

SUBSTANCES CONTROLLED UNDER CERTAIN CONVENTIONS

Certain substances and commodities that cross borders are considered to be “environmentally sensitive” for human health or ecosystems because of their hazardous qualities, their potential misuse or their possible impact on biodiversity. Such items include banned or restricted chemicals. To effectively monitor and control the transboundary movement of such substances it is important to identify these substances in the Harmonized System.

More information on the Conventions or on the practical aspect of the transfer provisions of the substances mentioned here could be found on the websites mentioned at the end of this material.

Disclaimer: HS codes of some of the substances listed below have not been officially decided by the Harmonized System Committee. In the case of doubt, official guidance should be sought from the relevant Customs administration.

**SUBSTANCES AND THEIR PREPARATIONS CONTROLLED UNDER THE
ROTTERDAM CONVENTION**

The Rotterdam Convention covers pesticides and industrial chemicals that have been banned or severely restricted for health or environmental reasons by Parties and which have been notified by Parties for inclusion in the Prior Informed Consent (PIC) procedure.

The PIC procedure is a mechanism for formally obtaining and disseminating the decisions of importing Parties as to whether they wish to receive future shipments of those chemicals listed in Annex III of the Convention and for ensuring compliance with these decisions by exporting Parties.

The followings are the substances controlled under the Rotterdam Convention with their HS 2022 codes :

PESTICIDES	CAS No	HS	HS (Preparations)
2,4,5-T (ISO) (2,4,5 trichlorophenoxyacetic acid), and its salts and esters	93-76-5* ¹	2918.91	3808.59
Alachlor	15972-60-8	2924.25	3808.59
Aldicarb	116-06-3	2930.80	3808.59
Aldrin	309-00-2	2903.82	3808.59 3824.84
Azinphos-methyl	86-50-0	2933.92	3808.59
Binapacryl	485-31-4	2916.16	3808.59
Captafol	2425-06-1	2930.80	3808.59
Carbofuran	1563-66-2	2932.96	3808.59
Chlordane	57-74-9	2903.82	3808.59 3824.84
Chlordimeform	6164-98-3	2925.21	3808.59
Chlorobenzilate	510-15-6	2918.18	3808.59
DDT	50-29-3	2903.92	3808.52 3808.59 3824.84
Dieldrin	60-57-1	2910.40	3808.59 3824.84
Dinitro-ortho-cresol (DNOC) and its salts (such as ammonium salt, potassium salt and sodium salt)	534-52-1 2980-64-5 5787-96-2 2312-76-7	2908.92	3808.59
Dinoseb and its salts and esters (esters 2915.36, etc)	88-85-7*	2908.91	3808.59
Dinoseb acetate	2813-95-8	2915.36	3808.59
EDB (1,2-dibromoethane)	106-93-4	2903.62	3808.59 3811.19
Endosulfan	115-29-7	2920.30	3808.59 3824.84

¹ The asterisk denotes that the CAS RN given is that of the parent molecule.

Ethylene dichloride	107-06-2	2903.15	3808.59
Ethylene oxide	75-21-8	2910.10	3808.59 3824.81
Fluoroacetamide	640-19-7	2924.12	3808.59
HCH (mixed isomers)	608-73-1	2903.81	3808.59 3824.85
Heptachlor	76-44-8	2903.82	3808.59 3824.84
Hexachlorobenzene	118-74-1	2903.92	3808.59 3824.86
Lindane (gamma-HCH)	58-89-9	2903.81	3808.59 3824.85
Mercury compounds, including inorganic mercury compounds, alkyl mercury compounds and alkyloxyalkyl and aryl mercury compounds		2852.10	3808.59
Methamidophos	10265-92-6	2930.80	3808.59
Monocrotophos	6923-22-4	2924.12	3808.59
Parathion	56-38-2	2920.11	3808.59
Pentachlorophenol and its salts and esters	87-86-5	2908.11 2908.19	3808.59
Phorate	298-02-2	2930.90	3808.91
Toxaphene (camphechlor)	8001-35-2	n.a	3808.59 3824.84
Tributyltin compounds	1461-22-9, 1983-10-4, 2155-70-6, 24124-25-2, 4342-36-3, 56-35-9, 85409-17-2	2931.20	3808.59
Trichlorfon	52-68-6	2931.54	3808.59
Dustable powder formulations containing a combination of benomyl at or above 7%, carbofuran at or above 10% and thiram at or above 15%	137-26-8, 1563-66-2, 17804-35-2	n.a	3808.59
Methyl-parathion (Emulsifiable concentrates (EC) at or above 19.5% active ingredient and dusts at or above 1.5% active ingredient)	298-00-0	2920.11 (pure)	3808.59
Phosphamidon (Soluble liquid formulations of the substance that exceed 1000 g active ingredient/l)	13171-21-6	2924.12 (pure)	3808.59

INDUSTRIAL CHEMICAL SUBSTANCES		CAS No	HS	HS (Mixtures)
Asbestos	Actinolite asbestos	77536-66-4	2524.90	6811.40
	Amosite asbestos	12172-73-5	2524.90	68.12
	Anthophyllite asbestos	77536-67-5	2524.90	6813.20
	Crocidolite asbestos	12001-28-4	2524.10	
	Tremolite asbestos	77536-68-6	2524.90	
Commercial octabromodiphenyl ether (including hexabromodiphenyl ether and heptabromodiphenyl ether)		36483-60-0, 68928-80-3	2909.30	3824.88
Commercial pentabromodiphenyl ether (including tetrabromodiphenyl ether and pentabromodiphenyl ether)		32534-81-9, 40088-47-9	2909.30	3824.88
Hexabromocyclododecane (HBCDD)		25637-99-4 3194-55-6 134237-50-6 134237-51-7 134237-52-8	2903.89	3824.99
Perfluorooctane sulphonic acid, perfluorooctane sulphonates, perfluorooctane sulphonamides and perfluorooctane sulphonyls		1691-99-2, 1763-23-1, 24448-09-7, 251099-16-8, 2795-39-3, 29081-56-9, 29457-72-5, 307-35-7, 31506-32-8, 4151-50-2, 56773-42-3, 70225-14-8	2904.31 2904.32 2904.33 2904.34 2904.36 2922.16 2923.30 2923.40 2935.10 2935.20 2935.30 2935.40	3808.59 3824.87
Polybrominated Biphenyls (PBBs)		13654-09-6, 27858-07-7, 36355-01-8	2903.94 2903.99	3824.82
Polychlorinated Biphenyls (PCBs)		1336-36-3	2903.99	3824.82
Polychlorinated Terphenyls (PCTs)		61788-33-8	2903.99	3824.82
Short-chain chlorinated paraffins (SCCP)		85535-84-8		3824.89
Tetraethyl lead		78-00-2	2931.10	3811.11
Tetramethyl lead		75-74-1	2931.10	3811.11
Tributyltin compounds		1461-22-9, 1983-10-4, 2155-70-6, 24124-25-2, 4342-36-3, 56-35-9, 85409-17-2	2931.20	3808.59
Tris(2,3-dibromopropyl)phosphate		126-72-7	2919.10	3824.83

SUBSTANCES AND THEIR PREPARATIONS CONTROLLED UNDER THE STOCKHOLM CONVENTION

The Stockholm Convention on Persistent Organic Pollutants is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment.

Exposure to Persistent Organic Pollutants (POPs) can lead to serious health effects including certain cancers, birth defects, dysfunctional immune and reproductive systems, greater susceptibility to disease and damages to the central and peripheral nervous systems.

Given their long-range transport, no government acting alone can protect its citizens or its environment from POPs.

In response to this global problem, the Stockholm Convention, which was adopted in 2001 and entered into force in 2004, requires its parties to take measures to eliminate or reduce the release of POPs into the environment.

Among others, the provisions of the Convention require each party to:

- Prohibit and/or eliminate the production and use, as well as the import and export, of the intentionally produced POPs that are listed in Annex A to the Convention (Article 3).
- Restrict the production and use, as well as the import and export, of the intentionally produced POPs that are listed in Annex B to the Convention (Article 3).
- Reduce or eliminate releases from unintentionally produced POPs that are listed in Annex C to the Convention (Article 5).
- Ensure that stockpiles and wastes consisting of, containing or contaminated with POPs are managed safely and in an environmentally sound manner (Article 6).
- To target additional POPs (Article 8).

The followings are the substances controlled under the Stockholm Convention with their HS 2022 codes :

CHEMICAL ANNEX A	CAS No	HS	HS (Preparations)
Aldrin	309-00-2	2903.82	3808.59 3824.84
Chlordane	57-74-9	2903.82	3808.59 3824.84
Chlordecone	143-50-0	2914.71	3808.91 3824.84
Dicofol	115-32-2 10606-46-9	2906.29	3808.99 3824.99
Dieldrin	60-57-1	2910.40	3808.59 3824.84
Endosulfan	115-29-7	2920.30	3808.59 3824.84
Endrin	72-20-8	2910.50	3808.91 3824.84
Heptachlor	76-44-8	2903.82	3808.59 3824.84
Hexabromobiphenyl	36355-01-8	2903.94	3824.82
Hexabromocyclododecane	25637-99-4 3194-55-6 134237-50-6 134237-51-7 134237-52-8	2903.89	3824.99
Tetrabromodiphenyl ether	40088-47-9** ²	2909.30	3824.88
Pentabromodiphenyl ether	32534-81-9**	2909.30	3824.88
Hexabromodiphenyl ether	68631-49-2 36483-60-0**	2909.30	3824.88
Heptabromodiphenyl ether	446255-20-5 68928-80-3**	2909.30	3824.88
Octabromodiphenyl ether	32536-52-0	2909.30	3824.88
Decabromodiphenyl ether	1163-19-5	2909.30	3824.99
Hexachlorobenzene (HCB)	118-74-1	2903.92	3808.59 3824.86
Hexachlorobutadiene (HCBd)	87-68-3	2903.29	3824.99
Hexachlorocyclohexanes HCH	608-73-1	2903.81	3808.59 3824.85
alpha-HCH	319-84-6	2903.81	3808.59 3824.85
beta-HCH	319-85-7	2903.81	3808.59 3824.85
gamma-HCH (Lindane)	58-89-9	2903.81	3808.59 3824.85
delta-HCH	319-86-8	2903.81	3808.59 3824.85

² The double asterisk “**” denotes that there exist other CAS RN as well.

Mirex	2385-85-5	2903.83	3808.91 3824.84
Pentachlorobenzene	608-93-5	2903.93	3824.86
Pentachlorophenol and its salts and esters	87-86-5**	2908.11 2908.19	3808.59 3824.99
Polychlorinated biphenyls, (PCBs)		2903.99	3824.82
Polychlorinated naphthalenes		2903.99	3824.99
Perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds	335-67-1	2915.90	3824.99
Short-chain chlorinated paraffins			3824.89
Toxaphene	8001-35-2		3808.59 3824.84
CHEMICAL ANNEX B	CAS No	HS	HS (Preparations)
DDT	50-29-3	2903.92	3808.52 3808.59 3824.84
Perfluorooctane sulphonic acid, its salts: Ammonium perfluorooctane sulphonate Lithium perfluorooctane sulphonate Potassium perfluorooctane sulphonate Other salts	1763-23-1 29081-56-9 29457-72-5 2795-39-3	2904.31 2904.32 2904.33 2904.34 2904.35	3808.59 3824.87
Perfluorooctane sulphonyl fluoride	307-35-7	2904.36	3824.87
CHEMICAL ANNEX C	CAS No	HS	HS (Preparations)
Hexachlorobenzene (HCB)	118-74-1	2903.92	3808.59 3824.86
Hexachlorobutadiene (HCBd)	87-68-3	2903.29	3824.99
Pentachlorobenzene	608-93-5	2903.93	3824.86
Polychlorinated biphenyls, (PCBs)		2903.99	3824.82
Polychlorinated dibenzo-p-dioxins (PCDDs)		2932.99	3824.99
Polychlorinated dibenzofurans (PCDFs)		2932.99	3824.99
Polychlorinated naphthalenes		2903.99	3824.99

SUBSTANCES AND THEIR PREPARATIONS CONTROLLED UNDER THE MONTREAL PROTOCOL

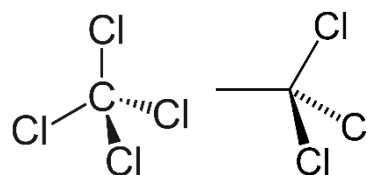
The Montreal Protocol on Substances that Deplete the Ozone Layer (a protocol to the Vienna Convention for the Protection of the Ozone Layer) is an international treaty designed to protect the ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion.

This phase-out plan includes both the production and consumption of ozone-depleting substances.

CHEMICAL STRUCTURES OF SUBSTANCES

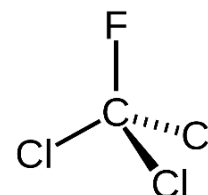
Carbon tetrachloride(CCl₄), methyl chloroform (C₂H₃Cl₃)

Are chlorinated derivatives of acyclic saturated hydrocarbons substituting some or all H atoms by Cl atoms



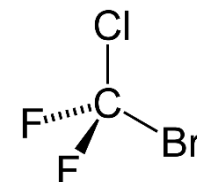
ChloroFluoroCarbons (CFCs)

Are halogenated derivatives of acyclic saturated hydrocarbons substituting all H atoms by Cl or F atoms (contain two different type of halogens)



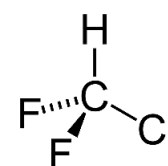
Halons

Are halogenated derivatives of acyclic hydrocarbons substituting some H atoms by Cl, F or Br atoms (contain two or three different type of halogens)



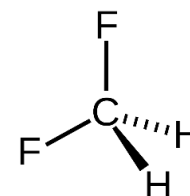
HydroChloroFluoroCarbons (HCFCs)

Are halogenated derivatives of acyclic saturated hydrocarbons substituting some H atoms by Cl or F atoms (contain two different type of halogens)



HydroFluoroCarbons (HFCs)

Is the last generation of fluorinated refrigerants. They are halogenated derivatives of acyclic saturated hydrocarbons substituting some H atoms by F atoms



All substances are halogenated derivatives of hydrocarbons classified in heading 29.03

OZONE DEPLETING SUBSTANCES

ASHRAE DESIGNATION	CHEMICAL NAME * (* Including their isomers)	FORMULA	HS CODES
Annex A, Group I (CFCs)			
CFC-11	Trichlorofluoromethane	CFCl ₃	2903.77
CFC-12	Dichlorodifluoromethane	CF ₂ Cl ₂	2903.77
CFC-113	Trichlorotrifluoroethane	C ₂ F ₃ Cl ₃	2903.77
CFC-114	Dichlorotetrafluoroethane	C ₂ F ₄ Cl ₂	2903.77
CFC-115	Chloropentafluoroethane	CClF ₂ CF ₃	2903.77
Annex A, Group II (Halons)			
Halon-1211	Bromochlorodifluoromethane	CF ₂ BrCl	2903.76
Halon-1301	Bromotrifluoromethane	CF ₃ Br	2903.76
Halon-2402	Dibromotetrafluoroethane	C ₂ F ₄ Br ₂	2903.76
Annex B, Group I (Other CFCs)			
CFC-13	Chlorotrifluoromethane	CF ₃ Cl	2903.77
CFC-111	Pentachlorofluoroethane	C ₂ FCl ₅	2903.77
CFC-112	Tetrachlorodifluoroethane	C ₂ F ₂ Cl ₄	2903.77
CFC-211	Heptachlorofluoropropane	C ₃ FCl ₇	2903.77
CFC-212	Hexachlorodifluoropropane	C ₃ F ₂ Cl ₆	2903.77
CFC-213	Pentachlorotrifluoropropane	C ₃ F ₃ Cl ₅	2903.77
CFC-214	Tetrachlorotetrafluoropropane	C ₃ F ₄ Cl ₄	2903.77
CFC-215	Trichloropentafluoropropane	C ₃ F ₅ Cl ₃	2903.77
CFC-216	Dichlorohexafluoropropane	C ₃ F ₆ Cl ₂	2903.77
CFC-217	Chloroheptafluoropropane	C ₃ F ₇ Cl	2903.77
Annex B, Group II			
Tetrachloromethane or Carbon tetrachloride		CCl ₄	2903.14
Annex B, Group III			
1,1,1-Trichloroethane or Methyl chloroform		C ₂ H ₃ Cl ₃	2903.19
Annex C, Group I (HCFCs)			
HCFC-21	Dichlorofluoromethane	CHFCl ₂	2903.79
HCFC-22	Chlorodifluoromethane	CHF ₂ Cl	2903.71
HCFC-31	Chlorofluoromethane	CH ₂ FCl	2903.79
HCFC-121	Tetrachlorofluoroethane	C ₂ HFCl ₄	2903.79
HCFC-122	Trichlorodifluoroethane	C ₂ HF ₂ Cl ₃	2903.79
HCFC-123	Dichlorotrifluoroethane	C ₂ HF ₃ Cl ₂	2903.72
HCFC-124	Chlorotetrafluoroethane	C ₂ HF ₄ Cl	2903.79
HCFC-131	Trichlorofluoroethane	C ₂ H ₂ FCl ₃	2903.79
HCFC-132	Dichlorodifluoroethane	C ₂ H ₂ F ₂ Cl ₂	2903.79
HCFC-133	Chlorotrifluoroethane	C ₂ H ₂ F ₃ Cl	2903.79
HCFC-141	Dichlorofluoroethane	C ₂ H ₃ FCl ₂	2903.73
HCFC-141b	1,1-Dichloro-1-fluoroethane	CH ₃ CFCl ₂	2903.73
HCFC-142	Chlorodifluoroethane	C ₂ H ₃ F ₂ Cl	2903.74
HCFC-142b	1-Chloro-1,1-difluoroethane	CH ₃ CF ₂ Cl	2903.74
HCFC-151	Chloro fluoroethane	C ₂ H ₄ ClF	2903.79
HCFC-221	Hexachlorofluoropropane	C ₃ HFCl ₆	2903.79
HCFC-222	Pentachlorodifluoropropane	C ₃ HF ₂ Cl ₅	2903.79
HCFC-223	Tetrachlorotrifluoropropane	C ₃ HF ₃ Cl ₄	2903.79
HCFC-224	Trichlorotetrafluoropropane	C ₃ HF ₄ Cl ₃	2903.79
HCFC-225	Dichloropentafluoropropane	C ₃ HF ₅ Cl ₂	2903.75
HCFC-225ca	3,3-Dichloro-1,1,1,2,2-pentafluoropropane	C ₃ HF ₅ Cl ₂	2903.75
HCFC-225cb	1,3-Dichloro-1,1,2,2,3-pentafluoropropane	C ₃ HF ₅ Cl ₂	2903.75
HCFC-226	Chlorohexafluoropropane	C ₃ HF ₆ Cl	2903.79
HCFC-231	Pentachlorofluoropropane	C ₃ H ₂ FCl ₅	2903.79
HCFC-232	Tetrachlorodifluoropropane	C ₃ H ₂ F ₂ Cl ₄	2903.79

HCFC-233	Trichlorotrifluoropropane	C ₃ H ₂ F ₃ Cl ₃	2903.79
HCFC-234	Dichlorotetrafluoropropane	C ₃ H ₂ F ₄ Cl ₂	2903.79
HCFC-235	Chloropentafluoropropane	C ₃ H ₂ F ₅ Cl	2903.79
HCFC-241	Tetrachlorofluoropropane	C ₃ H ₃ FCl ₄	2903.79
HCFC-242	Trichlorodifluoropropane	C ₃ H ₃ F ₂ Cl ₃	2903.79
HCFC-243	Dichlorotrifluoropropane	C ₃ H ₃ F ₃ Cl ₂	2903.79
HCFC-244	Chlorotetrafluoropropane	C ₃ H ₃ F ₄ Cl	2903.79
HCFC-251	Trichlorofluoropropane	C ₃ H ₄ FCl ₃	2903.79
HCFC-252	Dichlorodifluoropropane	C ₃ H ₄ F ₂ Cl ₂	2903.79
HCFC-253	Chlorotrifluoropropane	C ₃ H ₄ F ₃ Cl	2903.79
HCFC-261	Dichlorofluoropropane	C ₃ H ₅ FCl ₂	2903.79
HCFC-262	Chlorodifluoropropane	C ₃ H ₅ F ₂ Cl	2903.79
HCFC-271	Chlorofluoropropane	C ₃ H ₆ FCl	2903.79
Annex C, Group II (HBFCs)			
HBFC-21 B2	Dibromofluoromethane	CHFBr ₂	2903.79
HBFC-22 B1	Bromodifluoromethane	CHF ₂ Br	2903.79
HBFC-31 B1	Bromofluoromethane	CH ₂ FBr	2903.79
HBFC-121 B4	Tetrabromofluoroethane	C ₂ HFBr ₄	2903.79
HBFC-122 B3	Tribromodifluoroethane	C ₂ HF ₂ Br ₃	2903.79
HBFC-123 B2	Dibromotrifluoroethane	C ₂ HF ₃ Br ₂	2903.79
HBFC-124 B1	Bromotetrafluoroethane	C ₂ HF ₄ Br	2903.79
HBFC-131 B3	Tribromofluoroethane	C ₂ H ₂ FBr ₃	2903.79
HBFC-132 B2	Dibromodifluoroethane	C ₂ H ₂ F ₂ Br ₂	2903.79
HBFC-133 B1	Bromotrifluoroethane	C ₂ H ₂ F ₃ Br	2903.79
HBFC-141 B2	Dibromofluoroethane	C ₂ H ₃ FBr ₂	2903.79
HBFC-142 B1	Bromodifluoroethane	C ₂ H ₃ F ₂ Br	2903.79
HBFC-151 B1	Bromofluoroethane	C ₂ H ₄ FBr	2903.79
HBFC-221 B6	Hexabromofluoropropane	C ₃ HFBr ₆	2903.79
HBFC-222 B5	Pentabromodifluoropropane	C ₃ HF ₂ Br ₅	2903.79
HBFC-223 B4	Tetrabromotrifluoropropane	C ₃ HF ₃ Br ₄	2903.79
HBFC-224 B3	Tribromotetrafluoropropane	C ₃ HF ₄ Br ₃	2903.79
HBFC-225 B2	Dibromopentafluoropropane	C ₃ HF ₅ Br ₂	2903.79
HBFC-226 B1	Bromohexafluoropropane	C ₃ HF ₆ Br	2903.79
HBFC-231 B5	Pentabromofluoropropane	C ₃ H ₂ FBr ₅	2903.79
HBFC-232 B4	Tetrabromodifluoropropane	C ₃ H ₂ F ₂ Br ₄	2903.79
HBFC-233 B3	Tribromotrifluoropropane	C ₃ H ₂ F ₃ Br ₃	2903.79
HBFC-234 B2	Dibromotetrafluoropropane	C ₃ H ₂ F ₄ Br ₂	2903.79
HBFC-235 B1	Bromopentafluoropropane	C ₃ H ₂ F ₅ Br	2903.79
HBFC-241 B4	Tetrabromofluoropropane	C ₃ H ₃ FBr ₄	2903.79
HBFC-242 B3	Tribromodifluoropropane	C ₃ H ₃ F ₂ Br ₃	2903.79
HBFC-243 B2	Dibromotrifluoropropane	C ₃ H ₃ F ₃ Br ₂	2903.79
HBFC-244 B1	Bromotetrafluoropropane	C ₃ H ₃ F ₄ Br	2903.79
HBFC-251 B3	Tribromofluoropropane	C ₃ H ₄ FBr ₃	2903.79
HBFC-252 B2	Dibromodifluoropropane	C ₃ H ₄ F ₂ Br ₂	2903.79
HBFC-253 B1	Bromotrifluoropropane	C ₃ H ₄ F ₃ Br	2903.79
HBFC-261 B2	Dibromofluoropropane	C ₃ H ₅ FBr ₂	2903.79
HBFC-262 B1	Bromodifluoropropane	C ₃ H ₅ F ₂ Br	2903.79
HBFC-271 B1	Bromofluoropropane	C ₃ H ₆ FBr	2903.79
Annex C, Group III			
Bromochloromethane		CH ₂ BrCl	2903.79
Annex E, Group I			
Methyl bromide		CH ₃ Br	2903.61

MOST COMMON MIXTURES (BLENDS) OF OZONE DEPLETING SUBSTANCES

NAME	MIXTURES	HS 2022
R-500	CFC-12 / HFC-152a	3827.11
R-502	HCFC-22 / CFC-115	3827.11
R-401A (MP-39)	HCFC-22/HFC-152a/HCFC-124	3827.31
R-406A	HCFC-22/R-600a/HCFC-142b (55/04/41)	3827.32
R-408A (FX 10)	HCFC-22/HFC-143a/HFC-125	3827.31
R-409A (FX 56)	HCFC-22 / HCFC-124/HCFC-142b	3827.32
R-415B	HCFC-22/HFC-152a (25/75)	3827.31
R-418A	HC-290/HCFC-22/HFC-152a	3827.31
Mixtures containing HCFC and HFC	R-401A, R-401B, R-401C, R-402A, R-402B, R-408A, R-411A, R-411B, R-415A, R-415B, R-416A, R-418A, R-420A	3827.31
HCFC mixtures only (and in some cases with HC)	R-406A, R-409A, R-409B, R-414A, R-414B	3827.32
HCFC mixtures with Perfluorocarbons (and in some cases with HC)	R-403A, R-403B, R-412A, R-509A	3827.39

HFCs CONTROLLED UNDER THE KIGALI AMENDMENT

ASHRAE DESIGNATION	CHEMICAL NAME	HS CODES
HFC-23	Trifluoromethane	2903.41
HFC-32	Difluoromethane	2903.42
HFC-41	Fluoromethane	2903.43
HFC-152	1,2-difluoroethane	2903.43
HFC-152a	1,1-difluoroethane	2903.43
HFC-125	Pentafluoroethane	2903.44
HFC-143a	1,1,1-trifluoroethane	2903.44
HFC-143	1,1,2- trifluoroethane	2903.44
HFC-134a	1,1,1,2-tetrafluoroethane	2903.45
HFC-134	1,1,2,2-tetrafluoroethane	2903.45
HFC-227ea	1,1,1,2,3,3,3-heptafluoropropane	2903.46
HFC-236cb	1,1,1,2,2,3-hexafluoropropane	2903.46
HFC-236ea	1,1,1,2,3,3-hexafluoropropane	2903.46
HFC-236fa	1,1,1,3,3,3- hexafluoropropane	2903.46
HFC-245fa	1,1,1,3,3-pentafluoropropane	2903.47
HFC-245ca	1,1,2,2,3-pentafluoropropane	2903.47
HFC-365mfc	1,1,1,3,3-pentafluorobutane	2903.48
HFC-43-10mee	1,1,1,2,2,3,4,5,5,5- decafluoropentane	2903.48

MIXTURES CONTAINING HFCs

HS 2022	MIXTURES	EXAMPLES		
3827.5	- Containing trifluoromethane (HFC-23) or perfluorocarbons (PFCs) but not containing chlorofluorocarbons (CFCs) or hydrochlorofluorocarbons (HCFCs) :	(commonly traded in bold)		
3827.51	-- Containing trifluoromethane (HFC-23)	R508A	R508B	
3827.59	-- Other (i.e. containing PFCs but no (HFC-23), CFCs or HCFCs)	R413		
3827.6	- Containing other hydrofluorocarbons (HFCs) but not containing chlorofluorocarbons (CFCs) or hydrochlorofluorocarbons (HCFCs) :			
3827.61	-- Containing 15 % or more by mass of 1,1,1-trifluoroethane (HFC-143a)	R-404A R-507A	R-428A	R-434A
3827.62	-- Other, not included in the subheading above, containing 55 % or more by mass of pentafluoroethane (HFC- 125) but not containing unsaturated fluorinated derivatives of acyclic hydrocarbons (HFOs)	R-407B R-410B R-417B R-419A	R-421A R-421B R-422A R-422B	R-422C R-422D R-422E
3827.63	-- Other, not included in the subheadings above, containing 40 % or more by mass of pentafluoroethane (HFC-125)	R-407A R-410A R-417A R-419B	R-424A R-438A R-439A R-452A	R-452C R-460A
3827.64	-- Other, not included in the subheadings above, containing 30 % or more by mass of 1,1,1,2-tetrafluoroethane (HFC-134a) but not containing unsaturated fluorinated derivatives of acyclic hydrocarbons (HFOs)	R-407C R-407D R-407E R-407F R-407G	R-407H R-417C R-423A R-425A R-426A	R-427A R-437A R-442A R-453A R-458A
3827.65	-- Other, not included in the subheadings above, containing 20 % or more by mass of difluoromethane (HFC-32) and 20 % or more by mass of pentafluoroethane (HFC-125)	R-448A R-449A R-449B	R-449C R-460B	
3827.68	-- Other, not included in the subheadings above, containing substances of subheadings 2903.41 to 2903.48	R-429A R-430A R-431A R-435A R-440A R-444A R-444B R-445A R-446A	R-447A R-447B R-450A R-451A R-451B R-452B R-454A R-454B R-454C	R-455A R-456A R-457A R-459A R-459B R-512A R-513A R-513B R-515A
3827.69	-- Other (i.e. containing other HFCs not listed in subheadings 3827.61 to 3827.68 – can also contain HFOs)	R-514A		

SUBSTANCES AND THEIR PREPARATIONS CONTROLLED UNDER THE CHEMICAL WEAPONS CONVENTION

The mission of the Organization for the Prohibition of Chemical Weapons (OPCW) is to implement the provisions of the Chemical Weapons Convention (CWC) to achieve the OPCW vision of a world that is free of chemical weapons and of the threat of their use, and a world in which co-operation in chemistry for peaceful purposes for all is fostered.

The ultimate aim is to contribute to international security and stability, to general and complete disarmament, and to global economic development.

The CWC prohibits the development, production, stockpiling and use of chemical weapons. The chemicals specified in the Convention for monitoring purposes cover a wide range of compounds, including chemical warfare agents and their precursors.

The Convention contains provisions covering the import and export of Scheduled chemicals.

Schedule 1 contains chemicals known to have been developed or used as chemical weapons or are immediate precursor compounds used in the production of chemical weapons. Almost none of the compounds on this schedule are known to have any significant legitimate commercial uses.

Schedule 2 contains chemicals considered to pose a significant risk to the object and purpose of the Convention, but that also have legitimate commercial uses. These chemicals are sometimes traded as mixtures or in formulations.

Schedule 3 contains chemicals considered to pose a risk to the object and purpose of the Convention, but that typically are manufactured in very large quantities for legitimate commercial purposes.

This Annex incorporates the Schedules of chemicals as presented in the Chemical Weapons Convention with their suggested classifications. The 3 Schedules contain families of chemicals or individual chemicals. In practice, most of the Schedule 1 chemicals are not traded as they don't have a legitimate use. Schedule 2 chemicals are traded in small quantities and Schedule 3 chemicals are widely traded.

The Annex also presents a list of Scheduled chemicals which are most likely to be imported or exported called the "**most traded Scheduled chemicals**".

SCHEDULES OF CHEMICALS

The following Schedules list toxic chemicals and their precursors. For the purpose of implementing this Convention, these Schedules identify chemicals for the application of verification measures according to the provisions of the CWC Verification Annex. Pursuant to Article II, subparagraph 1 (a), these Schedules do not constitute a definition of chemical weapons.

(Whenever reference is made to groups of dialkylated chemicals, followed by a list of alkyl groups in parentheses, all chemicals possible by all possible combinations of alkyl groups listed in the parentheses are considered as listed in the respective Schedule as long as they are not explicitly exempted. A chemical marked "*" on Schedule 2, part A, is subject to special thresholds for declaration and verification, as specified in Part VII of the Verification Annex.)

SCHEDULE 1

A	Toxic chemicals:	CAS	HS 2022
1	O-Alkyl (\leq C10, incl. cycloalkyl) alkyl (Me, Et, n-Pr or i-Pr)-phosphonofluoridates e.g. Sarin: O-Isopropyl ethylphosphonofluoridate Soman: O-Pinacolyl ethylphosphonofluoridate	107-44-8 96-64-0	2931.59
2	O-Alkyl (\leq C10, incl. cycloalkyl) N,N-dialkyl (Me, Et, n-Pr or i-Pr) phosphoramidocyanidates e.g. Tabun: O-Ethyl N,N-dimethylphosphoramidocyanidate	77-81-6	2931.49
3	O-Alkyl (H or \leq C10, incl. cycloalkyl) S-2-dialkyl (Me, Et, n-Pr or i-Pr)-aminoethyl alkyl (Me, Et, n-Pr or i-Pr) phosphonothiolates and corresponding alkylated or protonated salts e.g. VX: O-Ethyl S-2-diisopropylaminoethyl methyl phosphonothiolate	50782-69-9	2930.90
4	Sulfur mustards: 2-Chloroethylchloromethylsulfide Mustard gas: Bis(2-chloroethyl)sulfide Bis(2-chloroethylthio)methane Sesquimustard: 1,2-Bis(2-chloroethylthio)ethane 1,3-Bis(2-chloroethylthio)-n-propane 1,4-Bis(2-chloroethylthio)-n-butane 1,5-Bis(2-chloroethylthio)-n-pentane Bis(2-chloroethylthiomethyl)ether O-Mustard: Bis(2-chloroethylthioethyl)ether	2625-76-5 505-60-2 63869-13-6 3563-36-8 63905-10-2 142868-93-7 142868-94-8 63918-90-1 63918-89-8	2930.90
5	Lewisites: Lewisite 1: 2-Chlorovinylchloroarsine Lewisite 2: Bis(2-chlorovinyl)chloroarsine Lewisite 3: Tris(2-chlorovinyl)arsine	541-25-3 40334-69-8 40334-70-1	2931.90
6	Nitrogen mustards: HN1: Bis(2-chloroethyl)ethylamine HN2: Bis(2-chloroethyl)methylamine HN3: Tris(2-chloroethyl)amine	538-07-8 51-75-2 555-77-1	2921.19
7	Saxitoxin	35523-89-8	2939.80
8	Ricin	9009-86-3	3002.49

13	P-alkyl (H or \leq C10, incl. cycloalkyl) N-(1-(dialkyl(\leq C10, incl. cycloalkyl)amino)) alkylidene (H or \leq C10, incl. cycloalkyl) phosphonamidic fluorides and corresponding alkylated or protonated salts e.g. N-(1-(di-n-decylamino)-n-decylidene)-P-decylphosphonamidic fluoride Methyl-(1-(diethylamino)ethylidene) phosphonamidofluoridate	2387495-99-8 2387496-12-8	2931.59
14	O-alkyl (H or \leq C10, incl. cycloalkyl) N-(1-(dialkyl (\leq C10, incl. cycloalkyl)amino))alkylidene(H or \leq C10, incl. cycloalkyl) phosphoramidofluoridates and corresponding alkylated or protonated salts e.g. O-n-Decyl N-(1-(di-n-decylamino)-n-decylidene) phosphoramidofluoridate Methyl (1-(diethylamino)ethylidene) phosphoramidofluoridate Ethyl (1-(diethylamino)ethylidene) phosphoramidofluoridate	2387496-00-4 2387496-04-8 2387496-06-0	2929.90
15	Methyl-(bis(diethylamino)methylene) phosphonamidofluoridate	2387496-14-0	2931.59
16	Carbamates (quaternaries and bisquaternaries of dimethylcarbamoyloxypyridines) Quaternaries of dimethylcarbamoyloxypyridines: 1-[N,N-dialkyl(\leq C10)-N-(n-(hydroxyl, cyano, acetoxy)alkyl(\leq C10)) ammonio]-n-[N-(3-dimethylcarbamoxy- α -picolinyl)-N,N-dialkyl(\leq C10) ammonio]decane dibromide (n=1-8) e.g. 1-[N,N-dimethyl-N-(2-hydroxy)ethylammonio]-10-[N-(3-dimethylcarbamoxy- α -picolinyl)-N,N-dimethylammonio]decane dibromide	77104-62-2	2933.39
	Bisquaternaries of dimethylcarbamoyloxypyridines: 1,n-Bis[N-(3-dimethylcarbamoxy- α -picolyl)-N,N-dialkyl(\leq C10) ammonio]-alkane-(2,(n-1)-dione) dibromide (n=2-12) e.g. 1,10-Bis[N-(3-dimethylcarbamoxy- α -picolyl)-N-ethyl-N-methylammonio]decane-2,9-dione dibromide	77104-00-8	2933.39
B	Precursors:		
9	Alkyl (Me, Et, n-Pr or i-Pr) phosphonyldifluorides e.g. DF: Methylphosphonyldifluoride	676-99-3	2931.59
10	O-Alkyl (H or \leq C10, incl. cycloalkyl) O-2-dialkyl (Me, Et, n-Pr or i-Pr)-aminoethyl alkyl (Me, Et, n-Pr or i-Pr) phosphonites and corresponding alkylated or protonated salts e.g. QL: O-Ethyl O-2-diisopropylaminoethyl methylphosphonite	57856-11-8	2931.49
11	Chlorosarin: O-Isopropyl methylphosphonochloridate	1445-76-7	2931.59
12	Chlorosoman:O-Pinacolyl methylphosphonochloridate	7040-57-5	2931.59

Schedule 2

A	Toxic chemicals:	CAS	HS 2022
1	Amiton: O,O-Diethyl S-[2-(diethylamino)ethyl] phosphorothiolate and corresponding alkylated or protonated salts	78-53-5	2930.90
2	PFIB: 1,1,3,3,3-Pentafluoro-2-(trifluoromethyl)-1-propene	382-21-8	2903.59
3	BZ: 3-Quinuclidinyl benzilate (*)	6581-06-2	2933.39
B	Precursors:	CAS	HS 2022
4	Chemicals, except for those listed in Schedule 1, containing a phosphorus atom to which is bonded one methyl, ethyl or propyl (normal or iso) group but not further carbon atoms e.g. Methylphosphonyl dichloride Dimethyl methylphosphonate Exemption: Fonofos: O-Ethyl S-phenyl ethylphosphonothiothionate	 676-97-1 756-79-6 944-22-9	2930.90³ 2931.49 2931.59 2931.51 2931.41 2930.90
5	N,N-Dialkyl (Me, Et, n-Pr or i-Pr) phosphoramidic dihalides		2929.90
6	Dialkyl (Me, Et, n-Pr or i-Pr) N,N-dialkyl (Me, Et, n-Pr or i-Pr)-phosphoramidates		2929.90
7	Arsenic trichloride	7784-34-1	2812.19
8	2,2-Diphenyl-2-hydroxyacetic acid	76-93-7	2918.17
9	Quinuclidin-3-ol	1619-34-7	2933.35
10	N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethyl-2-chlorides and corresponding protonated salts 2-(N,N-Dimethylamino)ethylchloride hydrochloride 2-(N,N-Diethylamino)ethylchloride hydrochloride 2-(N,N-Diisopropylamino)ethylchloride hydrochloride Others		 2921.12 2921.13 2921.14 2921.19
11	N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-ols and corresponding protonated salts 2-(N,N-Diisopropylamino)ethanol Others Exemptions: N,N-Dimethylaminoethanol and corresponding protonated salts N,N-Diethylaminoethanol and corresponding protonated salts	 108-01-0 100-37-8	 2922.18 2922.19
12	N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-thiols and corresponding protonated salts 2-(N,N-Dimethylamino)ethylchloride hydrochloride 2-(N,N-Diethylamino)ethylchloride hydrochloride Others		 2930.10 2930.60 2930.90
13	Thiodiglycol: Bis(2-hydroxyethyl)sulfide	111-48-8	2930.70
14	Pinacolyl alcohol: 3,3-Dimethylbutan-2-ol	464-07-3	2905.19

³ Schedule 2B04 substances are classified primarily as organo-phosphorous derivatives in heading 29.31. Some Schedule 2B04 may be classified in heading 29.30 if the substance is also an organo-sulphur compound or in headings 29.32, 29.33 or 29.34 if the substance has heterocyclic compounds with oxygen or nitrogen heteroatoms. They can also be classified as polymers of Ch 39.

Schedule 3

A	Toxic chemicals:	CAS	HS 2022
1	Phosgene: Carbonyl dichloride	75-44-5	2812.11
2	Cyanogen chloride	506-77-4	2853.10
3	Hydrogen cyanide	74-90-8	2811.12
4	Chloropicrin: Trichloronitromethane	76-06-2	2904.91
B	Precursors:	CAS	HS 2022
5	Phosphorus oxychloride	10025-87-3	2812.12
6	Phosphorus trichloride	7719-12-2	2812.13
7	Phosphorus pentachloride	10026-13-8	2812.14
8	Trimethyl phosphite	121-45-9	2920.23
9	Triethyl phosphite	122-52-1	2920.24
10	Dimethyl phosphite	868-85-9	2920.21
11	Diethyl phosphite	762-04-9	2920.22
12	Sulfur monochloride	10025-67-9	2812.15
13	Sulfur dichloride	10545-99-0	2812.16
14	Thionyl chloride	7719-09-7	2812.17
15	Ethyl-diethanolamine	139-87-7	2922.17
16	Methyl-diethanolamine	105-59-9	2922.17
17	Triethanolamine	102-71-6	2922.15

MOST TRADED SCHEDULED CHEMICALS

Nº	Sch	Chemical name	CAS	HS 2022
		Schedule 2		
1	2B04	Product from the reaction of methylphosphonic acid and 1,3,5-Triazine-2,4,6-triamine	129788-86-9	2933.69
2	2B04	Dimethyl methylphosphonate	756-79-6	2931.41
3	2B04	Dimethyl propylphosphonate	18755-43-6	2931.42
4	2B04	Diethyl ethylphosphonate	78-38-6	2931.43
5	2B04	Phosphonic acid, methyl-, polyglycol ester (Exolit OP 560 TP)	294675-51-7	3824.92
6	2B04	Phosphonic acid, methyl-, polyglycol ester (Exolit OP 560)	663176-00-9	3824.92
7	2B04	3,9-Dimethyl-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5.5]undecane 3,9-dioxide	3001-98-7	2931.48
8	2B04	(5-Ethyl-2-methyl-2-oxido-1,3,2-dioxaphosphinan-5-yl)methyl methyl methylphosphonate	41203-81-0	2931.47
9	2B04	Bis[(5-Ethyl-2-methyl-2-oxido-1,3,2-dioxaphosphinan-5-yl)methyl] methylphosphonate	42595-45-9	2931.49
10	2B04	Mixture of CAS 41203-81-0 and CAS 42595-45-9	170836-68-7	3824.91
11	2B04	2,4,6-Tripropyl-1,3,5,2,4,6-trioxatriphosphinane 2,4,6-trioxide	68957-94-8	2931.46
12	2B04	Methylphosphonic acid with (aminoiminomethyl)urea (1:1)	84402-58-4	2931.45
13	2B04	Sodium 3-(trihydroxysilyl)propyl methylphosphonate	84962-98-1	2931.49
14	2B04	Methylphosphonic dichloride	676-97-1	2931.51
15	2B04	Propylphosphonic dichloride	4708-04-7	2931.52
16	2B04	Diphenyl methylphosphonate	7526-26-3	2931.49

17	2B04	O-(3-chloropropyl) O-[4-nitro-3-(trifluoromethyl)phenyl] methylphosphonothionate	849-29-6	2931.53
18	2B04	Methylphosphonic acid	993-13-5	2931.44
19	2B04	Product from the reaction of methylphosphonic acid and 1,2-ethanediamine	99580-93-5	2931.49
20	2B04	Bis(polyoxyethylene) methylphosphonate	363626-50-0	3907.21
21	2B04	Poly(1,3-phenylene methyl phosphonate)	63747-58-0	3911.20
22	2B04	Dimethylmethylphosphonate, polymer with oxirane and phosphorus oxide	70715-06-9	3824.99
23	2B08	2,2-Diphenyl-2-hydroxyacetic acid	76-93-7	2918.17
24	2B09	3-Quinuclidinol	1619-34-7	2933.35
25	2B09	R-(-)-3-Quinuclidinol	25333-42-0	2933.35
26	2B10	2-(N,N-Dimethylamino)ethylchloride hydrochloride	4584-46-7	2921.12
27	2B10	2-(N,N-Diethylamino)ethylchloride hydrochloride	869-24-9	2921.13
28	2B10	2-(N,N-Diisopropylamino)ethylchloride hydrochloride	4261-68-1	2921.14
29	2B11	2-(N,N-Diisopropylamino)ethanol	96-80-0	2922.18
30	2B12	2-(N,N-Dimethylamino)ethanethiol	108-02-1	2930.10
31	2B12	2-(N,N-Diethylamino)ethanethiol	100-38-9	2930.60
32	2B13	Bis(2-hydroxyethyl)sulfide	111-48-8	2930.70
Nº	Sch	Chemical name	CAS	HS 2022
		Schedule 3		
33	3A01	Carbonyl dichloride	75-44-5	2812.11
34	3A02	Cyanogen chloride	506-77-4	2853.10
35	3A03	Hydrogen cyanide	74-90-8	2811.12
36	3A04	Trichloronitromethane	76-06-2	2904.91
37	3B05	Phosphorous oxychloride	10025-87-3	2812.12
38	3B06	Phosphorous trichloride	7719-12-2	2812.13
39	3B07	Phosphorous pentachloride	10026-13-8	2812.14
40	3B08	Trimethyl phosphite	121-45-9	2920.23
41	3B09	Triethyl phosphite	122-52-1	2920.24
42	3B10	Dimethyl phosphite	868-85-9	2920.21
43	3B11	Diethyl phosphite	762-04-9	2920.22
44	3B12	Sulfur monochloride	10025-67-9	2812.15
45	3B13	Sulfur dichloride	10545-99-0	2812.16
46	3B14	Thionyl chloride	7719-09-7	2812.17
47	3B15	Ethyldiethanolamine	139-87-7	2922.17*
48	3B16	Methyldiethanolamine	105-59-9	2922.17*
49	3B17	Triethanolamine	102-71-6	2922.15

* No more 6-digits left

SUBSTANCES CONTROLLED UNDER THE
PROGRAMME GLOBAL SHIELD

Throughout the recent years the world has become a witness to increasing incidents of the use of improvised explosive devices (IEDs). IEDs are the most prevalent form of explosives employed by terrorists around the world particularly because the materials needed to manufacture them are cheap and widely available.

In a unique initiative to secure global supply chains and enhance public safety, the **WCO** has partnered with the International Criminal Police Organization (**INTERPOL**) and the United Nations Office on Drugs and Crime (**UNODC**) and launched the Programme Global Shield. This Programme aims at monitoring the licit movement of 14 of the most common chemical precursors and other materials that could be used to manufacture IEDs in order to counter their illicit trafficking and diversion.

The followings are the substances controlled under the Programme Global Shield with their HS 2022 codes :

NAME	OTHER NAMES	CAS	HS 2022
Acetone	Dimethylformaldehyde, Dimethyl Ketone, β -Ketopropane, 2-Propanone	67-64-1, 7217-25-6	2914.11 2845.90
Acetic Anhydride	Ethanoic anhydride	108-24-7	2915.24
Aluminium Powders		7429-90-5	7603.10 7603.20
Aluminium Flakes Aluminium Paste		7429-90-5 n/a (mixture)	7603.20 3212.90
Ammonium Nitrate	High Nitrogen	6484-52-2	3102.30
Calcium Ammonium Nitrate	CAN Fertilizer, Nitro Limestone	15245-12-2	3102.60
Hydrogen Peroxide	Dioxidane	7722-84-1	2847.00
Nitric Acid	Aqua Fortis, Salpetre Acid, Spirit of Nitre	7697-37-2, 43625-06-5, 13587-52-5	2808.00 2845.90
Nitromethane	Nitrocarbol	75-52-5	2904.20
Potassium Chlorate	Potcrate	3811-04-9	2829.19
Potassium Nitrate	Saltpetre, Nitrate of Potash, Vesta Powder	7757-79-1	2834.21
Potassium Perchlorate	Potassium Chlorate, Perchloric Acid, Potassium Salt Peroidin	7778-74-7	2829.90
Sodium Chlorate		7775-09-9	2829.11
Sodium Nitrate	Caliche, Chile Saltpeter	7631-99-4	3102.50
Urea	Carbamide, carbonyl diamide, carbonyldiamine, diaminomethanal, Diaminomethanone	57-13-6	3102.10

ADDITIONAL INFORMATION

Additional information on these controlled substances can be found in:

Rotterdam Convention : <http://www.pic.int/>

Stockholm Convention : <http://chm.pops.int/>

Montreal Protocol : <https://ozone.unep.org/treaties/montreal-protocol>

Chemical Weapons Convention : <https://www.opcw.org/>

WCO Programme Global Shield : <http://www.wcoomd.org/en/topics/enforcement-and-compliance/activities-and-programmes/security-programme/programme-global-shield.aspx>

Green Customs Initiative : <https://www.greencustoms.org/>
