



Specialists in Rare Earth Magnets and Magnet Systems

Research Title: New High Performance Magnet Materials for High Temperature Applications

NEED & CUSTOMER REQUIREMENT

Need: Ultra High temperature operation magnets enable technologies including engine environment actuators and power generation, lubricant free bearings, electric spacecraft propulsion.

Operational Gap: Conventional Samarium Cobalt magnet materials are capable of operation to only 300-350°C. Alnico & Ferrite magnets have a fraction of the energy product needed for emerging ultra high temperature electromagnetic systems.

Customer Specifications: Magnet materials to perform continuously with Maximum Energy product of 24 MGOe at 400°C and 16 MGOe at 550°C.

Technology Description: Innovative composition changes and processing enable high performance at ultra high temperatures (US Patent No. 06,451,132.)

SPONSORSHIP

Agency: Air Force Research Lab
Contract # F33615-97-C5017

Partners: University of Dayton

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TECHNOLOGY TRANSITION OPPORTUNITIES

The company is looking for transition opportunities and program dollars for the following applications and targeted activities:

TRL	Required Test and Demos	Target Date	\$ Needed
6	Graded layer technology feasibility development	12/1/2008	\$500K
7	Application of material in high temperature generators, actuators	6/1/2008	\$300K

Milestones	TRL	Measure of Success	TRL Date
material feasibility	3	lab work indicates changes in composition can improve	4/1/1997
attain 550°C operation	4	developed compositions and processing to attaining 16MGOe	9/1/1999
Processes developed	5	production processes developed for commercial offering	10/1/2000
Environmental testing	6	Tests in air, vacuum, high radiation performed and coatings product used in select government applications	1/1/2001 to 7/1/06
Product verified	9		2/1/2002

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