



NANOCAT® IRON OXIDE POWDER (II, III)

PRODUCT IDENTIFICATION

Identification label: **IRON OXIDE POWDER (II, III)**; chemical name: iron oxide powder (II, III); chemical formula: Fe_3O_4 . This powder is produced using electric explosion of metallic wire in air.

CHEMICAL COMPOSITION

Material: iron oxide – not less 99%. The balance is absorbed gases as follows CH_4 , CO_2 , Ar, N_2 . Chemical composition of a source wire is as follows: Mn: 0.78-0.82 %; Cr: <0.1 %; Ni: 0.08-0.098 %; Si: 0.66-0.82 %; Cu: 0.081-0.082 %; V: <0.05 %; Mo: <0.01 %; W: <0.1 % mass.

PHYSICAL AND CHEMICAL PROPERTIES

Appearance and color: brown powder. The bulk density is 2.2 g/cm^3 . Particles readily form micro-agglomerates; BET specific surface area $\sim 30 \text{ m}^2/\text{g}$. Melting point - 1550°C . Average particle size is 70 to 100 nm. No smell. Iron oxide powder (II, III) can be used in making magnetic storage devices.

DANGER

Safe.

HEALTH HAZARD

IRON OXIDE POWDER DRY is a nuisance dust that may irritate the respiratory organs as the usual dust.

SAFE HANDLING

Follow common and standard health-protection rules.

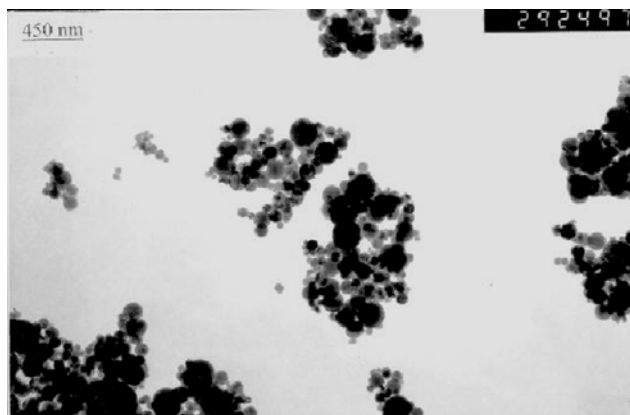


Fig.1 TEM micrographs of iron oxide powder particles.

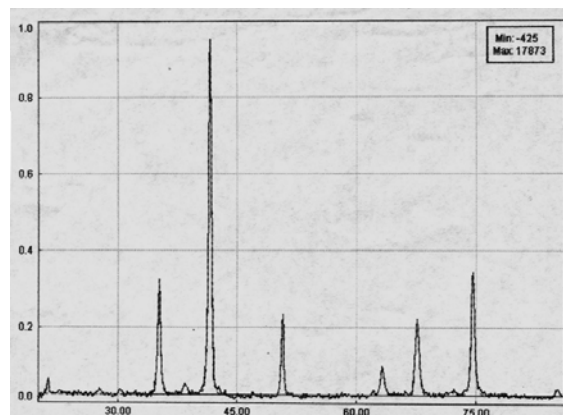


Fig.2 X-Ray diffraction of iron oxide powder.

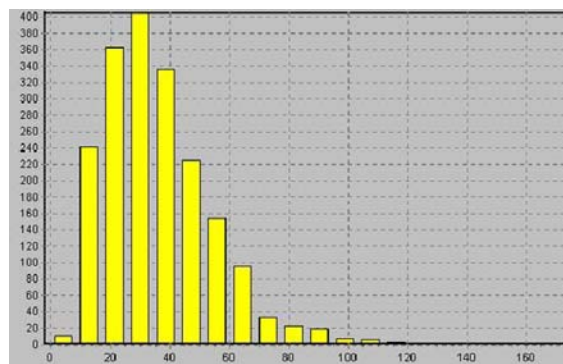


Fig.3 Particle size distribution.
X-axis: particle size in nm;
Y-axis: number of particles.

All statements, technical information and recommendations herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed, and the following is made in lieu of all warranties, expressed or implied, including the implied warranties of merchantability and fitness for purpose. MACH I's only obligation shall be to replace such quantity of the product proved to be defective. Before using, user shall determine the suitability of the product for its intended use, and user assumes all risk and liability whatsoever in connection therewith. NEITHER SELLER NOR MANUFACTURER SHALL BE LIABLE EITHER IN TORT OR IN CONTRACT FOR ANY LOSS OR DAMAGE, DIRECT, INCIDENTAL, OR CONSEQUENTIAL, ARISING OUT OF THE USE OF OR THE INABILITY TO USE. **Mach I, Inc., 340 East Church Road, King of Prussia, PA 19406 , USA Phone: +1 610 279 2340**