ANNEX I

Definitions applicable for Annexes II to XII

For the purposes of Annexes II to XII the following definitions shall apply:

Definitions related to professional refrigerated storage cabinets and blast cabinets

(1) ‘net volume’ means the volume containing foodstuffs within the load limit;

(2) ‘chilled operating temperature’ means that the temperature of foodstuffs stored in the cabinet is continuously maintained at a temperature between – 1 °C and 5 °C;

(3) ‘frozen operating temperature’ means that the temperature of foodstuffs stored in the cabinet is continuously maintained at a temperature lower than – 15 °C, which is understood as the highest temperature of the warmest package test;

(4) ‘multi-use cabinet’ means that a professional refrigerated storage cabinet or separate compartment of the same cabinet may be set at different temperatures for chilled or frozen foodstuffs;

(5) ‘combined cabinet’ means a professional refrigerated storage cabinet including two or more compartments with different temperatures for the refrigeration and storage of foodstuffs;

(6) ‘refrigerator-freezer’ means a type of combined cabinet including at least one compartment exclusively intended for chilled operating temperature and one compartment exclusively intended for frozen operating temperature;

(7) ‘vertical cabinet’ means a professional refrigerated storage cabinet of overall height equal to or higher than 1 050 mm with one or more front doors or drawers accessing the same compartment;

(8) ‘counter cabinet’ means a professional refrigerated storage cabinet of overall height lower than 1 050 mm with one or more front doors or drawers accessing the same compartment;

(9) ‘light-duty cabinet’, also known as ‘semi-professional cabinet’, means a professional refrigerated storage cabinet only capable of continuously maintaining chilled or frozen operating temperature in all its compartment(s) in ambient conditions corresponding to climate class 3, as detailed in Table 3 of Annex IV; if the cabinet is able to maintain temperature in ambient conditions corresponding to climate class 4, it shall not be considered a light-duty cabinet;

(10) ‘equivalent professional refrigerated storage cabinet’ means a professional refrigerated storage cabinet model placed on the market with the same net volume, same technical, efficiency and performance characteristics, and same compartment types and volumes as another professional refrigerated storage cabinet model placed on the market under a different commercial code number by the same manufacturer;

(11) ‘equivalent blast cabinet’ means a blast cabinet model placed on the market with the same technical, efficiency and performance characteristics, as another blast cabinet model placed on the market under a different commercial code number by the same manufacturer;

Definitions related to condensing units

(12) ‘rated cooling capacity’ (P_A) means the cooling capacity that the condensing unit enables the vapour compression cycle to reach, once connected to an evaporator and

an expansion device, when operating at full load, and measured at standard rating conditions with the reference ambient temperature set at 32 °C, expressed in kW to two decimal places;

(13) 'rated power input' (D_A) means the electrical power input needed by the condensing unit (including the compressor, the condenser fan(s) and possible auxiliaries) to reach the rated cooling capacity, expressed in kW to two decimal places;

(14) 'rated coefficient of performance' (COP_A) means the rated cooling capacity, expressed in kW, divided by the rated power input, expressed in kW, expressed to two decimal places;

(15) 'coefficients of performance COP_B, COP_C and COP_D' mean the cooling capacity, expressed in kW, divided by the power input, expressed in kW, expressed to two decimal places at rating points B, C and D;

(16) 'seasonal energy performance ratio' (*SEPR*) is the efficiency ratio of a condensing unit for providing cooling at standard rating conditions, representative of the variations in load and ambient temperature throughout the year, and calculated as the ratio between annual cooling demand and annual electricity consumption, expressed to two decimal places;

(17) 'annual cooling demand' means the sum of each bin-specific cooling demand multiplied by the corresponding number of bin hours;

(18) 'bin-specific cooling demand' means the cooling demand for every bin in the year, calculated as the rated cooling capacity multiplied by the part load ratio, expressed in kW to two decimal places;

(19) 'part load' ($Pc(T_j)$) means the cooling load at a specific ambient temperature T_j, calculated as the full load multiplied by the part load ratio corresponding to the same ambient temperature T_j and expressed in kW at two decimal places;

(20) 'part load ratio' ($PR(T_j)$) at a specific ambient temperature T_j means the ambient temperature T_j minus 5 °C divided by the reference ambient temperature minus 5 °C, and — for medium temperature — multiplied by 0,4 and added to 0,6, and — for low temperature — multiplied by 0,2 and added to 0,8. For ambient temperatures higher than the reference ambient temperature, the part load ratio shall be 1. For ambient temperatures lower than 5 °C, the part load ratio shall be 0,6 for medium temperature and 0,8 for low temperature. The part load ratio can be expressed at three decimal places or in percentage, after multiplying by 100, at one decimal place;

(21) 'annual electricity consumption' is calculated as the sum of the ratios between each bin-specific cooling demand and the corresponding bin-specific coefficient of performance, multiplied by the corresponding number of bin hours;

(22) 'ambient temperature' means the dry bulb air temperature, expressed in degrees Celsius;

(23) 'bin' (bin_j) means a combination of an ambient temperature T_j and bin hours h_j, as set out in Table 6 of Annex VI;

(24) 'bin hours' (h_j) means the hours per year at which an ambient temperature occurs for each bin, as set out in Table 6 of Annex VI;

(25) 'reference ambient temperature' means the ambient temperature, expressed in degrees Celsius, at which the part load ratio is equal to 1. It is set at 32 °C;

(26) 'bin-specific coefficient of performance' (COP_j) means the coefficient of performance for every bin in the year, derived from the part load, the declared cooling demand and declared coefficient of performance for specified bins, and calculated for other bins by linear interpolation, corrected where necessary by the degradation coefficient;

(27) 'declared cooling demand' means the cooling demand at a limited number of specified bins, and calculated as the rated cooling capacity multiplied by the corresponding part load ratio;

(28) 'declared coefficient of performance' means the coefficient of performance at a limited number of specified bins, and calculated as the declared cooling capacity divided by the declared power input;

(29) 'declared cooling capacity' means the cooling capacity which the unit delivers to meet the specific cooling demand at a limited number of specified bins, expressed in kW to two decimal places;

(30) 'declared power input' means the electrical power input needed by the condensing unit to meet the declared cooling capacity, expressed in kW to two decimal places;

(31) 'degradation coefficient' (*Cdc*) is set at 0,25 and means the measure of efficiency loss due to the possible on/off cycling of condensing units necessary to satisfy the required part load in case the unit's capacity control cannot unload to the required part load;

(32) 'capacity control' means the ability of a condensing unit to change its capacity by changing the volumetric flow rate of the refrigerant, to be indicated as 'fixed' if the unit cannot change its volumetric flow rate, 'staged' if the volumetric flow rate is changed or varied in series of not more than two steps, or 'variable' if the volumetric flow rate is changed or varied in series of three or more steps;

Definitions related to process chillers

(33) 'rated cooling capacity' (P_A), expressed in kW to two decimal places, means the cooling capacity that the process chiller is able to reach, when operating at full load, and measured at standard rating conditions with the reference ambient temperature at 35 °C for air-cooled chillers and 30 °C water inlet temperature at the condenser for water-cooled chillers;

(34) 'rated power input' (D_A) means the electrical power input needed by the process chiller (including the compressor, the condenser fan(s) or pumps(s), the evaporator pump(s) and possible auxiliaries) to reach the rated cooling capacity, expressed in kW to two decimal places;

(35) 'rated energy efficiency ratio' (EER_A) means the rated cooling capacity, expressed in kW, divided by the rated power input, expressed in kW, expressed to two decimal places;

(36) 'seasonal energy performance ratio' (*SEPR*) is the efficiency ratio of a process chiller for providing cooling at standard rating conditions, representative of variations in load and ambient temperature throughout the year, and calculated as the ratio between annual cooling demand and annual electricity consumption, expressed to two decimal places;

(37) 'annual cooling demand' means the sum of each bin-specific cooling demand multiplied by the corresponding number of bin hours;

(38) 'bin-specific cooling demand' means the rated cooling capacity multiplied by the part load ratio, for every bin in the year, expressed in kW to two decimal places;

(39) 'part load' ($Pc(T_j)$) means the cooling load at a specific ambient temperature T_j, calculated as the full load multiplied by the part load ratio corresponding to the same ambient temperature T_j and expressed in kW at two decimal places;

(40) 'part load ratio' ($PR(T_j)$) at a specific ambient temperature T_j means:

(a) for process chillers using an air-cooled condenser, the ambient temperature T_j minus 5 °C divided by the reference ambient temperature minus 5 °C, and multiplied by 0,2 and added to 0,8. For ambient temperatures higher than the reference ambient temperature, the part load ratio shall be 1. For ambient temperatures lower than 5 °C, the part load ratio shall be 0,8;

(b) for process chillers using a water-cooled condenser, the water inlet temperature T_j minus 9 °C divided by the reference water inlet temperature (30 °C) minus 9 °C, and multiplied by 0,2 and added to 0,8. For ambient temperatures higher than the reference ambient temperature, the part load ratio shall be 1. For ambient temperatures lower than 5 °C (9 °C water inlet temperature at the condenser), the part load ratio shall be 0,8;

The part load ratio can be expressed at three decimal places or in percentage, after multiplying by 100, at one decimal place

(41) 'annual electricity consumption' is calculated as the sum of the ratios between each bin-specific cooling demand and the corresponding bin-specific energy efficiency ratio, multiplied by the corresponding number of bin hours;

(42) 'ambient temperature' means:

(a) for process chillers using an air-cooled condenser, the air dry bulb temperature, expressed in degrees Celsius

(b) for process chillers using a water-cooled condenser, the water inlet temperature at the condenser, expressed in degrees Celsius;

(43) 'bin' (bin_j) means a combination of an ambient temperature T_j and bin hours h_j, as set out in Annex VIII;

(44) 'bin hours' (h_j) means the hours per year at which an ambient temperature occurs for each bin, as set out in Annex VIII;

(45) 'reference ambient temperature' means the ambient temperature, expressed in degrees Celsius, at which the part load ratio is equal to 1. It shall be set at 35 °C. For air-cooled process chillers, the air inlet temperature to the condenser is then defined as 35 °C while for water-cooled process chillers the water inlet temperature to the condenser is defined as 30 °C;

(46) 'bin-specific energy efficiency ratio' (EER_j) means the energy efficiency ratio for every bin in the year, derived from the part load, the declared cooling demand and declared energy efficiency ratio for specified bins, and calculated for other bins by linear interpolation, corrected where necessary by the degradation coefficient;

(47) 'declared cooling demand' means the cooling demand at a limited number of specified bins, and calculated as the rated cooling capacity multiplied by the corresponding part load ratio;

(48) 'declared energy efficiency ratio' means the energy efficiency ratio at a limited number of specified bins;

(49) 'declared power input' means the electrical power input needed by the process chiller to meet the declared cooling capacity;

(50) 'declared cooling capacity' means the cooling capacity delivered by the chiller to meet the declared cooling demand;

(51) 'degradation coefficient' (*Cc*) means the measure of efficiency loss due to cycling of process chillers at part load; if *Cc* is not determined by measurement, then the default degradation coefficient is *Cc* = 0,9;

(52) 'capacity control' means the ability of a process chiller to change its capacity by changing the volumetric flow rate of the refrigerant, to be indicated as 'fixed' if the process chiller cannot change its volumetric flow rate, 'staged' if the volumetric flow rate is changed or varied in series of not more than two steps, or 'variable' if the volumetric flow rate is changed or varied in series of three or more steps;

Common definitions:

(53) 'global warming potential' (GWP) means the measure of how much 1 kg of the refrigerant applied in the vapour compression cycle is estimated to contribute to global warming, expressed in kg CO_2 equivalents over a 100-year time horizon;

(54) for fluorinated refrigerants, the GWP values shall be those published in the Fourth Assessment Report adopted by the Intergovernmental Panel on Climate Change[(1)] (2007 IPCC GWP values for a 100-year period);

(55) for non-fluorinated gases, the GWP values are those published in the first IPCC assessment over a 100-year period;

(56) GWP values for mixtures of refrigerants shall be based on the formula stated in Annex I to Regulation (EC) No 842/2006, with the values of the Fourth Assessment Report adopted by the Intergovernmental Panel on Climate Change (2007 IPCC GWP values for a 100-year period);

(57) for refrigerants not included in the above references, the Report of the 2010 Assessment of the Scientific Assessment Panel[(2)] (SAP) under the Montreal Protocol and the UNEP 2010 report on Refrigeration, Air Conditioning and Heat Pumps[(3)], or newer if available before the date of entry into force, shall be used as references.

(**1**) IPCC Fourth Assessment Climate Change 2007, Report of the Intergovernmental Panel on Climate Change: http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml

(**2**) http://ozone.unep.org/Assessment_Panels/SAP/Scientific_Assessment_2010/index.shtml

(**3**) http://ozone.unep.org/teap/Reports/RTOC/

Changes to legislation:
There are outstanding changes not yet made to Commission Regulation (EU) 2015/1095. Any changes that have already been made to the legislation appear in the content and are referenced with annotations.
View outstanding changes

Changes and effects yet to be applied to the whole legislation item and associated provisions

- Signature words omitted by S.I. 2019/539 Sch. 2 para. 24(6)
- Annex 10(2)(a) words substituted by S.I. 2019/539 Sch. 2 para. 24(12)(c)(i)
- Annex 10(2)(a) words substituted by S.I. 2019/539 Sch. 2 para. 24(12)(c)(ii)
- Annex 10(7) omitted by S.I. 2019/539 Sch. 2 para. 24(12)(d)
- Annex 8 para. 1 words substituted by S.I. 2019/539 Sch. 2 para. 24(10)
- Annex 2 para. 2(d)(iii) words inserted by S.I. 2019/539 Sch. 2 para. 24(7)
- Annex 2 para. 2(d)(iii) words substituted in earlier amending provision S.I. 2019/539, Sch. 2 para. 24(7) by S.I. 2020/1528 reg. 4
- Annex 4 para. 1 words substituted by S.I. 2019/539 Sch. 2 para. 24(8)
- Annex 9(2)(a) words substituted by S.I. 2019/539 Sch. 2 para. 24(11)(c)(i)
- Annex 9(2)(a) words substituted by S.I. 2019/539 Sch. 2 para. 24(11)(c)(ii)
- Annex 9(7) omitted by S.I. 2019/539 Sch. 2 para. 24(11)(d)
- Annex 6 para. 1 words substituted by S.I. 2019/539 Sch. 2 para. 24(9)
- Annex 11(2)(a) words substituted by S.I. 2019/539 Sch. 2 para. 24(13)(c)(i)
- Annex 11(2)(a) words substituted by S.I. 2019/539 Sch. 2 para. 24(13)(c)(ii)
- Annex 11(7) omitted by S.I. 2019/539 Sch. 2 para. 24(13)(d)