GSK Public policy positions

Use of Ozone Depleting Substances in Ancillary Plant and Equipment

The Issue

Ozone gas in the earth's upper atmosphere (stratosphere) filters ultraviolet radiation (UV-B) from the sun before it reaches ground level. However, the ozone layer is being depleted through the release of certain man-made chemicals. This is a concern because although most living species have some natural tolerance to UV-B radiation even moderate exposure can cause harmful effects.

In humans, exposure is associated with increased levels of skin damage including sunburn and skin cancers, eye cataracts and weakened immune systems[i]. Animals, plant and marine life may experience similar effects, reducing plant yields and damaging ocean ecosystems[ii].

GSK uses ozone-depleting substances (ODSs) in a wide range of ancillary equipment including chillers, heating, ventilation and air conditioning (HVAC) and refrigerators. We have already eliminated the use of one ODS, chlorofluorocarbon (CFC), from our worldwide product portfolio and more than 99% of the CFCs used by our operations. This paper sets out GSK's approach to the use of other ODSs in plant and equipment.

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GSK's Position

- GSK supports the Montreal Protocol on Substances that Deplete the Ozone Layer and recognises that world-wide emissions of ODSs can deplete the ozone layer in a manner that is likely to result in adverse effects on human health and the environment.
- At least half of all equipment containing more than 1kg of hydrochlorofluorocarbon (HCFC) in 2006 will be replaced or the HCFC removed for destruction or recycling before the end of 2015 and all equipment containing more than 1kg of HCFC will be replaced or the HCFC removed for destruction or recycling before the end of 2020.
- All feasible measures will be taken to minimise the release of ODSs from plant and equipment throughout its lifecycle including maintenance and decommissioning. Recovered ODSs will be recovered for reuse or destroyed.
- GSK will ensure that no new equipment using or containing ODSs is specified, purchased or installed.

Background

There is a complex relationship between stratospheric ozone and global warming. Ozone itself has a global warming potential so any depletion of the ozone layer will have an indirect cooling effect. However, all the substances which deplete the ozone layer have a direct global warming potential (GWP) and scientists believe that, on balance, ODSs contribute more to warming than to indirect cooling[iii].

Emissions of some ODSs such as CFCs are decreasing steadily as production levels become lower and their abundance in the upper atmosphere decreases. However, the concentration of others such as HCFCs continues to increase. Scientists expect that ozone depletion will reach maximum levels during the next few years before slowly declining to normal levels during the second half of this century[iv].

Hydrofluorocarbons (HFCs) have been developed to replace ODSs and their use is becoming more widespread. Although HFCs do not deplete the ozone layer they do have a relatively high GWP and as such they are included in the 1997 Kyoto Protocol on Climate Change which seeks to limit their release. The global use of HFCs is expected to increase significantly in coming years and the EU has estimated that the HFC contribution to global warming could increase from 2% to as much as 19% by 2050 by 2010[v].

Other alternatives to ODSs include hydrocarbons (HCs), ammonia and carbon dioxide. These do not deplete the ozone layer and do not directly influence climate change.

The Montreal Protocol

It was first suggested in the 1970's that some man-made chemicals could interfere with the natural ozone cycle in the stratosphere. However, it was not until unequivocal evidence of damage was reported in the mid 1980's that the international community began to respond to the threat[vi].

To reduce the quantity of ODSs released into the atmosphere, an International Agreement - the Montreal Protocol - was negotiated and entered into force in 1989[vii]. The Protocol sets dates by which ODSs must cease to be manufactured in developed and developing countries. The Protocol was designed so that it could be periodically modified and the phase out schedules revised following scientific and technological assessments. The protocol has been amended several times and although more than 180 countries have ratified the original Protocol, fewer have ratified the associated amendments.

Whilst the Protocol prohibits the production of ODSs after certain dates it does not prevent the use of equipment which contains ODSs. This means that it is possible to continue to operate equipment and to "top up" any refrigerant that is lost from other sources such as banked supplies or from decommissioned plant whose ODS has been recycled.

Several countries have established regulations to implement the Montreal Protocol which require ODSs to be phased out more quickly than permitted by the Protocol and/or prevent the actual use of equipment which contains ODSs[viii].

GSK's Use of ODSs

GSK uses ODSs in plant and equipment such as chillers, HVAC and refrigerators. In 2011 GSK had around 13,000 pieces of equipment in service using more than 100 different refrigerants.

GSK does not deliberately release or vent any ODSs from plant and equipment. However, fugitive losses (typically less than 5% per year) do occur through seals and gaskets and significant amounts may be lost during maintenance or if the equipment fails catastrophically during use.

More information about GSK's use of ODSs can be found in GSK's Corporate Responsibility Report which is published annually.

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i World Health Organisation Solar ultraviolet radiation: Global burden of disease from solar ultraviolet radiation 2006 http://www.who.int/uv/health/solaruvradfull_180706.pdf

ii United Nations Environment Programme, Environmental Affects of Ozone Depletion: 1998 Assessment. http://www.unep.org/OZONE/pdfs/Environmental-Effects-Assess98.pdf

iii United Nations IPCC Special Report on Safeguarding the Ozone Layer and the Global Climate System - Issues related to Hydrofluorocarbons and Perfluorocarbons http://arch.rivm.nl/env/int/ipcc/pages_media/SROC-final/SpecialReportSROC.html

iv WMO/UNEP Scientific Assessment of Ozone Depletion: 2002 http://www.wmo.ch/web/arep/reports/o3_assess_rep_2002_front_page.html

v Beyond Carbon Dioxide: Growing Importance Of Hydrofluorocarbons (HFCs) In Climate Warming http://www.pnas.org/content/early/2009/06/19/0902817106.full.pdf+html

vi http://www.nas.nasa.gov/About/Education/Ozone/history.html

vii The Montreal Protocol on Substances that deplete the Ozone layer 2000. http://ozone.unep.org/pdfs/Montreal-Protocol2000.pdf

viii http://ec.europa.eu/environment/ozone/community_action_overview.htm