

**ATOMET EM-1** Ferromagnetic Composite powder is specifically engineered for soft-magnetic applications where high permeability, high induction and low loss is desirable. QMP starts with a high purity iron powder, which is essential for good magnetic properties. The high purity iron, when combined with a unique resin-binder system, provides for a highly compressible product with high densities and strengths after curing. This results in a low-cost, high-performance material directly applicable to powder metal fabrication techniques and soft magnetic components.

---

## FEATURES AND POTENTIAL APPLICATIONS

---

### Features:

- *Ease of shaping*
- *Low cost*
- *Low core loss*
- *Isotropic properties:*
  - Magnetic Properties
    - Designed new 3D magnetic structures
    - Optimize the use of copper
  - Thermal Properties
    - Better heat transfer
    - Higher current densities
    - Higher torque-to-weight ratio

### Potential applications:

- *Chokes, Transformers and Inductors*
  - Ignition and impulse cores
  - Transformers
  - Inductors/ pole pieces
  - Lighting ballasts
- *Stators and Armatures*
  - DC motors (control motors)
  - Switched reluctance motors (servo motors)
  - Alternators
  - Starters

---

## MIX PROPERTIES

---

<b>Apparent Density</b>	2,75	g/cm <sup>3</sup>
<b>Hall Flow</b>	30,00	s/50g

**PHYSICAL AND CHEMICAL PROPERTIES**

Density	7,10	g/cm <sup>3</sup>
Electrial resisitivity	150,00	μohm-m
Thermal conductivity	20,00	W/K-m
Strength (TRS)	18,000 (124)	Psi (MPa)

**MAGNETIC PROPERTIES**

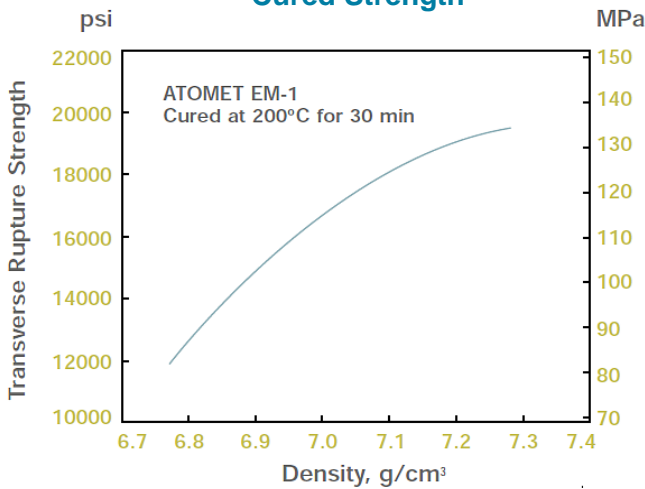
**DC characteristics**

μmax		290
Bmax at applied field of 150 Oe (11.9k A/m)	Tesla	1,4

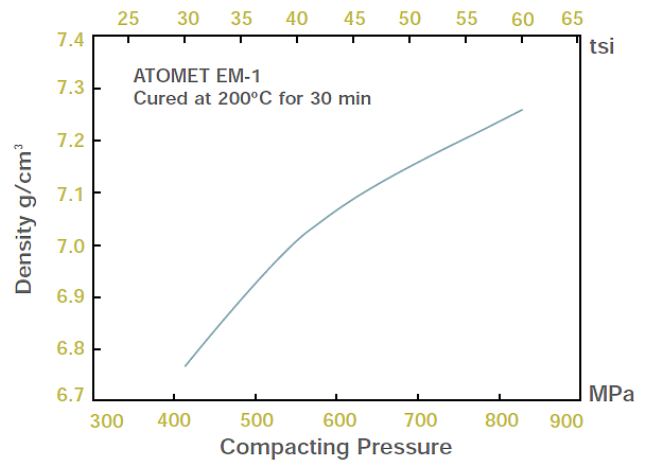
**Core loss at 1,0 Tesla**

	60 Hz	400 Hz	1000 Hz
W/lb	5	35	99
W/kg	11	77	218

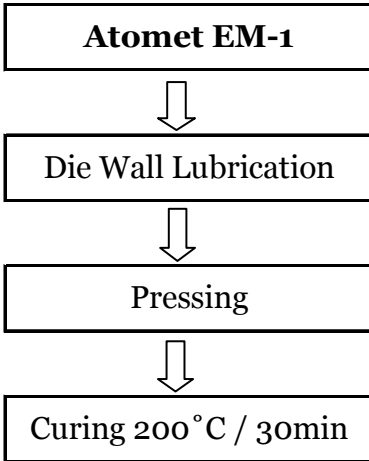
**Cured Strength**



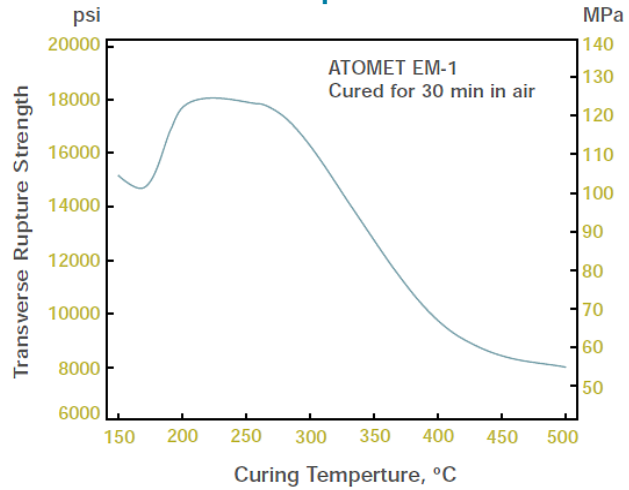
**Compressibility**



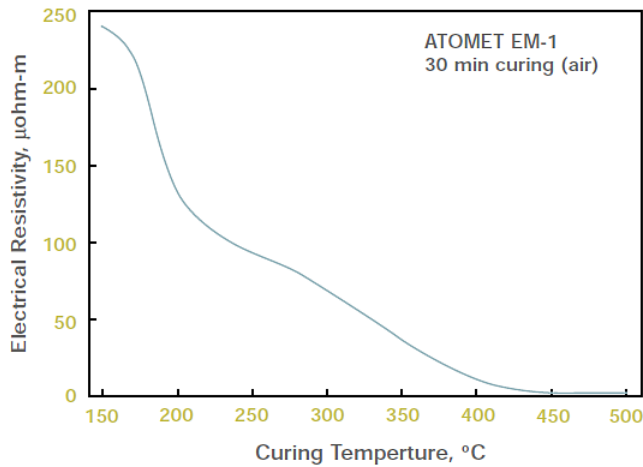
## PROCESS FLOW



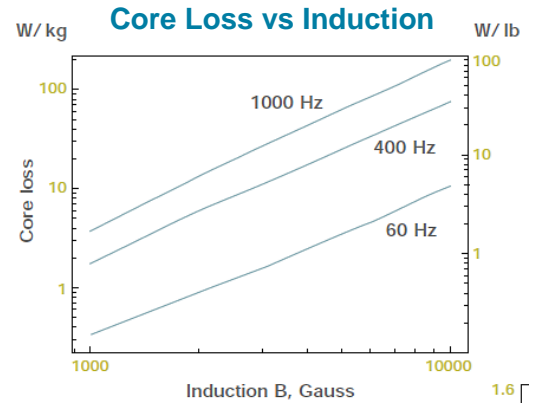
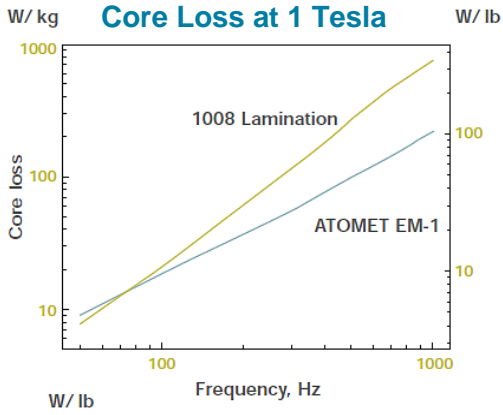
### Strength VS. Curing Temperature



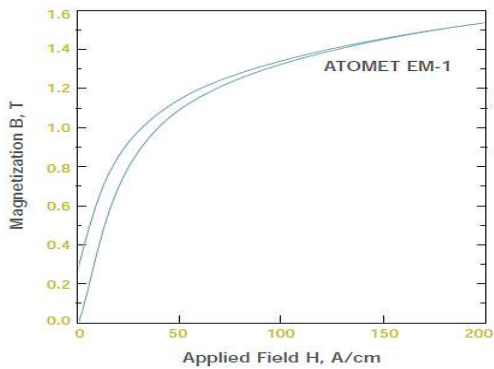
### Resistivity VS. Curing Temperature



MAGNETIC PROPERTIES



Typical DC Magnetization



Rio Tinto, Metal Powders

1655 Marie-Victorin

Sorel-Tracy, QC J3R 4R4 Canada

T: +1-450-746-5050

F: +1-450-746-5084