

SLOVENSKI STANDARD SIST EN 50625-2-3:2017

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Zahteve za zbiranje, logistiko in obdelavo odpadne električne in elektronske opreme (WEEE) - 2-3. del: Zahteve za opremo za toplotno izmenjavo in drugo odpadno električno in elektronsko opremo (WEEE), ki vsebuje VFC in/ali VHC

Collection, logistics & treatment requirements for WEEE FPart 2-3: Treatment requirements for temperature exchange equipment and other WEEE containing VFC and/or VHC (Standards.iteh.al)

<u>SIST EN 50625-2-3:2017</u> https://standards.iteh.ai/catalog/standards/sist/5cc5e9d7-1f5a-4712-8f7c-431d9c4913da/sist-en-50625-2-3-2017

Exigences de collecte, logistique et traitement pour les déchets d'équipements électriques et électroniques (DEEE) - Partie 2-3: exigences de traitement des équipements d'échange thermique et autres DEEE contenant des fluorocarbures volatils et/ou des hydrocarbures volatils

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Collection, logistics & treatment requirements for WEEE - Part 2-3: Treatment requirements for temperature exchange equipment and other WEEE containing VFC and/or VHC

Exigences de collecte, logistique et traitement pour les déchets d'équipements électriques et électroniques (DEEE)
- Partie 2-3: exigences de traitement des équipements d'échange thermique et autres DEEE contenant des fluorocarbures volatils et/ou des hydrocarbures volatils

Sammlung, Logistik und Behandlung von Elektro- und Elektronik-Altgeräten (WEEE) - Teil 2-3: Anforderungen an die Behandlung von Wärmeträgern und anderen Elektro- und Elektronik-Altgeräten die VFC und/oder VFC enthalten

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

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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 50625-2-3:2017) has been prepared by CLC/TC 111X "Environment".

The following dates are fixed:

- latest date by which this document has to be (dop) 2018-05-29 implemented at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards (dow) 2020-05-29 conflicting with this document have to be withdrawn

This document supersedes EN 50574-1:2012.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

This part 2 is to be used in conjunction with the latest edition of EN 50625-1.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to EN 50625-1.

This Part 2 supplements or modifies the corresponding clauses in EN 50625-1, so as to convert that publication into the European Standard: *Treatment requirements for temperature exchange equipment.*

When a particular subclause of Part 1 is not mentioned in this Part 2, that subclause applies as far as is reasonable. When this standard states "addition" (modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly doc4913da/sist-en-50625-2-3-2017

NOTE 2 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

Introduction

This clause of Part 1 is applicable.

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1 Scope

This clause of Part 1 is replaced by the following:

This European Standard is applicable to the treatment of waste temperature exchange equipment and other WEEE containing VFC or VHC in refrigerants or blowing agents.

This European Standard applies to the treatment of temperature exchange equipment until end-of-waste status is fulfilled, or temperature exchange equipment fractions are recycled, recovered, or disposed of.

This European Standard addresses all operators involved in the treatment including related handling, sorting and storage of temperature exchange equipment.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

This clause of Part 1 is applicable with the following additions:

EN 50625-1:2014, Collection, logistics & Treatment requirements for WEEE - Part 1: General treatment requirements

CLC/TS 50625-3-1, Collection, logistics & treatment requirements for WEEE - Part 3-1: Specification for de-pollution - General Teh STANDARD PREVIEW

CLC/TS 50625-3-4, Collection, logistics & treatment requirements for WEEE - Part 3-4: Specification for de-pollution - temperature exchange equipment and other WEEE containing VFC and/or VHC

3 Terms and definitions SIST EN 50625-2-3:2017

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For the purposes of this document, the following terms and definitions apply.

This clause of Part 1 is applicable except as follows:

In definition 3.37, the Note 1 to entry is replaced with the following:

Note 1 to entry: Common commercial designations for these materials are R12, R11 for CFCs; R22, R141b for HCFCs; R134a, R410A, R407C, R32, R1234yf and R1234ze for HFCs.

The following subclauses are added to this clause or Part 1:

3.101

refrigerant

fluid used for heat transfer in a refrigerating system which absorbs heat at a low temperature and a low pressure of the fluid and rejects it at a higher temperature and higher pressure of the fluid usually involving reversible changes of the phase of the fluid

[SOURCE: ISO 817:2014]

3.102

refrigerating system

part that uses a refrigerant to transfer thermal energy from one part of an appliance to another part

NOTE 1 to entry: The refrigerating system in new appliances is hermetically sealed and typically also contains oil.

NOTE 2 to entry: Heat pumps also use a refrigerating system.

3.103

oil

lubricants within the refrigerating system or heat carrier fluids other than water contained in radiators

3.104

blowing agent

substance that is used to produce cells in the structure of an insulating foam

3 105

vacuum insulation panel (VIP)

type of thermal insulation consisting of a gas-tight evacuated enclosure surrounding a rigid core

Note 1 to entry: VIPs can contain several types of materials, for example glass fibres or silica, etc.

3.106

encapsulated system

set of procedures which ensure that the emission of refrigerants or blowing agents is prevented

3.107

step 1

treatment involving the removal and capturing of refrigerant and oil from the refrigerating system and subsequently removal and capturing of refrigerants (i.e. VFC, VHC) from oil both done in an encapsulated system

Note 1 to entry: Other components (i.e. compressors cable, glass shelves, plastic parts, mercury switches, capacitors, printed circuit boards) can also be removed during step 1 treatment.

3.108

step 2

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treatment involving the removal of insulating foam from the cabinet and subsequently removal and capturing of blowing agents (i.e. VFC, VHC) from insulating foam, both to be done in an encapsulated system

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Note 1 to entry: Other fractions (i.e. ferrous metals, non-ferrous metals, plastics, water and residual waste) can also be separated during step 2 treatment.

Note 2 to entry: Step 2 treatment is not applicable for heat pump tumble dryers, de-humidifiers and portable air conditioners if they do not contain insulating foam.

Note 3 to entry: Absorption refrigerators can have polyurethane insulation containing VFC or VHC and should consequently be treated in the step 2 and step 3 treatment.

3.109

step 3

treatment involving the disposal or recovery operations for refrigerants and/or blowing agents

Note 1 to entry: The disposal or recovery operations can be done on site of the treatment facility or at the facility of an downstream acceptor.

3.110

class 1 appliance

refrigerator having a total net capacity of less than 0,18 m³

Note 1 to entry: Class 1 appliances only have one compressor.

Note 2 to entry: Net capacity potentially specified by the appliance manufacturer on a label.

3.111

class 2 appliance

refrigerator or combined refrigerator/freezer having a total net capacity ranging from 0,18 m³ to 0,35 m³

Note 1 to entry: Class 2 appliances can have one or two compressors.

Note 2 to entry: Net capacity potentially specified by the appliance manufacturer on a label.

3.112

class 3 appliance

freezer having a total net capacity of less than, or equal to, 0,50 m³ and refrigerator or combined refrigerator/freezer having a total net capacity greater than 0,35 m³ and less than or equal to 0,50 m³

Note 1 to entry: Class 3 appliances can have one or two compressors.

Note 2 to entry: Net capacity potentially specified by the appliance manufacturer on a label.

3.113

class 4 appliance

refrigerator or freezer or combined refrigerator/freezer with a total net capacity of more than 0,50 m³ but with no external dimension more than 2,20 m

3.114

class 5 appliance

refrigerator or freezer or combined refrigerator/freezer with at least one external dimension more than 2.20 m

3.115

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class 6 appliance

air-conditioning equipment, equipment which automatically delivers cold products, dehumidifying equipment, heat pump tumble dryer radiator containing oil other temperature exchange equipment using fluids other than water for the temperature exchange and other WEEE containing volatile fluorocarbons or volatile hydrocarbons in the insulating foam

3.116

cabinet

class 1-6 appliance, containing insulating foam with either VFCs or VHCs or both of them, where step 1 treatment already has been done or is not applicable (appliance without refrigerating system)

3.117

performance test

process for treatment of appliances under defined conditions to determine the de-pollution performance of step 1 and step 2 treatment and the destruction performance of step 3 treatment

Note 1 to entry: "Performance" in the sense of this standard means the actual rate of the mass of removed and captured substances (refrigerants, blowing agents) comparing to the potential mass of such substances before the depollution process had been done; in the step 3 "performance" is linked to the actual destruction rate regarding the converted refrigerants and blowing agents.

3.118

captured

to be collected in tight vessels or to be converted onsite in a step 3 treatment plant

Note 1 to entry: Releasing refrigerants or blowing agents to the environment is not capturing them.

4 Administrative and organizational requirements

4.1 Management Principles

This subclause of Part 1 is applicable.

4.2 Technical and infrastructural pre-conditions

This subclause of Part 1 is applicable with the following addition:

The treatment operator shall provide weatherproof covering for temperature exchange equipment as required by subclause 5.4.

4.3 Training

This subclause of Part 1 is applicable with the following addition:

Employees shall be trained on a regular base to identify different types of refrigerants and blowing agents (as described in 3.37 and 3.38 of EN 50625-1:2014) and different classes (as described in 3.110 to 3.115). Employees shall also be trained to carry out continuous monitoring and reporting on the basis of this knowledge.

Employees shall be trained on a regular base to correctly carry out handling and storage operations.

Employees shall be trained on a regular base to correctly carry out treatment with the special regard to the high volatility of the refrigerants and blowing agents.

4.4 Monitoring

This subclause of Part 1 is applicable.

This subclause of Part 1 is applicable.

4.5 Shipments

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This subclause of Part 1 is applicable. SIST EN 50625-2-3:2017

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5 Technical requirements 31d9c4913da/sist-en-50625-2-3-2017

This clause of Part 1 is applicable except as follows.

5.1 General

Subclause 5.1 is replaced with the following:

WEEE in the scope of the standard shall be handled, stored and treated with due care in order to avoid release of hazardous substances into air, water, or soil, as a result of damage and/or leakage at any time.

The WEEE within the scope of this standard shall not be crushed, compacted, or handled in a way that could damage any part of the refrigerating system or the insulating foam. In particular, during internal transportation or when loading and unloading appliances or any other handling at the treatment facility care shall be taken to ensure that appliances refrigerating systems and cabinets are not damaged. Tipping of containers during the unloading process can damage the refrigerating system or the insulating foam and is therefore not allowed.

5.2 Receiving of WEEE at treatment facility

This clause of part 1 is applicable with the following amendment:

The treatment operator shall:

- · weigh and record each delivery that is received at the treatment facility;
- separate the WEEE from the non-WEEE;

- weigh and record that part which is WEEE; and
- record abnormal damages on WEEE that hinder sound de-pollution or recycling and inform the
 responsible sender or transporter about the necessity to collect and transport the WEEE with
 special respect of the volatile refrigerants and blowing agents.

5.3 Handling of WEEE

This subclause of part 1 is applicable.

5.4 Storage of WEEE prior to treatment

This subclause of part 1 is replaced by the following:

Damaged temperature exchange equipment shall be stored under weatherproof covering at all times.

NOTE 101 Damaged temperature exchange equipment typically has a visible damaged refrigeration system and/or a visible insulating foam surface.

The quantity of non-damaged temperature exchange equipment stored prior to treatment without weatherproof covering shall not exceed the average quantity that can be treated within two weeks.

Locations that store temperature exchange equipment prior to treatment shall have:

- · impermeable surfaces to prevent ground water and soil contamination;
- the provision of spillage collection facilities relevant to temperature exchange equipment;
- adequate spent absorbent management procedures shall be in place;
- where appropriate, decanters and cleanser-degreasers, and weatherproof covering for appropriate areas (see 4.2), in a way that there are no emissions which give rise to an adverse environmental impact.

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Where containers are used for storage of equipment and fractions, and these have led to pollutant dispersion, the affected containers shall be cleaned and decontaminated prior to their re-use, recycling or disposal.

NOTE 102 Technical requirements of storage of WEEE are described in Annex VIII of Directive 2012/19/EC.

NOTE 103 Weatherproof covering can, for example, be provided by a lid or cover over a container, or a roofed building. The type of weatherproof covering required will depend of the types and quantities of waste and the storage and treatment activities undertaken.

NOTE 104 Provision of weatherproof covering could be required for a number of reasons, e.g. to minimize the contamination of water, air, and land; to assist in the containment of hazardous materials and fluids; to avoid the entry of rain water into the insulating foam; and to facilitate proper treatment of WEEE.

NOTE 105 Examples of instances where it is appropriate to clean and decontaminate containers include those where the following have occurred: leakage of oil, broken mercury switches or fluorescent lamps.

5.5 De-pollution

This subclause of part 1 is applicable with the following addition.

5.5.101 General

The operator of the treatment facility shall ensure that VFCs and VHCs are removed, captured (in an encapsulated system) and subsequently disposed of, or recovered.

The treatment operator shall comply with the requirements defined in CLC/TS 50625-3-1 and CLC/TS 50625-3-4.

The removed substances, mixtures and components shall be disposed of or should be recovered in compliance with Directive 2008/98/EC.

Separated VFCs and VFC/VHC mixtures should be treated in accordance with EC Regulation No 1005/2009 so that they no longer have the potential for causing a depletion of the ozone layer and/or have a global warming potential lower or equal than CO₂.

Regulations (EC) 1005/2009 and 517/2014 with restrictions concerning the recovery of refrigerants and blowing agents should be complied with.

Oil from refrigerating systems shall not be mixed with oil from other sources in the treatment facility.

In case of oil filled radiators, the oil which can contain PCBs shall be removed from radiators and kept separately from oil from other sources. Radiators leaving the plant for further treatment shall have no oil to the greatest possible extend (non-dripping).

In the case of vapour-absorption refrigerators, the ammonia solution, which contains chromium-VI, shall be isolated in an encapsulated plant. If chromate has not been removed completely from the refrigerating system the metallic parts shall be sent directly to a smelter without undergoing any treatment. Every other material fraction from the treatment of absorber-type refrigeration appliances (water, NH3) shall be subjected to proper waste management procedures that take account of the amount of chromate in the relevant fractions.

In case of appliances containing vacuum insulation panels it has to be taken into account that some of the bulking agents used in these VIPs may be respirable. Therefore the used technologies have to be fit for avoiding emissions of these materials.

NOTE 2 Vacuum insulation panels used in fridges and freezers can contain refractory ceramic fibres as a bulking agent as mentioned in 2012/19/EU Annex VII. Appliances that use vacuum insulation panels contain insulating foam with VHC blowing agents and therefore these appliances have a different insulating foam weight.

NOTE 3 Absorption refrigerators can have polyurethane - insulation containing VFC or VHC and should consequently be treated in the step 2 treatment plant for removal of the blowing agent after undergoing the separate step 1 treatment as stated in subclause 5.5.102.

5.5.102 Step 1 treatment

The following applies to the treatment of all temperature exchange equipment containing oil and/or refrigerants:

- Refrigerants and oil shall be removed from the refrigerating system and subsequently captured; refrigerants shall be separated from oil; the residual oil contained in the output compressors directly after the vacuum process shall be minimized. There shall be no oil in the compressors leaving the treatment facility to the greatest possible extend (non-dripping). All oil removed from the compressors shall be degassed.
- The treatment operator shall avoid the release of refrigerant to the environment during the treatment process.
- Furthermore, no refrigerant from the oil that has passed the treatment process shall be released to the environment.
- Where VHC containing temperature exchange equipment will be treated separately from VFC containing temperature exchange equipment, the treatment operator shall ensure that no VFC containing appliance shall be treated in that step 1 treatment plant and that no VFC is contained in the output refrigerant and oil.

 Where non-phased out VFC will be treated separately from other VFC and/or VHC containing temperature exchange equipment, the treatment operator shall ensure that no phased out VFC is contained in the output refrigerant and oil.

NOTE 1 Regulation (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014 establishes rules on containment, use, recovery and destruction of fluorinated greenhouse gases, and related ancillary measures; imposes conditions on the placing on the market of specific products and equipment that contain, or whose functioning relies upon, fluorinated greenhouse gases; imposes conditions on specific uses of fluorinated greenhouse gases; and establishes quantitative limits for the placing on the market of hydrofluorocarbons.

NOTE 2 Examples for non-phased out VFCs are R 134a and 2,3,3,3-Tetrafluorpropene.

5.5.103 Step 2 treatment

The following applies to treatment of all temperature exchange equipment containing insulating foam with either VFCs or VHCs or both of them.

- The insulating foam shall be removed from the cabinets.
- Manual removal of insulating foam is only allowed for large electric water boilers. During the removal process, care shall be taken to minimize the emission of blowing agents from the insulating foam.
- The mass of blowing agents contained in insulating foam adherent to the separated output metal and plastics fractions shall be minimized.
- The blowing agents shall be removed from the insulating foam and subsequently captured.
- The mass of residual blowing agents within the output insulating foam that has passed the treatment process shall be minimized.
- The removal of the insulating foam and the removal and capturing of the blowing agent from the
 insulating foam shall be performed in an encapsulated system so that output process air can be
 controlled. The treatment operator shall have a treatment process and procedures in place to
 avoid the release of blowing agent to the environment during and after this process.
- Where VHC containing temperature equipment will be treated separately from VFC containing temperature equipment, the treatment operator shall ensure that no VFC containing appliance shall be treated in that step 2 treatment and that there is no VFC in the output blowing agent and in the output Polyurethane insulating foam.
- Where non-phased out VFC will be treated separately from other VFC and/or VHC containing temperature exchange equipment, the treatment operator shall ensure that no phased out VFC is contained in the output blowing agent.

NOTE 1 Regulation (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014 establishes rules on containment, use, recovery and destruction of fluorinated greenhouse gases, and related ancillary measures; imposes conditions on the placing on the market of specific products and equipment that contain, or whose functioning relies upon, fluorinated greenhouse gases; imposes conditions on specific uses of fluorinated greenhouse gases; and establishes quantitative limits for the placing on the market of hydrofluorocarbons.

NOTE 2 An example for a non-phased out VFC is trans – 1,3,3,3-tetrafluoropropene blowing agent.