



Report of the
Minister for the Environment
on the operation of the

OZONE LAYER PROTECTION ACT 1996

for the period 1 January 2023 to 31 December 2023

Presented to the House of Representatives pursuant to subsection (2) of section 30 of the
Ozone Layer Protection Act 1996

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Abbreviations

CFC	Chlorofluorocarbons
CO ₂ eqt	Carbon dioxide equivalents tonnes
EDN	Ethanedinitrile
GWP	Global Warming Potential
HBFC	Hydrobromofluorocarbons
HCFC	Hydrochlorofluorocarbons
HFC	Hydrofluorocarbons
ODP	Ozone depleting potential
QPS	Quarantine and pre-shipment
t	Tonnes

Report on the operation of the Ozone Layer Protection Act 1996 for the period 1 January 2023 to 31 December 2023

Executive summary

This report provides Parliament with information about the operation of the Ozone Layer Protection Act 1996 (the Act) from 1 January 2023 to 31 December 2023. Provision of this information is a requirement under section 30 of the Act, and each report shall specify the details of any exemptions granted during the year.

The Act, along with the Ozone Layer Protection Regulations 1996 (the Regulations), gives effect to New Zealand's obligations under the Vienna Convention for the Protection of the Ozone Layer (the Convention) and its Montreal Protocol on Substances that Deplete the Ozone Layer (the Protocol). This includes implementing controls on the import and export of ozone depleting substances and certain hydrofluorocarbons (HFCs).

New Zealand has phased out all required ozone depleting substances in accordance with the Protocol. New Zealand issues exemptions for the import of halon fire extinguishers, and for some laboratory uses. Some export of the phased-out ozone depleting substances continues for destruction purposes only.

Under the Regulations, consumption is defined as import plus production, minus export of the relevant bulk substance. In 2023, New Zealand's consumption of ozone depleting substances was 19.15 ozone depleting potential tonnes (ODP t). This results from 38.34 ODP t of methyl bromide being imported for quarantine and/or pre-shipment (QPS) purposes (which is not controlled under the Protocol) and 19.19 ODP t of assorted ozone depleting substances being exported for destruction or supply. Exemptions for 5.21 metric tonnes (t) of cylinders containing ozone depleting halons were also issued.

Methyl bromide for quarantine and pre-shipment purposes is not controlled under the Protocol. New Zealand does report on this use of methyl bromide to the Ozone Secretariat. New Zealand saw a small increase in methyl bromide consumption for quarantine and pre-shipment use in 2023 compared to the previous year. However, this was driven by a decrease in exports rather than an increase in imports, and imports of methyl bromide were lower than in 2022. Consumption of methyl bromide for QPS use continues to be significantly lower than in the years before 2022.

Hydrofluorocarbons (HFCs) are also regulated by the Act as they are the target of the Kigali Amendment to the Montreal Protocol, which requires parties to limit their consumption of new bulk HFCs. HFC consumption is measured in carbon dioxide equivalent tonnes (CO₂eq t), as this allows us to compare their impact on the atmosphere with other greenhouse gases. In 2023, New Zealand's consumption of HFCs was 205,898.19 CO₂eq t.

Background

The ozone layer is a region of Earth's stratosphere that contains high concentrations of ozone and protects the planet's surface from the sun's ultraviolet radiation. In the 1970s, it was determined that some substances used by humans were degrading the ozone layer.

International concern led to the Vienna Convention for the Protection of the Ozone Layer (the Convention) being agreed in 1985. It established global monitoring and reporting on ozone layer depletion. It also created a framework for the development of protocols for taking more binding action.

The Montreal Protocol on Substances that Deplete the Ozone Layer (the Protocol) under the Vienna Convention was agreed in 1987. It facilitates global cooperation in reversing the rapid decline in stratospheric concentrations of ozone. Under the Protocol, countries agreed to phase out the production and consumption of chemicals that deplete the ozone layer. Phase out of certain substances is required by specific deadlines and New Zealand has phased out all ozone depleting substances controlled by the Protocol.

The Convention and the Protocol are the first and only global environmental treaties to achieve universal ratification, with 198 parties. The ozone layer is now recovering due to the parties' actions under the Protocol.

As a result of the phase out of ozone depleting substances, hydrofluorocarbons (HFCs) were used as substitutes in many applications as they have similar chemical and physical properties. However, HFCs were discovered to be potent greenhouse gases.

The Kigali Amendment to the Montreal Protocol entered into force globally on 1 January 2019. Under the Amendment, all countries will gradually phase down HFCs by more than 80 per cent from their baseline year over the next 30 years. New Zealand required permits from 1 January 2020 to import and export bulk HFCs, and the manufacture of HFCs is prohibited. Every two years New Zealand's limit on import of new bulk HFCs is reduced, to achieve total reduction of 85 per cent in 2036. Phasing down HFCs under the Kigali Amendment is estimated to avoid up to 0.5°C of global warming by the end of the century.

New Zealand's obligations under the Convention, the Protocol, and its Amendments are implemented through the Ozone Layer Protection Act 1996 (the Act) and the Ozone Layer Protection Regulations 1996 (the Regulations).

Purpose and Scope

This report is provided to fulfil the requirement under section 30 of the Act for the Minister for the Environment to annually prepare, and lay before the House of Representatives, a report describing the operation of the Act. The report also needs to specify the exemptions granted during the year under the Act.

This report includes data from 1 January 2023 until 31 December 2023 and references information provided in previous annual reports.

Operation of the Act

Administration

The Ministry for the Environment (the Ministry) is responsible for administering the Act and the Regulations. The Environmental Protection Authority (EPA) has responsibility for enforcing the Act and Regulations and implementing the permit system for imports and exports. The New Zealand Customs Service (Customs) enforces import and export controls at New Zealand's borders.

Ozone depleting substances

There are several groups of ozone depleting substances controlled under the Regulations (Schedule 1 of the Regulations):

- 1) Chlorofluorocarbons (CFCs)
- 2) Halons (saturated haloalkanes not covered in other sections)
- 3) Other CFCs
- 4) Carbon tetrachloride
- 5) Methyl chloroform
- 6) Hydrobromofluorocarbons (HBFCs)
- 7) Hydrochlorofluorocarbons (HCFCs)
- 8) Methyl bromide
- 9) Bromochloromethane

New Zealand also uses methyl bromide for quarantine and pre-shipment (QPS) purposes. In this type of use, methyl bromide is used to prevent the transboundary movement of foreign organisms and to meet importing countries' biosecurity requirements for certain goods. Under the Protocol, parties use of methyl bromide for QPS purposes is exempt from quantitative controls but parties are encouraged to move away from the use of methyl bromide. There are reporting requirements under the Protocol.

Under Part 5 of the Regulations, certain prohibited substances and goods may be permitted if the EPA grants an exemption. The exemptions which the EPA may grant regarding the import of prohibited substances can be found in Table 1, Appendix 1, of this report. The most common exemption granted is for halons contained in aircraft fire extinguishers.

Consumption of ozone depleting substances in 2023

Consumption is defined by the Regulations as imports plus production, minus export of the relevant bulk substances. Bulk in this context refers to a controlled substance that is not contained in a manufactured product. Consumption is provided in tonnes of ozone depleting potential (ODP t).¹ New Zealand prohibits the manufacture any ozone depleting substances controlled by the Act and the Regulations.

¹ ODP (Ozone Depleting Potential) is the standard measurement for describing a chemical's propensity to deplete the ozone layer. It is measured relative to CFC-11 (Trichlorofluoromethane), i.e. CFC-11 has an ODP of 1. ODP tonnes relates to how much ozone one tonne of substance can deplete, relative to CFC-11.

In 2023, 2.37 ODP t of CFCs and 0.26 ODP t of HCFCs were exported to Australia for destruction.

New Zealand imports and exports methyl bromide used for QPS purposes. This use is controlled by the Act and the Regulations. In 2023 New Zealand imported 38.34 ODP t of methyl bromide and exported 16.56 ODP t of methyl bromide for QPS purposes. The net consumption of 21.78 ODP t was a small increase compared to 2022. However, this was driven by decreased exports rather than increased imports; in fact, imports of methyl bromide were lower in 2023 than in 2022. Consumption has decreased significantly from a high of 514.32 ODP t in 2021, which may be due to the restrictions placed on methyl bromide fumigation following a reassessment of its approval under the Hazardous Substances and New Organisms Act (HSNO) in 2021.

Table 1: **Consumption of methyl bromide for quarantine and pre-shipment purposes**

	2021	2022	2023
Import (metric tonnes)	522.36 ODP t	58.38 ODP t	38.34 ODP t
Export (metric tonnes)	8.04 ODP t	54.69 ODP t	16.56 ODP t
Total consumption (metric tonnes)	514.32 ODP t	3.66 ODP t	21.78 ODP t

Hydrofluorocarbons (HFCs)

Following the initial phase out under the Protocol, HFCs replaced ozone depleting substances in many applications. While HFCs do not deplete ozone, they are potent greenhouse gases.

In 2016, parties agreed to an amendment of the Protocol (the Kigali Amendment) to phase down HFCs. As of November 2024, 163 countries have ratified the Amendment. The Amendment requires parties to limit their consumption of certain HFCs, defined as import plus production, minus export.

New Zealand completed changes to the Regulations in 2018 to implement the Amendment domestically. This established a permitting scheme for imports and exports of bulk HFCs, with the amount of new bulk HFC allowed to be imported decreasing over time.^{2,3} The amendments to the Regulations came into force on 18 February 2019, and all importers and exporters required permits for bulk HFCs from 1 January 2020. HFCs contained within manufactured products are not controlled under the Regulations.

Consumption of HFCs in 2023

Reporting on consumption of HFCs began for the 2020 calendar year after permits began to be required. Imports and exports of bulk HFCs are the only HFCs considered in the calculation of consumption, as no HFCs are manufactured in New Zealand. Although there are reporting

² Limits on imported HFCs are prescribed in carbon dioxide equivalents tonnes (CO₂eq t). The CO₂eq t of a given HFC is determined by multiplying its Global Warming Potential (GWP) by its mass. GWP is a measure of a substance's ability to impact the greenhouse cycle relative to CO₂, i.e. the GWP of CO₂ = 1.

³ Bulk in this context refers to a controlled substance that is not contained in a manufactured product.

requirements for recycled HFCs under the Protocol, imports and exports of recycled bulk HFCs are excluded from consumption data below as these are not included in New Zealand’s annual limit. Consumption of HFCs is measured in equivalent tonnes of carbon dioxide (CO₂eq t).

Consumption of new bulk HFCs by New Zealand over the last three reporting years can be seen in Table 2.⁴

Table 2: **Consumption data for new bulk HFCs**

Year	Import limit ¹ (CO ₂ eq t)	Import of new bulk HFCs (CO ₂ eq t)	Export of new bulk HFCs (CO ₂ eq t)	Consumption (CO ₂ eq t)
2021	1,177,700.00	893,809.7500	745,000.37	148,809.38
2022	1,177,700.00	816,377.92	329,292.92	487,085.00
2023	1,017,100.00	421,149.60	137,191.30	283,958.30

¹ Limit on new bulk HFCs as per Schedule 6 of the Regulations.

New Zealand exports HFCs to other nations for destruction, and for supply (including to the Pacific Islands). In 2023, 78,060.11 CO₂eq t of HFCs were exported to Australia and the United Kingdom for destruction.

Exemptions granted in 2023

Under Part 5 of the Regulations, certain prohibited substances and goods may be permitted if the EPA grants an exemption. Table 1, Appendix 1, of this report lists the reasons the EPA may consider when granting an exemption. Section 30(3)(a) of the Act and regulation 36 of the Regulations require the details of each exemption granted to be specified in this report. These are listed in Table 3, Appendix 1.

In 2023, the EPA granted 48 exemptions. Forty of these were for halon-based fire extinguishers required for use in aircrafts, two for critical use in a laboratory and six for transshipment. In total, 5.21 metric tonnes of extinguishers containing halon was permitted in 2023 to 24 different importers. New Zealand has limited recovery options for halon and so is reliant on the ability to import and trade with other parties. This extends to the hydrostatic testing of extinguishers within their lifecycle. The long-term availability of halons, and lack of alternatives, is of serious concern. For the remaining exemptions, 0.20 metric tonnes was permitted for the transshipment of chlorodifluoromethane for destruction, 2.78 metric tonnes for the transshipment of HFCs for use on ships, and 0.000000742 metric tonnes and 0.000000288 metric tonnes of 1,1,1-trichloroethane and carbon tetrachloride respectively for critical laboratory use.

Enforcement

There were no prosecutions under the Act in 2023. The last prosecution made under the Act was in 2008 when two refrigeration engineers were successfully prosecuted under section 13(f) of the Act for reckless discharge of an ozone depleting substance.

⁴ Values reported may differ slightly from previous years.

Conclusions and Recommendations

This report provides information on the operation of the Act from 1 January 2023 to 31 December 2023. The Act, along with the Regulations, facilitates New Zealand's obligations under the Convention and the Protocol.

New Zealand has stopped its consumption of the ozone depleting substances controlled under the Protocol.

The majority of exemptions were issued for the import of halon fire extinguishers for aircraft.

Methyl bromide for QPS purposes continued to be used and New Zealand reports on this to the Ozone Secretariat. In 2023, New Zealand's consumption of ozone depleting substances was 19.15 ozone depleting potential tonnes (ODP t). This is the result of 38.34 ODP t of methyl bromide being imported for QPS purposes and 19.19 ODP t of assorted ozone depleting substances being exported for destruction.

Bulk HFCs are also regulated by the Act as they replaced many ozone depleting substances. The Kigali Amendment to the Montreal Protocol requires parties to limit their consumption of HFCs. HFC consumption is measured in carbon dioxide equivalent tonnes (CO₂eq t), as this allows us to compare their impact on the atmosphere with other greenhouse gases. In 2023, New Zealand's consumption of new bulk HFCs was 283,958.30 CO₂eq t, which is on track with New Zealand's phase down.

This report has no recommendations.

Appendix 1: Exemptions granted under the Ozone Layer Protection Act in 2023

Information in this appendix was provided by the Environmental Protection Agency.

Table 3: **Exemption criteria**

Exemptions are granted based on specific reasons prescribed in Part 5 of the Ozone Layer Protection Regulations 1996. This table details each exemption reason, and assigns each a number, used to classify each exemption (Table 2 & 3).

Note	Shorthand	Reason
1	Necessary aerosol/extinguisher	This exemption is granted under Regulation 31(1) in respect of the importation of any aerosol or fire extinguisher that is to be used only for a use that is necessary for human health or safety. ⁵
2	Necessary HCFC aerosol	This exemption is granted under Regulation 29(c) for HCFC that is to be used in the manufacture of aerosols that are to be used only for a use that is necessary for human health or safety.
3	Transshipment	This exemption is granted under Regulation 32 in respect of any substance or goods that are imported into New Zealand only for the purpose of being transhipped into another ship or aircraft for carriage to a destination that is outside the territorial limits of New Zealand.
4	ODS fire extinguisher	This exemption is granted under Regulation 29(d) for any bulk recycled substance that is not an HFC, or any bulk controlled substance that is not a halon or an HFC, that is to be used only in the servicing of fire extinguishers in circumstances where the substance cannot be obtained from supplies in New Zealand and where the servicing is required either because the fire extinguisher was used in a fire or as a result of a loss of halon that was outside the control of the applicant.
5	Halon for refrigeration	This exemption is granted under Regulation 29(a) for bulk recycled Halon 1301 that is to be used only for refrigeration purposes and only in circumstances where the use of Halon 1301 for refrigeration purposes is necessary for human health or safety and Halon 1301 cannot be obtained from supplies in New Zealand.
6	Essential aerosol/extinguisher	This exemption is granted under Regulation 29(b) for bulk chlorofluorocarbons (CFC), halon, carbon tetrachloride, methyl chloroform, or hydrobromofluorocarbons that is to be used in the manufacture of aerosols or fire extinguishers for a use determined by the Parties to the Montreal Protocol to be an essential use and that use is necessary for human health or safety.
7	Essential or critical use	This exemption is granted under Regulation 29(e) for any bulk controlled substance other than an HFC that is to be used only for a use determined by the Parties to the Montreal Protocol to be an essential use or a critical use.

⁵ These permits are primarily issued for aircraft or sea-vessel/ship fire extinguishers.

Table 4: Import Exemption Summary for 2023

PURPOSE OF EXEMPTION	EXEMPTIONS GRANTED IN 2023
Necessary aerosol/extinguisher	40
Necessary HCFC aerosol	
Transshipment	6
ODS fire extinguisher	
Halon for refrigeration	
Essential aerosol/extinguisher	
Essential or critical use	2

Table 5: Import exemptions for substances controlled under the Ozone Layer Protection Act 1996 from 1 January 2023 to 31 December 2023

Importer	Purpose	Exempted Quantity (Metric Tonnes)	Substance	Exemption criteria number	Issue Date
AAR International Inc. NZ	Fire extinguishers for aircraft	0.20000	Bromochlorodifluoromethane	1	6/12/2023
AAR International Inc. NZ	Fire extinguishers for aircraft	1.00000	Bromotrifluoromethane	1	6/12/2023
Advanced Flight Engineering Limited	Fire extinguishers for aircraft	0.00200	Bromotrifluoromethane	1	6/04/2023
Advanced Flight Engineering Limited	Fire extinguishers for aircraft	0.00200	Bromotrifluoromethane	1	2/08/2023
Air Chathams Limited	Fire extinguishers for aircraft	0.01000	Bromochlorodifluoromethane	1	1/11/2023
Air Chathams Limited	Fire extinguishers for aircraft	0.03000	Bromotrifluoromethane	1	1/11/2023
Air New Zealand Aircraft Holdings Limited	Fire extinguishers for aircraft	0.06400	Bromochlorodifluoromethane	1	6/04/2023
Air New Zealand Aircraft Holdings Limited	Fire extinguishers for aircraft	0.48400	Bromotrifluoromethane	1	17/04/2023
Air New Zealand Limited	Fire extinguishers for aircraft	0.75000	Bromotrifluoromethane	1	21/04/2023
Air New Zealand Limited	Fire extinguishers for aircraft	0.09000	Bromochlorodifluoromethane	1	21/04/2023
Airbus New Zealand Limited	Fire extinguishers for aircraft	0.00070	Bromochlorodifluoromethane	1	1/02/2023

Airbus New Zealand Limited	Fire extinguishers for aircraft	0.00010	Bromotrifluoromethane	1	1/02/2023
Airwork Fixed Wing Limited	Fire extinguishers for aircraft	0.01800	Bromochlorodifluoromethane	1	25/10/2023
Airwork Fixed Wing Limited	Fire extinguishers for aircraft	0.65980	Bromotrifluoromethane	1	25/10/2023
Avcraft Engineering NZ Ltd	Fire extinguishers for aircraft	0.00060	Bromochlorodifluoromethane	1	20/12/2023
Avcraft Engineering NZ Ltd	Fire extinguishers for aircraft	0.95000	Bromotrifluoromethane	1	20/12/2023
Aviation Teknology Limited (Avtek)	Fire extinguishers for aircraft	0.00170	Bromochlorodifluoromethane	1	13/09/2023
Aviation Teknology Limited (Avtek)	Fire extinguishers for aircraft	0.00050	Bromotrifluoromethane	1	13/09/2023
Fieldair Engineering Limited	Fire extinguishers for aircraft	0.00500	Bromochlorodifluoromethane	1	6/04/2023
Fieldair Engineering Limited	Fire extinguishers for aircraft	0.00800	Bromotrifluoromethane	1	6/04/2023
GCH Aviation Limited	Fire extinguishers for aircraft	0.00400	Bromotrifluoromethane	1	21/04/2023
Hamilton Aero Maintenance Limited	Fire extinguishers for aircraft	0.00300	Bromotrifluoromethane	1	21/03/2023
Hamilton Aero Maintenance Limited	Fire extinguishers for aircraft	0.00090	Bromotrifluoromethane	1	8/06/2023
Helicopters Otago Limited	Fire extinguishers for aircraft	0.01320	Bromochlorodifluoromethane	1	26/07/2023
International Heliproperties NZ Limited	Fire extinguishers for aircraft	0.00800	Bromochlorodifluoromethane	1	16/06/2023
Jet Aviation NZ Limited	Fire extinguishers for aircraft	0.01760	Bromochlorodifluoromethane	1	25/10/2023
Jet Aviation NZ Limited	Fire extinguishers for aircraft	0.02400	Bromotrifluoromethane	1	25/10/2023

Jetstar Airways Proprietary Limited	Fire extinguishers for aircraft	0.04000	Bromochlorodifluoromethane	1	12/06/2023
Jetstar Airways Proprietary Limited	Fire extinguishers for aircraft	0.50000	Bromotrifluoromethane	1	12/06/2023
Mark Andrew Owens	Fire extinguishers for aircraft	0.00220	Bromochlorodifluoromethane	1	6/03/2023
New Zealand Defence Force	Fire extinguishers for aircraft	0.05000	Bromochlorodifluoromethane	1	24/05/2023
New Zealand Defence Force	Fire extinguishers for aircraft	0.05000	Bromotrifluoromethane	1	24/05/2023
PAE (New Zealand) Limited	Fire extinguishers for aircraft	0.00230	Bromochlorodifluoromethane	3	20/10/2023
PAE (New Zealand) Limited	Fire extinguishers for aircraft	0.00200	Bromotrifluoromethane	3	20/10/2023
PAE (New Zealand) Limited	Fire extinguishers for aircraft	0.00460	Bromochlorodifluoromethane	3	1/12/2023
PAE (New Zealand) Limited	Fire extinguishers for aircraft	0.00200	Bromotrifluoromethane	3	1/12/2023
PHI International New Zealand Limited	Fire extinguishers for aircraft	0.00060	Bromotrifluoromethane	1	20/06/2023
PHI International New Zealand Limited	Fire extinguishers for aircraft	0.00070	Bromochlorodifluoromethane	1	20/06/2023
Salus Aviation (AW) Limited	Fire extinguishers for aircraft	0.06250	Bromotrifluoromethane	1	12/03/2023
Skyline Aviation Limited	Fire extinguishers for aircraft	0.02500	Bromochlorodifluoromethane	1	12/03/2023
Skyline Aviation Limited	Fire extinguishers for aircraft	0.05500	Bromotrifluoromethane	1	12/03/2023

Syft Technology Limited	Critical use exemption (laboratory)	0.000000742	1,1,1-trichloroethane	7	25/01/2023
Syft Technology Limited	Critical use exemption (laboratory)	0.000000288	Carbon Tetrachloride	7	25/01/2023
TEXEL AIR (NZ) LTD	Fire extinguishers for aircraft	0.00220	Bromochlorodifluoromethane	1	21/04/2023
TEXEL AIR (NZ) LTD	Fire extinguishers for aircraft	0.05780	Bromotrifluoromethane	1	21/04/2023
The Alpine Deer Group	Fire extinguishers for aircraft	0.00200	Bromochlorodifluoromethane	1	23/03/2023
Trust for the Destruction of Synthetic Refrigerants	Transshipment for destruction	0.20000	Chlorodifluoromethane	3	6/04/2023
Wilhelmsen Ships Service Limited	Transshipment for use on ships	2.77500	Hydrofluorocarbons (HFCs)	3	24/03/2023