Responsible Refrigeration – No. 39

We all wonder where the refrigeration and air conditioning industry is going with regard to the Phase-out of refrigerant gases. After regulations on ozone depleting CFC's and HCFC's, alternative refrigerants such as hydrofluorocarbons (HFCs) have seen new resistance due to Global Warming. In October 2016 the Kigali Amendment to the Montreal Protocol was adopted by the meeting of parties to the Protocol. This amendment started the process for the Phase-out of HFC refrigerant gases. The European Union has already leading the way by being down to 63% of their base line in 2018. Other developed countries will be starting this year with their phase-out and will be at 90% by year end. South Africa which is listed as a developing country will only start the phase out in 2028.

Some commercial refrigeration contractors and their clients have embraced Carbon Dioxide as the refrigerant of choice to replace HCFC's and HFC's. This aims dealing with Global Warming Potential (GWP) as plans are developed to start a phase out of HFC gases in 10 years' time. The idea is to meet the requirements of the Kigali Agreement on refrigerants and to improve the energy efficiency of new refrigeration plants. In Europe efforts are looking at the thermal load, zero energy, preventing gas loss, optimum maintenance and long term operating gains to achieve the changeover. The task is enormous and there are cases where some countries are falling behind in the phase-out targets,

South African retailers are under a certain obligation to choose new efficient refrigeration systems operating on environmentally friendly refrigerants. This why we are seeing an increase in Carbon Dioxide used in refrigeration. The Britain is reported to have some 9000 CO^2 systems in operation. South Africa at a rough estimate has now installed close to 400 systems. The decision to use natural refrigerants is in most cases is to meet phase-out of HCFC's and social responsibility in a climate change environment. The planning to use a natural refrigerant also involves planning, first cost, operation and maintenance and life cycle costing on the store life time. The phase out of HFC refrigerants is some years away for South Africa, but it does not mean we can be complacent.

On the air conditioning front some manufacturers of room air conditioning units are changing over to partly flammable refrigerant such as R32. This could mean a revised training protocol to ensure the installers understand the safety issues at stake here. I am sure the main suppliers will be looking at this as they introduce room air conditioning units charged with R32.

The requirement for new SAQCC Gas registration and for renewal of registration in 2018 will require that Category 'A' installers receive product training from a manufacturer / supplier to make sure they are up to date with product development.

The major chiller suppliers are also moving to what is called the HFO refrigerants. These refrigerants known as Hydrofluro-Olefins (HFOs), are a new class of refrigerants that have a much lower global warming potential than the HFC gases in use at present. One example being the 134a alternative, 1234YF, which is 335 times lower on the global warming potential scale and only four times higher than standard carbon dioxide.

The year ahead will prove interesting as the Department of Environmental Affairs Gazettes the HFC phase-out plan and what the suppliers and designer decide on a course of action.

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