SF6 Conversion for Mg Melt Protection

IMA 66th Annual World Magnesium Conference May 2009
San Francisco, California

EPA Climate Protection workshop
PRESENTATION AGENDA

- About Polycontrols
- Expertise with gas conversions
  - SO2 Experience
    - Existing systems
    - US EPA testing
  - Novec 612 Experience
    - Test trials
    - Existing systems
- Carbon Credits
  - Window of Opportunity
ABOUT POLYCONTROLS …

- In business since 1982
- Manufacturer of gas mixing panels for specialty gases.
- 10+ years of expertise with SF6 gas conversions.
- Largest certified gas calibration laboratory in Canada.
- International presence.
- Worldwide support for our gas mixers.
- Gas mixers are UL and UNFCCC Compliant
- Canada Innovation Award 2006 and 2008.
Expertise with gas conversions

- First gas mixer for Alcan: 1992
- First gas mixer for Mg industry: 1998
- First SF6 conversion: 1999
- Actual installed based:
  - Canada
  - USA
  - UK
  - Italy
  - China
  - India
  - Israel
Experience with SO2 conversions

- Converted plants to SO2:
  - Canada (Meridian Strathroy)
  - USA (Meridian MPA)
  - Europe (Meridian UK)
  - China (Foxconn Taiyuan, Meridian Shanghai)

- Type of equipment:
  - Hot & cold furnaces
  - Melting & Dosing furnaces
  - Recycling units
  - Alloying units
  - Ingot casting
Experience with SO2 conversions

- Participation to the US EPA tests:
  - Lunt Manufacturing
  - Garfield Alloys / MagReTech
  - Amacor

- Summary of the tests:
  - Works very well;
  - No smell. No SO2 leaks
  - Security plan is essential

- Complete report available online:
  - [http://www.epa.gov/highgwp/magnesium-sf6/resources.html](http://www.epa.gov/highgwp/magnesium-sf6/resources.html)
Experience with Novec 612™

- Test Programs (US EPA & Private trials):
  - Casting conveyers
  - Alloy furnaces
  - Ingot casting
  - DC Casting
  - Sand casting
  - Pure

- First 3M Test unit built 2002
- Excellent collaboration with 3M
Experience with Novec 612™

- Converted plants to Novec 612
  - Canmet (Ontario)
  - Trimag (Quebec)

- Meridian:
  - Canada (2 Die Casting plants 2008)
  - USA (Die Casting & recycling plants 2008)
  - Mexico (Die casting 2008)
Experience with Novec 612™

- Installed systems status
  - Good integrity and reliability
  - Very adaptive to process variations
  - Simple start-up
  - Easy to operate
Experience with HFC-134a (AM-Cover™)

- No recent data
  - Last important project: Norsk Hydro 2004
  - Last participation to the US EPA trials: 2006
  - Few known licenses sold

- Summary
  - Possibility of gas liquefaction
  - Excess HFC dosage creates HF
Carbon Credits …
Window of opportunities

**North America**
- One VER project completed:
  - Meridian VERs produced Successfully and sold
  - New projects are in negotiation for 2009

**China**
- Number of conversions completed
- No CDM/VERs projects qualified to date
- Conversions were done based on gas cost advantage compared to SF6

**Other countries**
- Projects in negotiation. CDM based.
Things to consider to meet 2010 target date

- Your project needs time….
  - Budget and internal approval cycle: (?) weeks
  - Engineering and purchasing: (?) weeks
  - Equipment manufacturing: 10-12 weeks
  - Shipping time: (?) weeks
  - Installation & commissioning: 2-3 weeks

- There is not much time left!!
Carbon Credits …
Window of opportunities

- Financing sources for Gas Conversions
  - CDM credits to generate offset revenues
  - EDC Loans available from Canada
    - (Canadian Government Export Development Corporation)
The situation

- Time for conversion projects is running out before SF6 ban!
- Once SF6 ban enforced, stiff sanctions will hurt!
- No more CDM/VER projects admissible.

Regulations are in the cards:
- EU: Too late...
- USA: 2010
- China: Government getting ready
- Other countries: Coming soon
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