

Phase-Out of HCFCs in South Africa

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IN the 1900s Chlorofluorocarbons (CFCs) were the preferred choice for refrigeration use globally, but in the mid 1900s CFCs were identified as causing the breakdown of large amounts of ozone in the stratosphere and as a result, brought about the phase-out of CFCs.

Hydrochlorofluorocarbons (HCFCs) are transitional CFC replacements, used as refrigerants, solvents, blowing agents for plastic foam manufacture and fire extinguishers. In terms of Ozone Depleting Potential (ODP), in comparison to CFCs that have ODP 0.6 – 1.0, these HCFCs have less ODP, i.e. 0.01 – 0.5, whereas in terms of Global Warming Potential (GWP), CFCs have a GWP of 4 680 – 10 720 and HCFCs have a lower GWP at 76 – 2 270.

Produced mostly in developed countries, Hydrofluorocarbons (HFCs) replaced CFCs and HCFCs. HFCs pose no harm to the ozone layer because, unlike CFCs and HCFCs, they do not contain chlorine. But it has been established that HFCs are not innocuous either. They are greenhouse gases, with a high GWP, comparable to that of CFCs and HCFCs.

Most first-world countries have already phased out CFC refrigerants as well as HCFC refrigerants and the focus at the moment is the phasing out of high GWP refrigerants such as R404A (GWP – 3 922) and R507 (GWP – 3 900) and replacing them with lower GWP HFC refrigerants such as Genetron Performax[®] LT (R407F) (GWP – 1 824) or Hydrofluoroolefins (HFOs) (GWP – less than 1) and natural refrigerants such as Ammonia (R717) (GWP – 0), Carbon Dioxide (R744) (GWP – 1) as well as Hydrocarbons (HCs) such as refrigerant-grade Propane (R290) (GWP < 4) and Isobutane (R600a) (GWP < 4).

As an Article 5 country (i.e. classified under the Montreal Protocol as a developing status country) South Africa's current focus is on the phase-out of HCFCs in accordance with the Montreal Protocol. The schedule for the importation of HCFCs into South Africa specifies that in the year 2013 the consumption freeze at baseline level should have been achieved. The baseline level is calculated on an average of the 2009 and 2010 South African HCFC imports.

The phase-down of HCFCs began on 1 January 2014 and continues with a 5% reduction per annum until 2024, ending with a complete ban on HCFCs by 1 January 2041.

The tables below, issued by the Department of Environmental Affairs (DEA), indicate the HCFC percentage reduction during the phase-out period and can be used as a guideline to assist you in monitoring your phase-out plan.

Period	Reduction	Period	Reduction
1/01/2013 - 31/12/2013	0%	1/01/2023 - 31/12/2023	50%
1/01/2014 - 31/12/2014	5%	1/01/2024 - 31/12/2024	60%
1/01/2015 - 31/12/2015	10%	1/01/2025 - 31/12/2025	67.5%
1/01/2016 - 31/12/2016	15%	1/01/2026 - 31/12/2030	97.5%
1/01/2017 - 31/12/2017	20%	1/01/2031 - 31/12/2040	2.5% annual consumption allowed for servicing
1/01/2018 - 31/12/2018	25%		
1/01/2019 - 31/12/2019	30%		
1/01/2020 - 31/12/2020	35%	1/01/2041	Ban/ complete phase-out
1/01/2021 - 31/12/2021	40%		
1/01/2022 - 31/12/2022	45%		

Source: Department of Environmental Affairs

The phase-out schedule as per South Africa's Hydrochlorofluorocarbons Phase-out Management Plan (SA HPMP) set out below is the agreed-upon action plan between Stakeholders (Industry) and Government (Department of Environmental Affairs):

Action	Date
Quota system for the assignment of import licences for all HCFCs	1/01/2013
Ban on import of any new or used air conditioning systems or equipment fitted with a compressor and pre-charged or partially charged with HCFC-22 or any refrigerant or refrigerant blend containing any HCFC	1/07/2014
Mandatory recovery and recycling of HCFCs and other ODS refrigerant	1/09/2014
Ban on the use of HCFC-22 (or any other refrigerant containing HCFCs) either in pure form or as a component of blended refrigerants; in the construction, assembly or installation of any new refrigeration or air conditioning system or equipment which requires a compressor to be fitted in South Africa	1/01/2015
Licence/certification required for anyone purchasing refrigerant	1/01/2015
Ban on import of HCFC-141b either in pure form or as a component of blended chemicals; for the purpose of placing on the market or use in the production of polyurethane foams or as solvents or any other application	1/01/2016

Source: Department of Environmental Affairs

The phase-out and ultimate reduction of R22 stocks in South Africa will bring about significant change within the local HVAC sector. With this in mind it is going to be very important for all South African users to carefully manage their R22 installations while paying close attention to what may become critical inventory levels.

During the transition period and in line with what we are already seeing many older installations will be considered for retrofit options where R22 will be exchanged for a more environmentally acceptable refrigerant. A-Gas offers a good solution here in the form of Genetron Performax[®] LT which not only meets current environmental requirements it also brings about much needed energy and cost savings, both of which are a big win for any user in today's climate!

A-Gas also offers a unique "Buy Back" program for the recovery and recycling of used refrigerants, providing a complete refrigerant lifecycle stewardship.

Please contact A-Gas or your nearest Metraclark branch for more information.