

## Non-CO<sub>2</sub> Greenhouse Gases: High-GWP Gases

**Source/Sectors:** Substitution of ODS/Industrial Process Refrigeration

**Technology:** Leak repair (C.1.1.8.1)

### Description of the Technology:

There are many types of repairs applicable to reduce leaks in industrial process refrigeration, the major repairs include installment of new purge systems, replacement or 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:** Leak repair options range from simple repairs to major system upgrades (USEPA, 2006b).

**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 <sup>1</sup>	5	10	90	1-5	\$27.55	\$0.00	\$3.05

Note: MP: market penetration; RE: reduction efficiency; TA: technical applicability; costs are in year 2000 US\$/MT<sub>CO<sub>2</sub>-eq.</sub>  
1: IEA (2003) & USEPA (2001)

**Industry Acceptance Level:** Major modifications to large refrigeration systems are well adopted and have widely penetrated in developed countries (USEPA, 2001).

**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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