

## Identification of the substance: Silicon dioxide

Substance name	Silicon dioxide
EC	231-545-4
CAS	7631-86-9
IUPAC	Silicon dioxide
Molecular formula	SiO <sub>2</sub>
Forms in the market	Powder hydrophilic; Powder hydrophobic; aq. Suspension 30%; aq. suspension 50%; Pyrogenic (fumed) silica; Synthetic silica gels

## Physical and chemical properties

Shape	Spherical
Size (nm)	10, 20

## Toxicological information

Inhalation acute toxicity	Toxic
Dermal acute toxicity	Nontoxic
Oral acute toxicity	Nontoxic Practically nontoxic Toxic
Genotoxicity	Negative
Cytotoxicity	Negative

## Ecotoxicological information

Freshwater Acute toxicity (Daphnia)	EC50 = > 1000 µg/ml (Toxic) EC50 = 136.4 mg/L (Nontoxic)
Freshwater Acute toxicity (Alga)	EC50 = 10 mg/L (Practically nontoxic) EC50 = 388.1 mg/L (Nontoxic)
Freshwater Acute toxicity (Fish)	Toxic
Soil invertebrates (worms)	EC50 = 20 mg/L (Practically nontoxic)
BAF-Bioaccumulation	No data

## Application

Industrial uses	Coatings / Plastic / Additives Viscosity reduction / Flow Mechanical properties/ Thermoplastic properties Nucleating agent out Higher extrusion speeds / Flame retardant
Improved properties	Abrasion resistance / Scratch resistance Reinforcement properties Rheological properties / Corrosion resistance Chemical resistance
Polymeric matrix	Acrylate copolymers, polyurethanes (PU), polyethylene terephthalate (PET) High temperature reactive diluent in aromatic and aliphatic epoxy resins
Recommendations, comments	Radiation-curing coatings. Recommended for solvent-free and solvent-borne radiation curable wood and furniture coatings as well as industrial coatings.

PVC foams  
Rubber  
In additives, acts as a spacer agent

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