



IIR Working Party Life Cycle Climate Performance Evaluation

Working Party of Commission B1, with B2, E1 and E2

TERMS OF REFERENCE

Background

Working fluids should not only satisfy thermodynamic requirements to efficiently deliver sufficient capacities but should also be locally and globally safe. Recent international concerns about global warming have resulted in the inclusion of hydrofluorocarbons (HFC's) in the basket of greenhouse gases (GHGs) in the Kyoto Protocol (United Nation, 1998). These concerns have generated interest in the use of low Global Warming Potential (GWP) fluids such as HFOs, hydrocarbons, ammonia, and carbon dioxide. Since the global warming contribution from refrigeration and air-conditioning equipment is composed of about 16% from direct emissions and 84% from indirect emissions (Heap, 2001), the climate performance of refrigeration and air-conditioning equipment during its life cycle is an area of concern. Moreover, its proper evaluation is a key factor in determining the true impacts of working fluids for specific application and geographic location, and will assist in determining next generation working fluids for refrigeration and air-conditioning systems.

In response to global warming concerns, the IIR has been advocating environmentally friendly, safe, energy-efficient and cost-effective design, operation and end-of-life management of refrigeration and air-conditioning systems. As part of these efforts, the IIR has collected, compiled and disseminated information related to direct emissions of GHGs from refrigeration systems, as well as GHG emission mitigation. Forming a working party to assess the merits of different methods for evaluating the environmental impact of refrigerants and to produce implementation protocols for these methods, for use by decision makers and refrigeration stakeholders, is a good opportunity to utilize the results of the IIR's efforts.

Objectives

- To collect information on direct and indirect emissions of working fluids for various applications from individual countries and from the current IIR's Working Party on Mitigation of Direct Emissions of GHGs
- To initiate within IIR member states the formation of similar Working Party-Groups to cooperate with the IIR Working Party
- To establish the LCCP evaluation methodology applicable for refrigeration and air conditioning systems
- To evaluate how different assumptions selected by a user of these methodologies can affect the result of the assessment.



- To assemble such information and to disseminate it amongst members of the Working Party and all IIR member states
- To write a booklet on the LCCP evaluation methodology developed (in cooperation with member states Working Groups) available to members of the Working Party and all IIR members (member states, physical bodies and members organizations - legal bodies) and to be available to non-members via Fridoc
- To support and promote international collaboration and initiatives to improve the LCCP of the refrigeration and air conditioning systems
- To represent the IIR at events dealing with environmental impact evaluation

Membership

Membership of the Working Party should be multi-national and open to private members or representatives of corporate members of the IIR. The IIR is currently recruiting members from following areas for this WP:

- Commission, private, and corporate members of the IIR
- Experts whose knowledge of the subject will benefit the Working Party

Commissions Involved

- The Working Party is under the jurisdiction of Commissions B1, B2, E1 and E2

Chairperson, Vice-Chairperson and Secretary

- Chairperson: Yunho Hwang
- Vice-Chairperson: TBD
- Secretariat: TBD

Meetings

- The Working Party shall hold at least one meeting per year.
- Minutes shall be taken at each meeting and posted on the IIR web page of the Working Party.

Sources of Information

- Journal publications, Conference proceedings, and member state Working Groups
- UNEP-TOC report, IPCC emission scenarios
- Industry inputs

Deliverables

As an outcome of the effort, the WP will deliver the followings to the IIR:

- Consolidated listings and references for relevant information on direct and indirect refrigerant emissions
- One statement, position paper and/or Informatory Note
- Booklet on the LCCP evaluation methodology



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- A workshop with the publication of the proceedings in CD-ROM form
- Periodically updated web page on the IIR site

Timescales

- Project start: January 2012
- First WP meeting: Delft, June 2012, during the 10th IIR-Gustav Lorentzen Conference on Natural Working Fluids (GL2012)

Reference

- United Nations, 1998, Kyoto Protocol to the United Nations Framework Convention on Climate Change.
- Heap R. 2001, Refrigeration and air conditioning – the response to climate change, Bulletin of the IIR No 2001-5.