

Non-CO₂ Greenhouse Gases: High-GWP Gases

Source/Sectors: Substitution of ODS/Fire-Fighting Sector

Technology: Inert gas systems (C.1.5.2)

Description of the Technology:

Inert gas systems use argon, nitrogen carbon dioxide, or a blend of these gases to extinguish fires (UNEP, 2001).

Effectiveness: Good

Implementability: Inert gas systems can be applied for the standard HFC systems in Class A (ordinary combustible) total flooding applications. This includes electronics as well as telecommunications applications (IEA, 2003)

Reliability: For most Class A fire hazards, it provides an equivalent level of both fire protection and life safety/health protection (USEPA, 2006b).

Maturity: Commercially available; however, several risks may prevent the option from widely use and therefore, further research are needed (IEA, 2003).

Cost Effectiveness:

Technology	Lifetime (yrs)	MP (%)	RE (%)	TA (%)	Capital cost	Annual cost	Benefits
Inert gas systems ¹	10	20	100	15-76	\$98.57	\$3.57	\$0.00

Note: MP: market penetration; RE: reduction efficiency; TA: technical applicability; costs are in year 2000 US\$/MT_{CO₂-Eq.}
1: USEPA (2001), IEA (2003), USEPA (2004), & UNEP (2002)

Industry Acceptance Level: The inert gas systems are assumed to increase over time, as old systems are replaced to new systems (IEA, 2003).

Limitations: This system may not be applicable for situations that fire expansion is rapid, because of its slow discharge time (4 to 6 times slower than standard HFC systems); the additional space and weight necessary for the installation of the system may not be suitable for many systems which infrastructure are already fixed (IEA, 2003).

Sources of Information:

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