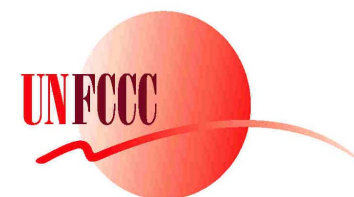


# Compilation of Technical Information on the New Greenhouse Gases and Groups of Gases Included in the Forth Assessment Report of the IPCC

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# Mandate

- The AWG-KP, at its sixth session, requested the secretariat to prepare a compilation of technical information on the new gases
- The list of new gases covers substances in table 2.14 (errata of 5 August 2008) of the Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC), that were not listed in the Second Assessment Report (SAR).
- According to the IPCC (section 2.10.2 of volume 3 of the AR4) table 2.14 covers all gases for which:
  - either significant concentrations or large trends in concentrations have been observed,
  - or a clear potential for future emissions has been identified

# Approach and Sources of Information

- The secretariat used input from:
  - Submissions by Parties;
  - Further information from Parties and their experts;
  - Experts from the Montreal Protocol secretariat and the Technology and Economic Assessment Panel (TEAP);
  - IPCC.
- Other sources of information used:
  - The Intergovernmental Panel on Climate Change (IPCC) and TEAP special report on "Safeguarding the Ozone Layer and the Global Climate System: Issues related to hydrofluorocarbons and perfluorocarbons".
  - The TEAP "Assessment of Alternatives to HCFCs And HFCs and Update of the TEAP 2005 Supplement Report Data" (May, 2009)



# Compilation of Information on new gases

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# New HFCs and PFCs

Gas	GWP	Application and methodologies	Emissions reduction options
New HFCs	12–1,370	<p>Ozone depleting substitutes (ODS), refrigeration and air conditioning, foam blowing, aerosols and fire extinguishing.</p> <p>Two new HFCs have current commercial use (HFC-245fa and HFC-365mfc), but its use is being replaced. No current significant uses for the others.</p> <p>Methodologies available in the 2006 GL (substitutes for ODS; specific EF for production and use of foams).</p>	<p>Several non-fluorocarbon blowing agents technologies (applying other products such as hydrocarbons, carbon dioxide, water and supercritical carbon dioxide gas).</p>
New PFCs	>7,500	<p>Only one new PFC listed (PFC 9-1-18): used in cosmetics and medical applications; potential use in vaccines; but it has a high boiling point and low volatility, and large emissions and atmospheric abundance are not expected.</p> <p>Methodologies in the 2006 IPCC GL.</p>	<p>© JRB, UNFCCC</p>

# NF<sub>3</sub> and HFEs

Gas	GWP	Application and methodologies	Emissions reduction options
NF <sub>3</sub>	17,200	<p>NF<sub>3</sub> is already being used (semi-conductors, LCD and photovoltaic panels – thin-film solar cells): 4,000 t in 2007 and 8,000 t per year by 2010. Emissions within the range of 2–16% of use.</p> <p>Methodologies in the good practice guidance and the 2006 IPCC GL.</p>	<p>Mitigation efforts in the semiconductor industry focus on process improvements/source reduction, alternative chemicals, capture and beneficial reuse, and destruction technologies. E.g. systems that generate fluorine on-site.</p> <p>More information on this issue received during this week will be used to update the web page.</p>
HFEs	11–14,900	<p>Use as solvents, for precision cleaning and medical agent. Potential applications: refrigerants, heat transfer fluids, foam blowing, plasma etching; industrial heat transfer fluids and fire suppressant.</p> <p>Methodologies in the IPCC 2006 GL (ODS similar).</p>	<p>Current use of HFE is concentrated in specialised high value sectors (e.g. precision cleaning) where the main alternatives are higher GWP fluorocarbons. There is therefore limited scope for mitigation.</p> <p>HFEs are expensive to produce, and use as replacement of other ODS is difficult to forecast.</p>

# SF<sub>5</sub>CF<sub>3</sub> and PFPE/PFPMIE

Gas	GWP	Application and methodologies	Emissions reduction options
PFPE/ PFPMIE	10,300	PFPMIE: use as dermatological/cosmetic product; heat transfer fluid and dielectric applications. Potentially low volatility. Methods in the 2006 IPCC GL.	Largely, this industry has adopted alternative technologies (e.g. no-clean, aqueous and semi-aqueous cleaning; and other solvents; but certain specific solvent applications (mainly precision cleaning) still require PFPEs because of reliability, compatibility, stability and low toxicity.
SF <sub>5</sub> CF <sub>3</sub>	17,700	Concentrations in the atmosphere have been increasing; but here are assumptions that it could originate as a breakdown product of SF <sub>6</sub> in high voltage equipment.	© JRB, UNFCCC

# Other gases

Gas	Name	GWP	Application and methodologies
CH <sub>3</sub> OCH <sub>3</sub> , CH <sub>2</sub> Cl <sub>2</sub> , CH <sub>3</sub> Cl, CH <sub>2</sub> Br <sub>2</sub> , CF <sub>3</sub> I	Dimethylether, Methylene chloride, Methyl chloride, Dibromomethane, Trifluoroiodo-methane	<b>1</b> <b>8.7</b> <b>13</b> <b>13</b> <b>0.4</b>	Low GWP and lifetimes. Methyl chloride and dibromomethane from biogenic sources mainly.
CH <sub>3</sub> CCl <sub>3</sub> , CHBrF <sub>2</sub>	Methyl chloroform, Bromodifluoro-methane	<b>146</b> <b>404</b>	Already included in the annexes of the Montreal Protocol. Concentrations in the atmosphere are stable or declining.





**Thank you!**

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