BEHIN NANO

PARTICLES PARS

www.behinnano.com

BEHIN NANO
PARTICLES PARS

Steve Jobs :
“We’re here to put a dent in the universe.
Otherwise why else even be here?”

About Us

Behin Nanoparticles Pars Co.

was established in 2017 as a Private-Joint Stock Company and started its activities in the field of research and development (R&D) as well as the production of advanced nanoparticles and minerals. Relying on its expert and efficient team, the company has been able to produce technological and innovative products. In this regard, it has succeeded in obtaining knowledge- based and technology licenses and related Nanoscale certificates.This innovative company was created with the aim of creating wealth, using mental abilities, promoting industrial capabilities and developing entrepreneurship

- **Our Mission:**

To upgrade technology with continuous improvement of productivity and customer focus.

- **Our Goal:**

Producing high-tech products with top quality based on customer needs and orders.

- **Our Honor:**

Obtaining industrial approvals and customer satisfaction from various industries such as ceramic tile, glaze, paint, anti-bacterial fields, etc.

Among the company's products, the following can be mentioned:

- **Nano Polymetal Silicates**

  Zinc Silicates, Aluminum, Calcium, Magnesium, Barium and other Silicates.

- **Metal Oxide Nanoparticles**

  Zinc Oxide Nanoparticle, Copper Oxide Nanoparticle, Iron, Calcium, Magnesium and Aluminum Oxide Nanoparticles.

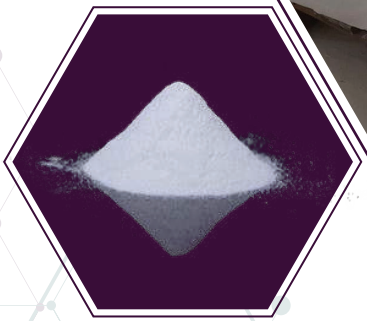
Currently, the products of Behin Nanoparticles Pars Co. are sold in the market under the brand name "Coprin"

Nano Poly Zinc Silicate

Nano Poly Zinc Silicate, an innovative material, is in the form of a white powder and can be substituted based on the grade of zinc oxide from 40% to 100% as a supplement in the industries where zinc oxide is used. Nano Poly Zinc Silicate with the formula ($ZnSiO_3$) is a synthetic compound that gives the product special properties such as anti-bacterial and anti-UV due to the particle size.

The main and basic element of this product is high purity zinc ingot. This element together with silica forms a single molecule of zinc silicate, which has properties and characteristics much better than zinc oxide.

Now this product is replaced with zinc oxide in frit and rubber industries from 40% till 100% .(based on type of formula). Also Poly Zinc Silicate applicates as filler in paint industry

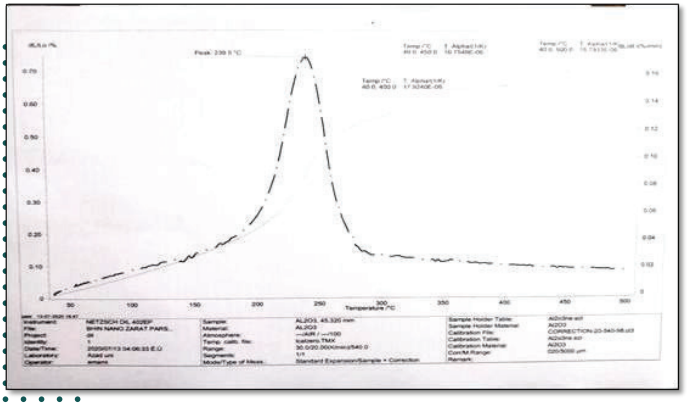


Advantages of Using Poly Zinc Silicate

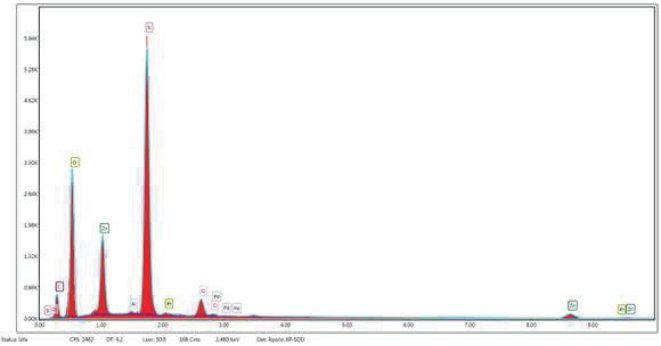
- Quality and efficiency commensurate with high purity Zinc oxide
- Having anti-bacterial properties
- Competitive and more stable price
- Reducing the actual cost of final product (frit,rubber,...)
- Free from inappropriate elements such as iron, lead and etc.

Data sheet of Nano Poly Zinc silicate	
ZnSiO3 purity	98 %
Na_2O	2 %
Al_2O_3	1 %
CaO	0.1 %
MgO	150 ppm
Fe2O3	60 ppm
CuO	5 ppm
Moisture	1 %
Bulk Density	0.7 g/cm3
Average particle size	20-80 nm
Surface area	76.23 m^2/g
Average pore size	2 nm
Pore volume	0.3202 cm^3/g

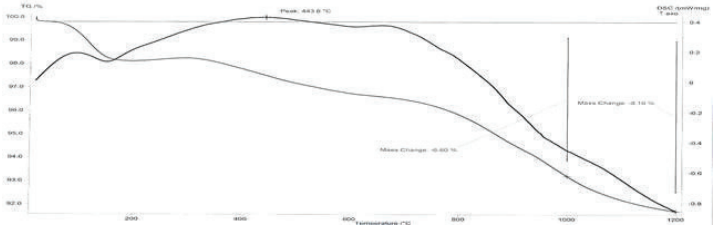
Tests of PZS



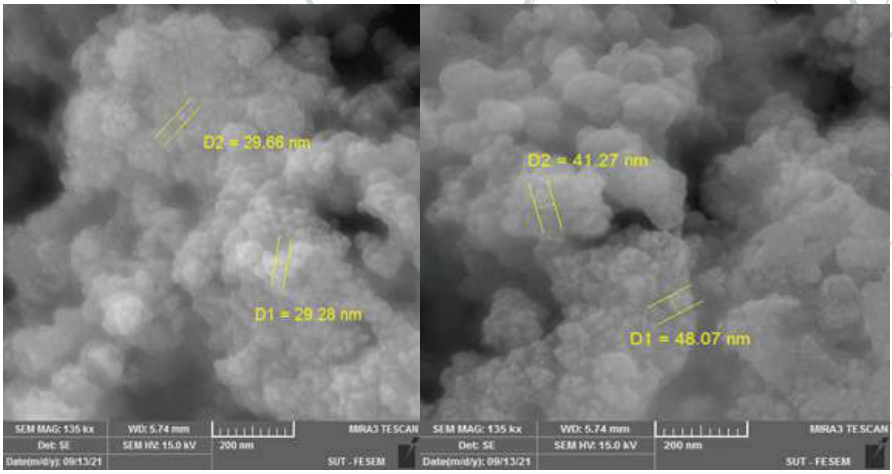
Dilatometry



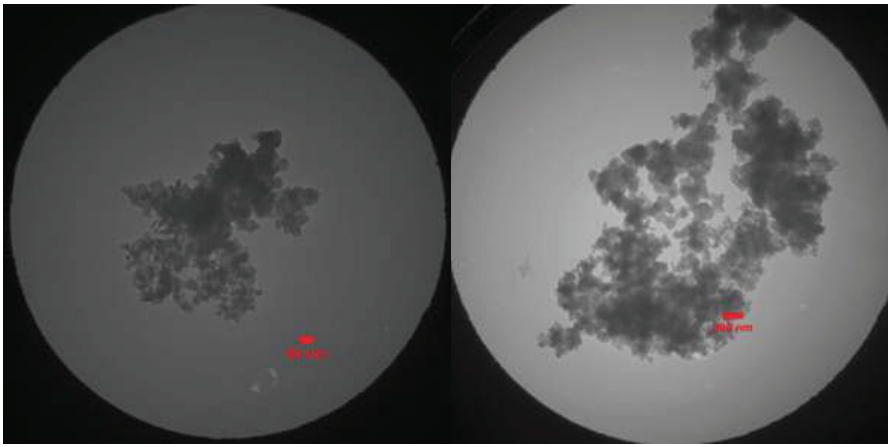
EDX



DSC



FESEM Of Nano PZS



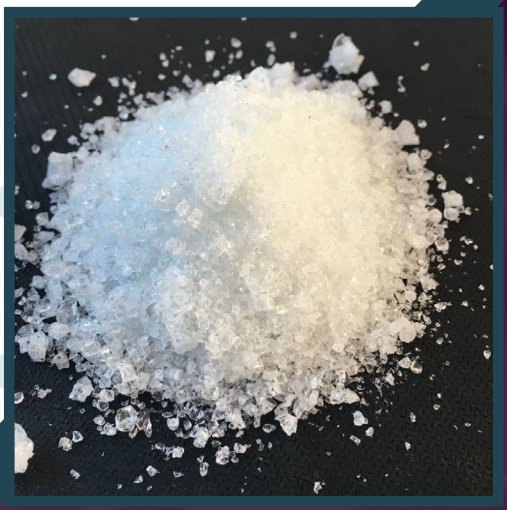
TEM Of Nano PZS

Applications of PZS

Nano Poly Zinc Silicate with the formula ($ZnSiO_3$) is a synthetic compound that prepared from high purity raw materials (99.98%) and it is free of non-ferrous and toxic metals such as iron, nickel and lead. Due to its synthetic nature, this product has a fixed formulation and quality and can be used in industry as a complete supplement or substitute for high purity zinc oxide (99.98 %).

According to studies, this product can be used as a filler, a substitute for zinc oxide and also a substitute for zinc oxide nanoparticles in various industries such as polymers, rubber and tires, paints and resins as well as ceramic tiles. It should be noted that the substitution rate of nano poly zinc silicate instead of zinc oxide varies in different industries. For example, nano poly zinc silicate has been used in some industries, such as ceramic tiles, as a supplement and alternative to zinc oxide in the production of glaze and has created similar properties of zinc oxide in glaze.

You can use Nano-PZS in different glazes such as Transparent, Opacity, Matte and other glazes.



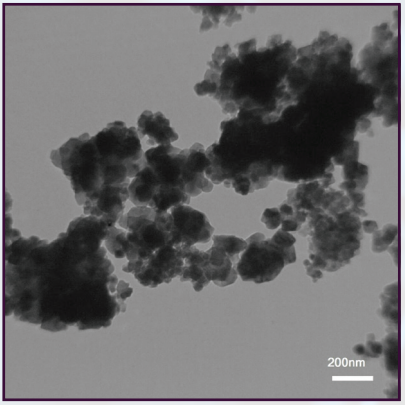
Zinc Oxide Nanoparticle

Zinc Oxide Nanoparticle is a knowledge-based product with nanoscale certificates as well as antibacterial and anti-UV properties approvals from various industries. Behin Nanoparticles Pars Co. is able to produce this product based on customer orders with a purity of above 99.99 up to a particle size of less than 100 nm.

Nano Zinc Oxide Information	
Formula	ZnO
Type	Powder
Molecular Mass	81.4 gr/mol
Average Particle Size	<100 nm
Purity	99.98%
Morphology	Spherical
Density	5.6 gr/cm^3
Color	White/ Cream

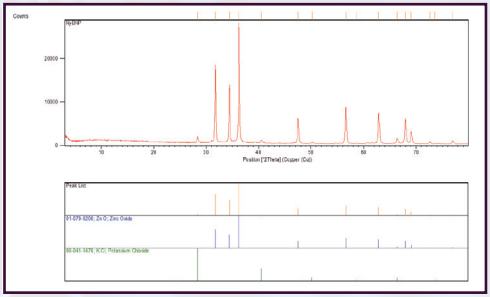
Some Applications of Zinc Oxide Nanoparticle

- Strong absorber of ultraviolet (UV) rays in the polymer, plastic and cosmetics industries
- Having anti-bacterial properties in the industries of polymer, clothing, tile, sanitary ware, paper and etc.
- Increasing mechanical strength of rubber and abrasion resistance, high temperature stability and increasing rupture limit in rubber industry



TEM of ZnO

XRD of ZnO



Iran, Yazd, Industrial town
(+98) 912 921 16 21
(+98) 353 841 44 10
(+98) 353 842 27 11
info.sale@behinnano.com