



## **NANOCAT® NICKEL/IRON ALLOY POWDER**

### **PRODUCT IDENTIFICATION**

Identification label: **NICKEL/IRON ALLOY POWDER**. Synonym: Nitinol. Chemical name: nickel iron powder, chemical formula: powder – Ni-Fe. This powder was prepared by electric explosion of a metallic wire in argon, wetted by hexane and packaged in glass ampoules or bottles.

### **CHEMICAL COMPOSITION**

Powder consists of nickel iron particles. Ni/Fe powder contains 23% wt. Ni, 67% wt. Fe, 8% wt. iron and nickel oxides and 2% wt. carbon.

### **PHYSICAL AND CHEMICAL PROPERTIES**

Appearance and color: dark gray to black powder. The particles are spherical and form  $\leq 10$   $\mu\text{m}$  agglomerates. TEM micrograph of particles is shown in Fig 1. Bulk density of dry powder is 0.76 g/cm<sup>3</sup>. BET surface area – 9.7 m<sup>2</sup>/g. Mean particle size determined from the BET data is 92 nm. Particle size distribution function is shown in Fig. 2. This material may be applied in catalysis and materials science.

### **DANGER**

Combustible metal powder. Nickel/iron powder may be ignited in open air or by open fire. Linear burning rate is 0.79 mm/s. This material has general toxic and irritating effects. Maximum allowable day concentration is 0.002 mg/m<sup>3</sup>. Explosion-safe.

### **HEALTH HAZARD**

Nuisance dust. If inhaled, may cause headache, elevated body temperature, vertigo and weakness. Irritates eye cornea.

### SAFE HANDLING

Use health protection means as those used for handling readily flammable substances. Wear respirators. Do NOT heat above 200°.

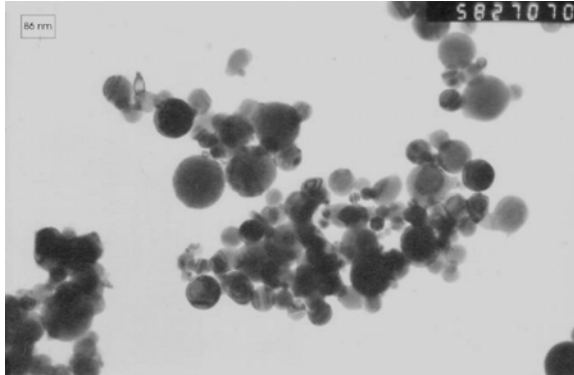


Fig.1 TEM micrograph of Nickel Iron powder.

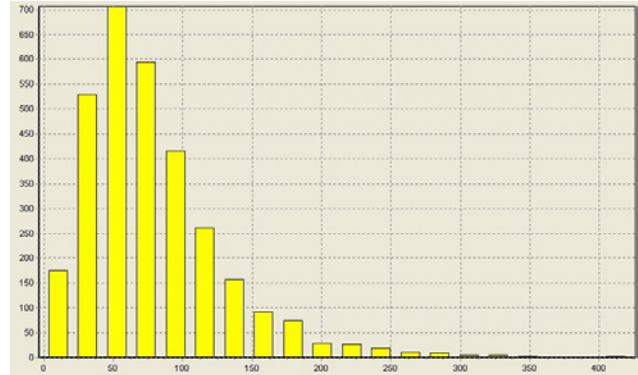


Fig.2 Particle size distribution. X-axis: particle size in nm; Y-axis: number of particles.

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