

A guide to the CFC regulation

The Montreal Protocol in London, June 1990, called for all aerosols containing fully halogenated CFCs Halons, and carbon tetrachloride to be phased out by the year 2000 and any others containing 1,1,1 Trichloroethane (Methyl Chloroform) by the year 2005. It was also resolved that HCFCs should not be included in the protocol but be designated as 'Transitional substances', which have a lower ozone depletion potential (ODP). The protocol stated the following:

'Use of transitional substances should be limited to the applications where other more environmentally suitable alternative substances or technologies are not available'.

The protocol will review regularly the use of transitional substances, with a view to their replacement by non-ozone depleting and more environmentally suitable alternatives and as the scientific evidence requires. At present this should be no later than the year 2040 and if possible no later than 2020.

Under the protocol, polytetrafluoroethylene and dichloromethane are not implicated as ozone damaging and therefore are not included in the list of chemicals to be phased out in future years.

Currently the alternative propellants available to replace CFCs are as follows:

- HCFC22 (transitional substance) – this has an OPD value of 0.05 (ODP is measured as a bench mark against the common CFC11 which is given an OPD of 1.0 (100%). HCFC22 tends to be more expensive than CFCs and is to be used as a transitional substance where no suitable ozone safe substance can be found.
- Hydrocarbons – mainly a mixture of Butane/Propane. This tends to make products flammable, thereby restricting its use.
- Dimethylether (DME) – properties similar to hydrocarbon materials, also flammable, but it has better solvent ability, and is not widely used.
- Compressed gases – carbon dioxide, nitrous oxide, nitrogen generally these do not make good propellants.
BP introduced a compressed air aerosol early in 1991, but due to technical problems this had to be withdrawn from sale, thereby illustrating the problems faced by aerosol manufacturers seeking alternative methods.
- Pump sprays – use no propellants, generally cannot achieve the fine mist spray that is achieved by the use of propellants.

The following list shows what propellants are used and any other substances that may have an ODP value.

List of propellants

Stock No.	Description	Propellant	Symbol	Other/Halo chemical
496-142	Activator N	Carbon Dioxide	Statement	1,1,1 Trichloroethane
496-164	200ml WD40	Butane/Propane	Ozone	N/A
496-170	400ml WD40	Butane/Propane	Ozone	N/A
513-657	Butane	Butane/Propane	Ozone	N/A
513-663	Dust remover	HCFC142B/ HCFC22	Statement	N/A
513-679	Cleaning fluid (IPA)	Butane/Propane	Ozone	N/A
513-691	Solvent degreaser	HCFC22	Statement	1,1,1 Trichloroethane
513-708	Black conformal coating	HCFC22	Statement	N/A
514-464	Modified silicone conformal coating	HCFC22	Statement	N/A
514-470	Photoresist	Dimethylether	Ozone	N/A
514-492	Invertable air duster	HCFC22	Statement	N/A
551-249	Tropicalised varnish	CFC11 + 12	None	N/A
554-765	Freezer	CFC12	None	N/A
554-872	Silicone grease	CFC11 + 12	None	N/A
556-531	Silicone spray	CFC11 + 12	None	N/A
567-193	Cyanoacrylate activator	Butane/Propane	Statement	1,1,1 Trichloroethane
567-345	Matt black	Butane/Propane	Ozone	N/A

List of propellants (continued)

Stock No.	Description	Propellant	Symbol	Other/Halo chemical
567-351	Gloss white	Butane/Propane	Ozone	N/A
567-367	Hammer blue	Butane/Propane	Ozone	Dichloromethane
567-373	Hammer silver	Butane/Propane	Ozone	Dichloromethane
567-389	Hammer bronze	Butane/Propane	Ozone	Dichloromethane
567-395	Zinc enriched	Butane/Propane	Ozone	N/A
567-402	Gloss grey	Butane/Propane	Ozone	N/A
567-418	Gloss black	Butane/Propane	Ozone	N/A
567-424	Fluorescent red	Butane/Propane	Ozone	N/A
567-430	Fluorescent green	Butane/Propane	Ozone	N/A
567-446	Fluorescent yellow	Butane/Propane	Ozone	N/A
567-452	Hammer green	Butane/Propane	Ozone	Dichloromethane
567-610	Contact treatment oil	HCFC22	Statement	1.1.2 Trichloro- 1.2.2 Trifluorethane
567-626	Cleaning solvent	HCFC22	Statement	1.1.2 Trichloro- 1.2.2 Trifluorethane
567-632	PTFE dry film lubricant	HCFC22	Statement	1.1.2 Trichloro- 1.2.2 Trifluorethane Polytetrafluoroethylene
567-648	Contact cleaner lubricant	HCFC22	Statement	1.1.2 Trichloro- 1.2.2. Trifluorethane
567-654	Freezer	HCFC22	Statement	N/A
567-698	Contact treatment grease	HCFC22	Statement	1.1.2 Trichloro- 1.2.2 Trifluorethane
567-705	Gloss red	Butane/Propane	Ozone	N/A
567-711	Gloss blue	Butane/Propane	Ozone	N/A
567-727	Gloss yellow	Butane/Propane	Ozone	N/A
567-733	Gloss green	Butane/Propane	Ozone	N/A
567-749	Grey primer	Butane/Propane	Ozone	N/A
567-884	IPA cleaner	HCFC22	Statement	N/A
568-483	RFI/EMI	Butane/Propane	Ozone	N/A
569-228	White lithium grease	Butane/Propane	Ozone	N/A
569-234	Chain/Gear lubricant	Butane/Propane	Ozone	N/A
569-240	Penetrating fluid	Butane/Propane	Ozone	N/A
569-256	PTFE/Silicone oil	Butane/Propane	Ozone	Polytetrafluoroethylene
569-262	Anti-seize fluid	Butane/Propane	Statement	1.1.1 Trichloroethane Dichloromethane
569-278	Demoisturising fluid/lubricant	Butane/Propane	Ozone	N/A
569-284	Anti-static cleaner	Butane/Propane	Ozone	N/A
569-290	Printed circuit lacquer	Butane/Propane	Ozone	N/A
569-307	Clear lacquer	Butane/Propane	Ozone	N/A
569-313	Anti-corona lacquer	Butane/Propane	Ozone	N/A
569-329	Metal protector	Butane/Propane	Ozone	N/A
569-335	Tool cutting fluid	Butane/Propane	Ozone	N/A
569-341	Foam cleaner	Butane/Propane	Ozone	N/A
569-470	Silicone polish	Butane/Propane	Ozone	N/A
569-486	Foam polish cleaner	Butane/Propane	Ozone	N/A
569-492	Impact adhesive	Butane/Propane	Ozone	N/A