

**M.O., 2021****Order of the Minister of the Environment and the Fight Against Climate Change dated 11 June 2021**

Environment Quality Act  
(chapter Q-2)

Regulation respecting halocarbon destruction projects eligible for the issuance of offset credits

THE MINISTER OF THE ENVIRONMENT AND THE FIGHT AGAINST CLIMATE CHANGE,

CONSIDERING section 46.1 of the Environment Quality Act (chapter Q-2), which provides that subdivision 1 of Division VI of Chapter IV of Title I of the Act applies to a person or municipality, (the “emitter”) who carries on or operates a business, facility or establishment that emits greenhouse gases, who distributes a product whose production or use entails the emission of greenhouse gases or who is considered to be such an emitter by regulation in particular of the Government;

CONSIDERING section 46.5 of the Act, which provides that a cap-and-trade system is established to contribute to the achievement of the targets for reducing or limiting greenhouse gas emissions and mitigate the cost of reducing or limiting greenhouse gas emissions;

CONSIDERING subparagraph 2 of the first paragraph of section 46.8 of the Act, which provides that the Minister of the Environment and the Fight Against Climate Change, subject to the conditions determined by regulation of the Government, may grant offset credits to any person or municipality having carried out, in whole or in part, in accordance with the regulation made under section 46.8.2 of the Act, a project eligible for such credits that has resulted in a reduction of greenhouse gas emissions;

CONSIDERING section 285 of the Act to amend the Environment Quality Act to modernize the environmental authorization scheme and to amend other legislative provisions, in particular to reform the governance of the Green Fund (2017, chapter 4), which provides that Schedule D to the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (chapter Q-2, r. 46.1), including Protocol 3 on the destruction of ozone depleting substances contained in insulating foam or used as refrigerants removed from refrigeration, freezer and air-conditioning appliances, which is the main object of this Regulation, is deemed to be a regulation of the Minister;

CONSIDERING section 46.8.2 of the Environment Quality Act, which provides that the Minister may, by regulation, determine the projects that are eligible for offset credits, the conditions and methods applicable to those projects and the information or documents, in particular, that must be kept or provided to the Minister by the person or municipality responsible for carrying out the project;

CONSIDERING section 115.27 of the Act, which provides that the Minister may, in a regulation made under the Act, in particular specify that a failure to comply with the regulation may give rise to a monetary administrative penalty and set forth the amounts;

CONSIDERING section 115.34 of the Act, which provides that the Minister may determine the regulatory provisions made under the Act whose contravention constitutes an offence and renders the offender liable to a fine the minimum and maximum amounts of which are set by the Minister;

CONSIDERING the publication in Part 2 of the *Gazette officielle du Québec* of 3 March 2021, in accordance with sections 10 and 11 of the Regulations Act (chapter R-18.1), of a draft Regulation respecting halocarbon destruction projects eligible for the issuance of offset credits with a notice that it could be made by the Minister of the Environment and the Fight Against Climate Change on the expiry of 45 days following that publication;

CONSIDERING the comments received during the consultation and that it is expedient to take them into account;

CONSIDERING that it is expedient to make the Regulation with amendments;

ORDERS AS FOLLOWS:

The Regulation respecting halocarbon destruction projects eligible for the issuance of offset credits, attached to this Order, is hereby made.

Québec, 11 June 2021

BENOIT CHARETTE  
*Minister of the Environment and  
the Fight Against Climate Change*

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## **Regulation respecting halocarbon destruction projects eligible for the issuance of offset credits**

### **Environment Quality Act**

(chapter Q-2, ss. 46.1, 46.5, 46.8.2, 115.27 and 115.34)

## **CHAPTER I**

### **OBJECT, SCOPE AND INTERPRETATION**

1. The object of this Regulation is to

- (1) determine the halocarbon destruction projects eligible for the issuance of offset credits pursuant to section 46.8.2 of the Environment Quality Act (chapter Q-2);
- (2) determine the conditions and methods applicable to such projects; and
- (3) determine the information and documents that a person or municipality responsible for carrying out an eligible project or a project whose eligibility must be determined must keep or provide to the Minister.

2. In this Regulation, unless otherwise indicated by context,

“cap-and-trade system for emission allowances” means a cap-and-trade system for greenhouse gas emission allowances established pursuant to the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (chapter Q-2, r. 46.1); (*système de plafonnement et d'échange de droits d'émission*)

“container” means an air-tight, waterproof unit used for storing, circulating or transporting halocarbons without leakage or escape of halocarbons into the environment; (*contenant*)

“foam” means insulating foam from refrigeration, freezer or air-conditioning appliances; (*mousses*)

“greenhouse gas” or “GHG” means a gas referred to in the second paragraph of section 46.1 of the Environment Quality Act or in the second paragraph of section 70.1 of the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances, namely carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF<sub>6</sub>), nitrogen trifluoride (NF<sub>3</sub>), chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs); (*gaz à effet de serre ou GES*)

“halocarbon” means a substance designated in Appendix A, when contained in foam or when used or intended to be used as refrigerants for refrigeration, freezing or air conditioning in equipment, systems or appliances from industrial, commercial, institutional or residential sources; (*halocarbure*)

“officer” means the president, chief executive officer, chief operating officer, chief financial officer or secretary of a legal person or a person holding a similar position, or any person designated as an officer by a resolution of the board of directors; (*dirigeant*)

“professional” means a professional within the meaning of section 1 of the Professional Code (chapter C-26); any other person authorized by a professional order to carry on an activity reserved to the members of that order is also deemed to be a professional; (*professionnel*)

“promoter” means a person or municipality responsible for carrying out a project eligible for the issuance of offset credits. (*promoteur*)

## **CHAPTER II**

### **ELIGIBILITY**

#### **DIVISION I**

##### **ELIGIBILITY CONDITIONS**

**3.** A halocarbon destruction project is eligible for the issuance of offset credits pursuant to section 46.8.2 of the Environment Quality Act, for the eligibility period provided for in Division II of this Chapter, if it meets the following conditions:

- (1) the project is carried out by a promoter registered for the cap-and-trade system for emission allowances in accordance with the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances, that is domiciled in Québec in the case of a natural person or has an establishment in Québec in other cases;
- (2) the GHG emission reductions attributable to the project, on the date of filing of the project notice or renewal notice provided for in Chapter IV, are achieved as an initiative of the promoter, without the promoter being required to do so under a law or regulation, an authorization, an order made pursuant to a law or regulation or a court decision;
- (3) the halocarbons destroyed during the project are recovered in Canada or are removed from a refrigeration, freezer or air-conditioning appliance or system recovered in Canada;
- (4) where the halocarbons destroyed during the project are removed from a refrigeration, freezer or air-conditioning appliance or system, the removal of foam and refrigerants from the appliance or system and the extraction of halocarbons from the foam are performed in Canada;
- (5) the destruction of the halocarbons is performed in Canada or the United States.

When halocarbons used as refrigerants targeted by a project are removed from refrigeration, freezer or air-conditioning appliances that also contain halocarbons contained in foam, the project must, for any destruction activity taking place after 22 October 2016, also provide for the extraction and destruction of the halocarbons contained in the foam in accordance with the provisions of this Regulation.

In the cases provided for in the second paragraph, the halocarbons contained in foam must be destroyed during the same reporting period referred to in section 20 as the halocarbons used as refrigerants, or during a previous reporting period.

## **DIVISION II**

### **ELIGIBILITY PERIOD**

4. For the purposes of this Regulation, “eligibility period” means the period during which a project remains eligible for the issuance of offset credits, subject to compliance with the eligibility conditions in force when the project notice provided for in either section 12 or the second paragraph of section 14, or the renewal notice provided for in section 15, is filed.

5. The eligibility period has a term of 2 consecutive years and begins on the project start date.

The eligibility period may be renewed for the same term by filing the renewal notice provided for in section 15. The renewed eligibility period begins on the day following the end of the preceding period.

For the purposes of this Regulation, a project eligible for the issuance of offset credits is deemed to begin on the date on which the first halocarbon destruction activities occur, as documented by the destruction certificate.

Despite the third paragraph, an eligible project may include activities completed before the project start date.

## **CHAPTER III**

### **CONDITIONS APPLICABLE TO AN ELIGIBLE PROJECT**

#### **DIVISION I**

##### **GENERAL CONDITIONS**

6. A project eligible for the issuance of offset credits must be carried out in accordance with all the requirements applicable to the project based on its type and the place where it is carried out.

7. The promoter must send to the Minister, within 30 days, a notice informing the Minister of any of the following events:

- (1) the promoter terminates the project;
- (2) the promoter transfers responsibility for carrying out the project to another person or another municipality.

The notice referred to in the first paragraph must contain the following information and documents:

- (1) in the case of a project termination,
  - (a) the date of the project termination;
  - (b) the reason for the project termination;
  - (c) an estimate of the offset credits that will be requested by the promoter, for the reporting period during which termination occurs, in accordance with the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances; and
  - (d) a declaration by the promoter or the promoter's representative that all the information provided is complete and accurate;
- (2) in the case of a transfer,
  - (a) the date of the transfer;
  - (b) the name of the transferee and all the information needed to identify the transferee, including the number of the general account opened by the Minister for the transferee pursuant to section 14 of the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances after the transferee registers for the cap-and-trade system for emission allowances;
  - (c) an estimate of the offset credits that will be requested by the promoter and by the transferee, for the reporting period during which the transfer is carried out in accordance with the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances; and
  - (d) a declaration by the promoter and the transferee, or their representatives, stating that the information provided is complete and accurate.

**8.** The promoter must use the forms or templates available on the website of the Ministère de l'Environnement et de la Lutte contre les changements climatiques to submit any information or document required pursuant to this Regulation.

**9.** The promoter must keep a copy of any information or document that must be submitted pursuant to this Regulation for the duration of the project and for a minimum period of 7 years after the project's end date.

The promoter must also keep any other information or document needed to quantify the GHG emission reductions attributable to the promoter's project pursuant to Chapter V of this Regulation for the duration of the project and for a minimum period of 7 years after the project's end date.

The information and documents referred to in this section must also be provided to the Minister on request.

**DIVISION II****CONDITIONS FOR OPERATION**

**10.** Halocarbons must be extracted and destroyed as follows:

- (1) the halocarbons must be collected, stored and transported in hermetically sealed containers;
- (2) the halocarbons contained in foam must be extracted in concentrated form using a negative pressure process;
- (3) the halocarbons must be destroyed in concentrated form.

**11.** Each stage in a project eligible for the issuance of offset credits that is carried out in the United States must be conducted in accordance with the requirements of the protocol entitled "Compliance Offset Protocol Ozone Depleting Substances Projects: Destruction of U.S. Ozone Depleting Substances Banks" published by the California Air Resources Board.

**CHAPTER IV****PROJECT NOTICE AND RENEWAL NOTICE**

**12.** The promoter must, not later than the date of filing of the first issuance request for offset credits under the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances, file a project notice with the Minister containing the following information and documents:

- (1) the information needed to identify the promoter and the promoter's representative, if any;
- (2) the number of the general account opened by the Minister for the promoter pursuant to section 14 of the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances following the promoter's registration for the cap-and-trade system for emission allowances;
- (3) a summary description of the project and information about its location, including the identification of all project sites, in particular
  - (a) the storage sites for the appliances and halocarbons recovered;
  - (b) the facility sites where the halocarbons are extracted;
  - (c) the facility sites where the halocarbons are destroyed; and
  - (d) the facility sites where the appliances are recycled, if any;
- (4) an estimate of the expected annual and total GHG emission reductions attributable to the project, in metric tonnes CO<sub>2</sub> equivalent;
- (5) the duration of the project and the start date for the project, when known, or in other cases an estimate of the duration and start date;

- (6) when the promoter has retained or intends to retain the services of a professional or another person to prepare or carry out the project,
  - (a) the information needed to identify that professional or person;
  - (b) a summary of the tasks that have been or will be entrusted to that professional or person; and
  - (c) if applicable, a declaration by the professional or person that the information and documents provided are complete and accurate;
- (7) the information needed to identify the owners, and the owners' representatives, if any, for each project site;
- (8) a declaration by the promoter or the promoter's representative that the information and documents provided are complete and accurate.

**13.** On receiving a project notice, the Minister gives it a project code and communicates the code to the promoter.

**14.** The project described in a notice filed in accordance with section 12 must start within 2 years following the filing.

After that time, a promoter that has not yet started the project must file a new project notice containing the information and documents referred to in section 12.

**15.** The promoter may, between the sixth and the first month preceding the end of the eligibility period for the project, ask the Minister to renew the eligibility period by filing a renewal notice containing, in addition to what is required by section 12, the following information:

- (1) the project code given to the project by the Minister pursuant to section 13;
- (2) a description of any change planned to the project for the new eligibility period.

## **CHAPTER V**

### **QUANTIFICATION OF GHG EMISSION REDUCTIONS ATTRIBUTABLE TO AN ELIGIBLE PROJECT**

**16.** The object of the provisions of this Chapter is to

- (1) identify the GHG sources, sinks and reservoirs forming the project boundaries and determine the GHG emission reductions attributable to the project for quantification purposes;
- (2) define the period during which the GHG emission reductions attributable to the project are quantified and specify the calculation methods used for quantification; and

(3) establish the conditions for project monitoring, including the conditions for collecting and recording the data needed to quantify the GHG emission reductions attributable to the project, for using, maintaining, verifying and calibrating the instruments used for data collection, and for using and maintaining the other devices and equipment used for the project.

#### **DIVISION I**

##### **PROJECT BOUNDARIES AND GHG EMISSION REDUCTIONS ATTRIBUTABLE TO THE PROJECT**

**17.** Only the GHG sources, sinks and reservoirs identified in the area of Figure 1 that lies within the dotted line and described in Table 1 of Appendix B may be used by the promoter to quantify the GHG emission reductions attributable to the destruction of halocarbons contained in foam. The GHG sources, sinks and reservoirs identified in this way form the boundaries of the project for the destruction of halocarbons contained in foam.

**18.** Only the GHG sources, sinks and reservoirs identified in the area of Figure 2 that lies within the dotted line and described in Table 2 of Appendix B may be used by the promoter to quantify the GHG emission reductions attributable to the destruction of halocarbons used or intended to be used as refrigerants. The GHG sources, sinks and reservoirs identified in this way form the boundaries of the project for the destruction of halocarbons used as refrigerants.

**19.** GHG emission reductions may only be deemed to be attributable to an eligible project for quantification purposes pursuant to this Chapter if no offset credits have previously been issued for those emission reductions pursuant to the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances and if no credits have been issued under another compensation program for GHG emission reductions.

#### **DIVISION II**

##### **REPORTING PERIOD AND CALCULATION METHODS FOR QUANTIFICATION**

###### *§ 1. – Reporting period*

**20.** For the purposes of this Regulation, “reporting period” means a continuous period of time, within an eligibility period, during which the GHG emission reductions attributable to a project eligible for the issuance of offset credits are quantified in accordance with this Chapter for the issuance of offset credits.

The reporting periods of a project eligible for the issuance of offset credits cover 1 to 12 months and succeed each other in an uninterrupted fashion during the eligibility period for the project.

###### *§ 2. – Calculation methods for the quantification of total GHG emission reductions*

**21.** To quantify the total GHG emission reductions attributable to a project during the reporting period, the promoter must use Equation 1:



**Equation 1**

$$ER_T = ER_F + ER_R$$

Where:

$ER_T$  = total GHG emission reductions attributable to the project, in metric tonnes CO<sub>2</sub> equivalent;

$ER_F$  = GHG emission reductions attributable to the destruction of halocarbons contained in foam, calculated using Equation 2 in section 23, in metric tonnes CO<sub>2</sub> equivalent;

$ER_R$  = GHG emission reductions attributable to the destruction of halocarbons used or intended to be used as refrigerants, calculated using Equation 8 in section 27, in metric tonnes CO<sub>2</sub> equivalent.

**22.** For the purposes of this Division, the promoter must use the global warming potential factors for halocarbons shown in the following table:

| Type of halocarbon | Global warming potential factor (GWP)<br>(metric tonnes CO <sub>2</sub> equivalent per metric tonne of halocarbon) |                     |
|--------------------|--|---------------------|
|                    | until 31 December 2020   | from 1 January 2021 |
| CFC-11             | 4,750  | 4,750               |
| CFC-12             | 10,900   | 10,900              |
| CFC-13             | 14,400   | 14,400              |
| CFC-113            | 6,130  | 6,130               |
| CFC-114            | 10,000   | 10,000              |
| CFC-115            | 7,370  | 7,370               |
| HCFC-22            | 1,810  | 1,810               |
| HCFC-141b          | 725  | 725                 |
| HFC-134a           | 1,300  | 1,430               |
| HFC-245fa          | 950  | 1,030               |

§ 3. – *Calculation methods for the quantification of GHG emission reductions attributable to the destruction of halocarbons contained in foam*

**23.** For the purposes of the quantification of the GHG emission reductions attributable to the destruction of halocarbons contained in foam, the promoter must use equations 2 to 7:

**Equation 2**

$$ER_F = BE_F - PE_F$$

Where:

$ER_F$  = GHG emission reductions attributable to the destruction of halocarbons contained in foam, in metric tonnes CO<sub>2</sub> equivalent;

$BE_F$  = GHG emissions in the baseline scenario attributable to the destruction of halocarbons contained in foam, calculated using Equation 3 in section 24, in metric tonnes CO<sub>2</sub> equivalent;

$PE_F$  = GHG emissions in the project scenario attributable to the destruction of halocarbons contained in foam, calculated using Equation 5 in section 25, in metric tonnes CO<sub>2</sub> equivalent.

**24.** For the purposes of the quantification of the GHG emission reductions attributable to the project, the promoter must calculate the GHG emissions in the baseline scenario attributable to the destruction of halocarbons contained in foam using equations 3 and 4.

**Equation 3**

$$BE_F = \sum_{i=1}^n [Q_{F\text{ init},i} \times EF_{F,i} \times GWP_i]$$

Where:

$BE_F$  = Baseline GHG emissions attributable to the destruction of halocarbons contained in foam, in metric tonnes CO<sub>2</sub> equivalent;

$i$  = Type of halocarbon;

$n$  = Number of types of halocarbons;

$Q_{F\text{ init},i}$  = Initial quantity of halocarbon of type  $i$  contained in foam prior to removal from appliances, calculated using Equation 4, in metric tonnes of halocarbon of type  $i$ ;

$EF_{F,i}$  = GHG emission factor for halocarbon of type  $i$  contained in the foam, as indicated in section 26;

$GWP_i$  = Global warming potential factor for halocarbon of type  $i$  as indicated in section 22, in metric tonnes CO<sub>2</sub> equivalent per metric tonne of halocarbon of type  $i$ .

**Equation 4**

$$Q_{F\text{ init},i} = Q_{F\text{ final},i} + \left( Q_{F\text{ final},i} \times \left( \frac{1 - EE_F}{EE_F} \right) \right)$$

Where:

$Q_{F\text{ init},i}$  = Initial quantity of halocarbon of type  $i$  contained in foam prior to removal from appliances, in metric tonnes of halocarbon of type  $i$ ;

$Q_{F\text{ final},i}$  = Final quantity of halocarbon of type  $i$  extracted and sent for destruction, determined in accordance with the method in Appendix D, in metric tonnes of halocarbon of type  $i$ ;

$EE_F$  = Extraction efficiency of the extraction process for halocarbons contained in foam, determined in accordance with the method in Appendix E;

$i$  = Type of halocarbon.

**25.** For the purposes of the quantification of the GHG emission reductions attributable to the project, the promoter must calculate the GHG emissions in the project scenario attributable to the destruction of halocarbons contained in foam using equations 5 to 7.

**Equation 5**

$$PE_F = EEXT_F + ETD_F$$

Where:

$PE_F$  = GHG emissions in the project scenario attributable to the destruction of halocarbons contained in foam, in metric tonnes CO<sub>2</sub> equivalent;

$EEXT_F$  = Total GHG emissions attributable to the extraction of halocarbons contained in foam from appliances, calculated using Equation 6, in metric tonnes CO<sub>2</sub> equivalent;

$ETD_F$  = GHG emissions attributable to the transportation and destruction of halocarbons contained in foam, calculated using Equation 7, in metric tonnes CO<sub>2</sub> equivalent.

**Equation 6**

$$EEXT_F = \sum_{i=1}^n [Q_{F\ init,i} \times (1 - EE_F) \times GWP_i]$$

Where:

$EEXT_F$  = Total GHG emissions attributable to the extraction of halocarbons contained in foam removed from appliances, in metric tonnes CO<sub>2</sub> equivalent;

$i$  = Type of halocarbon;

$n$  = Number of types of halocarbons;

$Q_{F\ init,i}$  = Initial quantity of halocarbon of type  $i$  contained in foam before their removal from appliances, calculated using Equation 4 in section 24, in metric tonnes of halocarbon of type  $i$ ;

$EE_F$  = Extraction efficiency of the extraction process for halocarbons contained in foam, determined in accordance with the method in Appendix E;

$GWP_i$  = Global warming potential factor for halocarbon of type  $i$  as indicated in section 22, in metric tonnes CO<sub>2</sub> equivalent per metric tonne of halocarbon of type  $i$ .

**Equation 7**

$$ETD_F = Q_{F\ final} \times 7.5$$

Where:

$ETD_F$  = GHG emissions attributable to the transportation and destruction of halocarbons contained in foam, in metric tonnes CO<sub>2</sub> equivalent;

$Q_{F\ final}$  = Final quantity of halocarbons contained in extracted foam and sent for destruction, calculated using Equation 17 in Appendix E, in metric tonnes of halocarbons;

7.5 = Default emission fact for the transportation and destruction of halocarbons, in metric tonnes CO<sub>2</sub> equivalent per metric tonne of halocarbon.

**26.** For the purposes of this subdivision, the emission factors for each type of halocarbon contained in foam are shown in the following table:

| Type of halocarbon | Emission factor for halocarbons contained in foam removed from appliances ( $EF_{F, i}$ ) |
|--------------------|---|
| CFC-11             | 0.44  |
| CFC-12             | 0.55  |
| HCFC-22            | 0.75  |
| HCFC-141b          | 0.50  |
| HFC-134a           | 0.70  |
| HFC-245fa          | 0.70  |

§ 4. – *Calculation methods for the quantification of GHG emission reductions attributable to the destruction of halocarbons used or intended to be used as refrigerants*

**27.** For the purposes of the quantification of the GHG emission reductions attributable to the destruction of halocarbons used or intended to be used as refrigerants, the promoter must use Equation 8:

**Equation 8**

$$ER_R = BE_R - PE_R$$

Where:

$ER_R$  = GHG emission reductions attributable to the destruction of halocarbons used or intended to be used as refrigerants, in metric tonnes CO<sub>2</sub> equivalent;

$BE_R$  = GHG emissions in the baseline scenario attributable to the destruction of halocarbons used or intended to be used as refrigerants, calculated using Equation 9 in section 28, in metric tonnes CO<sub>2</sub> equivalent;

$PE_R$  = GHG emissions in the project scenario attributable to the destruction of halocarbons used or intended to be used as refrigerants, calculated using Equation 10 in section 29, in metric tonnes CO<sub>2</sub> equivalent.

**28.** For the purposes of the quantification of the GHG emission reductions attributable to the project, the promoter must calculate the GHG emissions in the baseline scenario attributable to the destruction of halocarbons used or intended to be used as refrigerants using Equation 9.

**Equation 9**

$$BE_R = \sum_{i=1}^n (Q_{R,i} \times EF_{R,i} \times GWP_i)$$

Where:

$BE_R$  = GHG emissions in the baseline scenario attributable to the destruction of halocarbons used or intended to be used as refrigerants, in metric tonnes CO<sub>2</sub> equivalent;

$i$  = Type of halocarbon;

$n$  = Number of types of halocarbons;

$Q_{R,i}$  = Quantity of halocarbon of type  $i$  used or intended to be used as refrigerants that are recovered and sent for destruction, determined in accordance with the method in Appendix D, in metric tonnes of halocarbon of type  $i$ ;

$EF_{R,i}$  = GHG emission factor for halocarbon of type  $i$  used or intended to be used as a refrigerant, as indicated in section 30;

$GWP_i$  = Global warming potential factor for halocarbon of type  $i$ , as indicated in section 22, in metric tonnes CO<sub>2</sub> equivalent per metric tonne of halocarbon of type  $i$ .

**29.** For the purposes of the quantification of the GHG emission reductions attributable to the project, the promoter must calculate the GHG emissions in the project scenario attributable to the destruction of halocarbons used or intended to be used as refrigerants using equations 10 to 13.

#### Equation 10

$$PR_R = ESUB_R + ETD_R$$

Where:

$PE_R$  = GHG emissions in the project scenario attributable to the destruction of halocarbons used or intended to be used as refrigerants, in metric tonnes CO<sub>2</sub> equivalent;

$ESUB_R$  = Total GHG emissions attributable to substitute refrigerants, calculated using Equation 11, in metric tonnes CO<sub>2</sub> equivalent;

$ETD_R$  = GHG emissions attributable to the transportation and destruction of halocarbons used or intended to be used as refrigerants, calculated using Equation 12, in metric tonnes CO<sub>2</sub> equivalent;

#### Equation 11

$$ESUB_R = \sum_{i=1}^n (Q_{R,i} \times EFS_{R,i})$$

Where:

$ESUB_R$  = Total GHG emissions attributable to substitute refrigerants, in metric tonnes CO<sub>2</sub> equivalent;

$i$  = Type of halocarbon;

$n$  = Number of types of halocarbons;

$Q_{R,i}$  = Quantity of halocarbon of type  $i$  used or intended to be used as refrigerants that are recovered and sent for destruction, determined in accordance with the method in Appendix D, in metric tonnes of halocarbon of type  $i$ ;

$EFS_{R,i}$  = Emission factor for substitutes for halocarbons of type  $i$  as indicated in section 31, in metric tonnes CO<sub>2</sub> equivalent per metric tonne of halocarbon;

### Equation 12

$$ETD_R = Q_R \times 7.5$$

Where:

$ETD_R$  = GHG emissions attributable to the transportation and destruction of halocarbons used or intended to be used as refrigerants, in metric tonnes CO<sub>2</sub> equivalent;

$Q_R$  = Total quantity of halocarbons used or intended to be used as refrigerants that are recovered and sent for destruction, calculated using Equation 13, in metric tonnes of halocarbons;

7.5 = Default emission fact for the transportation and destruction of halocarbons, in metric tonnes CO<sub>2</sub> equivalent per metric tonne of halocarbon;

### Equation 13

$$Q_R = \sum_{i=1}^n Q_{R,i}$$

Where:

$Q_R$  = Total quantity of halocarbons used or intended to be used as refrigerants that are recovered and sent for destruction, in metric tonnes of halocarbons;

$i$  = Type of halocarbon;

$n$  = Number of types of halocarbons;

$Q_{R,i}$  = Quantity of halocarbons of type  $i$  used or intended to be used as refrigerants that are recovered and sent for destruction, determined in accordance with the method in Appendix D, in metric tonnes of halocarbon of type  $i$ .

**30.** For the purposes of this subdivision, the emission factors for each type of halocarbon used or intended to be used as a refrigerant are shown in the following table:

| Type of halocarbon | Emission factor for halocarbons used or intended to be used as refrigerants ( $EF_{R,i}$ ) |
|--------------------|--|
| CFC-11             | 0.89   |
| CFC-12             | 0.95   |
| CFC-13             | 0.61   |
| CFC-113            | 0.89   |
| CFC-114            | 0.78   |
| CFC-115            | 0.61   |
| HCFC-22            | 0.72   |

**31.** For the purposes of this subdivision, the emission factors for substitute refrigerants for each type of halocarbon used or intended to be used as a refrigerant are shown in the following table:

| Halocarbure used or intended to be used as a refrigerant | Emission factor for substitute refrigerants ( $EFS_{R,i}$ ) |
|--|---|
| CFC-11   | 223   |
| CFC-12   | 686   |
| CFC-13   | 7,144   |
| CFC-113  | 220   |
| CFC-114  | 659   |
| CFC-115  | 1,139   |
| HCFC-22  | 389   |

### **DIVISION III**

#### **CONDITIONS APPLICABLE TO PROJECT MONITORING**

**32.** The promoter is responsible for project monitoring, which includes all tasks relating to the collecting and recording of the data needed to quantify the GHG emission reductions attributable to the project, all tasks relating to the use, maintenance, verification and calibration of the measurement instruments used for data collection, and all tasks relating to the use and maintenance of other devices and equipment used for the project.

The promoter must ensure that the measurement and monitoring of the parameters are carried out in accordance with the table in Appendix C.



### § 1. – *Destruction facility*

**33.** During the destruction of halocarbons, the operating parameters of the destruction facility must be monitored and recorded in accordance with good practice and the standards and regulatory requirements that apply to that type of activity.

**34.** The promoter must ensure the continuous monitoring of the following parameters during the entire halocarbon destruction process:

- (1) the halocarbon feed rate;
- (2) the operating temperature and pressure of the destruction facility during halocarbon destruction;
- (3) effluent discharges in terms of water and pH levels;
- (4) carbon monoxide emissions.

### § 2. – *Monitoring plan*

**35.** To ensure monitoring of the project, the promoter must establish a project monitoring plan, which must

- (1) specify the methods used to collect and record the data required for all the monitoring parameters in Appendix C, and specify the frequency of data acquisition; and
- (2) specify the role of the person responsible for each monitoring activity and the quality assurance and quality control measures taken to ensure that data acquisition, and the verification of measurement instrument accuracy and calibration are carried out consistently, precisely and in accordance with the conditions set out in this Chapter.

## **CHAPTER VI** **PROJECT REPORT**

### **DIVISION I** **GENERAL CONDITIONS**

**36.** The promoter must produce a project report for each reporting period referred to in section 20 not later than 4 months following the end of the reporting period concerned, with the content specified in Division II of this Chapter.

**37.** The errors, omissions or inaccuracies noted by the verifier and recorded in the verification report must be corrected by the promoter in the project report verified before any issuance request for offset credits is made under the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances.

**38.** The promoter must, on request, provide the Minister with the project reports produced.

**DIVISION II****CONTENTS OF THE PROJECT REPORT**

**39.** The project report produced for the first reporting period of an eligibility period must contain the following information and documents:

- (1) the information needed to identify the promoter and the promoter's representative, if any;
- (2) where the promoter has retained the services of a professional or of another person to prepare or carry out the project,
  - (a) the information needed to identify the professional or person;
  - (b) a summary of the tasks that were entrusted to the professional or person; and
  - (c) where applicable, a declaration by the professional or person that the information and documents provided are complete and accurate;
- (3) the project code given to the project by the Minister pursuant to section 13;
- (4) a detailed description of the project;
- (5) information about the location of the project, including the identification of all project sites, in particular
  - (a) the storage sites for appliances and the halocarbons recovered;
  - (b) the facility sites where the halocarbons are extracted;
  - (c) halocarbon destruction facilities; and
  - (d) the facility sites for recycling appliances, if any;
- (6) the information needed to identify the owners and the owners' representatives, if any, for each project site;
- (7) when the environmental impacts of the project have been analyzed, a summary of the analysis and its conclusions;
- (8) a copy of any authorization needed to carry out the project;
- (9) information about financial assistance received for the project under any other program for GHG emission reductions;
- (10) a demonstration that the project meets the conditions set out in Division I of Chapter II, including a copy of any relevant document;
- (11) a description of the GHG sources, sinks and reservoirs forming the project boundaries;

- (12) the project monitoring plan referred to in subdivision 2 of Division II of Chapter V;
- (13) the start and end dates for the reporting period covered by the project report;
- (14) a description of any problem occurring during the operation of the project that may affect the GHG emission reductions attributable to the project;
- (15) the GHG emission reductions attributable to the project for the reporting period quantified annually in accordance with Chapter V, in metric tonnes CO<sub>2</sub> equivalent, along with the calculation methods and all the information and documents used for the quantification, including a copy of the raw measurement data used for quantification purposes;
- (16) the following information on the chain of traceability for halocarbons:
- (a) the location information for each storage site where recovered appliances or a quantity of halocarbons exceeding 225 kg are transferred;
  - (b) in the case of equipment containing more than 225 kg of halocarbons, the address of the last place where the equipment was located before being decommissioned;
  - (c) the information needed to identify each party involved in each stage of the project, and the quantity of appliances, foam or halocarbons transferred, sold or handled by each party;
  - (d) any document identifying persons in possession of appliances, foam and halocarbons at each stage in the project, and showing the transfer of possession and ownership of the appliances, foam and halocarbons;
  - (e) for each appliance containing foam that is recovered:
    - i. the type of appliance;
    - ii. its size;
    - iii. its storage capacity;
    - iv. its serial number, if available;
- (17) the serial number or identification number of the containers used for halocarbon storage and transportation;
- (18) the following information on halocarbon extraction:
- (a) the number of appliances containing foam from which halocarbons have been extracted;
  - (b) the number of appliances of residential origin containing refrigerants from which halocarbons been extracted;

- (c) processes, training, and quality assurance, quality control and extraction process management systems;
- (19) the certificates of destruction for all the halocarbons destroyed during the project, issued by the facility that destroyed the halocarbons, specifying
- (a) the name of the promoter;
  - (b) the information needed to identify and locate the destruction facilities;
  - (c) the name and signature of the person responsible for the destruction operations;
  - (d) the identification number on the certificate of destruction;
  - (e) the serial, tracking or identification number of all containers for which halocarbon destruction occurred;
  - (f) the weight and type of halocarbons destroyed for each container, including the weight tickets generated in accordance with Appendix D;
  - (g) the destruction start date and time; and
  - (h) the destruction end date and time;
- (20) a description of the methods used to extract foam or refrigerant from refrigeration, freezer or air conditioning appliances and systems, extract halocarbons from foam and destroy halocarbons;
- (21) for projects to destroy halocarbons contained in foam, an estimate of the quantity of foam recovered, in metric tonnes;
- (22) the procedures used to analyze halocarbon mixtures, if Division 2 of Appendix D applies;
- (23) for each site not owned by the promoter, a declaration by the owner of the site that the owner has authorized the carrying out of the project by the promoter and undertakes, with respect to the GHG emission reductions covered by the project report, not to make a request for the issuance of offset credits under the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances or for credits under another compensation program for GHG emission reductions;
- (24) a declaration by the promoter or the promoter's representative that no offset credits for the GHG emission reductions covered by the project report have been issued pursuant to the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances and that no credits have been or will be issued under another compensation program for GHG emissions reduction;
- (25) a declaration by the promoter or the promoter's representative that the project is carried out in accordance with this Regulation and that the information and documents provided are complete and accurate.

The information and documents relating to halocarbons contained in foam must be kept separate from the information and documents relating to halocarbons used or intended to be used as refrigerants.

**40.** Every subsequent project report must include the following information and documents:

(1) the information and documents listed in subparagraphs 1 to 3 and 13 to 25 of the first paragraph of section 39;

(2) a detailed description of any change made to the project since the end of the preceding reporting period or to the information contained in the project report produced for that period and, where applicable, a demonstration that the project still meets the requirements of Division I of Chapter II and of the project monitoring plan if that plan has been amended.

The information and documents relating to halocarbons contained in foam must be kept separate from the information and documents relating to halocarbons used or intended to be used as refrigerants.

## **CHAPTER VII**

### **VERIFICATION**

#### **DIVISION I**

##### **GENERAL CONDITIONS**

**41.** The promoter must entrust the verification of a project report to a verification organization accredited under ISO Standard 14065 by a member of the International Accreditation Forum in Canada or the United States and according to ISO Standard 17011, with respect to the sector of activity for the project.

Despite the first paragraph, the verification of a project report may be entrusted to a verification organization that is not yet accredited, provided it is accredited in accordance with the first paragraph in the year following the verification of the project report.

**42.** The promoter may entrust the verification of a project report to a verification organization in accordance with section 41 if the organization, the verifier designated by that organization to conduct the verification and the other members of the verification team

(1) have not acted for the promoter, in the 3 preceding years, as a consultant for the purpose of developing the project or calculating the GHG emission reductions attributable to the project; and

(2) have not carried out more than 6 consecutive verifications of any project report produced as part of a halocarbon destruction project of the promoter.

In addition, when the promoter wishes to have the project report verified by a verification organization that has not conducted the most recent verification for a halocarbon destruction project of the promoter, that verification organization, the verifier designated by that organization to conduct the verification and the other members of the verification team, must not have carried out any of the 3 preceding verifications carried out as part of a halocarbon destruction project of the promoter.

**43.** In addition to the requirements of the standards ISO 14064-3 and ISO 14065 concerning conflicts of interest, the promoter must ensure that none of the following situations exists between the promoter, its officers, the verification organization and the members of the verification team referred to in section 42:

(1) a member of the verification team or a close relative of that member has personal ties with the promoter or one of its officers;

(2) during the 3 years preceding the year of the verification, one of the members of the verification team was employed by the promoter;

(3) during the 3 years preceding the year of the verification, one of the members of the verification team provided the promoter with one of the following services:

(a) the design, development, commissioning or maintenance of a data inventory or data management system for GHG emissions from the establishment or facility of the promoter or, where applicable, for data on electricity or fuel transactions;

(b) the development of GHG emission factors, or the design and development of other data used for quantification purposes for any GHG emission reductions;

(c) a consultation concerning GHG emission reductions or GHG removals from the atmosphere, in particular the design of an energy efficiency or renewable energy project and the assessment of assets relating to GHG sources, sinks and reservoirs;

(d) the preparation of manuals, guides or procedures connected with the reporting of the promoter's GHG emissions under the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15);

(e) consultation in connection with a GHG allowances market, including

i. brokerage, with or without registration, while acting as a promoter or subscriber on behalf of the promoter;

ii. advice concerning the suitability of a GHG emissions transaction; and

iii. the holding, purchase, sale, negotiation or withdrawal of emission allowances referred to in the second paragraph of section 46.6 of the Environment Quality Act;

(f) a consultation in the field of health and safety and environmental management, including a consultation leading to ISO 14001 certification;

(g) actuarial consulting, bookkeeping or other consulting services relating to accounting documents or financial statements;

- (h) a service connected with the management systems of data related to a project of the promoter that is eligible for the issuance of offset credits;
  - (i) an internal audit of GHG emissions;
  - (j) a service provided in connection with litigation or an inquiry into GHG emissions;
  - (k) a consultation for a GHG emission reduction project carried out in accordance with this Regulation or the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances;
- (4) the independent reviewer has previously provided the promoter with a verification service or other services referred to in subparagraph 3 for the reporting periods covered by the verification.

The existence of one of the situations described in the first paragraph or contravening section 42 is considered to be a conflict of interest that invalidates the verification.

For the purposes of this section, a close relative of a member of the verification team is that person's spouse, child, spouse's child, mother or father, mother's or father's spouse, child's spouse or spouse's child's spouse.

## **DIVISION II**

### **CONDUCT OF THE VERIFICATION**

**44.** The verification of a project report must be conducted in accordance with ISO 14064-3 and also in accordance with the terms and conditions of this Division, and in compliance with the provisions of the Professional Code.

**45.** For the purposes of a verification the promoter and, where applicable, the owner of each project site, including storage sites for the appliances and halocarbons recovered during the project, the facility sites where halocarbons are extracted, the facility sites where halocarbons are destroyed and, where applicable, the facility where appliances are recycled, must provide the verifier with any information or document needed for the conduct of the verification and give access to the site or facility where the project is carried out.

**46.** The verification of a project report must include a visit by the verifier to each facility where halocarbons are destroyed as part of the project, except if such visit is part of a verification during the 2 previous reporting periods included in a same eligibility period.

In addition, the verification of the project report produced for the first reporting period of an eligibility period must include a visit of every facility where halocarbons are extracted from foam.

The visit of the facilities must enable the verifier, in particular, to observe the proper conduct and operation of the project and any change made to the project since the preceding verification. During the visit of a facility, the verifier must be accompanied by the promoter or the person responsible for the facility.

**47.** The verifier must use the operating data from the halocarbon destruction facility to determine whether, during the halocarbon destruction process, the facility was operating in conditions that met the requirements of any authorization necessary to pursue activities at that facility.

**48.** The verifier must conduct the verification in a way that supports a conclusion, at a reasonable level of assurance, that the project report meets the conditions set out in this Regulation and that the GHG emission reductions attributable to the project are quantified and recorded in the project report with no significant errors, omissions or inaccuracies.

For the purposes of this Regulation, “significant errors, omissions or inaccuracies” means any errors, omissions or inaccuracies in the GHG emission reductions attributable to the project quantified and recorded in the project report that, individually or as an aggregate, result in an over-estimate or under-estimate of GHG emission reductions greater than 5%.

**49.** A verifier who, during a verification, observes an error, omission or inaccuracy in the quantification of the GHG emission reductions attributable to the project, or a failure to comply with a condition of this Regulation, must inform the promoter.

**50.** A verifier who, following the verification of a project report, concludes, at a reasonable level of assurance, that the report meets the conditions of this Regulation and contains no significant errors, omissions or inaccuracies, must give the promoter a positive verification opinion.

A verifier who, following the verification of a project report, observes a failure to comply with a condition for the quantification of GHG emission reductions attributable to the project that cannot be corrected by the promoter must assess its impact on the GHG emission reductions recorded in the project report and determine if it leads to significant errors, omissions or inaccuracies. If a failure to comply with a condition for the quantification of GHG emission reductions cannot be corrected by the promoter but it does not lead to significant errors, omissions or inaccuracies, and if the verifier concludes, at a reasonable level of assurance, that the other conditions of the Regulation have been complied with and that there are no significant errors, omissions or inaccuracies, the verifier must give the promoter a qualified positive verification opinion.

### **DIVISION III**

#### **VERIFICATION REPORT**

**51.** The verification of a project report must be recorded in a verification report. A verification report may include the verification of several project reports.

**52.** The verification report must include the following information and documents:

(1) the information needed to identify the verification organization and the verifier designated to conduct the verification, the other members of the verification team and the independent reviewer;



- (2) the information needed to identify the accreditation organization that accredited the verification organization for the verification, the sector of activity covered by the accreditation of the verification organization, and the period of validity of the accreditation;
- (3) the identification of the project, the project report or reports covered by the verification, and the annual GHG emission reductions attributable to the project, quantified for each reporting period, in metric tonnes CO<sub>2</sub> equivalent;
- (4) the verification plan and a description of the activities completed by the verifier to verify the project report or reports, along with all exchanges of information and documents between the verifier and the promoter for the purposes of the verification;
- (5) the period during which the verification was conducted and the date of any visits to facilities where halocarbons are destroyed or facilities where halocarbons are extracted from foam;
- (6) a list of any errors, omissions or inaccuracies observed in the quantification of the GHG emission reductions attributable to the project, and of any conditions of this Regulation that have not been met, including the following information concerning the error, omission or inaccuracy, or the condition:
  - (a) its description;
  - (b) the date on which the promoter was informed of it;
  - (c) where applicable, a description of any action taken by the promoter to correct it, and the date of that action;
  - (d) in the case of a failure to comply with a condition governing the quantification of the GHG emission reductions attributable to the project that cannot be corrected by the promoter, an assessment of the impact of each failure on the quantification of GHG emission reductions and a notice from the verifier concerning any significant errors, omissions or inaccuracies that may result from that failure;
- (7) if applicable, the version and date of each project report revised during the verification;
- (8) where the verifier observes errors, omissions or inaccuracies in the quantification of GHG emission reductions attributable to the project, the annual GHG emission reductions for each reporting period which, according to the verifier, are actually attributable to the project, in metric tonnes CO<sub>2</sub> equivalent;
- (9) the verification opinion given to the promoter pursuant to section 50, along with the justification for the opinion;

(10) a declaration by the verification organization and verifier that the verification was conducted in accordance with this Regulation and ISO 14064-3;

(11) a declaration concerning conflicts of interest, including

(a) the information needed to identify the verification organization, the members of the verification team and the independent reviewer;

(b) a copy of the organization chart for the verification organization; and

(c) a declaration by a representative of the verification organization that the conditions in sections 42 and 43 of this Regulation have been met and that the risk of conflict of interest is acceptable.

## **CHAPTER VIII**

### **ADMINISTRATIVE AND PENAL**

#### **DIVISION I**

##### **MONETARY ADMINISTRATIVE PENALTIES**

**53.** A monetary administrative penalty of \$500 in the case of a natural person or \$2,500 in other cases may be imposed on any person who

(1) in contravention of this Regulation, refuses or fails to file any notice, information, report or other document, or fails to produce it within the required time;

(2) contravenes the first and second paragraphs of section 9, the first paragraph of section 41 or section 45;

(3) contravenes any other requirement of this Regulation, if no other monetary administrative penalty is otherwise specified for that contravention by this Chapter or by the Environment Quality Act.

**54.** A monetary administrative penalty of \$1,000 in the case of a natural person or \$5,000 in other cases may be imposed on any person who contravenes section 42.

#### **DIVISION II**

##### **PENAL SANCTIONS**

**55.** Every person who

(1) refuses or fails to file any notice, information, report or other document, or fails to produce it within the required time;

(2) contravenes the first and second paragraphs of section 9, the first paragraph of section 41 or section 45;

(3) contravenes any other requirement of this Regulation, if no other penal sanction is otherwise specified for that contravention by this Chapter or by the Environment Quality Act;

commits an offence and is liable, in the case of a natural person, to a fine of \$3,000 to \$100,000 and, in other cases, to a fine of \$3,000 to \$600,000.

**56.** Every person who contravenes section 42 commits an offence and is liable, in the case of a natural person, to a fine of \$6,000 to \$250,000 and, in other cases, to a fine of \$25,000 to \$1,500,000.

**57.** Every person who, for the purposes of this Regulation, communicates to the Minister information that is false or misleading commits an offence and is liable, in the case of a natural person, to a fine of \$5,000 to \$500,000 or, despite article 231 of the Code of Penal Procedure (chapter C-25.1), to a maximum term of imprisonment of 18 months, and, in other cases, to a fine of \$15,000 to \$3,000,000.

## **CHAPTER IX**

### **TRANSITIONAL AND FINAL**

#### **DIVISION I**

##### **TRANSITIONAL**

**58.** Projects to destroy ozone depleting substances referred to in Appendix D to the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances and registered in accordance with Chapter IV of Title III of that Regulation as it read on 14 July 2021 are deemed to be projects eligible for the issuance of offset credits for which a project notice was filed with the Minister in accordance with section 12 of this Regulation on the date of coming into force of this Regulation.

Despite the first paragraph of section 5 of this Regulation, the eligibility period for a project referred to in the first paragraph is the period beginning on the project start date and ending on 15 July 2023.

The other provisions of this Regulation apply to such projects, adapted as required.

**59.** Despite section 12, a project that began between 1 January 2017 and 15 July 2020 may be covered by a project notice filed with the Minister in the 6 months following the date of coming into force of this Regulation if the project meets the conditions of section 3 and one of the following conditions:

(a) the halocarbons destroyed during the project are of type HCFC-22, when destroyed after 31 December 2019, CFC-11, CFC-12, CFC-13, CFC-113, CFC-114 or CFC-115, and were used or intended to be used as refrigerants in refrigeration, freezer or air-conditioning appliances or systems from industrial, commercial or institutional sources;

(b) the halocarbons destroyed during the project are of type HFC-143a or HFC-254fa and were contained in foam;

(c) the halocarbons destroyed during the project are of type HCFC-22, used or intended to be used as refrigerants in refrigeration, freezer or air-conditioning appliances of residential origin, and are destroyed after 31 December 2019.

A project notice filed with the Minister pursuant to the first paragraph must contain the information and documents listed in paragraphs 1 to 8 of section 12 and must be filed not later than the filing of the first request for the issuance of offset credits under the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances.

**60.** Despite the first paragraph of section 5, the eligibility period for a project referred to in the first paragraph of section 59 is the period beginning on the project start date and ending on 15 July 2021.

**61.** Despite the second paragraph of section 20, the reporting period for a project referred to in the first paragraph of section 59 covers the whole of the period between the project start date and 15 July 2021

**62.** This Regulation replaces Protocol 3 of Appendix D to the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances.

## **DIVISION II**

### **FINAL**

**63.** This Regulation comes into force on 15 July 2021.

**APPENDIX A***(section 2)*

## LIST OF HALOCARBONS

1. When contained in foam:

CFC-11: trichlorofluoromethane;

CFC-12: dichlorodifluoromethane;

HCFC-22: chlorodifluoromethane;

HCFC-141b: 1,1-dichloro-1-fluoroethane;

HFC-134a: 1,1,1,2-tetrafluoroethane;

HFC-245fa: 1,1,1,3,3-pentafluoropropane.

2. When used or intended to be used as refrigerants for refrigeration, freezer or air-conditioning appliances or systems:

CFC-11: trichlorofluoromethane;

CFC-12: dichlorodifluoromethane;

CFC-13: chlorotrifluoromethane;

CFC-113: 1,1,2-trichloro-1,2,2-trifluoroethane;

CFC-114: 1,2-dichloro-1,1,2,2-tetrafluoroethane;

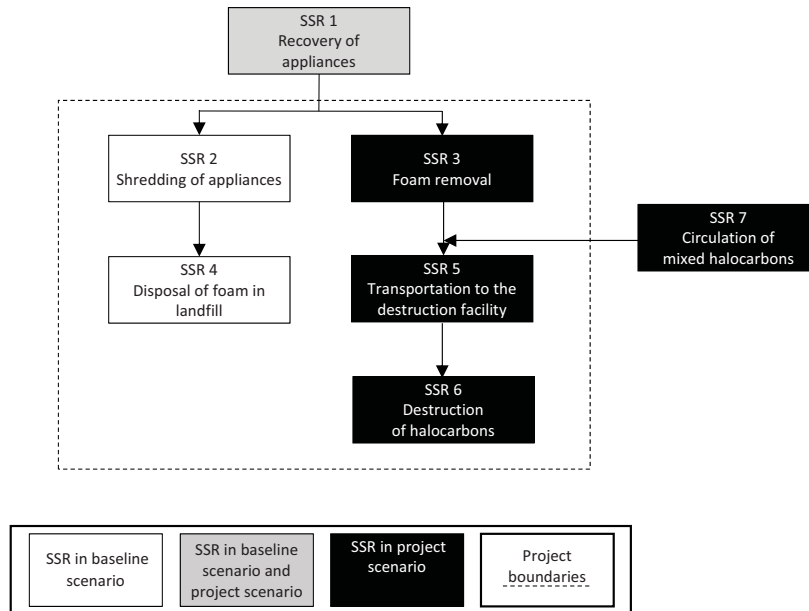
CFC-115: 1-chloro-1,1,2,2,2-pentafluoroethane;

HCFC-22: chlorodifluoromethane, when destroyed after 31 December 2019.

**APPENDIX B**

(sections 17 and 18)

## PROJECT BOUNDARIES

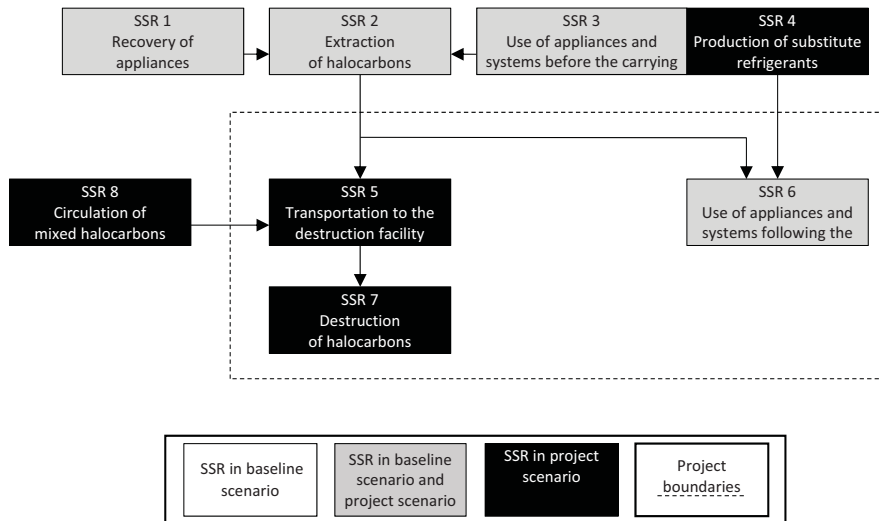
**Figure 1 – Illustration of the project boundaries that apply to the destruction of halocarbons contained in foam**

**Explanatory note:** The baseline scenario shows the GHG sources, sinks and reservoirs (SSRs) that are present in the absence of any project eligible for the issuance of offset credits. The project scenario shows the SSRs that are present when a project is implemented. Not all of these SSRs necessarily form part of the project eligible for the issuance of offset credits; only the SSRs within the project boundaries must be considered.

**Table 1 – Description of the GHG sources, sinks and reservoirs (SSRs) that apply to the destruction of halocarbons contained in foam**

| SSR #            | Description   | GHG targeted     | Applicability: baseline scenario (B) and/or project scenario (P) | Included in or excluded from project boundaries |
|------------------|---|------------------|--|---|
| 1                | Fossil fuel GHG emissions attributable to the collection and transportation of end-of-life appliances         | CO <sub>2</sub>  | B, P   | Excluded  |
|                  |   | CH <sub>4</sub>  | B, P   | Excluded  |
|                  |   | N <sub>2</sub> O | B, P   | Excluded  |
| 2                | Emissions of halocarbons attributable to the shredding of appliances for materials recovery                   | Halocarbons      | B  | Included  |
| 3                | Emissions of halocarbons attributable to the removal of foam from appliances                                  | Halocarbons      | P  | Included  |
| 4                | Emissions of halocarbons attributable to the disposal of foam at a landfill site                              | Halocarbons      | B  | Included  |
|                  | Emissions of halocarbon degradation products attributable to the disposal of foam at a landfill site          | HCFC             | B  | Excluded  |
|                  | Fossil fuel GHG emissions attributable to the transportation of shredded foam and disposal at a landfill site | CO <sub>2</sub>  | B  | Excluded  |
|                  |   | CH <sub>4</sub>  | B  | Excluded  |
| N <sub>2</sub> O |   | B                | Excluded   |   |
| 5                | Fossil fuel GHG emissions attributable to the transportation of halocarbons to the destruction facility       | CO <sub>2</sub>  | P  | Included  |
|                  |   | CH <sub>4</sub>  | P  | Excluded  |
|                  |   | N <sub>2</sub> O | P  | Excluded  |
| 6                | Emissions of halocarbons attributable to incomplete destruction at destruction facility                       | Halocarbons      | P  | Included  |
|                  | Emissions attributable to the oxidation of carbon contained in the halocarbons destroyed                      | CO <sub>2</sub>  | P  | Included  |
|                  | Fossil fuel GHG emissions attributable to the destruction of halocarbons in a destruction facility            | CO <sub>2</sub>  | P  | Included  |
|                  |   | CH <sub>4</sub>  | P  | Excluded  |
|                  |   | N <sub>2</sub> O | P  | Excluded  |
|                  | Indirect GHG emissions attributable to the use of electricity during the destruction of halocarbons           | CO <sub>2</sub>  | P  | Included  |
|                  |   | CH <sub>4</sub>  | P  | Excluded  |
| N <sub>2</sub> O |   | P                | Excluded   |   |
| 7                | GHG emissions from the fossil fuels consumed during the circulation of mixed halocarbons                      | CO <sub>2</sub>  | P  | Excluded  |
|                  |   | CH <sub>4</sub>  | P  | Excluded  |
|                  |   | N <sub>2</sub> O | P  | Excluded  |

**Figure 2 – Illustration of the project boundaries that apply to the destruction of halocarbons used or intended to be used as refrigerants**



**Explanatory note:** The baseline scenario shows the GHG sources, sinks and reservoirs (SSRs) that are present in the absence of any project eligible for the issuance of offset credits. The project scenario shows the SSRs that are present when a project is implemented. Not all of these SSRs necessarily form part of the project eligible for the issuance of offset credits; only the SSRs within the project boundaries must be considered.



**Table 2 – Description of the GHG sources, sinks and reservoirs (SSRs) that apply to the destruction of halocarbons used or intended to be used as refrigerants**

| SSR # | Description   | GHGs targeted  | Applicability: baseline scenario (B) and/or project scenario (P) | Included in or excluded from project boundaries |          |
|-------|---|--|--|---|----------|
| 1     | Fossil fuel GHG emissions attributable to the collection and transportation of end-of-life appliances   | CO <sub>2</sub>  | B, P   | Excluded  |          |
|       |   | CH <sub>4</sub>  | B, P   | Excluded  |          |
|       |   | N <sub>2</sub> O   | B, P   | Excluded  |          |
| 2     | Emissions of halocarbons attributable to the extraction and collection of refrigerants from end-of-life appliances or systems or undergoing maintenance | Halocarbons  | B, P   | Excluded  |          |
|       |   | Fossil fuel GHG emissions attributable to the extraction and collection of refrigerants from end-of-life appliances or systems or undergoing maintenance | CO <sub>2</sub>  | B, P  | Excluded |
|       |   |  | CH <sub>4</sub>  | B, P  | Excluded |
|       |   |  | N <sub>2</sub> O   | B, P  | Excluded |
| 3     | Emissions of halocarbons attributable to leakage during the use of appliances or systems and their maintenance before the carrying out of the project   | Halocarbons  | B, P   | Excluded  |          |
|       |   | Fossil fuel GHG emissions attributable to the operation of refrigeration and air-conditioning appliances or systems                                      | CO <sub>2</sub>  | B, P  | Excluded |
|       |   |  | CH <sub>4</sub>  | B, P  | Excluded |
|       |   |  | N <sub>2</sub> O   | B, P  | Excluded |
| 4     | Substitute refrigerant emissions during their production  | CO <sub>2</sub> e  | P  | Excluded  |          |
|       |   | Fossil fuel GHG emissions during the production of substitute refrigerants   | CO <sub>2</sub>  | P   | Excluded |
|       |   |  | CH <sub>4</sub>  | P   | Excluded |
|       |   |  | N <sub>2</sub> O   | P   | Excluded |
| 5     | Fossil fuel GHG emissions attributable to transportation of halocarbons to the destruction facility   | CO <sub>2</sub>  | P  | Included  |          |
|       |   | CH <sub>4</sub>  | P  | Excluded  |          |
|       |   | N <sub>2</sub> O   | P  | Excluded  |          |

|                  |  |                   |          |          |
|------------------|--|-------------------|----------|----------|
| 6                | Emissions of halocarbons attributable to leakage and maintenance during the continuous operation of appliances and systems following the carrying out of the project         | Halocarbons       | B        | Included |
|                  | Substitute refrigerant emissions attributable to leakage and maintenance during the continuous operation of appliances and systems following the carrying out of the project | CO <sub>2</sub> e | P        | Included |
|                  | Indirect GHG emissions attributable to the use of electricity during the continuous operation of appliances and systems  | CO <sub>2</sub>   | B, P     | Excluded |
|                  |  | CH <sub>4</sub>   | B, P     | Excluded |
| N <sub>2</sub> O |  | B, P              | Excluded |          |
| 7                | Emissions of halocarbons attributable to incomplete destruction at the destruction facility  | Halocarbons       | P        | Included |
|                  | Emissions attributable to the oxidation of carbon contained in the halocarbons destroyed   | CO <sub>2</sub>   | P        | Included |
|                  | Fossil fuel GHG emissions attributable to the destruction of halocarbons in a destruction facility   | CO <sub>2</sub>   | P        | Included |
|                  |  | CH <sub>4</sub>   | P        | Excluded |
|                  |  | N <sub>2</sub> O  | P        | Excluded |
|                  | Indirect GHG emissions attributable to the use of electricity during the destruction of halocarbons  | CO <sub>2</sub>   | P        | Included |
|                  |  | CH <sub>4</sub>   | P        | Excluded |
|                  |  | N <sub>2</sub> O  | P        | Excluded |
| 8                | GHG emissions from the fossil fuels consumed during the circulation of mixed halocarbons   | CO <sub>2</sub>   | P        | Excluded |
|                  |  | CH <sub>4</sub>   | P        | Excluded |
|                  |  | N <sub>2</sub> O  | P        | Excluded |

**APPENDIX C**

(sections 32 and 35)

## MONITORING PARAMETERS

**Table 1 – Monitoring parameters applicable to the destruction of halocarbons contained in foam**

| <b>Parameter</b>          | <b>Description of parameter</b>  | <b>Unit of measurement</b>              | <b>Method</b>   | <b>Frequency of measurement</b> | <b>Equation applicable</b>                             |
|---------------------------|--|---|---|---------------------------------|--|
| $Q_{F \text{ rec}}$       | Total quantity of foam recovered prior to extraction of halocarbons  | Metric tonnes of foam                   | Measured and calculated                                 | At each reporting period        | Equation 15 in Appendix E                              |
| $Q_{F \text{ final, } i}$ | Final quantity of halocarbon of type $i$ contained in foam extracted and sent for destruction during the project | Metric tonnes of halocarbon of type $i$ | Measured and calculated, using the method in Appendix D | At each reporting period        | Equation 4 in section 24 and Equation 17 in Appendix E |
| N/A                       | Mass of each container filled with halocarbons from foam   | Metric tonnes                           | Measured  | At each reporting period        | N/A  |
| N/A                       | Mass of each empty container for projects to destroy halocarbons contained in foam                               | Metric tonnes                           | Measured  | At each reporting period        | N/A  |
| N/A                       | Quantity of halocarbons contained in foam, in each container   | Metric tonnes                           | Calculated  | At each reporting period        | N/A  |

|                |  |   |                         |                          |                           |
|----------------|--|---|-------------------------|--------------------------|---------------------------|
| N/A            | Concentration of each type of halocarbons contained in foam, in each container | %   | Measured                | At each reporting period | N/A                       |
| N/A            | Quantity of each type of halocarbons contained in foam, in each container      | Metric tonnes of halocarbon of type i                 | Calculated              | At each reporting period | N/A                       |
| C <sub>F</sub> | Concentration of halocarbons in foam prior to removal from appliances          | Metric tonnes of halocarbons per metric tonne of foam | Measured and calculated | At each reporting period | Equation 8 in section 25  |
| N <sub>1</sub> | Number of appliances of type 1   | None  | Measured                | At each reporting period | Equation 14 in Appendix E |
| N <sub>2</sub> | Number of appliances of type 2   | None  | Measured                | At each reporting period | Equation 14 in Appendix E |
| N <sub>3</sub> | Number of appliances of type 3   | None  | Measured                | At each reporting period | Equation 14 in Appendix E |
| N <sub>4</sub> | Number of appliances of type 4   | None  | Measured                | At each reporting period | Equation 14 in Appendix E |

**Table 2 – Monitoring parameters applicable to the destruction of halocarbons used or intended to be used as refrigerants**

| Parameter        | Description of parameter  | Unit of measurement                   | Method  | Frequency of measurement | Equation applicable  |
|------------------|---|---------------------------------------|---|--------------------------|--|
| N/A              | Mass of each container filled with halocarbons used as refrigerants   | Metric tonnes                         | Measured  | At each reporting period | N/A  |
| N/A              | Mass of each empty container for projects to destroy halocarbons used as refrigerants                           | Metric tonnes                         | Measured  | At each reporting period | N/A  |
| N/A              | Quantity of halocarbons used as refrigerants, in each container   | Metric tonnes                         | Calculated  | At each reporting period | N/A  |
| N/A              | Concentration of each type of halocarbons used as refrigerants, in each container                               | %                                     | Analyzed in the laboratory                              | At each reporting period | N/A  |
| N/A              | Quantity of each type of halocarbons used as refrigerants, in each container                                    | Metric tonnes of halocarbon of type i | Calculated  | At each reporting period | N/A  |
| Q <sub>R,i</sub> | Quantity of halocarbon of type i used or intended to be used as refrigerants recovered and sent for destruction | Metric tonnes of halocarbon of type i | Measured and calculated, using the method in Appendix D | At each reporting period | Equation 9 in section 28, equations 11 et 13 in section 29 |

**APPENDIX D**

(sections 24, 28, 29 and 39)

**METHOD TO DETERMINE THE QUANTITY OF HALOCARBONS OF EACH TYPE****1. Determination of the quantity of halocarbons in each container**

The quantity of halocarbons destroyed must be determined at the destruction facility, by weighing each container when it is full of halocarbons prior to destruction and after it has been emptied and its contents have been destroyed.

The quantity of halocarbons is equal to the difference between the mass of the container when full and when empty.

Each halocarbon container must be weighed at the destruction facility:

- (1) using a single scale to generate both full and empty weight tickets;
- (2) using a scale that has been calibrated by the manufacturer or by a third person certified for that purpose less than 3 months before the weighing, to an accuracy of  $\pm 5\%$ ;
- (3) weighing the full container not more than 2 days prior to commencing the destruction of the halocarbons;
- (4) weighing the empty container not more than 2 days after the destruction of the halocarbons.

**2. Circulation of mixed halocarbons**

For each sample that does not contain over 90% of the same type of halocarbon, the promoter must, in addition to the conditions provided for in Division 1 of this Appendix, also meet the following conditions set out in this Division concerning mixed halocarbon.

The circulation of the halocarbon mixture must be conducted at the destruction facility or prior to delivery of the halocarbon to such a facility, by a person who is independent of the promoter and of the destruction facility and who is properly trained to carry out this task.

Prior to sampling, the halocarbon mixture must be circulated in a container that meets all of the following conditions:

- (1) the container has no solid interior obstructions other than mesh baffles or other interior structures that do not impede circulation;
- (2) the container was fully evacuated prior to filling;
- (3) the container has ports to sample liquid and gas phase halocarbons;
- (4) the sampling ports are located in the middle third of the container and not at one end or the other;

(5) the container and associated equipment can circulate the mixture through a closed loop system from the bottom to top.

If the original mixed halocarbon container does not meet these requirements, the mixed halocarbon must be transferred into a compliant temporary container.

The mass of the halocarbon mixture transferred into the temporary container must be calculated and recorded. In addition, transfers of halocarbons between containers must be carried out at a pressure that meets the applicable standards for the place where the project is located.

Once the mixed halocarbons are in a container that meets the above criteria, they must be circulated as follows:

- (1) liquid mixtures must be circulated from the liquid port to the vapour port;
- (2) a volume of the mixture equal to 2 times the volume in the container must be circulated;
- (3) circulation must occur at a rate of at least 114 litres per minute unless the liquid mixture has been circulating continuously for at least 8 hours;
- (4) the start and end times must be recorded.

### **3. Sampling**

Sampling must be conducted for each halocarbon container:

- (1) in the case of pure halocarbons, 1 sample must be taken at the destruction facility;
- (2) in the case of halocarbon mixtures that have been circulated at the destruction facility, a minimum of 2 samples must be taken during the last 30 minutes of circulation and the samples must be taken from the bottom liquid port;
- (3) in the case of halocarbon mixtures that have been circulated prior to delivery to the destruction facility, a minimum of 2 samples must be taken in accordance with subparagraph 2, and 1 additional sample must be taken at the destruction facility.

If more than one sample is taken for a single container, the promoter must use the results from the sample with the weighted halocarbon concentration with the least global warming potential.

The sampling must be conducted in accordance with the following conditions:

- (1) the samples must be taken by a person who is independent of the promoter and of the destruction facility and has the necessary training to carry out this task;
- (2) the samples must be taken with a clean, fully evacuated sample bottle with a minimum capacity of 0.454 kg;
- (3) each sample must be taken in a liquid state;

- (4) a minimum sample size of 0.454 kg must be drawn for each sample;
- (5) each sample must be individually labeled and tracked according to the container from which it was taken;
- (6) the following information must be recorded for each sample:
  - (a) the time and date of the sample;
  - (b) the name of the promoter for whom the sampling is conducted;
  - (c) the name and contact information of the person who took the sample, and of the technician's employer;
  - (d) the volume of the container from which the sample was taken;
  - (e) the ambient air temperature at the time of sampling;
  - (f) the chain of traceability of each sample, from the point of sampling to the accredited laboratory.

#### **4. Analysis of samples**

The quantity and type of halocarbon must be determined by having a sample from each container analyzed by one of the following laboratories:

- (1) the Centre d'expertise en analyse environnementale du Québec;
- (2) a laboratory that is independent of the promoter and of the destruction facility and accredited for analysis of halocarbons by the Air-Conditioning, Heating and Refrigeration Institute in accordance with the most recent version of AHRI 700 of that organization.

All the halocarbon samples for the project must be sampled to determine the following:

- (1) the type of each halocarbon;
- (2) the quantity, in metric tonnes, and concentration, in metric tonnes of halocarbon of type *i* per metric tonne of gas, of each type of halocarbon in the gas, using gas chromatography;
- (3) the moisture content of each sample;
- (4) the high boiling residue from the halocarbon sample, which must be below 10% of the total mass of the sample.

In the case of halocarbon mixtures, the analysis must determine the weighted concentrations of the halocarbon on the basis of their global warming potential for samples taken in accordance with subparagraph 2 of the first paragraph of Division 3 of this Appendix.



A certificate of the sampling results must be issued by the laboratory that conducted the analysis and a copy of the certificate must be included with the project report.

For each container for which the moisture content of the sample determined under subparagraph 3 of the second paragraph of this Division is above 75% of the saturation point for the halocarbon, the promoter must

(1) dry the halocarbon mixture and, in the case of mixed halocarbons, conduct the circulation again in accordance with the method provided for in Division 2 of this Appendix, and sample and analyze it in accordance with the method in Divisions 3 and 4 of this Appendix; or

(2) deduct the water weight that must be determined, for each container, using the following method:

(a) from the result of the moisture content analysis as regards the quantity of dissolved water;

(b) by using a transparent graduated cylinder to determine the quantity of free water.

**5. Determination of the final quantity of halocarbons of type *i* contained in foam extracted and sent for destruction ( $Q_{F \text{ final, } i}$ ) and the quantity of halocarbon of type *i* used or intended to be used as refrigerants that are recovered and sent for destruction ( $Q_{R \text{ } i}$ )**

Based on the mass of the halocarbons in each container and the concentration of each sample, the promoter must

(1) for each container for which the moisture content of the sample is above 75% of the saturation point for the halocarbons, deduct the water weight;

(2) calculate the quantity of each type of halocarbon in each container, by deducting the weight of the high boiling residue; and

(3) add together the quantities of each type of halocarbon in each container to obtain the factor  $Q_{F \text{ final, } i}$ , namely the final quantity of halocarbon of type *i* contained in the foam, or the factor  $Q_{R \text{ } i}$ , namely the quantity of halocarbon of type *i* used or intended to be used as refrigerants recovered and sent for destruction under the project.

**APPENDIX E**

(sections 24 and 25)

**METHOD TO DETERMINE THE EFFICIENCY OF THE EXTRACTION PROCESS FOR HALOCARBONS CONTAINED IN FOAM****1. Calculation methods for the initial quantity of halocarbons contained in foam**

To calculate the extraction efficiency, the promoter must first calculate the quantity of halocarbons contained in the foam prior to its removal from the appliances, based on the storage capacity of the appliances using method A, or based on foam samples using method B.

**Method A – Calculation of the initial quantity of halocarbons contained in foam based on the storage capacity of the appliances**

The promoter may calculate the initial quantity of halocarbons contained in foam using Equation 14 and data from Table 1:

**Equation 14**

$$Q_{F\text{ init}} = (N_1 \times M_1) + (N_2 \times M_2) + (N_3 \times M_3) + (N_4 \times M_4)$$

Where:

$Q_{F\text{ init}}$  = Initial quantity of halocarbon of type i contained in foam prior to removal from appliances, in metric tonnes;

$N_1$  = Number of appliances of type 1;

$N_2$  = Number of appliances of type 2;

$N_3$  = Number of appliances of type 3;

$N_4$  = Number of appliances of type 4;

$M_1$  = Metric tonnes of halocarbon per appliance of type 1;

$M_2$  = Metric tonnes of halocarbon per appliance of type 2;

$M_3$  = Metric tonnes of halocarbon per appliance of type 3;

$M_4$  = Metric tonnes of halocarbon per appliance of type 4.

**Table 1 – Quantity of halocarbon by type of appliance**

| Type of appliance | Storage capacity (SC)        | Metric tonnes of halocarbons per appliance |
|-------------------|------------------------------|--|
| Type 1            | SC < 180 litres              | 0.00024                                    |
| Type 2            | 180 litres ≤ SC < 350 litres | 0.00032                                    |
| Type 3            | 350 litres ≤ SC < 500 litres | 0.0004                                     |
| Type 4            | SC ≥ 500 litres              | 0.00048                                    |

**Method B – Calculation of the initial quantity of halocarbons contained in foam based on samples**

The initial quantity of halocarbons contained in foam may be calculated using samples from at least 10 appliances and the following method:

(1) have the initial concentration of halocarbons in the foam determined by a laboratory independent of the promoter in accordance with Division 4 of Appendix D and in the following manner:

(a) by cutting 4 foam samples from each appliance (left side, right side, top, bottom) using a reciprocating saw, each sample being at least 10 cm<sup>2</sup> and the full thickness of the insulation;

(b) by sealing the cut edges of each foam sample using aluminum tape or a similar product that prevents off gassing;

(c) by individually labelling each sample to record appliance model and site of sample (left, right, top, bottom);

(d) by analyzing the samples using the procedure in paragraph 4; the samples may be analyzed individually (4 analyses per appliance) or a single analysis may be done using equal masses of foam from each sample (1 analysis per appliance);

(e) based on the average concentration of halocarbons in the samples from each appliance, by calculating the 90% upper confidence limit of the halocarbon concentration in the foam, and using that value as the “C<sub>F</sub>” factor in Equation 15 to calculate the initial quantity of halocarbons contained in foam from appliances;

(2) determine the quantity of foam removed from the appliances processed, namely the factor “Q<sub>F rec</sub>” in equation 15, using a default value of 5.85 kg per appliance and multiplying by the number of appliances processed or using the following method:

(a) by separating and collecting all foam residual, which may be in a fluff, powder or pelletized form, and documenting the processed to demonstrate that no significant quantity of foam residual is lost in the air or other waste streams;

- (b) by separating non-foam components in the residual (such as metal or plastic);
  - (c) by weighing the recovered foam residual prior to halocarbon extraction to calculate the total mass of foam recovered;
- (3) calculate the initial quantity of halocarbons contained in foam prior to removal from appliances using equation 15:

**Equation 15**

$$Q_{F\text{ init}} = Q_{F\text{ rec}} \times C_F$$

Where:

$Q_{F\text{ init}}$  = Initial quantity of halocarbon of type i contained in foam prior to removal from appliances, in metric tonnes;

$Q_{F\text{ rec}}$  = Total quantity of foam recovered prior to extraction of halocarbons, in metric tonnes;

$C_F$  = Concentration of halocarbon in foam prior to removal from appliances, in metric tonnes of halocarbon per metric tonne of foam;

- (4) analyze the foam samples from appliance in accordance with the following requirements:
- (a) the analysis of the content and mass ratio of the halocarbons from foam must be done at a laboratory in accordance with Division 4 of Appendix D;
  - (b) the analysis must be done using the heating method to extract halocarbons from the foam in the foam samples, as described in the article "Release of Fluorocarbons from Insulation Foam in Home Appliances during Shredding" published by Scheutz, Fredenslund, Kjeldsen and Tant in the Journal of the Air & Waste Management Association (December 2007, Vol. 57, pages 1452-1460), and set out below:
    - i. each sample must be prepared to a thickness no greater than 1 cm, placed in a 1123 ml glass bottle, weighed using a calibrated scale, and sealed with Teflon-coated septa and aluminum caps;
    - ii. to release the halocarbons, the sample must be incubated in an oven for 48 hours at 140 °C;
    - iii. when cooled to room temperature, gas samples must be redrawn from the headspace and analyzed by gas chromatography;
    - iv. the lids must be removed after analysis, and the headspace must be flushed with atmospheric air for approximately 5 minutes using a compressor; afterwards, the septa and caps must be replaced and the bottles subjected to a second 48-hour heating step to drive out the remaining halocarbons from the sampled foam;
    - v. when cooled down to room temperature after the second heating step, gas samples must be redrawn from the headspace and analyzed by gas chromatography;

(c) the quantity of each type of halocarbon recovered must then be divided by the total mass of the initial foam samples prior to analysis to determine the mass ratio of halocarbons present, in metric tonnes of halocarbons per metric tonne of foam.

## 2. Calculation method for extraction efficiency

The promoter must calculate the extraction efficiency using Equations 16 and 17:

### Equation 16

$$EE = \frac{Q_{F \text{ final}}}{Q_{F \text{ init}}}$$

Where:

EE = Extraction efficiency;

$Q_{F \text{ final}}$  = Final quantity of halocarbons contained in foam extracted and sent for destruction, calculated using Equation 17, in metric tonnes;

$Q_{F \text{ init}}$  = Initial quantity of halocarbon of type  $i$  contained in foam prior to removal from appliances, calculated using Equation 14 or 15, as the case may be, in metric tonnes;

### Equation 17

$$Q_{F \text{ final}} = \sum_{i=1}^n Q_{F \text{ final},i}$$

Where:

$Q_{F \text{ final}}$  = Final quantity of halocarbons contained in foam extracted and sent for destruction, in metric tonnes;

$i$  = Type of halocarbon;

$n$  = Number of types of halocarbons;

$Q_{F \text{ final}, i}$  = Final quantity of halocarbons of type  $i$  extracted and sent for destruction, determined in accordance with the method referred to in Appendix D, in metric tonnes of halocarbon of type  $i$ .