

The Montreal Protocol on Substances that Deplete the Ozone Layer



INTERNATIONAL & INDUSTRY LIAISON UNIT

TRADE BEAT

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By the mid-1970s, it was discovered that man-made chemicals were contributing to the depletion of the Ozone Layer, which protects the earth from harmful ultraviolet radiation that comes from the sun. The development of the Montreal Protocol was a global response to what has been described by Nobel prize-winning scientist Paul Crutzen, as “the worst disaster to hit the global environment”. The Montreal Protocol is one of the most ratified international treaties and is regarded as the single most successful multilateral environmental agreement to date. It is supplementary to the Vienna Convention for the Protection of the Ozone Layer and controls the production and use of certain manufactured chemicals that destroy the ozone layer.

The proliferation of these chemicals generally referred to as Ozone Depleting Substances (ODSs) has been largely attributed to their increasing international trade. Since the trade components of the Montreal Protocol has essentially banned or restricted the international trade in ODSs, illegal international trade in these substances is on the rise. Combating illegal international trade in controlled commodities, has long been a function of Customs officers worldwide. Since Customs are the first line of defense in protecting the borders, they are obligated to ensure that the illegal trade of environmentally sensitive commodities such as ODSs, does not occur. Due to their universal impact, trade in ODSs if left unchecked will continue to be detrimental the environment, and as a consequence all mankind.

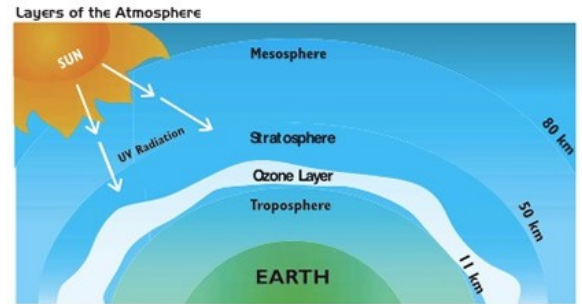
Apart from undermining the environmental efforts of the Montreal Protocol, illegal trade in ODSs has revenue implications for governments, due to revenue shortfalls from unregulated trade. Studies on the subject have also revealed that benefits from illegal trade in ODSs have been accrued to criminal organizations which serve to strengthen their operations. Such criminal operations extend to every region of the world, and therefore has the potential to negatively impact every country in the world. The Montreal Protocol has responded to this global threat and has stipulated various control mechanisms to combat this global problem. Customs and other border control agents are therefore critical in managing the requirements of the Montreal Protocol, combating illegal trade while facilitating legitimate trade of the controlled commodities. Additionally, the illicit trafficking of ODSs undermines the substantial work, financial resources and time invested by governments, companies and individuals to implement the Montreal Protocol. Each Party to the Protocol has to therefore set the necessary policies to regulate trade in these chemicals and establish a monitoring and control system to enforce them at the borders.

But what is this ozone layer that we are trying to preserve? Why is it important and what exactly is it?

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What is OZONE?

Ozone is a gas consisting of three atoms of oxygen which forms an ozone molecule (O_3). Ozone can be described as a special form of oxygen, where its molecules are created by a photochemical reaction due to the ultraviolet radiation emitted from the sun. Ozone differs from the oxygen in the air we breathe, in that it contains 3 rather than the 2 atoms that form an oxygen molecule (O_2). Typically, O_3 is formed when some type of radiation or electrical discharge separates the two atoms in O_2 , which can then individually recombine with other oxygen molecules to form O_3 .



What is the OZONE Layer?

The ozone layer is a deep layer in the stratosphere, which is that part of atmosphere above the troposphere. The ozone layer starts at 10–20 km above ground level and continues up to 40–50 km. The ozone layer has the highest concentration of ozone molecules in the stratosphere, shielding the entire Earth from much of the harmful ultraviolet radiation that comes from the sun.



Types of Ozone

There are two types of ozone, stratospheric ozone which contains the ozone layer that protects the earth's surface, and tropospheric ozone which either occurs naturally or as a result of pollution. Natural ozone in the troposphere can occur as a result of hydrocarbons, which are released by plants and soil, or small amounts of stratospheric ozone that occasionally migrate down to the earth's surface. Neither of these sources contributes enough ozone to be considered a threat to the health of humans or the environment. However, Tropospheric ozone is formed by the interaction of sunlight, particularly ultraviolet light, with hydrocarbons and nitrogen oxides, which are emitted by automobiles, gasoline vapors, fossil fuel power plants, refineries, and certain other industries.

Why is the Ozone significant?

The ozone layer became more widely appreciated by the public when it was realized that certain chemicals manufactured by mankind, called chlorofluorocarbons, destroy some of the ozone. These chemicals find their way up into the stratosphere where, through a complex series of chemical reactions, break down the ozone layer. The depletion of the ozone layer has been largely due to the persistence of these chemicals, however since the advent of the Montreal protocol and ozone awareness, the ozone layer has since begun to recover.

What are ODSs?

Ozone-depleting substances (ODS) generally contain chlorine, fluorine, bromine, carbon, and hydrogen in varying proportions and are often described by the general term halocarbons. Chlorofluorocarbons (CFCs), carbon tetrachloride, and methyl chloroform are important human-produced ozone-depleting gases that have been used in many applications including refrigeration, air conditioning, foam blowing, cleaning of electronics components, and as solvents. Another important group of human-produced halocarbons is the halons, which contain carbon, bromine, fluorine, and (in some cases) chlorine and have been mainly used as fire extinguishers. ODSs are particularly harmful to the environment for mainly two reasons. They do not break down in the lower atmosphere and can remain there anywhere from 20 to 120 years or more. Unlike most chemicals released into the atmosphere at the Earth's surface, ozone-depleting substances are not "washed" back to Earth by rain or destroyed by other chemicals, which means they drift up into the stratosphere. The second is that they contain either/both chlorine and/or bromine and thus help the natural reactions that destroy ozone. Once they reach the stratosphere, ultraviolet (UV) radiation breaks up these molecules into chlorine (for example, from CFCs, methyl chloroform, or carbon tetrachloride) or bromine (for example, from halons or methyl bromide) which, in turn, break up ozone (O_3).

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OZONE

There are 2 types of ozone in our atmosphere. One type is found in the stratosphere and one is found in the troposphere.

(taken from <http://openhighschoolcourses.org>)

	Ozone in Troposphere (low altitude)	Ozone in Stratosphere (high altitude)
In general, is it good or bad?	BAD	GOOD!
Why is it good or bad?	Bad because it is a type of pollution. Ozone and other compounds in car exhaust form smog.	Good because it protects us from harmful UV radiation from the sun.
Effects upon humans?	Irritates the eyes, nose, throat, and lungs of animals (including humans).	It protects us from UV radiation, which causes skin cancer and eye damage.
Where is it found?	In the troposphere (the lowest level of Earth's atmosphere, right above Earth's surface).	In the stratosphere (layer of Earth's atmosphere above the troposphere). This ozone makes up the ozone layer.
How is it made?	From the burning of fossil fuels (mainly through automobile exhaust).	It is found naturally in the stratosphere.
How is it destroyed?	Winds and storms can blow the pollution away.	CFCs Chlorofluorocarbons) found in refrigerants and aerosols. These caused the "ozone hole"
What is its chemical structure?	Ozone = 3 oxygen atoms (O ₃)	Ozone = 3 oxygen atoms (O ₃)
Other chemicals involved in its formation or destruction?	Sunlight; nitrogen and sulfur compounds from automobile exhaust.	CFC

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PRACTICAL GUIDELINES FOR CUSTOMS AND BORDER CONTROL OFFICIALS - (taken from the Caribbean Customs Handbook, Guide to Multilateral Environmental Agreements)

Purpose and Objectives

The main objective of the Protocol is to reduce and eliminate the consumption and production of ODSs according to the agreed timetables for developing and developed countries.

Legal Obligations

- Each Party must freeze, reduce, and phase out their production and consumption of ODSs according to a specific step-wise schedule.
- Each Party must should introduce national control measures to ensure that its government complies with Protocol's target schedule for ODS phase-out.
- Each Party should take measures to prevent the illegal trade in ODSs and measures to carefully monitor the legal trade.
- Each party should establish and enforce national import/export licensing systems to cover all ODSs controlled by the Protocol, linking new, used, recycled and reclaimed ODSs.

For e.g. – The target for total phase out of HCFCs should be 2030 for developed countries (Article 2) and 3040 for developing countries (Article 5) according to a phased schedule which begun in 2010 and 2013 respectively.

Control of Trade in ODSs under the Montreal Protocol

Licensing Systems

- Controlling the trade of ODSs is achieved through an effective licensing regime, which helps to control supply, prevent illegal imports and identify end users. Licensing regimes also facilitate monitoring and collecting accurate information on imports and exports of ODSs.

Annual Quotas

- If annual quotas are established, importers may apply for import allowances, usually based on historical use. In such cases an import permit must be obtained for the specified quantity, which should not be exceeded for any of the ODSs.

Exemptions

- Exemptions to import of use ODSs for certain specified purposes may be requested by Parties to the Protocol. At present no CARICOM country has applied for such exemptions under the Protocol.

The Role of Customs and Border Control

- Customs and Border Control agents are essential to the control of ODSs and are tasked with enforcing the national measures required to effectively implement the Protocol. Key functions include:
- Verification of import and export licences;
- Distinguishing between legitimate and fraudulent licences or permits, as well as identifying those that have been tampered with; and
- Cargo Inspection to determine if shipment is legitimate or suspicious.



Formal Verification/Document Checks

In carrying out documentary checks, officers should:

Check the customs declaration, invoice, packing list and bill of lading to see that they are consistent and that they match with the shipping manifest

Check that the country of origin is consistent with the markings on the container and is consistent throughout the paperwork.

Verify that the country of origin is Party to the Montreal protocol and its Amendments.

Check that the actual container number matches the documents and that it is a genuine container number. This can be verified with the shipping line or owner of the container.

Ensure that the relevant trade name, chemical name, HS code, Chemical Abstract Service (CAS) number, and the United Nations number all match. There is no common international standard for naming, labeling and packaging ODSs; as a result, there are a number of systems officers should be acquainted with.

The United Nations Environment Programme (UNEP) database of trade names of chemicals containing ODSs is a useful resource and can be found online at <http://www.unep.fr/ozonaction/information/tradenames/main.asp>

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Material Verification/Physical Checks

Physical inspection of cylinders and packaging can provide important information as to the validity and legality of the consignment. Initial checks to ensure that the description on the documentation matches the actual consignment should be made. This should include ensuring that 'double layering' (hiding the illegal material behind a layer of legal product) has not been used. After these initial checks, the consignment should be inspected to ensure the chemicals are genuine legal products. Counterfeit cylinders of well-known brands are increasingly appearing on the market and in seizures made by authorities in many developing countries. Frequently ODSs are smuggled in counterfeit cylinders labeled as R-134a and R-22.



Ricardo Arduengo / AP

In carrying out a physical inspection, officers should:

- Check that the colour of the cylinder is correct. A first check that can be made is to ensure the colour of the cylinder is consistent with the industry standards for the chemical declared.
- Check for misspellings and inconsistencies on the cylinder or packaging. Careful checking of the cylinder label and packaging can identify potential counterfeit material. Familiarity with genuine cylinders will assist greatly in this process.
- Check if the language is appropriate for the intended market, check for spelling mistakes and other inconsistencies such as inappropriate use of company logos, taglines and trademarks. The type of valve used on the cylinder may also identify a counterfeit cylinder.
- Check if the cylinder has been painted or tampered with. Check to see if the cylinder appears to have been repainted - does scratching the paint reveal a different colour underneath? Are there any signs of tampering on the cylinder, for example, does it look as if they have been re-filled? Is the cylinder number clearly visible?
- Check if the labels are printed on the cylinder. Most genuine cylinders have silk-screened or spray painted labels. If the label is a sticker or transfer it is likely it is not a genuine product and further checks should be made.
- Check if the manufacturer's contact details are printed on the cylinder. Legitimate manufacturers will clearly display their company information on the cylinders they produce. They will also frequently display contact information, as it is in their interest to make this information available to customers. If cylinders are found which do not include the manufacturer's details or contact information the matter should be investigated further.
- Check that the manufacture date is consistent with the paperwork and is appropriate for the producer it originated from.
- Be suspicious of neutral packaging and incomplete forms. Suspicion should be raised when forms are not filled out completely, and where full chemical names and the appropriate identification numbers are not given. Neutral packaging with no labeling, country of origin or manufacturer identification should be treated as suspicious.

If physical inspection of the cylinders raises suspicions, it may be necessary to analyze a sample of the contents. Whenever possible trained border control agents should be used to take samples and ensure that a proper chain of custody is observed, escalating to an appropriate authorized personnel. If needed, assistance may be obtained from the National Ozone Unit (NOU) which is hosted at the National Environmental Planning Agency.

If the inspections confirm that the material is illegal, a seizure of the shipment should follow.

THE TRADE (MONTREAL PROTOCOL) (TRADE IN OZONE DEPLETING CONTROLLED SUBSTANCES) ORDER, 2014

Jamaica is a Party to the Montreal Protocol and has enacted the Trade (Montreal Protocol) (Trade in Ozone Depleting Controlled Substances) Order that came into effect November 24, 2014. This order seeks to regulate the importation of ODSs, including hydro-chlorofluorocarbons (HCFCs) to ensure that persons do not import in excess of their prescribed quota. Consequently, specified companies are given an annual quota allocation which should be enforced for the importation of HCFCs. Failure to comply constitutes a Breach of the Trade Order.

According to Section 5 of the Order, no person shall imports HCFCs unless:

- That person is a company specified in that order
- That company has been issued a licence to import HCFC under this order
- The hydro-chlorofluorocarbons are of a type approved for import as specified in the Order and are imported from a State Party

When a company imports outside of its allocated quota in a given year, a breach of the Trade Order, 2014 would be committed. Under Section 11, where a company imports HCFCs in a breach of its annual quota allocation for a particular year, the Minister may:

- reduce the annual quota allocation of HCFC in respect of any year in which the company next makes an application to import HCFC after the year in which the breach occurred;
- require the company at its expense, to export for disposal the quantity of HCFC importee in breach of its annual quota allocation;
- revoke the company's licence to import HCFC.



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The International and Industry Liaison Unit is committed to raising the level of awareness on topics relating to the Caribbean Community, as well as issues concerning the wider topic of international trade, to both our internal and external stakeholders. Our monthly newsletter seeks to highlight global trade topics and their importance to Customs Administrations worldwide and specifically how they affect the Jamaica Customs Agency. As we realize our vision of becoming a modern Customs administration delivering excellent service, we recognize the importance of knowledge transfer in delivering our objectives and use this forum as our way of contributing to the vision of the JCA. The International Liaison Unit is located at the Myers Wharf head office and our officers are available to respond to your queries and clarify any points of concern.

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