

Non-CO₂ Greenhouse Gases: High-GWP Gases

Source/Sectors: Substitution of ODS/Solvent Uses

Technology: Improved equipment and cleaning processes (C.1.3.1)

Description of the Technology:

Attempts to reduce emissions and save costs have led to significant improvements in the existing technology (USEPA, 2006b). Improved containment such as better solvent bath enclosure and better vapor condensing systems can reduce emissions of HFCs and PFCs used in solvent cleaning. Similarly, better engineering controls such as increasing freeboard height, installing freeboard chillers, less drag-out losses, and using automatic hoists will minimize emissions and losses of existing solvents (USEPA, 2006b; March Consulting Group, 1999). Such practices, combined with proper operation and maintenance, can reduce emissions from solvent process by as much as 46 to 70% (USEPA, 2006b).

Effectiveness: Varies

Implementability: Good

Reliability: Good

Maturity: Since this option has already practiced in many countries including the United States, it is not expected to further expand; by 2010 and beyond, the solvent equipment in use will either already have been retrofitted or replaced by new equipment. Therefore, the market penetration is assumed to drop down from 5% to 0% by 2020 (USEPA, 2006b).

Environmental Benefits: High-GWP gases emission reduction

Cost Effectiveness:

Technology	Lifetime (yrs)	MP (%)	RE (%)	TA (%)	Capital cost	Annual cost	Benefits
Improved equipment and cleaning processes ¹	10	0	46 - 90	90 - 100	\$370.37	\$0.00	\$27.84

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)

Industry Acceptance Level: Retrofitting equipment is being adopted on newer vapor degreasers (IEA, 2003).

Limitations: This option is not viable for older equipment that should rather be replaced (IEA, 2003).

Sources of Information:

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