

Effect of bio field treatment on the physical and thermal characteristics of Vanadium pentoxide powders

Shrikant Patil, Mahendra K Trivedi and Rama Mohan Tallapragada
Trivedi Foundation, USA

Vanadium pentoxide powders are very useful in producing ferrous as well as aluminum alloys, in removing carbon and sulfur and as catalysts in synthesizing ammonia and sulfuric acid. It is also used as corrosion inhibitor petroleum and chemical processing.

In the present investigation V_2O_5 powders are exposed to biofield. Both the exposed and unexposed powders are later characterized by various techniques. The average particle size is found to decrease with increase in number of days after treatment up to a maximum of 15.9% in 110 days indicating severe fracture at agglomerate/ crystallite boundaries. The BET surface area showed a surprising decrease (it should increase as particle size is decreased) of 7.22% in 109 days indicating the surface densification/ removal of sharp surface corners/ formation of large particles. SEM photographs indeed showed that samples exposed to biofield after 20 days showed increase in size as well as rounded corners. Thermal analysis indicated an increase in melting temperature by 9.9% in samples treated after 57 days along with a much reduced change in weight.

X-ray diffraction of the powder samples indicated both increase and decrease in crystallite size, unit cell volume and molecular weight of samples exposed to biofield after 28, 104, 124 and 139 days.

These results indicate that the catalytic nature of vanadium pentoxide can be controlled by exposing to bio field and using after a specific number of days after exposure.

harish@trivedifoundation.org