

# Performance Standard Supplemental Description

## GREENHOUSE GAS EMISSIONS REDUCTION METHODOLOGY FOR DESTRUCTION OF OZONE DEPLETING SUBSTANCES AND HIGH- GWP FOAM

VERSION 2.0

2023-10-03

### Introduction

ACR's Methodology for the Quantification, Monitoring, Reporting, and Verification of Greenhouse Gas Emissions Reductions and Removal from the Destruction of Ozone Depleting Substances and High-GWP Foam, v2.0 (ODS methodology) enables the issuance of carbon credits to projects in the U.S. and Canada that destroy eligible high-global warming potential (GWP) ODS, foam blowing agents, or insulation foam originating from the U.S. and Canada at qualifying destruction facilities.<sup>1</sup> The climate benefits of projects developed under this methodology are additional to what would have occurred under a business-as-usual scenario, current laws and regulations, and current industry practices, and without carbon market incentives. To demonstrate that the activities eligible under the ODS methodology are not common practice, ACR established a performance standard by evaluating penetration levels for the destruction of eligible substances in the applicable geographies.

This supplemental description of the performance standard aligns with and complements the ODS methodology. It is intended to supply additional details to interested parties about the sources consulted and analysis performed during methodology development to support the performance standard established therein. ACR was inspired to publish this document to provide even more transparency on a core component of the methodology and principle of the ACR Program. Project

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<sup>1</sup> Eligible substances are based on historical usage as determined from GHG inventories and further detailed in Chapter 2 of the ODS methodology.

Proponents and Validation and Verification Bodies do not need to consult this supplemental when performing the work of developing and validating/verifying projects under the methodology.

## **ODS Methodology Performance Standard**

To qualify as additional under the ODS methodology, projects must exceed the performance standard defined in the methodology and pass a regulatory additionality test. The ODS methodology establishes a practice-based performance standard developed by evaluating the penetration levels for the destruction of eligible substances in the U.S. and Canada and concludes that, based on low penetration rates, any ODS project that meets the eligibility and other requirements of the methodology is additional.

## **Penetration Levels for Practice-Based Performance Standard**

ACR gathered and reviewed information about destruction of eligible chloroflourocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons, and high-GWP foam blowing agents originating from the U.S. and Canada to determine the penetration level for destruction activities eligible under the ODS methodology.

1,608 metric tons (MT) of ODS (Class I and II excluding carbon tetrachloride) were destroyed in the U.S. in 2019<sup>2</sup> compared to a recoverable amount of about 25,000 MT.<sup>3</sup> This represents a penetration level of only 6-7% for the destruction of CFCs and HCFCs in the U.S.

172 MT of controlled substances were destroyed in Canada in 2020.<sup>4</sup> ACR used data on CFCs and HCFCs consumption, import, and export available from the United Nations Environment Programme (UNEP) Ozone Secretariat<sup>5</sup> to estimate the size of Canada's CFC and HCFC bank and then applied an

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<sup>2</sup> UN Environment Programme, Ozone Secretariat, Medical and Chemical Technical Options Committee. 2022 Assessment Report (2022). Page 200. <https://ozone.unep.org/system/files/documents/MCTOC-Assessment-Report-2022.pdf>.

<sup>3</sup> ICF. ODS Destruction in the United States and Abroad (2021). Pages 39-40. <https://www.epa.gov/system/files/documents/2022-08/April%202021%20ODS%20Destruction%20in%20the%20United%20States%20and%20Abroad%20Report.pdf>.

<sup>4</sup> UN Environment Programme, Ozone Secretariat, Medical and Chemical Technical Options Committee. 2022 Assessment Report (2022). Page 205. <https://ozone.unep.org/system/files/documents/MCTOC-Assessment-Report-2022.pdf>.

<sup>5</sup> UN Environment Programme, Ozone Secretariat, Production of controlled substances, Consumption of controlled substances, Imports of Recovered/Recycled/Reclaimed, and Exports of Recovered/Recycled/Reclaimed for Canada. <https://ozone.unep.org/countries/data>.

average annual emission rate of 16%, derived from Canada’s national GHG inventory,<sup>6</sup> to calculate the recoverable amount of CFCs and HCFCs for the year. This calculation resulted in 2,167 MT used in refrigeration, HVAC, foams, aerosols, and fire suppressants available for destruction in 2020. This represents a penetration rate of only 7-8% for destruction of controlled substances in Canada. It must be noted that most of the controlled substances destroyed were HFCs (not from foams)<sup>7</sup> and, per the UNEP Ozone Secretariat, Canada has not destroyed any ODS in the country since 2010<sup>8</sup> so the penetration rate for ODS destruction would be much lower.

Country level data is not available for halon destruction but, globally, 0.3 MT of Halon 1211 and 14.3 MT of Halon 1301 were destroyed globally in 2017<sup>9</sup> compared to an available amount of 1,640 MT and 1,004 MT, respectively.<sup>10</sup> This represents penetration levels of <0.02% for the destruction of Halon 1211 and <0.2% for the destruction of Halon 1301.

Recovery and destruction of high-GWP blowing agents from foams has very low penetration rates in both the U.S. and Canada as demonstrated in ACR’s methodology for the Transition to Advanced Formulation Blowing Agents in Foam Manufacturing and Use.<sup>11</sup> This is further supported by both

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<sup>6</sup> Environment and Climate Change Canada, National Inventory Report 1990-2021: Greenhouse Gas Sources and Sinks in Canada, Part 2. Table A6.2-11, page 271.

[https://publications.gc.ca/collections/collection\\_2023/eccc/En81-4-2021-2-eng.pdf](https://publications.gc.ca/collections/collection_2023/eccc/En81-4-2021-2-eng.pdf).

<sup>7</sup> UN Environment Programme, Ozone Secretariat, Medical and Chemical Technical Options Committee. 2022 Assessment Report (2022). Page 205. <https://ozone.unep.org/system/files/documents/MCTOC-Assessment-Report-2022.pdf>.

<sup>8</sup> UN Environment Programme, Ozone Secretariat, Destruction of controlled substances for Canada, <https://ozone.unep.org/countries/data>.

<sup>9</sup> United Nations Environment Programme Halons Technical Options Committee, Technical Note #5 Destruction Technologies for Halons and Other Halogenated Gaseous Fire Extinguishing Agents (2018). Table 3, page 9. [https://ozone.unep.org/sites/default/files/Assessment\\_Panel/Assessment\\_Panels/TEAP/Reports/HTOC/technical\\_note5\\_2018.pdf](https://ozone.unep.org/sites/default/files/Assessment_Panel/Assessment_Panels/TEAP/Reports/HTOC/technical_note5_2018.pdf).

<sup>10</sup> United Nations Environment Programme Halons Technical Options Committee, 2018 Assessment Report, Volume 1 (2018). Pages 123 and 134. [https://ozone.unep.org/sites/default/files/Assessment\\_Panel/Assessment\\_Panels/TEAP/Reports/HTOC/HTOC\\_assessment\\_2018.pdf](https://ozone.unep.org/sites/default/files/Assessment_Panel/Assessment_Panels/TEAP/Reports/HTOC/HTOC_assessment_2018.pdf). The annual emissions quantities represent use of the halons and therefore representative of the quantity available for destruction in a given year.

<sup>11</sup> ACR, Methodology for the Quantification, Monitoring, Reporting, and Verification of Greenhouse Gas Emissions Reductions and Removal from the Transition to Advanced Formulation Blowing Agents in Foam Manufacturing and Use. <https://americancarbonregistry.org/carbon-accounting/standards-methodologies/conversion-of-foam-blowing-agents-from-high-gwp-to-low-gwp-materials>.

countries' GHG inventories specifying a 100% emission rate for blowing agents from all foam end-uses.<sup>12,13</sup>

The low 0-7% penetration levels for the destruction of eligible substances in the U.S. and Canada, demonstrate that the destruction of ODS, high-GWP foam blowing agents, or high-GWP insulation foam originating from the U.S. and Canada is not common practice. Adoption rates are expected to remain low in the near future as a result of barriers to effective recovery and destruction, including significant costs and a lack of stakeholder outreach and technician trainings.<sup>14</sup> Availability and capacity of existing destruction facilities to destroy ODS and other eligible substances can also be a challenge.

As a result of the analysis and findings described above, the ODS methodology concludes that, based on low penetration levels for such projects, any Destruction of ODS and High-GWP Foam project that meets the eligibility and other requirements of the methodology is additional.

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<sup>12</sup> U.S. EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021, Annex 3-Part A. Table A-121 (also see footnote "a" for this table), page A-261. <https://www.epa.gov/system/files/documents/2023-04/US-GHG-Inventory-2023-Annex-3-Additional-Source-or-Sink-Categories-Part-A.pdf>.

<sup>13</sup> Environment and Climate Change Canada, National Inventory Report 1990-2021: Greenhouse Gas Sources and Sinks in Canada, Part 2. Table A6.2-11, page 271. [https://publications.gc.ca/collections/collection\\_2023/eccc/En81-4-2021-2-eng.pdf](https://publications.gc.ca/collections/collection_2023/eccc/En81-4-2021-2-eng.pdf).

<sup>14</sup> ICF. ODS Destruction in the United States and Abroad (2021). Page 4. <https://www.epa.gov/system/files/documents/2022-08/April%202021%20ODS%20Destruction%20in%20the%20United%20States%20and%20Abroad%20Report.pdf>