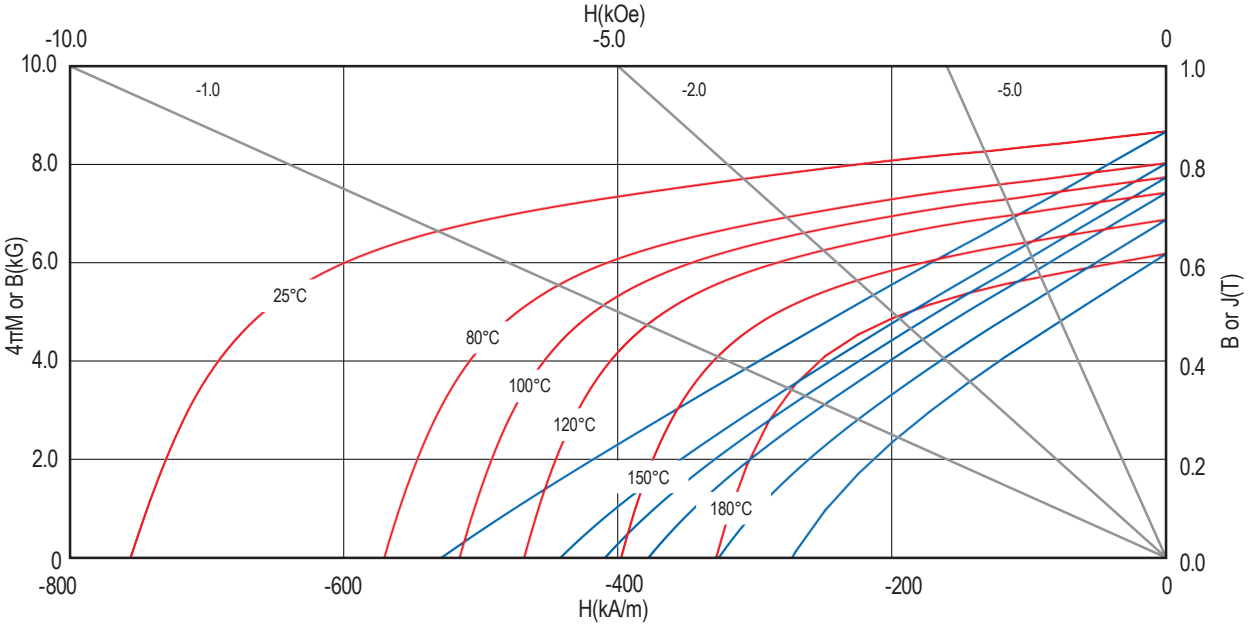
# MQP™-15-9HD-20178-070 Isotropic Powder*

## Material Description

MQP-15-9HD-20178 is an isotropic powder designed for the manufacturing of bonded magnets. Bonded magnets made from this powder grade typically have higher density and therefore exhibit superior magnetic properties. This powder offers lower springback and requires lower ejection forces. MQP-15-9HD-20178 is based on a patented and cost optimized Nd-Pr-Fe-B alloy composition and may be a cost effective alternative to MQP-B+-20056-070. This material is produced by employing a proprietary rapid solidification process followed by a milling process and heat treatment.

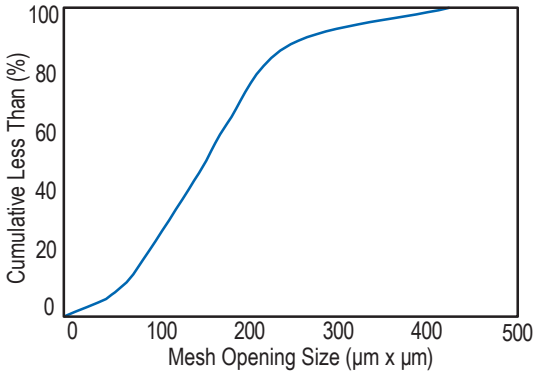
## Powder Magnetic Characteristics[1]

| | | SI | | CGS | |
|---|---|---|---|---|---|
| Specified | Residual Induction, $B_r$ | 858-878 | mT | 8.58-8.78 | kG |
| | Energy Product, $(BH)_{max}$ | 115-123 | kJ/m³ | 14.5-15.5 | MGOe |
| | Intrinsic Coercivity, $H_{ci}$ | 720-780 | kA/m | 9.0-9.8 | kOe |
| Typical | Magnetizing Field to ≥ 95% Saturation $H_s$ | ≥ 1600 | kA/m | ≥ 20.0 | kOe |
| | Temperature coefficient of $B_r$, α, to 100° C | -0.14 | %/°C | | |
| | Temperature coefficient of $H_{ci}$, ß, to 100° C | -0.42 | %/°C | | |
| | Instrinsic Coercivity, $H_c$ | 525 | kA/m | 6.6 | kOe |
| | Curie Temperature, $T_c$ | 289 | °C | | |
| | Maximum Operating Temperature[2] | 130-140 | °C | | |
| | Maximum Process Temperature[3] | 250-275 | °C | | |



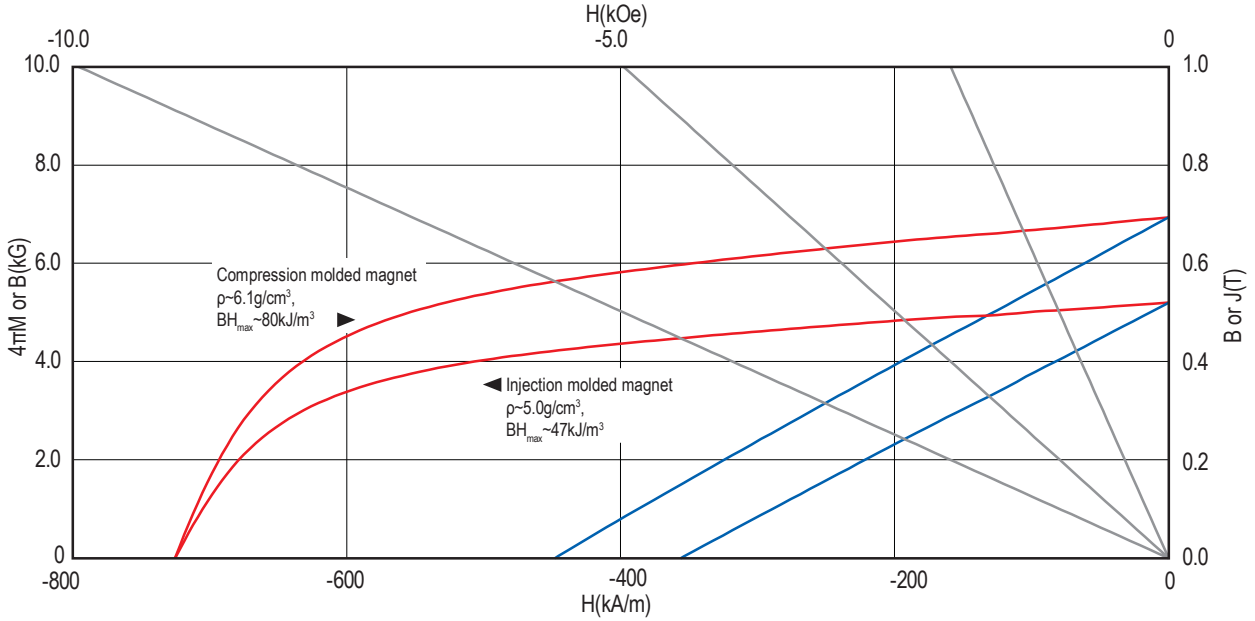

## Physcial Characteristics

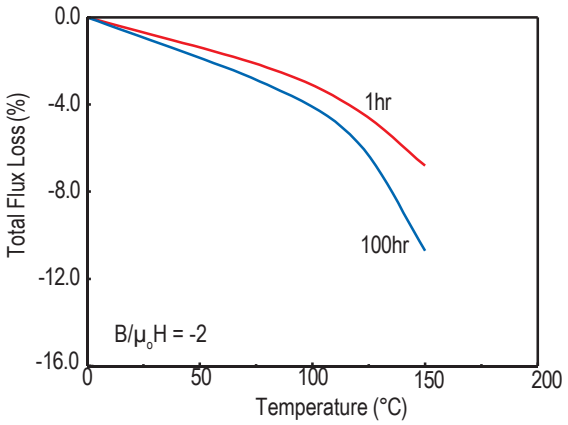
| | | |
|---|---|---|
| Specified | Sieve Screen Analysis: | |
| | Total > 40 Mesh (177x177µm opening) | < 0.1wt% |
| | Total > 60 Mesh (149x149µm opening) | < 25wt% |
| | Total < 270 Mesh (53x53µm opening) | < 12wt% |
| Typical | Density (theoretical) | 7.60 g/cm³ |
| | Apparent Density | 2.63 g/cm³ |

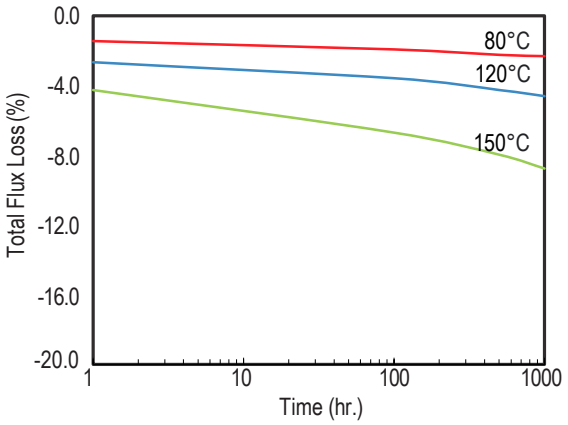


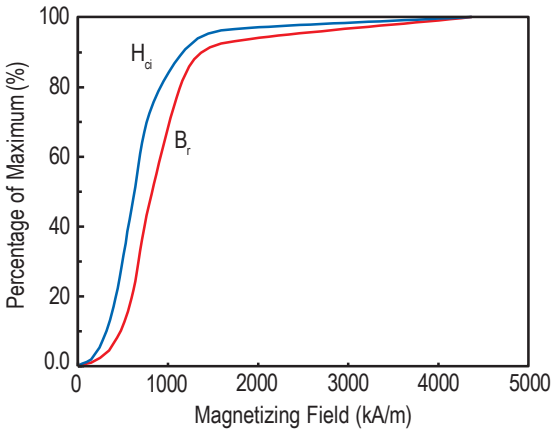

*Contact Magnequench to obtain up-to-date product specifications.

## Bonded Magnet Characteristics[4]

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[1] Properties measured at 25°C, unless otherwise specified.

[2] The Maximum Operating Temperature for a magnet made from this powder is dependent upon the specific application, the type of magnet, and magnet geometry. Contact our Application Engineers for more information.

[3] Maximum Process Temperature is defined here at <2% reduction in coercivity (i.e. structural loss) after heating powder 1 hour in air.

[4] These properties are typical at 25°C and are representative only. Magnet properties are dependent upon powder loading and magnet manufacturing conditions. Contact our Application Engineers for information about Magnequench magnet products.

* This powder, the products that are made there from, and its manufacturing processes are subject to one or more of the following United States Patents: 6,183,572; 6,478,890; 6,527,875; 6,855,265; 6,979,409; 7,087,185; 7,144,463.