

Non-CO₂ Greenhouse Gases: High-GWP Gases

Source/Sectors: Substitution of ODS/Chillers

Technology: Options for emission reduction including leak repair (C.1.1.4)

Description of the Technology:

There are many types of repairs applicable to reduce leaks in chillers, the major repairs include installment of new purge systems, replacement/removal of the motor, installment of new refrigerant metering, and replacement of flare joints, gaskets, or seals (USEPA, 2001). Usually, those options are very expensive, so they are often feasible only for large equipments. In addition, new and advanced leak reduction technologies are emerging and expected to lower the costs over time (IEA, 2003). Technologies such as early warning signals are in the final stage of development (USEPA, 2006b).

Effectiveness: Good

Implementability: Good

Reliability: This is a primary option for emission reduction.

Maturity: Law in many developed countries already regulates maximum allowable leak rates, but further leak reduction improvements, such as upgrades or replacement, are still possible (USEPA, 2006b).

Environmental Benefits: High GWP-gas emission reduction

Cost Effectiveness:

Technology	Lifetime (yrs)	MP (%)	RE (%)	TA (%)	Capital cost	Annual cost	Benefits
Leak repair ¹	5	5	90	0-4	\$27.55	\$0.00	\$3.05

Note: MP: market penetration; RE: reduction efficiency; TA: technical applicability; costs are in year 2000 US\$/MT_{CO₂-Eq.}

1: IEA (2003) & USEPA (2001)

Industry Acceptance Level: Good

Limitations: The reduction efficiency of this option varies on a case-by-case basis since it depends on the age of equipment and quality of repair. Similarly, the total percent of abatement that is achievable through this option is uncertain (IEA, 2003).

Sources of Information:

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