

excessive settling may result.

Experience has shown that -325 mesh magnetites with coercive forces in the range 50-120 oersteds are suitable.

Maghemite (magnetic Fe_2O_3) has a high coercive force, i.e. is difficult to demagnetise. Much of the Fine Flower (N.S.W) magnetite is high in maghemite.

4. Grindability.

This is a measure of the mechanical hardness and toughness of the magnetite. ~~constituted by high~~ ^{The magnetite should be hard} to minimise sliming during preparation, and degradation in the washing and recovery circuits. Ultrafine magnetite particles are frequently lost in the recovery circuit.

However, excessive hardness of the magnetite will very likely cause excessive wear of the grinding apparatus and for this reason hardness due to impurities such as quartz should not be too high.

5. General.

The above four properties (Specific Gravity, Susceptibility, Coercive Force, and Grindability) are inherent in the particular magnetite of a particular deposit and are readily measured or compared with other magnetites of known performance. Most other properties such as chemical composition, porosity, degree of oxidation, etc. only influence the performance of the magnetite through their effects on one or more of the above properties.

Features imparted to the magnetite by the treatment process are freedom from non-magnetics, and particle size distribution.

Specifications which apply to the product, i.e. ground magnetite, are:

Chemical Specification:

<u>Metallic Iron</u>	<u>SiO₂</u>
5% max.	2% max.

Probably the main reason for the 2% SiO₂ limit is that siliceous magnetite is hard and could cause undue wear on grinding apparatus.

Physical Specifications:

S.G. (of the magnetite)	4.6 min.
Moisture content	10% Max.
Magnetics content	90% Min.
Susceptibility (at 800 oersteds)	0.050 e.m.u./gm. Min.
Coercive force	120 oersteds Max.
Size analysis prior to ball milling:	
	+1/16" 5% Max.
	+30 mesh 10% Max.