



SF6 Conversion for Mg Melt Protection

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

EPA Climate Protection workshop





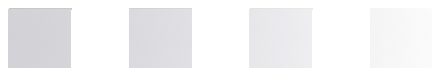
PRESENTATION AGENDA

- **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>



SO₂ Gas Mixer

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™

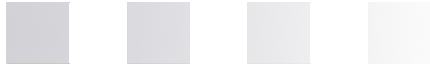
- **Converted plants to Novec 612**
 - **Canmet (Ontario)**
 - **Trimag (Quebec)**
 - **Meridian:**
 - **Canada (2 Die Casting plants 2008)**
 - **USA (Die Casting & recycling plants 2008)**
 - **Mexico (Die casting 2008)**



Novec 612 Gas Mixer

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**

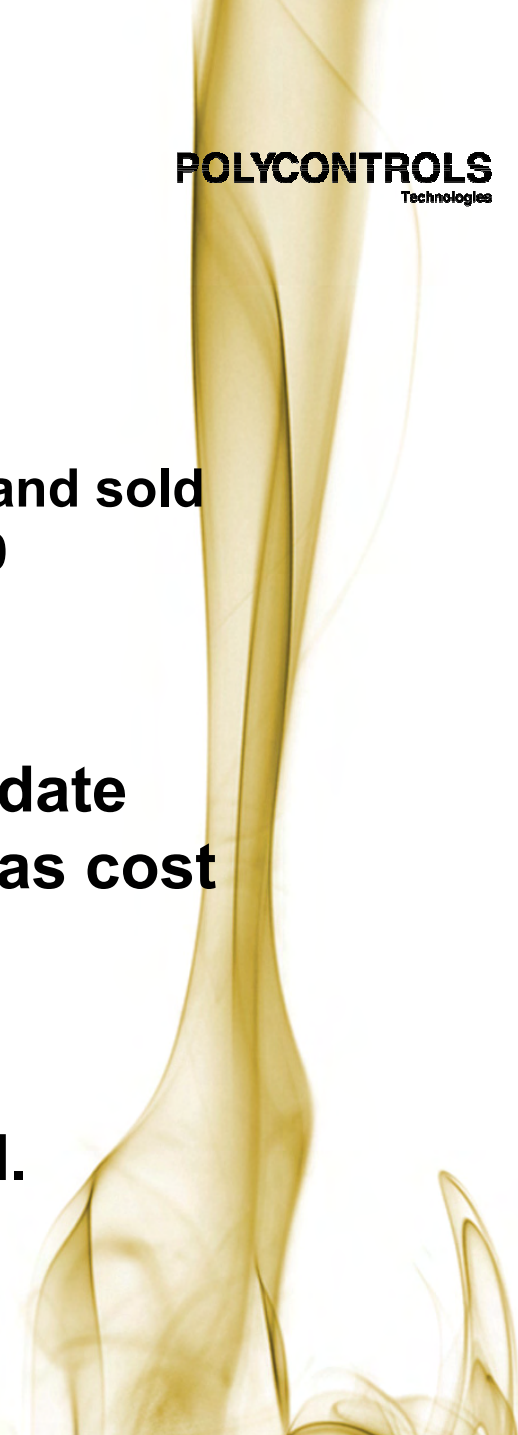
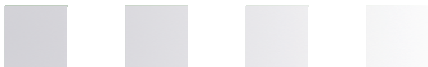
- **One VER project completed:**
 - Meridian VERs produced Successfully and sold
 - New projects are in negotiation for 2009

■ **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.**



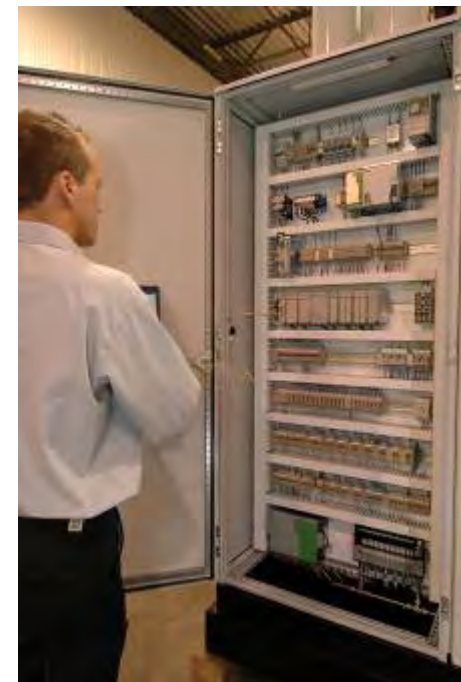
Carbon Credits ...

Window of opportunities

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!!**

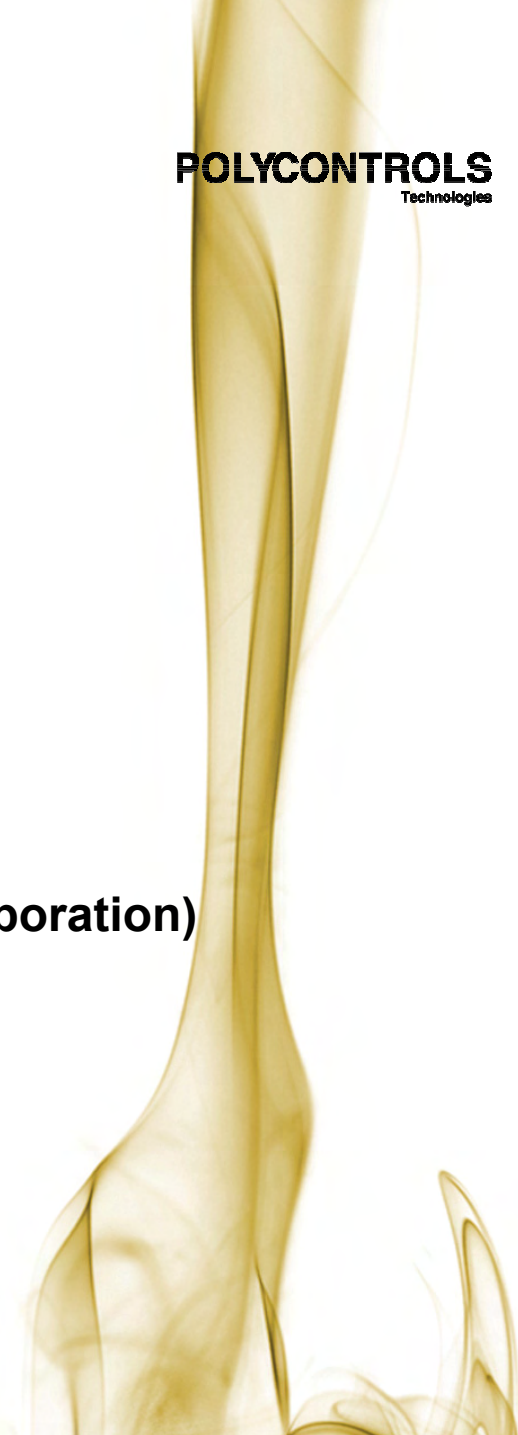





Carbon Credits ...

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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