinese, German, Japanese, Korean, Polish and Spanish; these are published under the responsibilities of the member bodies for China (SAC), Germany (DIN), Japan (JISC), Korea (KATS), Poland (PKN) and for Spain (AENOR), respectively, and are given for information only. Only the terms and definitions given in the official languages can be considered as ISO terms and definitions.

2 Terms and definitions

The classifications below are given as typical examples only and should not be considered as limitationsto this International Standard where all TPE is covered.

2.1 Air pressure detector

Device for sensing the existence of air pressure.

NOTE This item is intended to be applied to ISO 13577-2.

2.2 Air/fuel ratio

Ratio between the mass flow of combustion air and the mass flow of the fuel.

NOTE This item is intended to be applied to ISO 13577-2.

2.3 Analyser

Device used to determine the physical properties and/or characteristics of a gas.

NOTE This item is intended to be applied to ISO 13579-1.

2.4 Atomization agent

Supplemental gas (air) or steam that is used for atomization of liquid fuel.

NOTE This item is intended to be applied to ISO 13579-1.

2.5 Automatic burner control system

Combustion safeguard US

protective system (2.138) comprised of at least a programming unit and all the elements of a flame detector device.
Note 1 to entry: The various functions of an automatic burner control system can be in one or more housings.

NOTE This item is intended to be applied to ISO 13577-2.

2.6 Auxiliary equipment

Equipment directly linked to furnace, such as an internal driving assembly, hydraulic pump and pneumatic compressor excluding units such as roller conveyer that is connected to anteroposterior process to convey raw materials and products.

NOTE This item is intended to be applied to ISO 13579-1.

2.7 Auxiliary flue

Flue used for any exhaust gas which are not exhausted through the regenerative media in regenerative burner system.

NOTE This item is intended to be applied to ISO 13579-1.

2.8 Blowout device

Directed flow release device combined with a check valve, rupture disc, electrical switch and a flame arresting screen

NOTE This item is intended to be applied to ISO 13577-2.

2.9 Brazing

Metal joining process wherein coalescence is produced by using of a nonferrous filler metal having a melting point above 427 °C but lower that of the base metal being joined.
Note 1 to entry: The filler metal is distributed between closely fitted surfaces on the joint by capillary action.

Note 2 to entry: The definition is generally applied in joining in metallurgical TPE.

NOTE This item is intended to be applied to ISO 13577-1. [SOURCE: ASME 31.3]

2.10 Burner

Device(s) for the introduction of fuel, air, oxygen, or oxygen-enriched air at the required velocities, mixing, and concentrations to maintain ignition and combustion of fuel.

NOTE This item is intended to be applied to ISO 13577-2.

2.11 Burner input rate

Highest quantity of fuel energy used by a burner in unit time corresponding to the volumetric or mass flow rates, and the calorific value used being the net calorific value.

NOTE This item is intended to be applied to ISO 13577-2.

2.12 Alternating pilot burner

Pilot burner for lighting the main burner that is extinguished at the end of the main burner ignition period and is re-ignited immediately when the main burner is shut down for control purposes

NOTE This item is intended to be applied to ISO 13577-2.

2.13 Cross-ignited burner

Group of burners designed and arranged such that, by means of their proximity and relative position, ignition of all burners can be ensured if one burner is ignited

NOTE This item is intended to be applied to ISO 13577-2.

2.14 Forced draught burner

Burner in which the total air for combustion is supplied by means of a fan

NOTE This item is intended to be applied to ISO 13577-2. [SOURCE: ISO 22967:2010]

2.15 Grate burner

Solid fuel combustion system in which the burning fuel is supported by a metallic grate

2.16 Induced draught burner

Burner in which the combustion air is supplied by providing suction in the combustion chamber by mechanical means, usually a fan

NOTE This item is intended to be applied to ISO 13577-2.

2.17 Manual burner

Burner whereby all the operating sequences are performed by an operator

NOTE This item is intended to be applied to ISO 13577-2.

2.18 Natural draught burner

Burner in which the combustion air is entrained at atmospheric pressure, by the buoyancy of a chimney or the fuel velocity.

NOTE This item is intended to be applied to ISO 13577-2.

2.19 Open firing burner

Burner not requiring an enclosed combustion chamber.
EXAMPLE Torches, work station burners, equipment-integrated burners, and other burners firing in the open.

NOTE This item is intended to be applied to ISO 13577-2.

2.20 Permanent pilot burner

Pilot burner that is intended to be left on permanently.

NOTE This item is intended to be applied to ISO 13577-2.

2.21 Pilot burner

Independently controlled burner designed to ignite the main burner.

NOTE This item is intended to be applied to ISO 13577-2.

2.22 Portable burner

Burner designed to be capable of being transported to fire in different locations.

NOTE This item is intended to be applied to ISO 13577-2.

2.23 Pre-mix burner

Burner in which the fuel and air are mixed prior to the point of ignition.

NOTE This item is intended to be applied to ISO 13577-2.

2.24 Radiant tube burner

Burner that heats up the TPE indirectly by means of firing into a radiant tube protruding into the TPE process chamber whereby the combustion remains wholly separated from the TPE process chamber.

NOTE This item is intended to be applied to ISO 13577-2.

2.25 Work station burner

Burner used at a particular work station and firing in the open rather than into a closed combustion chamber.

NOTE This item is intended to be applied to ISO 13577-2.

2.26 By-pass

Passage conveying fluid from the upstream side to the downstream side of a pipework component so as to be independent of the action of the pipework component

NOTE This item is intended to be applied to ISO 13577-2.

2.27 Calcining

To heat (as inorganic materials) to a high temperature but without fusing in order to drive off volatile matter or to effect changes (as oxidation or pulverization)

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in thermal production in metallurgical TPE, cement, lime and gypsum TPE and chemical/petrochemical TPE.

[SOURCE: Merriam-Webster, calcining [online], [viewed 2012-02-27], Available from: http://www.merriam-webster.com/dictionary/calcining]

2.28 Calorific value

Quantity of heat produced by the combustion, at a constant pressure equal to 0,101 325 MPa, of unit volume or mass of gas, the constituents of the combustible mixture being taken at reference conditions and the products of combustion being brought back to the same conditions

Note 1 to entry: A distinction is made between the gross (superior) calorific value in which the water produced by combustion is assumed to be condensed, and the net (inferior) calorific value in which the water produced by combustion is assumed to be in the vapour state.

NOTE This item is intended to be applied to ISO 13577-2 and ISO 13579 (all parts). [SOURCE: ISO 22967:2010]

2.29 Gross calorific value

Upper calorific value

Higher heating value

Superior calorific value

amount of heat which would be released by the complete combustion in air of a specified quantity of gas, in such a way that the pressure at which the reaction takes place remains constant, and all the products of combustion are returned to the same specified temperature, as that of the reactants, all of these products being gaseous state except for water formed by combustion, which is condensed to the liquid state.

Note 1 to entry: This item is intended to be applied to ISO 13579-1.

[SOURCE: ISO 6976]

2.30 Net calorific value

Lower calorific value

Lower heating value

Inferior calorific value

Calorific value that is determined by subtracting latent heat of vaporizing of water from gross calorific value.

NOTE This item is intended to be applied to ISO 13579-1.

2.31 Carbonitriding

Thermochemical treatment in which steel product is heated to the temperature above Ac1 transformation temperature so as to increase carbon and nitrogen, which exist as solid solution in austenite phase, to the surface

Note 1 to entry: This process is immediately followed by quench hardening in general.

Note 2 to entry: The treatment method includes gas carbonitriding using carburizing atmosphere with additive ammonia.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in surface treatment in metallurgical TPE.

[SOURCE: JIS G 0201:2000, 4113]

2.32 Carburising

Thermochemical treatment that is applied to steel product in austenite phase so as to enrich carbon, which exists as solid solution in austenite phase, to the surface

Note 1 to entry: In general, carburized steel product is to be used after quenching and tempering process. This process is also known as case hardening.

Note 2 to entry: The process falls into box carburising, salt bath carburizing and gas carburising depending on the kind of carburizing medium.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in surface treatment in metallurgical TPE. [SOURCE: JIS G 0201:2000 4104]

2.33 Cement, lime and gypsum industrial thermoprocessing

Introduction of heat energy to raw materials to produce cement, lime and gypsum.

NOTE This item is applied to ISO 13577-1:2012, Annex B.

2.34 Ceramic industrial thermoprocessing

Introduction of heat to raw materials to produce ceramics.

NOTE This item is applied to ISO 13577-1:2012, Annex B.

2.35 Chemical/petrochemical industrial thermoprocessing

Introduction of heat to raw materials to produce chemical and petrochemical products.

NOTE This item is applied to ISO 13577-1:2012, Annex B.

2.36 Cleaning

Process to remove unwanted waste material or rubbish from a specified product or material.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in surface pre-treatment in metallurgical TPE.

2.37 Coating

Material intentionally applied to protect the surface of another material.

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in metallurgical TPE.

2.38 Combustion air

Ambient air, oxygen-enriched air containing less than 25 % oxygen or mixture of ambient air with other gases, that is used as oxygen supply for combustion process.

NOTE This item is intended to be applied to ISO 13577-2.

2.39 Combustion chamber

Part of the TPE in which the combustion takes place.

NOTE This item is intended to be applied to ISO 13577-2.

2.40 Condensate drain

Pipe designed to collect and drain condensates from a low point in the gas circuit.

NOTE This item is intended to be applied to ISO 13577-2.

2.41 Control system

System that responds to input signals from the process and/or the operator and generates output signals which cause the process control to operate in the required way.

NOTE This item is intended to be applied to ISO 13577-2.

2.42 Controlled atmosphere gas

Atmospheric gas that is provided into furnaces in accordance with a defined specification for heat treatment.

NOTE This item is intended to be applied to ISO 13579-1

2.43 Cooling

Process whereby heat is removed from a material, fluid or atmosphere.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in heating in metallurgical TPE, cooling in glass TPE and cement, lime and gypsum TPE.

2.44 Cooling water

Water used for heat removal from a material, fluid, atmosphere or equipment.

NOTE This item is intended to be applied to ISO 13579-1.

2.45 Core making

Production of a core intended to be used as a spacer in a molding process.

2.46 Cracking

Reaction in which a hydrocarbon molecule is fractured or broken into two or more smaller fragments.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in chemical/petrochemical TPE.

[SOURCE: Chemical and process technology encyclopedia McCraw-Hill]

2.47 Decorating

Addition of non-essential elements for aesthetic purposes.

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in grass and ceramic industrial thermoprocessing.

2.48 Degreasing

Process to remove grease and other petrochemical residues prior to processing.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in surface pre-treatment in metallurgical TPE.

2.49 Delacquering

Process to remove lacquer coatings or residues prior to processing.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B

NOTE 2 The definition is used in surface pre-treatment in metallurgical TPE.

2.50 De-waxing

Process to remove wax residues prior to processing.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in ceramic industrial thermoprocessing.

2.51 Differential pressure flow meter

Flowmeter that detects flow rate with throttle mechanism that generate difference of pressure.

NOTE This item is intended to be applied to ISO 13579-1.

2.52 Distillation

Process whereby a liquid mixture can be separated by partially vaporising the mixture and separately recovering the vapour and residue.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in chemical/petrochemical TPE.

[SOURCE: Chemical and process technology encyclopedia McCraw-Hill]

2.53 Drying

Process in which moisture is removed from a wet solid and may include oxidation.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in: heating in metallurgical TPE ceramic industrial thermoprocessing, chemical/petrochemical TPE, paper TPE, wood TPE, food TPE, textile TPE.

2.54 Eductor

Equipment to boost exhaust of exhaust gas to the atmosphere that utilizes suction caused by high speed high pressure air flow from a blower.

NOTE This item is intended to be applied to ISO 13579-4.

2.55 Electrical generation efficiency

Efficiency of electrical generation determined by the ratio of the electrical energy to the fuel-equivalent energy supplied for the generation.

NOTE This item is intended to be applied to ISO 13579-1.

2.56 Element

Part of a subsystem comprising a single component or any group of components that performs one or more element safety functions.

Note 1 to entry: An element may comprise hardware and/or software. Note 2 to entry: An element is a sensor, logic solver or final element.

NOTE This item is intended to be applied to ISO 13577-4.

[SOURCE: IEC 61508-4:2010, 3.4.5, modified —The term "programmable controller" in Note 2 of the original definition has been changed to read "logic solver".]

2.57 EMC

Immunity of the TPE to electromagnetic disturbances.

NOTE This item is intended to be applied to ISO 13577-2.

2.58 Endothermic/exothermic gas production

Process to formulate or blend various gasses for use in heat treatment applications where the process requires either the application or the dissipation of heat energy.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in chemical/petrochemical TPE.

2.59 Enriched air

Air with an oxygen concentration higher than 23 % (volume) obtained either by the addition of oxygen or the reduction of nitrogen content.

NOTE This item is intended to be applied to ISO 13577-2.

2.60 Exhaust gas

Gas that is generated by fuels after completion of combustion process, including uncombusted gas.

NOTE This item is intended to be applied to ISO 13579-1.

2.61 Explosion/Pressure relief

Device containing a part which is designed to yield safely to an unsafe increase of internal pressure.

NOTE This item is intended to be applied to ISO 13577-2.

2.62 Fault tolerance time

Time between the occurrence of an unsafe condition (caused by the process itself or due to equipment failure) and the point when the process changes into critical operation, which result in an hazardous event.

NOTE This item is intended to be applied to ISO 13577-4.

2.63 Filter/Strainer

Device that enables foreign elements which could otherwise cause failures in the system, to be collected.

NOTE This item is intended to be applied to ISO 13577-2.

2.64 Firing

Heating process for ceramics in which stabilized crystal or partial glassy phase is produced to obtain the chemical bond itself or mechanical strength.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in thermal production in metallurgical TPE, ceramic industrial thermoprocessing and cement, lime and gypsum TPE.

[SOURCE: Terminological dictionary of industrial furnaces – Japan industrial furnace manufacturers association]

2.65 Flame detector device

Device by which the presence of a flame is detected and signalled; it can consist of a flame sensor, an amplifier and a relay for signal transmission.

NOTE This item is intended to be applied to ISO 13577-2 and ISO 13577-4.

2.66 Flame response time FRT

Flame failure response time US

FFRT US.

Period of time that starts with the loss of sensed flame and ends with the de-energizing of the terminals for the automatic shut-off valve.

NOTE This definition is used in combustion and fuel handling systems of TPE.

[SOURCE: EN 676:2008, 3.2.5.6]

2.67 Flame sensor

Actual flame-sensing element, the output signal value of which is used as the input for flame detector amplifier.

NOTE This item is intended to be applied to ISO 13577-2.

2.68 Flame trap

Flame arrestor

Device fitted to the opening of an enclosure, or to the connecting pipe work of a system of enclosures, and whose intended function is to allow flow but prevent the transmission of flame.

NOTE This item is intended to be applied to ISO 13577-2.

[SOURCE: ISO 16852:2008]

2.69 Flash back

Flame propagation from the burner in upstream direction inside the pipework.

NOTE This item is intended to be applied to ISO 13577-2.

2.70 Fluids group 1

Group of fluids defined as explosive, extremely flammable, highly flammable, flammable (where the maximum allowable temperature is above flashpoint), very toxic, toxic, and/or oxidizing.

2.71 Fluids group 2

Group of fluids comprising all other fluids not referred to as group 1 fluids.

2.72 Food industrial thermoprocessing

Introduction of heat to edible products for cooking or sterialization purposes.

2.73 Functional safety

Capability of a protective system or other means to reduce risk, to execute the actions required for achieving or maintaining a safe state for the process and its related equipment.

NOTE This item is intended to be applied to ISO 13577-4.

2.74 Gas pressure regulator

Device that maintains the downstream pressure constant to within fixed limits, independent of variations, within a given range, of the upstream pressure and/or flow rate.

NOTE This item is intended to be applied to ISO 13577-2.

2.75 Gaseous fuel

Fuel that is in gaseous state under ambient temperature, such as city gas, natural gas, LPG, by-product gas generated in steel works.

NOTE This item is intended to be applied to ISO 13579-1.

2.76 Gasifying

Process of converting a solid or liquid into the gaseous state.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in chemical/petrochemical TPE and waste incineration industrial thermoprocessing TPE.

2.77 Glass industrial thermoprocessing

Introduction of heat to raw materials to produce glass products.

NOTE This item is intended to be applied to ISO 13577-1:2012, Annex B.

2.78 Graded fuel

Solid fuel in the form of lumps which are classified according to size

NOTE This definition is used in combustion and fuel handling systems of TPE.

2.79 Hardening

Heat process used to alter a substance to a firmer or solid state.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in heat treatment in metallurgical TPE.

2.80 Heat storage loss

Part of heat energy stored in insulator of the internal wall of furnace that is released outside when inner furnace temperature is decreased.

NOTE This item is intended to be applied to ISO 13579 (all parts).

2.81 Heat treatment

Process to alter the physical, mechanical and/or chemical properties of a material, either wholly or partially, with the application of heat.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in metallurgical TPE and grall making TPE.

2.82 Heating

Process of adding energy with the intention to increase the temperature of a material or fluid.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in metallurgical TPE, ceramic industrial thermoprocessing and cement, lime and gypsum TPE.

2.83 High-temperature equipment

TPE operating at a temperature above 750 °C measured at the combustion chamber walls.

NOTE This item is intended to be applied to ISO 13577-2.

2.84 Holding

Maintaining a portion of a process such as a specified temperature for a designated period of time.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in heating in metallurgical TPE.

2.85 Holding (liquid phase)

Maintaining a minimum temperature in a product batch to ensure workability.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in melting and pouring in metallurgical TPE.

2.86 Hot dip galvanizing

Process of bonding iron or steel with a layer of zinc by passing through a molten zinc bath to improve corrosion resistance.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in coating in metallurgical TPE.

[SOURCE: Terminological dictionary of industrial furnaces — Japan Industrial Furnace Manufacturers Association]

2.87 Ignition

Starting up the chemical reaction of combustion of a fuel/combustion air mixture by application of a much smaller energy source.

NOTE This item is intended to be applied to ISO 13577-2.

2.88 Impregnating

To incorporate a material into a porous material most commonly through a soaking or immersion process.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in chemical/petrochemical TPE.

2.89 Incineration of domestic refuse

Application of heat to oxidize waste produced in domiciles

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in waste incineration industrial thermoprocessing TPE.

2.90 Incineration of industrial and special waste (such as toxic)

Application of heat to oxidize waste produced in industrial processes.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in waste incineration industrial thermoprocessing TPE.

2.91 Incineration of refuse derived fuel

Application of heat to oxidize waste produced in petrochemical applications

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in waste incineration industrial thermoprocessing TPE.

2.92 Incineration of sewage and sludge

Application of heat to oxidize sewage solids

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in waste incineration industrial thermoprocessing TPE.

2.93 Infiltration air

false air

Air that leaks into the furnace through supply/discharge port or gaps in the operating systems of furnace.

NOTE This item is intended to be applied to ISO 13579-1.

2.94 Initial boiling point

Temperature of a liquid fuel that is measured at the instant that the first drop of condensate falls from the lower end of the condenser tube in a boiling point test.

NOTE The definition is generally used in combustion and fuel handling systems of TPE.

2.95 Jig/Fixture

Structure in which products are transferred for the thermoprocessing of furnace such as trays or baskets.

Note 1 to entry: Thermal energy discharged with jig/fixture is generally calculated as thermal energy loss (see ISO 13579-1).

NOTE This item is intended to be applied to ISO 13579-1.

2.96 Joining

Process to make two or more things connect and become linked.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B

NOTE 2 The definition is used in metallurgical TPE.

2.97 Lighting torch

Hand-held burner that is used to ignite another burner.

NOTE This item is intended to be applied to ISO 13577-2.

2.98 Liquefied natural gas LNG

Natural gas, primarily composed of methane, which has been liquefied, after processing, for storage or transportation purposes.

NOTE This item is intended to be applied to ISO 13579-4.

2.99 Liquefied petroleum gas

LPG

Commercial butane or commercial propane or any mixtures there of in the liquid phase

NOTE This item is intended to be applied to ISO 13577-2.

2.100 Liquid fuel

Fuel that is in the liquid phase under atmospheric conditions and consists primarily of hydrocarbons.

NOTE This item is intended to be applied to ISO 13579-1.

2.101 Lock-out, Non volatile

Safety shut-down by the protective system itself, such that a restart can only be accomplished by a manual reset.

NOTE This item is intended to be applied to ISO 13577-2 and ISO 13577-4.

2.102 Logic function

Function which performs the transformations between input information (provided by one or more input functions or sensors) and output information (used by one or more output functions or final elements); logic functions are executed by the logic solver of a pretective system.

NOTE This item is intended to be applied to ISO 13577-4.

[SOURCE: IEC 61511-1:2003, 3.2.39, modified —The sentence following the first main definition was modified.]

2.103 Logic solver

Portion of a protective system that performs one or more logic function(s).

NOTE This item is intended to be applied to ISO 13577-4.

[SOURCE: IEC 61511-1:2003, 3.2.40, modified — Notes in the original definition were omitted.]

2.104 Lower flammability limit LFL

Minimum concentration of vapour-to-air below which propagation of a flame will not occur in the presence of an ignition source.

NOTE This item is intended to be applied to ISO 13577-2.

[SOURCE: ISO 8421-1:1987]

2.105 Low-temperature equipment

TPE operating at a temperature below 750 °C measured at any part of the combustion chamber walls and/or the processing chamber walls.

NOTE This item is intended to be applied to ISO 13577-2 and ISO 13577-4.

2.106 Main flame

Flame, other than the ignition flame, on the main burner.

NOTE This item is intended to be applied to ISO 13577-2.

2.107 Manual reset

Action after a lock-out of a safety related device (e. g. automatic burner control) carried out manually by the supervising operator.

NOTE This item is intended to be applied to ISO 13577-2 and ISO 13577-4.

2.108 Melting

Action of changing state from solid to liquid through the application of energy.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in metallurgical TPE and glass making TPE.

2.109 Melting out of metals

Process to heat the work to a specific temperature where identified metals change state to a liquid for ease of removal.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in metallurgical TPE and glass making TPE.

2.110 Metallic coating

Coating formulated from metal.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in coating in metallurgical TPE and glass making TPE.

2.111 Metallurgical industrial thermoprocessing

Equipment in which metal material or workpieces are submitted to thermal energy

NOTE This item is intended to be applied to ISO 13577-1:2012, Annex B.

2.112 Multiple burner equipment

TPE with several burners with a common air and fuel pipework firing in a common combustion chamber.

NOTE This item is intended to be applied to ISO 13577-2.

2.113 Nitriding

Thermochemical treatment applied to steel products to introduce enriched nitrogen content at the surface of the steel.

Note 1 to entry: The treatment methods includes gas nitriding with cracked ammonia gas and salt bath nitriding with cyanate.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in surface treatment in metallurgical TPE

[SOURCE: JIS G 0201:2000]

2.114 Nitro-carburizing

Process that diffuses nitrogen and carbon into ferrous metals at sub-critical temperatures.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in surface treatment in metallurgical TPE.

2.115 Nominal size DN

Alphanumeric designation of size for components of a pipework system, which is used for reference purposes, comprising the letters DN followed by a dimensionless whole number which is indirectly related to the physical size, in millimetres, of the bore or outside diameter of the end connections.

NOTE This item is intended to be applied to ISO 13577-2.

[SOURCE: ISO 23550:2011]

2.116 Non-ferrous metal refining

Process to alter or remove impurities from non-ferrous metals.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in thermal production in metallurgical TPE.

2.117 Non-metallic coating

Material coating consisting of a non-metalic composition.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is used in coating in metallurgical TPE.

2.118 Operating temperature

Temperature, or range of temperatures, at which the TPE is designed to operate.

NOTE This item is intended to be applied to ISO 13577-2

2.119 Operator supervision

Circumstance by which an operator has continuous control and surveillance of the plant and is located in a position where he can shut the TPE down in the event of an emergency.

NOTE The definition is used generally in combustion and fuel handling system of TPE.

2.120 Oxidized substance

Steel or non-ferrous metals interacted with oxygen molecules as a result of oxidization process.

NOTE This item is intended to be applied to ISO 13579-1.

2.121 Oxidizing

Change in the state of the atoms or ions of an element to a higher positive state by the loss of electrons.

Note 1 to entry: An oxidizing agent is an element that can remove electrons to another element.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in surface treatment in metallurgical TPE.

2.122 Performance level PL

Discrete level used to specify the ability of safety-related parts of control systems to perform a safety function under foreseeable conditions.

Note 1 to entry: See ISO 13849-1:2006, 4.5.1.

NOTE This item is intended to be applied to ISO 13577-4.

[SOURCE: ISO 13849-1:2006, 3.1.23]

2.123 Pipework

Assembly of piping including devices such as valves, orifices, etc. by means of which fuel and combustion air or oxygen convey from the point(s) of supply to the burner(s).

NOTE This item is intended to be applied to ISO 13577-2.

2.124 Piping

Components intended for the transport of fluids, when connected together for integration into a pressure system.

Note 1 to entry: Piping includes in particular a pipe or system of pipes, tubing, fittings, expansion joints, hoses, or other pressure-bearing components as appropriate. Heat exchangers consisting of pipes for the purpose of cooling or heating air shall be considered as piping.

NOTE This item is intended to be applied to ISO 13577-2.

2.125 PLC

Programmable logic control

Electronic device designed for control of the logical sequence of events.

NOTE This item is intended to be applied to ISO 13577-2 and ISO 13577-4.

2.126 Polymerization

Joining together of small molecules to form larger molecules.

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in chemical/petrochemical TPE.

[SOURCE: Chemical and process technology encyclopedia McGraw-Hill]

2.127 Preheating

To apply heat to a product in preparation for further process.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in heating in metallurgical TPE.

2.128 Pressure

Pressure relative to atmospheric pressure, i.e. gauge pressure.

Note 1 to entry: As a consequence vacuum is designated by a negative value.

NOTE This item is intended to be applied to ISO 13577-2.

2.129 Pressure accessories

Devices with an operational function and having pressure-bearing housings.

NOTE The definition is generally used in combustion and fuel handling system of TPE.

2.130 Pressure equipment

Vessels, piping, safety accessories and pressure accessories

Note 1 to entry: Where applicable, pressure equipment includes elements attached to pressurized parts, such as flanges, nozzles, couplings, supports, lifting lugs, etc.

NOTE The definition is generally used in combustion and fuel handling system of TPE.

2.131 Pressure sintering

Sintering application using, or under, pressure to increase the effectiveness of the energy input.

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in heat treatment in metallurgical TPE.

2.132 Pressure, maximum allowable

Maximum pressure for which the equipment or piping system is designed, as specified by the manufacturer.

Note 1 to entry: It is defined at a location specified by the manufacturer. This must be the location of connection of protective and/or limiting devices or the top of equipment or if not appropriate any point specified.

NOTE This item is intended to be applied to ISO 13577-2.

2.133 Processing chamber

Part of the equipment in which the workpiece(s) being processed is/are contained.

NOTE This item is intended to be applied to ISO 13577-2.

2.134 Product

Item processed in an industrial furnace.

Note 1 to entry: Products do not include jig/fixture.

NOTE This term is intended to be applied to ISO 13579-1.

2.135 Product standard

Standards for products and components which are listed in all parts of ISO 13577 except ISO 13577-4

NOTE This term is intended to be applied to ISO 13577 (all parts).

2.136 Proof-of-closure switch

Electrical switch that monitors the closed position of the valve closure member and which is used as an interlock.

NOTE This item is intended to be applied to ISO 13577-2.

[SOURCE: ISO 23551-1:2012]

2.137 Protective or reactive atmosphere

Atmosphere that is used to prevent the oxidization or decarburization of a products surface, or to change property of steel such as carburizing or nitriding.

NOTE This item is intended to be applied to ISO 13577-3 and ISO 13579-4.

2.138 Protective system

Instrumented system used to implement one or more safety related instrumented functions.

Note 1 to entry: A protective system is composed of any combination of sensor(s), logic solver(s), and final elements.

Note 2 to entry: This can include either safety related instrumented control functions or safety related instrumented protection functions or both.

NOTE This item is intended to be applied to ISO 13577 (all parts).

[SOURCE: IEC 61511-1:2003, 3.2.72, modified — The term, "safety instrumented system (SIS)" has been changed to read "protective system"; "SIS" has been changed to read "protective system" in the definition. Citation for the figure had been changed accordingly.]

2.139 Pulse firing

Burner combustion system where the firing rate is controlled by the number and/or duration of burners firing at fixed heat input rates, e.g. high/low or on/off.

NOTE This item is intended to be applied to ISO 13577-2.

2.140 Pulverised fuel

Solid fuel which has been grounded to a powder.

2.141 Purge

Forced introduction of a fluid into a pre-determined area, in order to cleanse, by displacement, the existing fluid.

NOTE This item is intended to be applied to ISO 13577-2 and ISO 13577-3.

2.142 Pre-purge

Forced introduction of air or inert gas into the combustion chamber and flue passages, in order to displace any remaining fuel/air mixture and/or products of combustion, and which takes place between the start signal and the energizing of the ignition device.

NOTE This item is intended to be applied to ISO 13577-2.

2.143 Safety purge

Forced introduction of a defined gas (usually nitrogen) into the work chamber in order to provide a safe atmosphere for the process.

NOTE This item is intended to be applied to ISO 13577-3.

2.144 Operational safety purge

Safety-purge (2.143) conducted as part of the normal operation or process.

NOTE This item is intended to be applied to ISO 13577-3.

2.145 Emergency safety purge

Safety purge (2.143) conducted automatically during an upset or abnormal condition.

NOTE This item is intended to be applied to ISO 13577-3.

2.146 Process purge

Forced introduction of fluid into the process area, in order to displace any products of the process or as a necessary part of the process.

Note 1 to entry: Process purge is not used in International Standards developed by ISO/TC 244 and has been defined to ensure that it is understood to be different from safety purge.

NOTE This item is intended to be applied to ISO 13577-3.

2.147 Purge point

Plugged tapping at the extremities of a fuel pipework to facilitate purging.

NOTE This item is intended to be applied to ISO 13577-2.

2.148 Pyrolysing

Act of breaking down a complex chemical substance into less complex substances with the application of heat.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in chemical/petrochemical TPE and waste incineration industrial thermoprocessing.

2.149 Quenching

Operation of cooling metal product at a rapid rate that is quicker than when it remains in a static air atmosphere to create desired material properties.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in heat treatment in metallurgical TPE.

[SOURCE: JIS G 0201:2000]

2.150 Radiation thermometer

Thermometer that measures temperature of target by sensing thermal radiation from the subjects.

NOTE This item is intended to be applied to ISO 13579-1.

[SOURCE: JIS B 0155:1997]

2.151 Recirculation fan

RC fan

Fan that is used to boost heat conduction or reaction in circulation system of hot air, cold air, controlled atmosphere gas etc. when products are heated, cooled, carburized or nitrided.

NOTE This item is intended to be applied to ISO 13579-4.

2.152 Reclaiming used foundry sands

Process to gather expended core sand for re-use.

NOTE The definition is generally used in heating in metallurgical TPE.

2.153 Recuperator

Heat exchanger that exchanges heat of two fluids with different temperature from higher temperature fluid to lower temperature fluid.

NOTE This item is intended to be applied to ISO 13577-2.

2.154 Recycling

Process by which, after a safety shut-down, a full start-up sequence is automatically repeated.

NOTE This item is intended to be applied to ISO 13577-2.

2.155 Reducing

Change in the state of the atoms or ions to a higher negative state by the increase of electrons.

Note 1 to entry: A reducing agent is an element that can add electrons to another element. Note 2 to entry: Reverse chemical reaction of the oxidation reaction.

NOTE 1 This item is intended to be applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in thermal production in metallurgical TPE.

2.156 Reference condition

Environment that is defined as a reference in order to regard measurement results that are taken under different conditions as results taken under a same condition and compare them.

NOTE This item is intended to be applied to ISO 13579-1.

[SOURCE: JIS Z 8103:2000]

2.157 Reforming

Process to combine and change the molecular structure of hydrocarbons to modify their properties (e.g. to increase the octane rating).

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in chemical/petrochemical TPE.

2.158 Regenerative burner

Burners that are equipped with heat storage material that is designed for accumulation of sensible heat of combustion exhaust gas and that are operated by switching combustion and suction of exhaust combustion gas alternately in a short interval.

NOTE This item is intended to be applied to ISO 13579-1

2.159 Re-melting

Application of heat energy to cause a stated change from solid to liquid subsequent to the initial and/or intended process.

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in melting, pouring in metallurgical TPE.

2.160 Remote reset

Manual reset after a lock-out carried out from a location different from the safety related device.

Note 1 to entry: The connection between the place of reset and the safety related device on the TPE can be by electrical or electronic circuit. It complies with the single fault criterion.

NOTE This item is intended to be applied to ISO 13577-2 and ISO 13577-4.

2.161 Roasting

Heating process in which ore is desulfurized by oxdization with oxgen in the air at temperature not high enough to melt the ore.

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in thermal production in metallurgical TPE.

2.162 Safe discharge area

Zone which is safeguarded against the risk of combustion of discharged flammable gases

NOTE This item is intended to be applied to ISO 13577-2.

2.163 Safety accessories

Devices designed to protect pressure equipment against the allowable limits being exceeded.

Note 1 to entry: Such devices include:

— devices for direct pressure limitation, such as safety valves, bursting disc safety devices, buckling rods, controlled safety pressure relief systems (CSPRS), and

— limiting devices, which either activate the means for correction or provide for shutdown or shutdown and lockout, such as pressure switches or temperature switches or fluid level switches and 'safety related measurement control and regulation (SRMCR)' devices.

NOTE The definition is generally applicable in combustion and fuel handling system of TPE.

2.164 Safety bus

Bus system and/or protocol for digital network communication between safety components that is designed to achieve and/or maintain a safe state of the protective system in compliance with IEC 61508 or IEC 60730-2-5.

NOTE The item is intended to be applied to ISO 13577-4.

2.165 Safety integrity level

SIL

Discrete level (one out of possible four), corresponding to a range of safety integrity values, where safety integrity level 4 has the highest level of safety integrity and safety integrity level 1 has the lowest.

Note 1 to entry: The target failure measures (see IEC 61508:2010, 3.5.17) for the four safety integrity levels are specified in Tables 2 and 3 of IEC 61508-1.

Note 2 to entry: Safety integrity levels are used for specifying the safety integrity requirements of the safety functions to be allocated to the E/E/PE safety-related systems.

Note 3 to entry: A safety integrity level (SIL) is not a property of a system, subsystem, element or component. The correct interpretation of the phrase "SIL n safety-related system" (where n is 1, 2, 3 or 4) is that the system is potentially capable of supporting safety functions with a safety integrity level up to n.

NOTE The item is intended to be applied to ISO 13577-4.

[SOURCE: IEC 61508-4:2010, 3.5.8]

2.166 Safety shut-down

Process that is effected immediately following the response of a safety device or the detection of a fault in the automatic burner control system and which puts the burner out of operation by immediately closing the fuel shut-off valves and the ignition device.

NOTE This item is intended to be applied to ISO 13577-2.

2.167 Safety time

Flame establishing period US

Trial for ignition period US

Interval between a fuel valve being energised and de-energised if the flame detector signals the absence of a flame

NOTE This item is intended to be applied to ISO 13577-2.

[SOURCE: EN 746-2:2010, 3.75, modified — Words "another fuel valve being" before "de-energised if the flame…" in the original definition were deleted.]

2.168 Safety time, first

Pilot flame establishing period US

Interval between the pilot fuel valve, the start fuel valve or main fuel valve, as applicable, being energised and the pilot fuel valve, start fuel valve or main fuel valve, as applicable, being de-energised if the flame detector signals the absence of a flame.

NOTE This item is intended to be applied to ISO 13577-2.

[SOURCE: EN 746-2:2010, 3.75.1]

2.169 Safety time, second

Main flame establishing period US

Interval between the main fuel valve being energised and the main fuel valve being de-energised if the flame detector signals the absence of a flame.

Note 1 to entry: Definition used only if there is a first safety time applicable to either a pilot or start gas flame.

NOTE This item is intended to be applied to ISO 13577-2.

[SOURCE: EN 746-2:2010 3.75.2]

2.170 Sand drying and core making

Method for making sand particle foundry mold members referred to as cores, by coating sand particles with a suitable fluid to function as a binder.

Note 1 to entry: Once the mixture is placed in the mold to form the “core”, the moisture is removed by the application of heat and/or air flow.

NOTE The definition is generally used in heating in metallurgical TPE.

2.171 Self-checking automatic burner control system

Automatic burner control system designed so that the functioning of its safety-related parts are checked at suitable intervals.

2.172 Sensible heat

Thermal energy that is used for the increase in temperature of substance when heat is added to the substance

NOTE This item is intended to be applied to ISO 13579-1.

2.173 Single burner equipment

TPE with one burner with a common air and fuel pipework.

NOTE This item is intended to be applied to ISO 13577-2.

2.174 Sintering

Use of pressure and heat below the melting point to bond and partly fuse masses of metal particles.

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in thermal production in metallurgical TPE, heat treatment in metallurgical TPE, ceramic industrial thermoprocessing, chemical/petrochemical TPE and melting, pouring in metallurgical TPE.

2.175 Smelting

Production of metal through a process where energy is applied to ore.

NOTE The definition is generally chemical/petrochemical TPE.

2.176 Soldering

Process to join materials using an alloy with a low melting point, and usually a mixture of tin and lead.

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in joining in metallurgical TPE.

2.177 Spark restoration

Process by which, following loss of flame signal, the ignition device will be switched on again automatically without total interruption of the fuel supply.

NOTE This item is intended to be applied to ISO 13577-2.

2.178 Start fuel flow rate

Fuel flow rate during the start-up of the burner(s).

NOTE This item is intended to be applied to ISO 13577-2.

2.179 Steady state

State in which all transitional effects of an element or system are converged and all inputs are steady.

NOTE This item is intended to be applied to ISO 13579-1.

[SOURCE: JIS B 0155:1997]

2.180 Stoichiometric fuel rate

Fuel rate at which, if reacted completely with the combustion air rate, the fuel would consume all the oxygen.

NOTE The definition is generally used in combustion and fuel handling system of TPE.

2.181 Surface pretreatment

Application of materials or process required to prepare a material for the application of a designed surface treatment.

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in metallurgical TPE.

2.182 Surface treatment

Application of a material or process to establish a completed exterior surface to the work.

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in metallurgical TPE.

2.183 Systematic capability SIL capability

Measure (expressed on a scale of SC 1 to SC 4) of the confidence that the systematic safety integrity of an element meets the requirements of the specified SIL, in respect of the specified element safety function, when the element is applied in accordance with the instructions specified in the compliant item safety manual for the element.

Note 1 to entry: Systematic capability is determined with reference to the requirements for the avoidance and control of systematic faults (see IEC 61508-2 and IEC 61508-3).

Note 2 to entry: What is a relevant systematic failure mechanism will depend on the nature of the element. For example, for an element comprising solely software, only software failure mechanisms will need to be considered. For an element comprising hardware and software, it will be necessary to consider both systematic hardware and software failure mechanisms.

Note 3 to entry: A systematic capability of SC N for an element, in respect of the specified element safety function, means that the systematic safety integrity of SIL N has been met when the element is applied in accordance with the instructions specified in the compliant item safety manual for the element.

NOTE This item is intended to be applied to ISO 13577-4.

[SOURCE: IEC 61508-4:2010, 3.5.9]

2.184 Temperature, maximum/minimum allowable TS

Maximum/minimum temperature for which the equipment is designed.

NOTE This item is intended to be applied to ISO 13577-2.

2.185 Tempering

Controlled process using the application of heating and cooling to establish a consistant and balanced design state in a material.

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in heat treatment in metallurgical TPE.

2.186 Test pressure

Pressure to which pipework is submitted to a check for soundness

NOTE This item is intended to be applied to ISO 13577-2.

2.187 Textile industrial thermoprocessing

Introduction of heat energy to raw materials to produce textiles.

2.188 Thermal production

Output of material subjected to thermal processing.

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in metallurgical and metal working thermoprocessing.

2.189 Thermocouple

Temperature sensor that consists of two different types of metal wire that are bonded at both ends and generates electromotive force that is caused by the difference of temperature between hot junction and cold junction.

NOTE This item is intended to be applied to ISO 13579-1.

[SOURCE: JIS B 0155:1997]

2.190 Thermoprocessing equipment

Equipment in which material or workpiece is submitted to thermal energy.

NOTE This item is intended to be applied to ISO 13577-2.

2.191 Torch

Manually controlled gas- or oil-fired open-flame tool or any mobile burner unit firing in the open and intended for use together with TPE

NOTE This item is intended to be applied to ISO 13577-2.

2.192 Total closing time

Interval between the occurrence of an unsafe condition and the automatic shut-off valves being in fully closed position.

NOTE This item is intended to be applied to ISO 13577-2.

2.193 Valve proving system

System to check the effective closure of automatic shut-off valves by checking leaktightness. It shall consist of a programming unit, a measuring device, valves and other functional assemblies.

[SOURCE: ISO 23551-4:2005]

2.194 Automatic shut-off valve

Valve that opens when energised and closes automatically when de-energized.

NOTE This item is intended to be applied to ISO 13577-2.

[SOURCE: ISO 23551-1:2012, 3.101.7]

2.195 Closing force

Force available to close the valve, independent of any force provided by fuel gas pressure.

NOTE This item is intended to be applied to ISO 13577-2.

[SOURCE: ISO 23551-1:2012, 3.107]

2.196 Sealing force

Force acting on the valve seat when the closure member is in the closed position, independent of any force provided by fuel gas pressure.

NOTE This item is intended to be applied to ISO 13577-2.

[SOURCE: ISO 23551-1:2012, 3.108]

2.197 Closing time

Time interval between de-energizing the valve and the closure member attaining the closed position.

NOTE This item is intended to be applied to ISO 13577-2.

[SOURCE: ISO 23551-1:2012, 3.113]

2.198 Manual isolating valve

Manually operated valve which is upstream of all other fuel controls to that TPE and by means of which the fuel supply to the TPE can be shut off.

NOTE This item is intended to be applied to ISO 13577-2.

2.199 Manual shut-off valve

Manually operated valve by means of which the fuel supply to an individual burner or to a group of burners can be shut off.

NOTE This item is intended to be applied to ISO 13577-2.

2.200 Non-return valve

Check valve US

device to prevent the back flow of air, fuel, oxygen etc.

NOTE This item is intended to be applied to ISO 13577-2.

2.201 Pressure relief valve

Valve or regulator designed to relieve excessive pressure.

NOTE This item is intended to be applied to ISO 13577-2.

2.202 Vapour deposition

Process to introduce vapour in a controlled manner.

NOTE The definition is generally used in coating metallurgical TPE.

2.203 Varnish drying

Process and/or time required for a protective coating consisting of resins/oils to cure.

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in coating in metallurgical TPE.

2.204 Waste incineration industrial thermoprocessing

Introduction of heat energy to waste materials to produce a specified outcome or state.

NOTE This item is applied to ISO 13577-1:2012, Annex B.

2.205 Welding

Process to create a localized coalescence of metals, produced by heating the materials to the welding temperature, with or without filler metal.

NOTE 1 This item is applied to ISO 13577-1:2012, Annex B.

NOTE 2 The definition is generally used in joining metallurgical TPE.

[SOURCE: CSA Z662]

2.206 Wobbe index

Calorific value of a gas, on a volumetric basis, at specified reference conditions, divided by the root square of its relative density, at the same specified metering reference conditions

Note 1 to entry: The Wobbe index is gross or net depending on whether the calorific value used is the gross or net calorific value.

NOTE This item is intended to be applied to ISO 13577-2.

2.207 Zone

Self-contained space within a TPE which is operating under the same conditions/parameters (e. g. temperature, pressure)

NOTE This item is intended to be applied to ISO 13577-2.

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