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NATIONAL ENVIRONMENTAL STANDARDS AND REGULATIONS ENFORCEMENT AGENCY (ESTABLISHMENT) ACT, 2007

NATIONAL ENVIRONMENTAL (OZONE LAYER PROTECTION AND HYDROFLUOROCARBONS PHASE DOWN) REGULATIONS, 2022

ARRANGEMENT OF REGULATIONS

Regulations :

S. I. No. 40 of 2022

NATIONAL ENVIRONMENTAL STANDARDS AND REGULATIONS ENFORCEMENT AGENCY (ESTABLISHMENT) ACT, 2007

NATIONAL ENVIRONMENTAL (OZONE LAYER PROTECTION AND HYDROFLUOROCARBONS PHASE DOWN) REGULATIONS, 2022

[26*th Day of April*, 2022] Commencement.

In exercise of the powers conferred on me by Section 34 of the National Environmental Standards and Regulations Enforcement Agency (Establishment) Act, 2007, and all other powers enabling me in that behalf, I, BARR. SHARON IKEAZOR, Honorable Minister of Environment make the following Regulations—

PART I—OBJECTIVES AND APPLICATION

1. The objectives of these Regulations are to specify the guidelines and direction for the use, handling, servicing, record keeping, labeling, alternatives and safe disposal of Ozone Depleting Substances (ODS), Hydrofluorocarbons (HFCs), and Refrigeration and Air-conditioning (RAC). Objectives.

2. These Regulations shall apply to operators and handlers of ODS, HFCs and in the relevant areas of RAC and Foam Sectors. Scope and Application.

PART II—POWERS AND RESPONSIBILITIES OF ALLIED MDAS

3. The National Ozone Office shall— Powers of the National Ozone Office.

(*a*) oversee the national compliance strategy on the phase out of ODS and the phase down of HFCs, collection and reporting of ODS and HFC data, and monitoring and facilitating ODS phase out activities in the country;

(*b*) issue the annual maximum quantity (annual quota) of ODS and HFCs to be imported into the country, in accordance with the Montreal Protocol and Kigali Amendment; and

(*c*) certify handlers of ODS, HFCs and their alternatives.

4.—(1) The National Environmental Standards and Regulation Enforcement Agency (in this Regulation referred to as "the Agency") shall have powers, in addition to issuing permits to ODS and HFC handlers, to enforce compliance with the conditions in the permit. Powers of the Agency.

(2) The Agency or its authorized agents shall exercise such powers under these Regulations over any premises used for RAC, and other industries or enterprises using ODS and HFCs, who require a permit for their activities.

Powers of the Nigeria Customs Service.

5. The Nigeria Customs Service shall—

(*a*) prevent the illegal importation and exportation of ODS and HFCs ; and

(*b*) prevent or ban trade import in and export of ODS and HFCs from countries that have not complied with the Montreal Protocol and its amendments.

PART III—RULES AND CONDITIONS IN THE MANAGEMENT OF ODS AND HFCs

Training.

6. An ODS and HFCs handler shall undergo training on ODS & HFCs handling, storage, and safe disposal before certification.

Extended Producer Responsibility.

7. Manufacturers and importers of ODS and HFCs shall subscribe to the Extended Producer Responsibility Program, as outlined in the Seventh Schedule to these Regulations.

Best Practices in Emission Control.

8.—(1) The handling of ODS and HFCs shall be in compliance with the standards and best practices in emission control set out in the Sixth Schedule to these Regulations and any other law.

(2) RAC manufactures, suppliers and users shall ensure compliance with the minimum energy performance standards for refrigeration and air conditioners, as specified in the National Cooling Action Plan for reduction of emissions from RAC equipment.

Environmental Management System.

9. An ODS or HFCs handler shall develop an environmental management system aimed at protecting the ozone layer and climate.

Polluter-Pays Principle.

10. The Polluter-Pays-Principle shall apply to every facility that causes pollution in the environment.

PART IV—PERMITS

Permit Conditions.

11.—(1) The Agency shall—

(*a*) establish procedures for the application and revocation of permits for the importation of ODS or HFCS ;

(*b*) issue a permit to import ODS or HFCS on such conditions, as may be set out in the permit document, and such other written notices for the purposes of carrying out the function of these Regulations ; and

(*c*) from time to time, review the conditions of the permit issued, and notify the permit holder of the new conditions.

(2) The permit shall indicate activities to be undertaken by the permit holder, as well as, the details of records relating to the activities covered.

(3) It shall be an offence for a permit holder to contravene any of the conditions set out in the permit.

(4) In line with the exemption rule of the Montreal Protocol, the importation of Methyl Bromide may be permitted for quarantine and pre-shipment purposes provided the conditions specified in the eleventh schedule are met.

Permit Fees.

12.—(1) The Agency shall prescribe fees for the various permits issued pursuant to these Regulations.

(2) The Agency shall waive the application fee for a controlled substance, if—

(*a*) the purpose of the permit is to allow the import or export of less than half a tonne of scheduled substances ; or

(*b*) based on the application for such waiver, the Agency is satisfied that the import or export is for —

(*i*) educational or research purposes by an educational institute or research institute, or

(*ii*) safe disposal by an authorized person.

Bi-annual Report by Permit Holder.

13.—(1) A permit holder shall keep accurate records and submit bi-annual reports as specified in the Third Schedule to these Regulations, not later than—

(*a*) 31st July, for the January to June Report ; and

(*b*) 31st January of the following year, for the July to December Report to the Agency.

(2) The records mentioned in sub-regulation (1) of this regulation shall be retained for a minimum period of 5 years, after which they can be archived.

Permit Numbers to be shown on records.

14. The bi-annual report submitted to the Agency shall, among others, include the name and permit number of the permit holder.

Application for Refrigeration and Air-conditioning Special Permit.

15.—(1) An application for a Refrigeration and Air-conditioning (RAC) Special Permit shall be made in the appropriate form prescribed by the Agency, and the applicant shall provide all the information listed in the form.

(2) Where an applicant omits to provide the information required, the Agency shall—

(*a*) request from the applicant, the omitted information ; and

(*b*) refrain from processing the application, until the applicant provides the information.

(3) The Agency shall convey to the applicant its decision, in writing, in accordance with the Agency's Permitting Procedure.

Transfer of Permit.

16. A permit shall not be transferable from one permit holder to another, or from one substance to another, whether by operation of law or otherwise.

PART V—HANDLING AND MANAGEMENT OF ODS, HFCs, and RAC

Use of ODS and HFCs Substitutes.

17.—(1) An ODS or HFCs handler shall adopt new acceptable alternatives to ODS or HFCs to keep up to date with constant evolvement and advancement in research and development in technology.

(2) Acceptable alternatives to ODS or HFCs are listed in, but not limited to, Table V for HFCs set out in the Ninth Schedule to these Regulations.

(3) The actual alternatives selected would depend on their technical application and economic factors.

ODS, HFCs, and RAC Management.

18. An ODS, HFCs and RAC Equipment handler shall adopt the principles of "Reduce, Repair, RE-use, Recycle and Recover" (5Rs) in the management of ODS or HFCs.

Destruction Facility of ODS and HFCs.

19.—(1) The National Ozone Office may, grant approval for a person to operate an ODS or HFCs safe destruction facility, provided that the person files an application to operate a destruction facility and satisfies the necessary requirements set out in this regulation.

(2) The application mentioned in sub-regulation (1) of this regulation shall be made in a format required by the National Ozone Office, and shall contain the following—

(*a*) the name and address of the applicant ;

(*b*) the address of the facility ; and

(*c*) such other information, as may be required by the Office.

(3) The National Ozone Office may approve the application made pursuant to sub-regulation (1) of this regulation, where it is satisfied that the proposed destruction facility is equipped to ensure the safe handling and safe disposal of ODS and HFCs, as specified in Fourth and Fifth Schedules to these Regulations.

Emission Measurement.

20.—(1) A Person, who operates an ODS destruction facility, shall guard against any emission of ODS into the atmosphere in the course of the destruction of ODS.

(2) A Person, who operates an ODS destruction facility, shall not allow the emission of at most 0.1g of ODS into the atmosphere, per 1000g of ODS being destroyed in the destruction facility, as specified in the Fourth Schedule to these Regulations.

PART VI—PROHIBITIONS

Prohibition on ODS and HFCs Production Facilities.

21. A person shall not import, manufacture in part or in whole, install, offer for sale, or sell, or buy new or refurbished equipment intended to be used for the production of any ODS listed in the Second Schedule to these Regulations, unless for the recovery and recycling of substances already in use.

Prohibition on the Importation of ODS and HCFCs.

22.—(1) A person shall not import ODS or HFCs without a permit issued pursuant to these Regulations.

(2) The maximum quantity a person may import each year shall not exceed the consumption limits prescribed by the National Ozone Office in the annual quotas, in accordance with the ODS Phase out Schedule and HFC Phase down schedule.

(3) After the achievement of the Montreal Protocol's 2020, reduction step, activities pursuant to these regulations shall be predicated on the attainment of 51.35% or higher reduction, in both Nigeria's baseline and starting point HCFC consumption by 1st January, 2023.

(4) The following regulatory measures shall be undertaken to strengthen and sustain HCFC phase-out—

(*a*) ban on import and use of HCFCs in the manufacturing sector by 31st December, 2023 ; and

(*b*) ban on import of all HCFCs and HCFC blend refrigerants that have no consumption in the baseline by 1st January, 2020 as listed in the Eighth Schedule to these Regulations.

(5) A person shall not manufacture any product for the purposes of local consumption or export, which—

(*a*) contains or is made from ODS listed in the Second Schedule to these Regulations, with effect from the phase out date ; and

(*b*) is used as, but not limited to the—

(*i*) release agents for plastic or elastomeric moulds,
(*ii*) protective spray for photographic applications,
(*iii*) cleansing solvents for commercial use on electronic equipment, and
(*iv*) blowing agents for foam or insulating materials.

Prohibition against the Release of ODS and HFCs.

23.—(1) Subject to the provisions of sub-regulation (3), of this regulation, a person shall not release or permit the release into the atmosphere, ODS or HFCs listed in the Tenth Schedule to these Regulations, from—

(*a*) an equipment or any part of an equipment ;

(*b*) a container used in the supply, recovery, recycling, reclamation, transportation or storage of ODS or HFCs ; or

(*c*) ODS or HFCs recovery, recycling or reclamation system.

(2) The provisions of sub-regulation (1) of this regulation shall not apply to the release of ODS or HFCs from a purging device until after the date stipulated for the different substances listed in the Eighth Schedule to these Regulations.

(3) Upon the attainment of the dates referred to in sub-regulation (2) of this regulation, a person shall not operate—

(*a*) an air purge device, or

(*b*) any system that purges non-condensable gases from a centrifugal chiller, which by design releases or permits the release, into the atmosphere, of more than 0.8 kg of ODS per kilogram of air.

(4) A person shall not dispose off equipment or fire extinguishing equipment that contains an ODS or HFCs without first ensuring that the ODS or HFCs is recovered.

(5) The provision of sub-regulation (4) of this regulation does not apply to—

(*a*) residual amounts of ODS or HFCs contained in the oil supply equipment, following the completion of a recovery procedure ; or

(*b*) flexible or rigid insulation foams attached to an equipment.

Working with ODS or HFCs.

24.—(1) A person shall not, with effect from the phase-out dates for the different substances specified in the Eighth Schedule to these Regulations,—

(*a*) service, install, or dismantle any equipment or a component of any equipment, which is in contact with or controls the containment of ODS; or

(*b*) reclaim, recover, recycle or re-use ODS, unless that person has successfully completed an approved technical training on ODS or is working under the direct supervision of a person, who has successfully completed an approved technical training on ODS.

(2) Any person, who installs, repairs, or services any of the equipment listed in the First Schedule to these Regulations or does any other work on the equipment, shall recover and either reuse, recycle, reclaim, or provide safe storage for ODS or HFCs that would otherwise be released into the atmosphere.

(3) A person shall not recharge or add an ODS or HFCs to equipment, unless that person—

(*a*) conducts a leak test, in accordance with the procedures set out in the Code of Practice approved by the National Ozone Office ; and

(*b*) has repaired any leakage detected on the equipment.

(4) HFC phase down activities shall be conducted, in line with the time table set out in the Nineth Schedule to this Regulations.

Fire Extinguishing Equipment.

25.—(1) A person **shall** not import, manufacture, install, offer for sale, sell, or buy new fire extinguishing equipment that contains or is intended to contain an ODS with an ozone-depletion potential greater than 0.05.

(2) The provision of sub-regulation (1) of this regulation does not apply to the—

(*a*) use of fire extinguishing equipment for fire protection in an aircraft;

(*b*) use of fire extinguishing equipment in a military tactical vehicle or vessel ; and

(*c*) sale of fire extinguishing equipment for the purpose of recovering and recycling of halon contained in the extinguisher.

(3) A person shall not use halon to test fire-extinguishing equipment.

Pressurized Containers.

26.—(1) A person shall not import, manufacture, offer for sale, sell, supply, or lease a pressurized container containing 10 kg or less of ODS listed in the Second Schedule to these Regulations, either as a single substance or in a mixture with other substances.

(2) The provision of sub-regulation (1) of this regulation does not apply to a pressurized container, containing—

(*a*) prescription drug ;

(*b*) topical anesthetic ;

(*c*) bronchial dilator ;

(*d*) veterinary powder wound spray ;

(*e*) acytospray ;

(*f*) spermicidal contraceptive foam ; or

(*g*) azeotropic mixtures listed in paragraph 1 of the Second Schedule to these Regulations.

(3) A person shall not, with effect from the phase-out date for the different substances, as specified in the Eighth Schedule to these Regulations, offer for sale, sell, supply, or lease ODS in any disposable pressurized container for the purpose of charging equipment or fire extinguishing equipment.

ODS for Servicing Equipment.

27. A person shall not, with effect from the phase-out dates for the different substances as specified in the Eighth Schedule to these Regulations, offer for sale, sell, supply, or lease ODS for the purpose of servicing equipment.

Equipment Label.

28.—(1) A person shall not—

(*a*) install any equipment, which does not have a permanent label indicating the type of ODS or HFCs or any other substance the equipment contains, and its energy requirement ; or

(*b*) service equipment with any ODS or HFCs that is different from the substance indicated on the original permanent label.

(2) The permanent label referred to in sub-regulation (1)(a) and (b) of this Regulation shall—

(*a*) clearly indicate the date of the installation or service of an equipment, and the energy requirements of the equipment's system ; and

(*b*) stipulate that only a certified person shall service, repair, or recharge to the system or equipment that could result in the release of ODS or HFCs.

Flexible Insulation Foams.

29.—(1) A person shall not manufacture, import, offer for sale, sell, supply, lease, or apply flexible insulation foam, which uses as a foaming agent, ODS or HFCs listed in the Second and Tenth Schedules, respectively, to these Regulations.

(2) The provision of sub–regulation (1) of this regulation does not apply to any flexible insulation foam manufactured or imported prior to the effective date of these Regulations.

Rigid Insulation Foam.

30.—(1) A person shall not manufacture, import, offer for sale, sell, supply, lease, or apply rigid insulation foam, which uses as a foaming agent, ODS or HFCs listed in the Second and Tenth Schedules, respectively, to these Regulations.

(2) The provision of sub-regulation (1) of this regulation does not apply to any rigid insulation foam manufactured prior to the effective date of these Regulations.

Packaging and Wrapping Materials.

31. A person shall not import or manufacture packaging or wrapping materials that contain ODS or HFCs listed in the Second and Tenth Schedules, respectively, to these Regulations.

Storage.

32.—(1) A person shall not store ODS or HFCs listed in Second and Tenth Schedules, respectively, to these Regulations in residential areas.

(2) ODS or HFCs shall be stored in designated areas approved by the Agency.

(3) Any facility used in storing ODS or HFCs shall have a trading authorization, or in the case of halon, a Halon Special Permit, as specified in Fifth Schedule to these Regulations.

PART VII—OFFENCES AND PENALTY PROVISIONS

General Contraventions.

33.—(1) Any Person, who contravenes any provision of these Regulations, commits an offence.

(2) It is an offence to—

(*a*) contravene the provisions of the Regulations relating to—

(*i*) an enforcement notice, or

(*ii*) conditions of a permit prescribed in these Regulations ;

(*b*) intentionally obstruct an Officer of the Agency acting in the execution or enforcement of these Regulations ; or

(*c*) fail to produce a document or record to the Officer when required to do so.

Offence of Handling ODS Refrigerant.

34.—(1) A person shall not handle or deal in ODS refrigerant unless, at the time of the phase-out date for the different substances specified in the Eighth Schedule to these Regulations, such a person is certified in the approved relevant Code of practice and—

(*a*) holds an ODS refrigerant handling permit ; or

(*b*) has undertaken and is certified in an approved technical training relevant to handling ODS refrigerant.

(2) Any person, who handles or deals in ODS refrigerant contrary to sub-regulation (1) of this regulation, commits an offence and is liable on conviction to the penalties as set out in regulation 38 to these Regulations.

Offence for Possession or Disposal of ODS Refrigerant.

35. A person shall not, with effect from the phase-out date for the different substances specified in the Eighth Schedule to these Regulations, acquire, store, or dispose of bulk ODS refrigerant.

Offence of Possession of Halon.

36.—(1) A person shall not possess halon that is used, has been used or for use in halon-based equipment.

(2) Decommissioned halon cylinders shall be stored at the designated national halon bank.

Rendering False Statement.

37.—(1) It is an offence for a person to—

(*a*) make a statement to an Officer of the Agency acting in the execution or enforcement of these Regulations, knowing it to be false or misleading, particularly, where the statement is made—

(*i*) in purported compliance with an obligation to furnish information pursuant to any provision of these Regulations,

(*ii*) for the purpose of obtaining a permit for the facility for variation, transfer or surrender of a permit,

(*iii*) to intentionally make a false entry in any record pertaining to the permit, or

(*iv*) with intent to deceive, forge, or use a document issued or authorized to be issued, pursuant to any of the conditions prescribed in a permit ; and

(*b*) circulate a document that the contents are false.

Penalties.

38. Any Person, who contravenes the provisions of these Regulations commits an offence, and is liable on conviction to—

(*a*) in the case of an individual—

(*i*) a fine not less than ₦200,000.00,

(*ii*) imprisonment for a term of not exceeding one year, or

(*iii*) both fine and imprisonment ;

(*b*) an additional fine of ₦20,000.00 for every day the offence subsists, in the case of an individual ; and

(*c*) in the case of a body corporate, a fine of N2, 000, 000.00, and an additional fine of ₦200, 000.00 for every day the offence subsists.

PART VIII—MISCELLENEOUS

Enforcement of Regulations.

39.—(1) The Agency shall, in the exercise of its powers under these Regulations and the Act—

(*a*) conduct ODS or HFCS compliance monitoring ;

(*b*) take samples for the purpose of testing and analysis ;

(*c*) take photographs and measurements ;

(*d*) require from any person purportedly associated with any activity under investigation, any information or document relevant to the activity, matter, or thing under investigation ; and

(*e*) seize any item used in the commission of an offence under these Regulations.

(2) An officer of the Agency may, in the course of duty, enter into any land, premises, vessels, ship, aircraft, vehicles, or other form of conveyance for the purposes of —

(*a*) investigating a breach of any provision of these Regulations ; or

(*b*) enforcing any provision of these Regulations.

Enforcement Notice.

40.—(1) An Enforcement Notice shall be served on an operator or handler of ODS or HFCS, where the Agency is satisfied based on the evidence before it that the operator or handler has contravened, is contravening, or intends to contravene any condition prescribed in a permit.

(2) An Enforcement Notice shall specify—

(*a*) matters constituting the contravention ;

(*b*) necessary steps to remedy or avert the contravention ;

(*c*) period within which those steps shall be taken ; and

(*d*) such other information, as the Agency may, from time to time, require.

Interpretation.

41. In these Regulations—

"*Act*" means the National Environmental Standards and Regulations Enforcement Agency (Establishment) Act 2007 ;

"*Agency*" means the National Environmental Standards and Regulations Enforcement Agency (NESREA) ;

"*approved technical training*" means a technical training course approved by the Agency, in respect of ozone layer protection ;

"*best practices*" mean the generally accepted methods of achieving a high general level of protection of the ozone layer ;

"*bulk refrigerant*" means refrigerant other than halon, but does not include refrigerant that is contained in RAC equipment ;

"*Code of Practice*" means a publication adopted and approved by the National Ozone office, which contains detailed technical guidelines under which specifictasks, processes, or actions are to be performed, in order to meet the qualityassurance, quality control, and professional practice ;

"*container*" means a storage vessel used for the storage of and movement of ODS used in fire equipment and systems, and includes pressure vessels, bulk agent containers, cylinders, fixed system containers and portable fire extinguishers ;

"*controlled substances*" mean substances listed in the Eighth Schedule to these Regulations ;

"*Director-General*" means the Director-General of National Environmental Standards and Regulations Enforcement Agency ;

"*disposable pressurized container*" means a pressurized container designed to be used only once ;

"*dispose*" means recovery and safe storage of ODS before destruction ;

"*equipment*" means a device, system, or mechanical installation located in mobile and stationary air-conditioning units, refrigerating units, freezing units, and heat pump units, which is designed to operate using an ODS, but does not include fire extinguishing equipment ;

"*Enforcement Notice*" means a notice requiring a Person to take action to remedy or avert a contravention ;

"*fire extinguishing equipment*" means a fire extinguishing unit or system, whether portable or fixed, that contains an ODS ;

"*facility*" means manufacturers, importers and exporters, vendors and distributors, service technicians, users and disposers of ODS and HFCS ;

"*foaming agent*" means a substance that is added to a plastic during the process of manufacturing flexible or rigid insulation foam so that gas cells are formed throughout the plastic ;

"*Halon*" means a bromofluorocarbon ;

"*Handler*" means an individual, a group of persons, or body corporate that manufactures, exports, imports, services, distributes, sells, buys, uses, or disposes equipment or material containing ODS and HFCs ;

"*Hydrofluorocarbons*" means any hydrofluorocarbons controlled by and listed under the Kigali Amendment to the Montreal Protocol ;

"*leak test*" means a procedure performed on equipment to determine whether or not an ODS is being released to the environment ;

"*Manufacturer*" means an individual, group of persons, or body corporate that produces, creates, modifies, and constructs material containing ODS and HFCs ;

"*Ministry*" means Federal Ministry of Environment ;

"*Operator*" means a Person managing the facility ;

"*ozone*" means the layer of gas containing three atoms of oxygen formed at the stratosphere within 10 to 50km above the surface of the earth ;

"*ozone layer*" means the layer of gas containing ozone formed at the stratosphere within 10 to 50km above the surface of the earth. This layer of gas has the ability to shield the earth from harmful ultra-violet radiation ;

"*ozone-depleting potential*" is the relative amount of degradation chemical compounds can cause to the ozone layer compared to the reference substance, trichlorofluoromethane (CFC-11or R-11) of the same mass ;

"*person*" mean facility, body corporate or individual ;

"*ozone depleting substance*" means a substance or mixture of substances listed in the Second and Eighth Schedules to these Regulations, including their isomers ;

"*permit*" means an official document, authorization, license or equivalent control document issued by the Agency to implement the requirements of these Regulations to discharge effluent for a period of time ;

"*Permit holder*" means a Person empowered by the permit to handle ODS and HFCs ;

"*Polluter Pays Principle*" means that the polluter should bear the cost of pollution prevention and control measures to ensure that the environment is in an acceptable state ;

"*producer*" means any Person manufacturing controlled substances and their substitutes ;

"*purging device*" means any device that uses pressure or gas to remove the air from an enclosed system ;

"*quarantine*" means any treatments to prevent the introduction, establishment, or spread of ODS and HFCs, or to ensure their official control ;

"*RAC*" means Refrigeration and Air Conditioning ;

"*reclaim*" means to return a recovered ODS to its original minimum specifications, as verified by laboratory analysis ;

"*recover*" means to collect an ODS in a container outside the system from which it was removed ;

"*recycle*" means the restoration of a recovered ODS to a higher level of purity by operations such as filtering, drying, and cleaning, but does not include testing the product to verify its purity ;

"*re-use*" means to return a recovered ODS to equipment, including fire extinguishing equipment, without any prior cleaning ;

"*servicing*" means the act of repairing, maintaining, charging, recharging, or adjusting a component of equipment or fire extinguishing equipment, where the component or part contains an ODS or HFCs ;

"*standards*" mean the permissible limits approved by the appropriate authority for emissions from production and consumption of ODS and HFCs ; and

"time wEighthed sample" means a composite sample consisting of equal volume aliquot collected at a constant time interval.

Citation.

42. These Regulations may be cited as the National Environmental (Ozone Layer Protection and Hydrofluorocarbons Phase down) Regulations, 2022.

MADE at Abuja this 26th day of April, 2021.

SHARON O. IKEAZOR
Honorable Minister of State for Environment

FIRST SCHEDULE [24(2)]

CATEGORIES OF PRE CHARGED EQUIPMENT

Item	*Category*
1.	Commercial portable refrigerators.
2.	Commercial refrigerated cabinets.
3.	Other commercial refrigeration equipment.
4.	Domestic refrigerators and freezers.
5.	Vehicle powered truck refrigerator.
6.	Self powered truck or trailer refrigerator.
7.	Refrigerated portable air conditioning.
8.	Single head split system air conditioning.
9.	Multi head/variable reverse flow (vrf) split system air conditioning.
10.	Packaged window air conditioning.
11.	Packaged water-cooled air conditioning.
12.	Packaged air-cooled air conditioning.
13.	High pressure chillers.
14.	Low pressure chillers.
15.	Cabin air conditioning for a motor vehicle of 3.5 tonnes gross vehicle mass or less.
16.	Cabin air conditioning for a motor vehicle of more than 3.5 tonnes gross vehicle mass.

SECOND SCHEDULE

[21, 22(4), 26(1) and (2)(g), 29(1),30(1),31, and 32]

OZONE DEPLETING SUBSTANCES (ODS)

CONTROLLED SUBSTANCES

Group	*Substance*	*Ozone-Depleting Potential**
GROUP I		
$CFCl_3$	(CFC-11)	1.0
CF_2Cl_2	(CFC-12)	1.0
$C_2F_3Cl_3$	(CFC-113)	0.8
$C_2F_4Cl_2$	(CFC-114)	1.0
C_2F_5Cl	(CFC-115)	0.6
GROUP II		
CF_2BrCl	(halon-1211)	3.0
CF_3Br	(halon-1301)	10.0
$C_2F_4Br_2$	(halon-2402)	6.0

*These ozone depleting potentials are estimates based on existing knowledge and will be reviewed and revised periodically.

ANNEX B : CONTROLLED SUBSTANCES

Group	*Substance*	*Ozone-Depleting Potential**
GROUP I		
CF_3Cl	(CFC-13)	1.0
C_2FCl_5	(CFC-111)	1.0
$C_2F_2Cl_4$	(CFC-112)	1.0
C_3FCl_7	(CFC-211)	1.0
$C_3F_2Cl_6$	(CFC-212)	1.0
$C_3F_3Cl_5$	(CFC-213)	1.0
$C_3F_4Cl_4$	(CFC-214)	1.0
$C_3F_5Cl_3$	(CFC-215)	1.0
$C_3F_6Cl_2$	(CFC-216)	1.0
C_3F_7Cl	(CFC-217)	1.0
GROUP II		
CCl_4	carbon tetrachloride	1.1
Group III		
$C_2H_3Cl_3$*	1,1,1-trichloroethane* (methyl chloroform)	0.1

This formula does not refer to 1,1,2-trichloroethane.

Azeotropic Mixtures

(16) CFC-500 (CFC-12/HFC-132a, 73.8/26.2 wt. %)
(17) CFC-501 (CFC-12/HCFC-22, 25.0/75.0 wt. %)
(18) CFC-502 (HCFC-22/CFC-115, 48.8/51.2 wt. %)
(19) CFC-503 (CFC-13/HCFC-23, 59.9/40.1 wt. %)
(20) CFC-504 (HFC-32/CFC-115, 48.2/51.8 wt. %)
(21) CFC-505 (CFC-12/HCFC-31, 78/22 wt. %)
(22) CFC-506 (HCFC-31/CFC-114, 55.1/44.9 wt. %)

Paragraph 2 *Halons* *Regulation* 25(2)

(1) Halon-1211, also known as bromochlorodifluoromethane
(2) Halon-1301, also known as bromotrifluoromethane
(3) Halon-2402, also known as dibromotetrafluoroethane

ANNEX C : CONTROLLED SUBSTANCES

Group	*Number of Substance*	*Isomers*	*Ozone-Depleting Potential**
GROUP I			
$CHFCl_2$	(HCFC-21)**	1	0.04
CHF_2Cl	(HCFC-22)**	1	0.055
CH_2FCl	(HCFC-31)	1	0.02
C2HFCl4	(HCFC-121)	2	0.01-0.04
C2HF2Cl3	(HCFC-122)	3	0.02-0.08
C2HF3Cl2	(HCFC-123)	3	0.02-0.06
CHCl2CF3	(HCFC-123)**	-	0.02
C2HF4Cl	(HCFC-124)	2	0.02-0.04
CHFClCF3	(HCFC-124)**	-	0.022
C2H2FCl3	(HCFC-131)	3	0.007-0.05
C2H2F2Cl2	(HCFC-132)	4	0.008-0.05
C2H2F3Cl	(HCFC-133)	3	0.02-0.06
C2H3FCl2	(HCFC-141)	3	0.005-0.07
CH3CFCl2	(HCFC-141b)**	-	0.11
C2H3F2Cl	(HCFC-142)	3	0.008-0.07
CH3CF2Cl	(HCFC-142b)**	-	0.065
C2H4FCl	(HCFC-151)	2	0.003-0.005
C3HFCl6	(HCFC-221)	5	0.015-0.07
C3HF2Cl5	(HCFC-222)	9	0.01-0.09
C3HF3Cl4	(HCFC-223)	12	0.01-0.08
C3HF4Cl3	(HCFC-224)	12	0.01-0.09
C3HF5Cl2	(HCFC-225)	9	0.02-0.07
CF_3CF_2CHCl2	(HCFC-225ca)**	-	0.025
$CF_2ClCF2CHClF$	(HCFC-225cb)**	-	0.033

C_3HF_6Cl	(HCFC-226)	5	0.02-0.10
$C_3H_2FCl_5$	(HCFC-231)	9	0.05-0.09
$C_3H_2F_2Cl_4$	(HCFC-232)	16	0.008-0.10
$C_3H_2F_3Cl_3$	(HCFC-233)	18	0.007-0.23
$C_3H_2F_4Cl_2$	(HCFC-234)	16	0.01-0.28
C_3H2F_5Cl	(HCFC-235)	9	0.03-0.52
$C3H3FCl_4$	(HCFC-241)	12	0.004-0.09
$C_3H_3F_2Cl_3$	(HCFC-242)	18	0.005-0.13
$C_3H_3F_3Cl_2$	(HCFC-243)	18	0.007-0.12
C_3H_3F4Cl	(HCFC-244)	12	0.009-0.14
$C_3H_4FCl_3$	(HCFC-251)	12	0.001-0.01
$C_3H_4F_2Cl2$	(HCFC-252)	16	0.005-0.04
$C_3H_4F_3Cl$	(HCFC-253)	12	0.003-0.03
$C_3H_5FCl_2$	(HCFC-261)	9	0.002-0.02
$C_3H_5F_2Cl$	(HCFC-262)	9	0.002-0.02
C_3H_6FCl	(HCFC-271)	5	0.001-0.03

Group	*Number of Substance*	*Isomers*	*Ozone-Depleting Potential**
Group II			
CHFBr2		1	1.00
CHF2Br	(HBFC-22B1)	1	0.74
CH2FBr		1	0.73
C2HFBr4		2	0.3-0.8
C2HF2Br3		3	0.5-1.8
C2HF3Br2		3	0.4-1.6
C2HF4Br		2	0.7-1.2
C2H2FBr3		3	0.1-1.1
C2H2F2Br2		4	0.2-1.5
C2H2F3Br		3	0.7-1.6
C2H3FBr2		3	0.1-1.7
C2H3F2Br		3	0.2-1.1
C2H4FBr		2	0.07-0.1
C3HFBr6		5	0.3-1.5
C3HF2Br5		9	0.2-1.9
C3HF3Br4		12	0.3-1.8
C3HF4Br3		12	0.5-2.2
C3HF5Br2		9	0.9-2.0
C3HF6Br		5	0.7-3.3
C3H2FBr5		9	0.1-1.9
C3H2F2Br4		16	0.2-2.1

C_3HF_6Cl	(HCFC-226)	5	0.02-0.10
$C_3H_2FCl_5$	(HCFC-231)	9	0.05-0.09
$C_3H_2F_2Cl_4$	(HCFC-232)	16	0.008-0.10
$C_3H_2F_3Cl_3$	(HCFC-233)	18	0.007-0.23
$C_3H_2F_4Cl_2$	(HCFC-234)	16	0.01-0.28
C_3H2F_5Cl	(HCFC-235)	9	0.03-0.52
$C3H3FCl_4$	(HCFC-241)	12	0.004-0.09
$C_3H_3F_2Cl_3$	(HCFC-242)	18	0.005-0.13
$C_3H_3F_3Cl_2$	(HCFC-243)	18	0.007-0.12
C_3H_3F4Cl	(HCFC-244)	12	0.009-0.14
$C_3H_4FCl_3$	(HCFC-251)	12	0.001-0.01
$C_3H_4F_2Cl2$	(HCFC-252)	16	0.005-0.04
$C_3H_4F_3Cl$	(HCFC-253)	12	0.003-0.03
$C_3H_5FCl_2$	(HCFC-261)	9	0.002-0.02
$C_3H_5F_2Cl$	(HCFC-262)	9	0.002-0.02
C_3H_6FCl	(HCFC-271)	5	0.001-0.03

Group	*Number of Substance*	*Isomers*	*Ozone-Depleting Potential**
Group II			
CHFBr2		1	1.00
CHF2Br	(HBFC-22B1)	1	0.74
CH2FBr		1	0.73
C2HFBr4		2	0.3-0.8
C2HF2Br3		3	0.5-1.8
C2HF3Br2		3	0.4-1.6
C2HF4Br		2	0.7-1.2
C2H2FBr3		3	0.1-1.1
C2H2F2Br2		4	0.2-1.5
C2H2F3Br		3	0.7-1.6
C2H3FBr2		3	0.1-1.7
C2H3F2Br		3	0.2-1.1
C2H4FBr		2	0.07-0.1
C3HFBr6		5	0.3-1.5
C3HF2Br5		9	0.2-1.9
C3HF3Br4		12	0.3-1.8
C3HF4Br3		12	0.5-2.2
C3HF5Br2		9	0.9-2.0
C3HF6Br		5	0.7-3.3
C3H2FBr5		9	0.1-1.9
C3H2F2Br4		16	0.2-2.1

C3H2F3Br3	18	0.2-5.6
C3H2F4Br2	16	0.3-7.5
C3H2F5Br	8	0.9-1.4
C3H3FBr4	12	0.08-1.9
C3H3F2Br3	18	0.1-3.1
C3H3F3Br2	18	0.1-2.5
C3H3F4Br	12	0.3-4.4
C3H4FBr3	12	0.03-0.3
C3H4F2Br2	16	0.1-1.0
C3H4F3Br	12	0.07-0.8
C3H5FBr2	9	0.04-0.4
C3H5F2Br	9	0.07-0.8
C3H6FBr	5	0.02-0.7

Group III

CH2BrCl	bromochloromethane	1	0.12

Where a range of ODPs is indicated, the highest value in that range shall be used for the purposes of the Protocol. The ODPs listed as a single value have been determined from calculations based on laboratory measurements. Those listed as a range are based on estimates and are less certain. The range pertains to an isomeric group. The upper value is the estimate of the ODP of the isomer with the highest ODP, and the lower value is the estimate of the ODP of the isomer with the lowest ODP.

** Identifies the most commercially viable substances with ODP values listed against them to be used for the purposes of the Protocol.

THIRD SCHEDULE [13(1)]

BI- ANNUAL REPORT REQUIREMENTS BY PERMIT HOLDERS

A permit holder shall give a bi-annual report stating the following—

(*a*) the identity of any scheduled substance manufactured, imported, or exported each month ;

(*b*) the quantity of any scheduled substance manufactured, imported, or exported each month ;

(*c*) with respect to any scheduled substance imported into Nigeria each month—

(*i*) the date of importation,

(*ii*) the country of origin of the scheduled substance,

(*iii*) the full name and address of the person from whom the scheduled substance was imported,

(*iv*) the place at which the scheduled substance was loaded on the carrier (ship, aircraft, others),

(*v*) the name and transit particulars of the carrier, and

(*vi*) whether the scheduled substance was imported for use as feedstock ;

(*d*) with respect to any scheduled substance exported out of Nigeria each month—

(*i*) the date of export,

(*ii*) the country of destination of the scheduled substance,

(*iii*) the full name and address of the Person to whom the scheduled substance was export to,

(*iv*) the place at which the scheduled substance was loaded on the carrier (ship, aircraft, others),

(*v*) the name and transit particulars of the carrier, and

(*vi*) whether the scheduled substance was manufactured for use as feedstock ;

(*e*) the quantity of any scheduled substance manufactured each month ; and

(*f*) the quantity of each scheduled substance destroyed each month.

FOURTH SCHEDULE [19(3), 20(2)]

STANDARDS FOR THE SAFE OPERATION OF ODS DESTRUCTION FACILITIES

Disposal of ODS shall be carried out in the following ways—

(*a*) ODS shall be disposed in accordance with the Handbook for the Montreal Protocol on Substances that deplete the Ozone Layer (9th Edition, 2012), and adopting best available technology;

(*b*) in accordance with the provisions of the Regulation, ODS may be delivered to the following for re-use or disposal—

(*i*) the holder of an ODS Trading Authorization, or

(*ii*) the operator of an approved ODS destruction facility ;

(*c*) prior to feeding the ODS to the approved destruction process, the following are recommended—

(*i*) detailed checking of delivery document to ensure proper labelling,

(*ii*) know the quantity of ODS supplied to the facility for destruction,

(*iii*) provision of quarantine areas for storage before destruction,

(*iv*) sampling and analysis of representative quantity of ODS consignment,

(*v*) leakage detection,

(*vi*) fugitive emission control,

(*vii*) know the quantity of ODS to be destroyed,

(*viii*) container should be purged of any residue or destroyed in the destruction process,

(*ix*) necessary training should be conducted for suitable personnel,

(*x*) regular monitoring and evaluation of ODS destruction to ensure that ODS destruction complies with standards,

(*xi*) ensure that destruction processes are operated efficiently to ensure complete destruction of ODS ; and

(*xii*) regular stack gas emission analysis.

ALLOWABLE CONCENTRATIONS OF POLLUTANTS IN STACK GASES (FOR SCREENING OF DESTRUCTION TECHNOLOGIES)

Destruction and Removal Efficiency.

1. Destruction Efficiency (DE) is a measure of how completely a particular technology destroys a contaminant of interest – in this case the transformation of ODS material into non-ODS by-products. There are two commonly used but different ways of measuring the extent of destruction – DE and Destruction and Removal Efficiency (DRE). The terms are sometimes interchanged or used inappropriately. DE is a more comprehensive measure of destruction than DRE, because DE considers the amount of the chemical of interest that escapes destruction by being removed from the process in the stack gases and in all other residue

streams. Most references citing performance of ODS destruction processes only provide data for stack emissions and thus, generally, data is only available for DRE and not DE.

Because of the relatively volatile nature of ODS and because, with the exception of foams, they are generally introduced as relatively clean fluids, one would not expect a very significant difference between DRE and DE. For these reasons this update of ODS destruction technologies uses DRE as the measure of destruction efficiency. For the purposes of screening destruction technologies, the minimum acceptable DRE is :

- 95% for foams ; and,
- 99.99% for concentrated sources.

It should be noted that measurements of the products of destruction of CFCs, HCFCs and halons in a plasma destruction process have indicated that interconversion of ODS can occur during the process. For example, under some conditions, the DRE of CFC-12 (CCl2F2) was measured as 99.9998%, but this was accompanied by a conversion of 25% of the input CFC-12 to CFC-13 (CClF3), which has the same ozone-depleting potential. The interconversion is less severe when hydrogen is present in the process, but can nonetheless be significant.

$$DRE = N_1^{in} - \%i\ Ni^{out} / N_1^{in}$$

Where N1in is the number of moles of the ODS fed into the destruction system, and Niout is the number of moles of the ith type of ODS that is released in the stack gases.

Emissions of Dioxins and Furans.

2. Any high temperature process used to destroy ODS has associated with it the potential formation (as by-products) of polychlorinated dibenzo-paradioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). These substances are among the products of incomplete combustion (or PICs) of greatest concern for potential adverse effects on public health and the environment. The internationally recognized measure of the toxicity of these compounds is the toxic equivalency factor (ITEQ), 10 which is a wEighthed measure of the toxicity for all the members of the families of these toxic compounds that are determined to be present. The task force members note that the World Health Organization has developed a new system for calculating TEQs, however, most of the existing data on emissions is expressed in the former ITEQ system established in 1988.

For purposes of screening destruction technologies, the maximum concentration of dioxins and furans in the stack gas from destruction technologies is :

- 0.5 ng-ITEQ/Nm^3 for foams; and,
- 0.2 ng-ITEQ/Nm^3 for concentrated sources.

These criteria were determined to represent a reasonable compromise between more stringent standards already in place in some industrialized countries [for example, the Canada-Wide Standard of 0.08 ng/m³ (ITEQ)], and the situation in developing countries where standards may be less stringent or non-existent. Although a previous standard of 1.0 ng/m³ (ITEQ) had been suggested in the UNEP 1992 report, advances in technology in recent years, and the level of concern for emissions of these highly toxic substances justified a significantly more stringent level.

Emissions of Acid Gases, Particulate Matter and Carbon Monoxide.

3. Emissions of Acid Gases, Particulate Matter and Carbon Monoxide

Acid gases are generally formed when ODS are destroyed and these should be removed from the stack gases before the gases are released to the atmosphere. The following criteria for acid gases have been set for purposes of screening destruction technologies :

- a maximum concentration in stack gases of 100 mg/Nm3 HCl/Cl_2 ;
- a maximum concentration in stack gases of 5 mg/Nm³ HF ; and,
- a maximum concentration in stack gases of 5 mg/Nm³ HBr/Br_2.

Particulate matter is generally emitted in the stack gases of incinerators for a variety of reasons and can also be emitted in the stack gases of facilities using non-incineration technologies. For the purposes of screening technologies, the criterion for particulate matter is established as :

- a maximum concentration of total suspended particulate (TSP) of 50 mg/Nm³

Carbon monoxide (CO) is generally released from incinerators resulting from incomplete combustion and may be released from some ODS destruction facilities because it is one form by which the carbon content of the ODS can exit the process. Carbon monoxide is a good measure of how well the destruction process is being controlled. For the purposes of screening technologies, the following criterion has been established :

- a maximum CO concentration in the stack gas of 100 mg/Nm³

These maximum concentrations apply to both foams and concentrated sources. They were set to be achievable by a variety of available technologies while ensuring adequate protection of human health and the environment.

TABLE I

APPROVED DESTRUCTION PROCESSES

Technology	*Applicability*							
	Concentrated Sources							*dilute sources*
	Annex A		*Annex B*			*Annex C*	*Annex E*	
	Group 1 Primary CFCs	*Group 2 Halons*	*Group 1 Other CFCs*	*Group 2 Carbon Tetrachloride*	*Group 3 Methyl Chloroform*	*Group 1 HCFCs*	*Group 1 Methyl Bromide*	
Destruction and Removal Efficiency (DRE)	99.99%	99.99%	99.99%	99.99%	99.99%	99.99%	99.99%	95%
Argon Plasma Arc	Approved	Approved	Approved	Approved	Approved	Approved	—	—
Cement Kilns	Approved	Not-Approved	Approved	Approved	Approved	Approved	—	—
Chemical Reaction with H2 and CO2	Approved	Approved	Approved	Approved	Approved	Approved	—	—
Gas Phase Catalytic Dehalogenation	Approved	—	Approved	Approved	Approved	Approved	—	—
Gaseous/Fume Oxidation	Approved	—	Approved	Approved	Approved	Approved	—	—
Inductively Coupled Radio Frequency Plasma	Approved	Approved	Approved	Approved	Approved	Approved	—	—
Liquid Injection Incineration	Approved	Approved	Approved	Approved	Approved	Approved	—	—
Microwave Plasma	Approved	—	Approved	Approved	Approved	Approved	—	—
Municipal Solid Waste Incineration	—	—	—	—	—	—	—	Approved
Nitrogen Plasma Arc	Approved	—	Approved	Approved	Approved	Approved	—	—
Porous Thermal Reactor	Approved	—	Approved	Approved	Approved	Approved	—	—
Portable Plasma Arc	Approved	—	Approved	Approved	Approved	Approved	—	—

Reactor Cracking	Approved	Not-Approved	Approved	Approved	Approved	Approved		
Rotary Kiln Incineration	Approved	Approved	Approved	Approved	Approved	Approved	—	Approved
Superheated Steam Reactor	Approved	—	Approved	Approved	Approved	Approved	—	—
Thermal Reaction with Methane	Approved	Approved	Approved	Approved	Approved	Approved		

Source : United Nations Environment Programme
UNEP/OzL.Pro.23/CRP.1/Rev.1 22 November 2011
Twenty-Third Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Bali, Indonesia, 21-25 November 2011

FIFTH SCHEDULE [19(3), 32(3)]

GUIDELINES FOR ODS HANDLING AND STORAGE

The following requirements shall be adhered to as contained in the Handbook for the Montreal Protocol on Substances that deplete the Ozone Layer (9th Edition, 2012)—

(*a*) containers holding scheduled ODS shall be stored and handled according to the provisions of these Regulations ;

(*b*) labelling shall be provided to allow for easy identification by users and enforcement officers ;

(*c*) signage shall also be provided, in accordance with the provisions of these Regulations ;

(*d*) warehouse staff shall refer to the relevant Safety Data Sheets (SDS), prior to handling ODS containers ;

(*e*) containers shall be handled, as recommended in the Handbook for the Montreal Protocol on Substances that deplete the Ozone Layer (9th Edition, 2012) ;

(*f*) containers shall be checked regularly for leakages, and any leak identified shall be rectified ;

(*g*) all actuators shall be removed from the container valves ;

(*h*) all container valve discharge outlets shall be capped. Caps shall not obstruct the pressure relief devices ;

(*i*) a container valve discharge cap shall be rated to one and a half times the working pressure of the container ; and

(*j*) containers shall be handled and stored in a safe and secure manner so as not cause or permit the contents to be released to the atmosphere.

SIXTH SCHEDULE [8]

BEST PRACTICES IN EMISSION CONTROL

Best practices in emission control are—

(*a*) the use of environment friendly technologies ;

(*b*) encouraging more and efficient use of process chemicals ;

(*c*) the adoption of ozone-friendly chemicals, as alternatives ;

(*d*) ensuring that ODS handlers are in cooperative for regular emission monitoring;

(*e*) the control of Fugitive Emissions ; and

(*f*) subscribing to environmental management system, which will serve as a tool to improve environmental performance.

SEVENTH SCHEDULE [7]

GUIDELINES FOR EXTENDED PRODUCER RESPONSIBILITY PROGRAMME

1. Importers and manufacturers of ODS shall partner with the Agency to establish an effective Extended Producer Responsibility Programme.

2. The manufacturers and importers shall submit a proposal for an Extended Producer Responsibility Programme to the Agency for approval and such proposal shall include the following elements for the successful implementation of the scheme—

(*a*) establish a process for the collection, handling, transportation and final treatment of a post-consumer products regardless of who is the original brand owner ;

(*b*) incorporate the principles of pollution prevention ; and

(*c*) submit on or before June 30 in each year to the Agency, an annual report on their consumer products stewardship program during the previous fiscal year including, but not limited to, information with respect to—

(*i*) the total amount of ODS sold and post- consumer products collected ;

(*ii*) the total amount of post-consumer ODS processed or in storage ;

(*iii*) the types of processes used to reduce, reuse, recycle or recover post- ODS, including but not limited to details of efforts to incorporate the priorities of a pollution prevention hierarchy by moving progressively from disposal to reduction, reuse, recycling and recovery of post-consumer ODS products ;

(*iv*) the location of return collection facilities or depots ;

(*v*) the location of any long-term containment or final treatment and processing facilities for post-consumer ;

(*vi*) the types of educational information and programs provided ;

(*vii*) the process of internal accountability used to monitor environmental effectiveness ; and

(*viii*) any other information requested by the Agency.

EIGHTH SCHEDULE

[22(3), 23(2), 24(1), 26(3), 27, 34(1), 35]

PHASE OUT DEADLINE FOR CONTROLLED SUBSTANCES

The HCFC phase out activities time table in the country is as follows—

(*a*) Base level - average of 2009 and 2010 - 344.9 ODP tonnes ;

(*b*) Freeze - January 1, 2013 - 344.9 ODP tonnes ;

(*c*) 10% reduction - January 1, 2015 - 310.41 ODP tonnes ;

(*d*) 35% reduction - January 1, 2020 - 224.17 ODP tonnes ;

(*e*) 67.5% reduction - January 1, 2025 -112.09 ODP tonnes ; and

(*f*) 100% reduction - January 1, 2030 with a service tail of 2.5% annual average during the period 2030-2040.

PART A

Group	*Substance*	*Phase-out deadline*
Group I		
(1) $CFCl_3$	(CFC-11)	Total phase-out by 1st January, 2010.
(2) CF_2Cl_2	(CFC-12)	
(3) $C_2F_3Cl_2$	(CFC-113)	
(4) $C2F_4Cl_2$	(CFC-114)	
(5) C_2F_5Cl	(CFC-115)	
Group II		
(1) CF_3BrCl	(hallon-1211)	Total phase-out by 1st January, 2010.
(2) CF_2Cl_2	(hallon-1301)	
(3) $C_2F_3Cl_2$	(CFC-113)	
(4) $C_2F_4Br_2$	(hallon-2402)	

PART B

Group	*Substance*	*Phase-out deadline*
Group I		
(1) CF_3Cl	(CFC-13)	Total phase-out by 1st January, 2010.
(2) C_2FCl_5	(CFC-111)	
(3) $C_2F_2Cl_4$	(CFC-112)	
(4) C_3FCl_1	(CFC-211)	
(5) $C_3F_2Cl_6$	(CFC-212	
(6) C3F3Cl5	(CFC-213	
(7) C3F4Cl4	(CFC-214	
(8) C3F5Cl5	(CFC-215	
(9) C3F6Cl2	(CFC-216	
(10) C3F2Cl	(CFC-217	
Group II		
CCl_4	Carbon Tetrachloride	Total phase-out by 1stJanuary, 2010

Group II			
	$C_2H_3Cl_3$	1,1,1-Trichloroethane (Methylchloroform)	Total phase-out by 1stJanuary, 2015

PART C

Group		*Substance*	*Phase-out deadline*
Group 1			
(1)	$CHFCl_2$	(HCFC-21)	Total phase-out 1st January, 2030
(2)	CHF_2Cl	(HCFC-22)	
(3)	CH_2FCl	(HCFC-31)	
(4)	CH_2FCl	(HCFC-121)	
(5)	$C_2HF_2C_3$	(HCFC-122)	
(6)	$C_2HF_3Cl_2$	(HCFC-123)	
(7)	$CHCl_2CF_3$	(HCFC-123)	
(8)	C_2HF_4Cl	(HCFC-124)	
(9)	CHFClCF	(HCFC-124)	
(10)	C_2H_2FCl	(HCFC-131)	
(11)	$C_2H_2F_2Cl_2$	(HCFC-132)	
(12)	$C_2H_2F_2Cl_2$	(HCFC-133)	
(13)	$C_2H_3FCl_2$	(HCFC-141)	
(14)	CH_3FCl_2	(HCFC-141B)	
(15)	$C_2H_3F_2Cl$	(HCFC-142)	
(16)	CH_3CF_2Cl	(HCFC-142B)	
(17)	C_2H_4FCl	(HCFC-151)	
(18)	C_3HFCl_6	(HCFC-221)	
(19)	$C_3HF_2Cl_5$	(HCFC-222)	
(20)	$C_3HF_3Cl_4$	(HCFC-223)	
(21)	C3HF4Cl3	(HCFC-224)	
(22)	$C_3HF_5Cl_2$	(HCFC-225)	
(23)	$CF_2CF3CHCl_2$	(HCFC-225ca)	
(24)	C_3ClCF_2CHClF	(HCFC-225cb)	
(25)	C_3HF_6Cl	(HCFC-226)	
(26)	$C_3H_2FCl_5$	(HCFC-231)	
(27)	$C_3H_2F_2Cl_4$	(HCFC-232)	
(28)	$C_3H_2F_3Cl_3$	(HCFC-233)	
(29)	$C3H_2F4Cl_2$	(HCFC-234)	
(30)	$C_3H_2F_5Cl$	(HCFC-235)	
(31)	$C_3H_3F_2Cl_4$	(HCFC-241)	
(32)	$C_3H_3F_2Cl_3$	(HCFC-242)	
(33)	$C_3H_3F_3Cl_2$	(HCFC-243)	
(34)	$C3H_3F_4Cl$	(HCFC-244)	
(35)	C_3H_4FCl3	(HCFC-251)	
(36)	$C_3H_4F_2Cl_2$	(HCFC-252)	

PART C—*Continued*

Group		*Substance*	*Phase-out deadline*
(37)	$C3H_4F_3Cl$	(HCFC-253)	
(38)	$C_3H_5FCl_2$	(HCFC-261)	
(39)	$C_3H_5F_2Cl$	(HCFC-262)	
(40)	C_3H_6FCl	(HCFC-271)	

Group II

PART C

Group		*Substance*	*Phase-out deadline*
			Total phase-out by 1st January, 2015
(1)	$CHFBr_2$		
(2)	CHF_2Br	(HBFC-22bl)	
(3)	C_2H_2FBR4		
(4)	C_2HF_3Br		
(5)	$C_2HF_2Br_3$		
(6)	C_2HF_4Br		
(7)	$C_2H_2FBr_3$		
(8)	$C_2H_2F_2Br_2$		
(9)	$C_2H_2F_3Br$		
(10)	$C_2H_3FBr_2$		
(11)	$C_2H_2FBR_4$		
(12)	C_3H_4FBr		
(13)	$C3HFBr_6$		
(14)	$C3HF_2Br_5$		
(15)	$C_3HF_3Br_4$		
(16)	$C_3HF_4Br_3$		
(17)	$C_3HF_4Br_2$		
(18)	C_3HF_6Br		
(19)	$C_3H_2F_2Br_5$		
(20)	$C_3H_2F_2Br_4$		
(21)	$C_3H2F_2Br_4$		
(22)	$C_3H_2F_4Br_2$		
(23)	$C_3H_2F_5Br$		
(24)	$IC_3H_3FBr_4$		
(25)	$C_3H_3F_2Br_3$		
(26)	$C_3H_3F_3Br_2$		
(27)	$C_3H_3F_4Br_2$		
(28)	$C_3H_4FBr_3$		
(29)	$C_3H_4F_2Br_2$		
(30)	$C_3H_4F_3Br$		
(31)	$C_3H_5FBr_2$		
(32)	$C_3H_5F_2Br$		
(33)	C_3H_4FBr		

Group III

	CH2BrCl	bromochloromenthane	Total phase-out by 1st January, 2015.

PART D

Group	*Substance*	*Phase-out deadline*
CH_3Br	methyl bromide	Total phase-out by 1stJanuary, 2015

PART E

Group	*Substance*	*Phase-out deadline*
HCFC HCFC-123 ; HCFC-124	R-406a ;	Total phase out by 1st January, 2020

PART F

Ban on HCFC-22-based split type and other small air conditioners (in favour of hydrocarbon-based or low GWP-based types) after 1st January 2026.

NINTH SCHEDULE [17(2)]

SUBSTITUTES FOR OZONE DEPLETING SUBSTANCES AND OTHER HFC PHASE DOWN ACTIVITIES

1. Hydrofluorocarbons (HFCs), and to a very limited extent, Perfluorocarbons(PFCs), are serving as alternatives to Ozone depleting substances (ODS) being phased-out under the Montreal Protocol.

TABLE 1—HYDROFLUOROCARBON

Chemical	*Atmospheric Lifetime (year)*	*GWP*	*Use*
HFC-32 (CH_2F_2)	4.9 5.6 5.0	543 650 550	Blend component of numerous refrigerants.
HFC-41 (CH_3F)	2.4 3.7 2.6	90 150 97	Not in use today.
HFC-43-10mee (C_5H_2F10)	15.9 17.1 15	1,610 1,300 1,500	Cleaning solvent
HFC-134 (CHF_2CHF_2)	9.6 10.6 9.6	1,090 1,000 1,100	Not in use today.
HFC-134a (CH_2FCF_3)	14 14.6 13.8	1,320 1,300 1,300	One of the most widely used refrigerant blends, component of other refrigerants, foam blowing agent, fire suppressant and propellant in metered-dose inhalers and aerosols.
HFC-143 (C_2H3F_3)	3.5 3.8 3.4	347 300 330	Not in use today.
HFC-245fa ($C_3H_3F_5$)	6.2 6.6 5.9	682 560 640	Not in use today; possible refrigerant in the future.
HFC-365mfc ($C_4H_5F_5$)	7.6 — 7.2	1,020 — 950	Foam blowing agent and possible refrigerant in the future.
HFC-365mfc ($C_4H_5F_5$)	8.6 — 9.9	782 — 950	Some use as a foam-blowing agent ; possible refrigerant in the future.

TABLE II—PERFLUOROCARBON

Chemical	*Atmospheric Lifetime (year)*	*GWP*	*Use*
Perfluoromethane (CF_4)	50,000 50,000 50,000	5,820 6,500 5,700	Plasma etching and cleaning in semi-conductor production and low temperature refrigerant.
Perfluoroethane (C_2F_6)	10,000 10,000 10,000	12,010 9,200 11,900	Plasma etching and cleaning in semiconductor production.
Perfluoropropane (C_3F_8)	2,600 2,600 2,600	8,690 7,000 8,600	Plasma etching and cleaning in semiconductor production, low temperature refrigerant and fire suppressant.
Perfluorobutane ($C4F_{10}$)	2,600 2,600 2,600	8,710 7,000 8,600	Fire suppressant and refrigerant where no other alternatives are technically feasible.
Perfluorocyclo-butane (C_4F_8)	3,200 3,200 3,200	10,090 8.700 10,000	Not used much if any. Refrigerant where no other alternatives are technically feasible.
Perfluoropentane ($C5F1_2$)	4,100 4,100 4,100	9,010 7,500 8,900	Not used much if any. Precision cleaning solvent-low use refrigerant where no other alternatives are technically feasible.
Perfluorohexane (C_6F14)	3,200 3,200 3,200	9,140 7,400 9,000	Precision cleaning solvent-low use, refrigerant and fire suppressant where no other alternatives are technically feasible.

TABLE III—NITROGEN TRIFLUORIDE (NF_3)

Chemical	*Atmospheric Lifetime (year)*	*GWP*	*Use*
NF_3	740 — —	10,970 — —	Plasma etching and cleaning in semiconductor production.

TABLE IV—SULFUR HEXAFLUORIDE

Chemical	*Atmospheric Lifetime (year)*	*GWP*	*Use*
Sulfur hexafluoride (SF_6)	3,200 3,200 3,200	22,450 23,900 22,200	Cover gas in magnesium production, casting dielectric gas and insulator in electric power equipment fire suppression. Also used as a discharge agent in military systems and formerly an aerosol propellant.

Source : *Table 1-6 of the Scientific Assessment of Ozone Depletion, 2002.*
The second and third values in each of these columns are from the Intergovernmental Panel on Climate Change (IPCC).
Second Assessment Report : Climate Change 1995 and the IPCC.
Third Assessment Report : Climate Change 2001, respectively.

TABLE V—SUBSTANCES PROPOSED UNDER VARIOUS TEST PROGRAMS AND IN ASHRAE 34 (ALSO HFC ALTERNATIVES EXCEPT HFC 32)

Refrigerant Designation	Proposed to replace (from AREP phase I)	Safety Class	Participation in AREP program		High ambient programmes for HCFC-22 and R-410A alternatives			Chemical Formula	Chemical Name	Molecular Weight	Boiling Point (°C)	ATEL/ODL (kg/m³)	LFL (kg/m³)	GWP 100 Year (IPCC5)	GWP 100 Year (RTOC)
			Phase 1	Phase 2	PRAHA	EGYPRA	US DoE								
HFC-32	R-404A, R-410A*	A2L	X	X	X	X	X	CH_2F_2	Difluoro-methane (methylene fluoride)	52,0	−52	0,30	0,307	677	704
HC-290	HCFC-22, R-404A, R-407C	A3	X		X	X	X	$CH_3CH_2CH_3$	propane	44,1	−42	0,09	0,038		5
HC-600a	HFC-134a	A3	X					$CH(CH_3)_2$-CH_3	2-methyl-propane (isobutane)	58,1	−12	0,059	0,043		~20
R-717	HCFC-22, R-407C	B2L	X					NH_3	ammonia	17,0	−33	0,000 22	0,116		
R-744	R-404A, R-410A	A1	X					CO_2	carbon dioxide	44,0	−78[a]	0,072	NF	1	1
HCFO-1233zd(E)	HCFC-123	A1		X				CF_3CH=$CHCl$	trans-1-chloro-3,3,3-trifluoro-1-propene	130,5	18,1	0	NF	1	1
HFO-1234yf	HFC-134a	A2L	X	X				CF_3CF=CH_2	2,3,3,3-tetrafluoro-1-propene	114,0	−29,4	0,47	0,289	<1	<1
HFO-1234ze(E)	HFC-134a	A2L	X	X				CF_3CH=CHF	trans-1,3,3,3-tetrafluoro-1-propene	114,0	−19,0	0,28	0,303	<1	<1
HC-1270	HCFC-22, R-407C	A3	X					CH_3CH=CH_2	propene (propylene)	42,1	−48	0,001 7	0,046		1,8
HFO-1336mzz (Z)	HCFC-123	A1						CF_3CH=CH-CF_3	cis-1,1,1,4,4,4-hexafluoro-2-butene	164,1	33,4	0	NF	2	2
HCC-1130(E)**	HCFC-123	B2						$CHCl$=$CHCl$	trans-dichloro-ethene	96,9	47,7			<1	<1

Notes: Fluids given with a green background are fluids which were not previously mentioned in the XXVI/9 Task Force report.

* HFC-32 was proposed to replace R-404A and R-410A in phase I of the AREP program but is only proposed to replace R-410A in phase II of same and later projects.

[a] For R-744 the sublimation temperature is given instead of boiling point. Triple point is "56,6 °C at 5,2 bar.

**HCC-1130(E) is pending official ASHRAE 34 approval, submitted January 2016.

TABLE VII—BLEND REFRIGERANTS PROPOSED UNDER VARIOUS TEST PROGRAMS OR IN ASHRAE 34

Refrigerant Designation	Refrigerant development name	Proposed to replace (from AREP phase I)	Safety Class	Participation in AREP program: Phase 1	Participation in AREP program: Phase 2	High ambient programmes for HCFC-22 and R-410A alternatives: PRAHA	High ambient programmes for HCFC-22 and R-410A alternatives: EGYPRA	High ambient programmes for HCFC-22 and R-410A alternatives: US DoE	Composition	Molecular Weight	Bubble point/dew or Normal boiling point (°C)	GWP 100 Year (IPCC5)	GWP 100 Year (RTOC)
R-514A**	XP30	HCFC-123	B1						R-1336mzz(Z)/1130 (E) (74,7/25,3)	139,6		1,7	1,7
—	ARM-41a	HFC-134a	A1	X					R-134a/1234yf/32 (63/31/6)	99,5		860	900
R-513A	XP10	HFC-134a	A1	X	X				R-1234yf/134a (56/44)	108,4	−29,2	570	600
—	N-13a	HFC-134a	A1	X					R-134a/1234ze(E)/1234yf (42/40/18)	108,7		550	570
R-450A	N-13b	HFC-134a	A1	X	X				R-1234ze(E)/134a (58/42)	108,7	−23,4/ −22,8	550	570
R-515A**	HDR-115	HFC-134a	A1						R-1234ze(E)/227ea (88/12)	118,7	-19,2	400	380
R-513B*		HFC-134a	A1						R-1234yf/134a (58,5/41,5)	108,7	−29,9	540	560
—	D-4Y	HFC-134a	A1	X	X				R-1234yf/134a (60/40)	108,9		520	540
—	AC5X	HFC-134a	A1	X	X				R-1234ze(E)/134a/32 (53/40/7)	100,9		570	590
—	ARM-42a	HFC-134a	A2L	X	X				R-1234yf/152a/134a (82/11/7)	104,8		110	110
R-444A	AC5	HFC-134a	A2L	X	X				R-1234ze(E)/32/152a (83/12/5)	96,7	−34,3/ −24,3	89	93
R-445A	AC6	HFC-134a	A2L						R-744/134a/1234ze(E) (6/9/85)	103,1	−50,3/ −23,5	120	120
—	R290/R600a	HFC-134a	A3	X					R-600a/290 (60/40)	51,6			14
R-456A**		HFC-134a	A1						R-32/134a/1234ze(E) (6/45/49)	101,4	-31,1/ -25,7	630	650
R-407G		HFC-134a	A1						R-32/125/134a (2,5/2,5/95,0)	100,0	-29,1/ -27,2	1 300	1 400
—	LTR4X	HCFC-22, R-407C	A1	X	X				R-1234ze(E)/32/125/134a (31/28/25/16)	85,1		1 200	1 300
—	N-20	HCFC-22, R-407C	A1	X	X				R-134a/1234ze(E)/1234yf/ 32/125 (31,5/30/13,5/12,5/12,5)	96,7		890	950
—	D52Y	HCFC-22, R-407C	A2L	X	X				R-1234yf/125/32 (60/25/15)	97,8		890	970

—	L-20	HCFC-22, R-407C	A2L	X				R-32/1234ze(E)/152a (45/35/20)	67,8		330	350
—	LTR6A	HCFC-22, R-407C	A2L	X	X			R-1234ze(E)/32/744 (63/30/7)	77,6		200	210
R-444B	L-20a	HCFC-22, R-407C	A2L		X	X	X	R-32/1234ze(E)/152a (41,5/48,5/10)	72,8	−44,6/ −34,9	300	310
—	ARM-32a	HCFC-22, R-404A, R-407C	A1	X				R-125/32/134a/1234yf (30/25/25/20)	86,9		1 400	1 600
R-442A		HCFC-22, R-404A, R-407C	A1		X			R-32/125/134a/152a/227ea (31,0/31,0/30,0/3,0/5,0)	81,8	−46,5/ −39,9	1 800	1 900
R-449B		HCFC-22, R-404A, R-407C	A1					R-32/125/1234yf/134a (25,2/24,3/23,2/27,3)	86,4	−46,1/ −40,2	1 300	1 400
R-449C*	DR-93	HCFC-22, R-407C	A1				X	R-32/125/1234yf/134a (20/20/31/29)	90,3	−45,5/ −38,5	1 100	1 200
R-453A	RS-70	HCFC-22, R-407C	A1					R-32/125/134a/227ea/600/ 601a (20,0/20,0/53,8/5,0/0,6/0,6)	88,8	-42,2/ -35,0	1 600	1 700
R-407H*		HCFC-22, R-407C	A1					R-32/125/134a (32,5/15,0/52,5)	79,1	-44,6/ -37,6	1 400	1 500
R-449A	DR-33 (XP40)	R-404A	A1	X	X			R-32/125/1234yf/134a (24,3/24,7/25,3/25,7)	87,2	−46,0/ −39,9	1 300	1 400
—	N-40a	R-404A	A1	X				R-32/125/134a/1234ze(E)/ 1234yf (25/25/21/20/9)	87		1 200	1 300
—	N-40b	R-404A	A1	X				R-1234yf/32/125/134a (30/25/25/20)	87,1		1 200	1 300
R-452A	DR-34 (XP44)	R-404A	A1		X			R-1234yf/32/125 (30/11/59)	103,5	−47,0/ −43,2	1 900	2 100
R-452C**	ARM-35	R-404A	A1					R-32/125/1234yf (12,5/61,0/26,5)	101,9	-47,8/ -44,4	2 000	2 200
R-448A	N-40c	R-404A	A1		X			R-32/125/1234yf/134a/ 1234ze(E) (26,0/26,0/20,0/21,0/7,0)	86,3	−45,9/ −39,8	1 300	1 400
—	R32/R134a	R-404A	A2L	X				R-32/134a (50/50)	68,9		990	1 000
—	ARM-31a	R-404A	A2L	X				R-1234yf/32/134a (51/28/21)	83,9		460	480
—	L-40	R-404A	A2L	X	X			R-32/1234ze(E)/1234yf/ 152a (40/30/20/10)	73,6		290	300
R-454A	DR-7[5]	R-404A	A2L	X	X			R-1234yf/32 (65/35)	80,5	−48,4/ −41,6	240	250
R-454C*	DR-3	R-404A	A2L		X	X	X	R-1234yf/32 (78,5/21,5)	90,8	−45,8/ −38,0	150	150
R-454A	D2Y-65	R-404A	A2L	X	X			R-1234yf/32 (65/35)	80,5	−48,4/ −41,6	240	250
R-457A**	ARM-20a	R-404A	A2L					R-32/1234yf/152a (18/70/12)	87,6		140	150

—	ARM-30a	R-404A	A2L	X			R-1234yf/32 (71/29)	84,7		200	200
R-455A	HDR-110	R-404A	A2L	X			R-32/1234yf/744 (21,5/75,5/3)	87,5	-51,6/ -39,1	150	150
—	R32/R134a	R-410A	A2L	X			R-32/134a (95/5)	53,3		710	740
—	R32/R152a	R-410A	A2L	X			R-32/152a (95/5)	52,6		650	680
—	DR-5	R-410A	A2L	X			R-32/1234yf (72,5/27,5)	61,2		490	510
—	L-41a	R-410A	A2L	X			R-32/1234yf/1234ze(E) (73/15/12)	61		490	510
—	L-41b	R-410A	A2L	X			R-32/1234ze(E) (73/27)	61		490	510
—	ARM-70a	R-410A	A2L	X			R-32/1234yf/134a (50/40/10)	70,9		470	490
—	HPR1D	R-410A	A2L	X	X		R-32/1234ze(E)/744 (60/34/6)	63		410	420
—	D2Y-60	R-410A	A2L	X	X		R-1234yf/32 (60/40)	77,2		270	280
R-454B	DR-5A	R-410A	A2L	X	X	X	X R-32/1234yf (68,9/31,1)	62,6	-50,9/ -50,0	470	490
R-452B**	DR-55 (XL55)	R-410A	A2L				X R-32/1234yf/125 (67/26/7)	63,5	-50,9/- 50,0	680	710
R-446A	L-41-1	R-410A	A2L	X			R-32/1234ze(E)/600 (68,0/29,0/3,0)	62	-49,4/ -44,0	460	480
R-447A	L-41-2	R-410A	A2L	X	X	X	X R-32/125/1234ze(E) (68,0/3,5/28,5)	63	-49,3/ -44,2	570	600
R-447B**	L-41z	R-410A	A2L				R-32/125/1234ze(E) (68,0/8,0/24,0)	63,1	-50,3/ -46,2	710	750

Notes : Fluids given with a green background are fluids which were not mentioned in the XXVI/9 Task Force report.

* Indicates refrigerants pending official ASHRAE 34 approval, submitted June 2015.

** Indicates refrigerants pending official ASHRAE 34 approval submitted January 2016.

£% DR-7 has changed nominal composition slightly from originally R-1234yf/32 (64/36) to R-1234yf/32 (65/35).

2. HFC Phase Down

The HFC phase down activities shall be as the following :

(*a*) Base level : Average of 2020 - 2022 + 65% HCFC baseline- XX tonnes CO2e*
(*b*) Freeze : January 1, 2024 - X tonnes CO2e
(*c*) 10% reduction : January 1, 2029 - Y tonnes CO2e
(*d*) 30% reduction : January 1, 2035 - Z tonnes CO2e
(*e*) 50% reduction : January 1, 2040 - ZZ tonnes CO2e
(*f*) 80% reduction : January 1, 2045 - ZZZ tonnes CO2e

TENTH SCHEDULE

[23(1), 29(1), 30(1), 31, 32(1)]

CONTROLLED HYDROFLUOROCARBONS

Number	*ASHRAE NUMBER*	*Chemical Name/ COMPONENTS*	*Global Warning Potential (100yr)*	*HS Code* 2017
1.	HFC-134a	1,1,1,2-tetrafluoroethane	1430	2903.39.90
2.	HFC-134	1,1,2,2-tetrafluoroethane	1100	2903.39.90
3.	HFC-152a	1,1-Difluoroethane	124	2903.39.90
4.	HFC-152	1,2-Difluoroethane	53	2903.39.90
5.	HFC-125	1,1,2,2,2-Pentafluoroethane	3500	2903.39.90
6.	HFC-143a	1,1,1-trifuoloroethane	4470	2903.39.90
7.	HFC-161	2-fluoroethane	12	2903.39.90
8.	HFC-32	Difuoroethane	704	2903.39.90
9.	HFC-227ea	1,1,1,2,3,3,3-heptaflouropentane	3200	2903.39.90
10.	HFC-236cb	1,2,2,3,3,3-hexafluoropropane	1340	2903.39.90
11.	HFC-236ea	1,1,2,3,3,3-hexafluoropropane	1370	2903.39.90
12.	HFC-236fa	1,1,1,3,3,3-hexafluoropentane	9810	2903.39.90
13.	HFC-365mfc	1,1,1,3,3-pentafluorobutane	794	2903.39.90
14.	HFC-23	Trifluoromethane	14800	2903.39.90
15.	HFC-41	Fluoromethane	92	2903.39.90
16.	HFC-245fa	1,1,1,3,3-pentafluopropane	1030	2903.39.90
17.	HFC-245ca	1,2,2,3,3-pentafluoropropane	693	2903.39.90
18.	HFC-43-10mee	1,1,1,2,2,3,4,5,5,5-decafluoropentane	1,640	2903.39.90

ELEVENTH SCHEDULE

USE OF METHYL BROMIDE FOR QUARANTINE AND PRE-SHIPMENT PURPOSES

1. The National Ozone Office and Nigerian Agricultural Quarantine Services shall strictly monitor the usage of methyl bromide for quarantine and pre-shipment purposes.

2. A fumigation chamber shall be used for fumigating agricultural products with Methyl bromide before exportation of such products.

3. The National Ozone Office and Nigerian Agricultural Quarantine Services shall monitor the fumigation of any produce using methyl bromide.

4. The National Ozone Office shall certify any fumigation chamber for methyl bromide.

5. The National Ozone Office also be responsible for monitoring the consumption of methyl bromide for quarantine purposes.

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