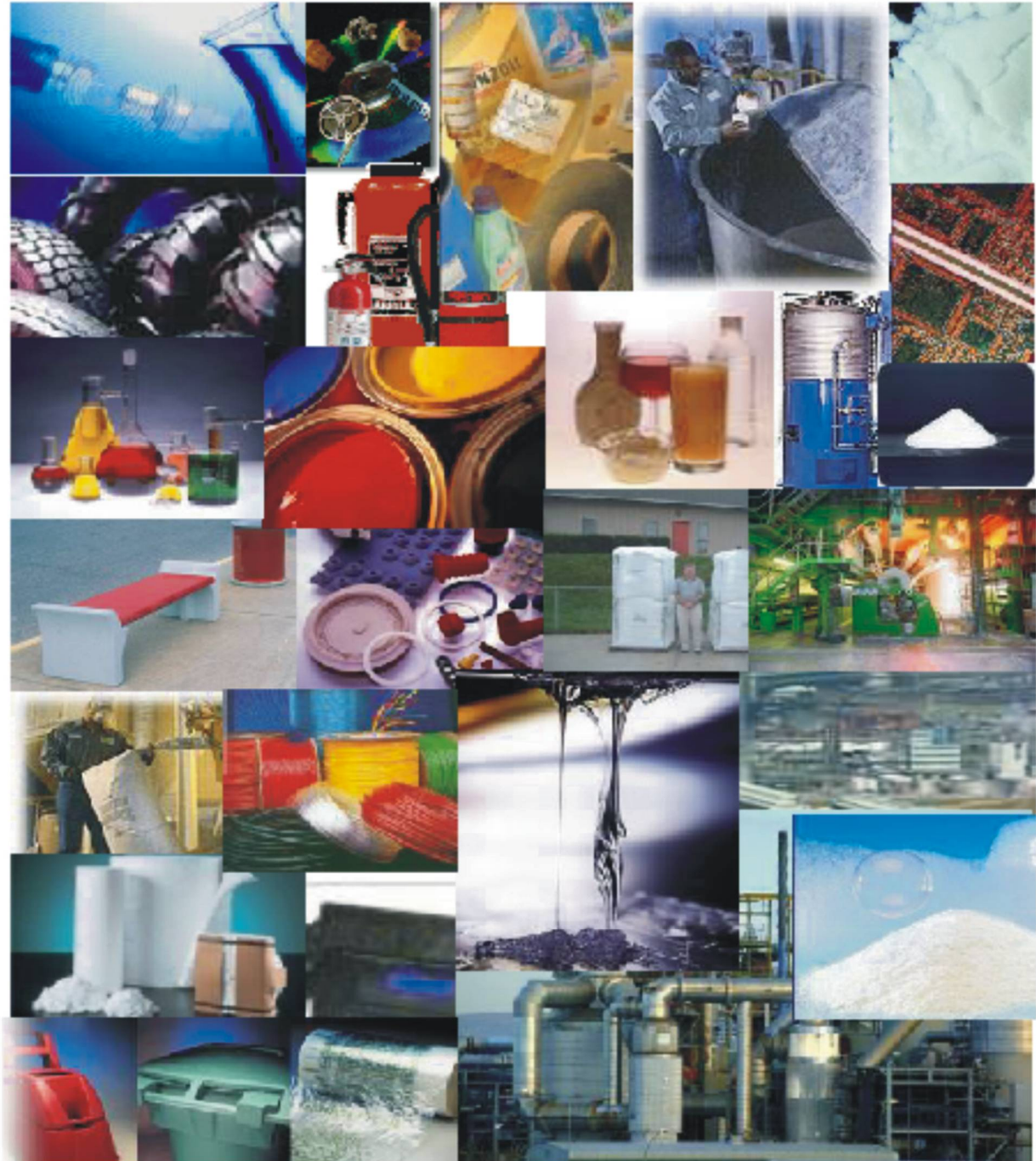




KUNSIL FS-200

FUMED SILICA (COLLOIDAL SILICON DIOXIDE)



KUNSIL SILICONES INDUSTRY



KUNSIL FS-200

FUMED SILICA

(COLLOIDAL SILICON DIOXIDE)

APPLICATIONS

(Anti Caking Agent, Anti Settling Agent, Anti Blocking Agent & Matting Agent)

- **Pharmaceuticals**
- **Adhesives**
- **Sealants**
- **Plastics**
- **Inks**
- **Paints**
- **Coatings**
- **Defoamers**
- **Toner**
- **Silicone Rubber**
- **Greases**
- **Cable Gels**
- **Food**
- **Fire Extinguishers**
- **Polyester Resins**
- **Cosmetics**

► PHARMACEUTICALS

KUNSIL FS-200 fumed silicas are key excipients in a wide range of pharmaceutical and nutritional supplement products. Products function as a glidant or free-flow additive to provide improved tablet production efficiencies and tablet uniformity and strength. KUNSIL FS -200 improve the free-flow of powders and granulations -- facilitating the filling of capsules. For soft-gel capsules, KUNSIL FS -200 provides anti-settling of insoluble ingredients in the liquid or gel prior to and during filling of the capsule. An efficient thickener of non-polar liquids, KUNSIL FS -200 is ideal for thickening liquids. Because the thickening mechanism of fumed silica is not strongly temperature dependent, KUNSIL FS -200 can be used to make non-melting gels and semi-solid preparations.

► DEFOAMERS & ANTIFOAMS

Defoamers/Antifoams usually consist of a suspension of hydrophobic or hydrophilic precipitated silicas in mineral oil, soybean oil or in silicone oil. Precipitated silicas have a tendency to settle, because of their relatively large agglomerate sizes. The addition of hydrophobic KUNSIL either completely prevents or at least significantly reduces this undesirable effect. There are also many defoamer/antifoam systems where hydrophobic KUNSIL is the active silica component. KUNSIL FS-200 is very effective in these formulations, especially for Food applications, Urethane coatings, Clear-coats, Inkjet paper coatings, Inks, and in areas dealing with micro-foam, and the need for good deaeration. If you have customers who require Defoamers/Antifoams which contain silica less than 1.0 micron particle size, then **KUNSIL** is your solution.

KUNSIL SILICONES INDUSTRY



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► OUR CHEMISTRY

Treatment: Polydimethylsiloxane and Octamethylcyclotetrasiloxane surface treatments of our silica particles, account for the hydrophobic behavior of our treated silicas. In most cases, these treatments determine the interaction of our silica particles with solids and liquids. The surface of our silica particles can be chemically modified by reacting various silanes and silazanes to give the hydrophobicity results necessary for various applications and functionalities.

► BENEFITS FOR VARIETY OF APPLICATIONS

Versatile fine particles that delivers functionality to your most demanding application. Our Silica products - KUNSIL provide exceptional performance benefits for a wide variety of applications and industries.

We continue to advance our fine particle technologies to bring unique fumed and precipitated silica that meet your individual requirements. We manufacture single and multiphase particle-composites for specific properties, such as dispersion, stability, hydrophobicity, and functionality. Due to their unique particle characteristics, and large surface area, fumed silica provides superior performance and benefits for many types of consumer and industrial applications including adhesives, plastics, sealants, coatings, inks, toner, cosmetics, inks, food additives, and defoamers. We will help our customers find the right fumed and precipitated silica for their specific applications.

► USING KUNSIL AS A THICKENER

KUNSIL's thickening and thixotropic effects are largely dependent on the intensity and efficiency of dispersion. At least a dissolver should be used. Optimum dispersion is best achieved using rotor-stator type equipment, bead mills or triple roll mills. Choosing the most suitable method and dispersion equipment depends on the consistency of the system. It is sometimes advisable to produce a concentrate from part of the liquid or part of the formulation with the total quantity of KUNSIL and then to disperse this with high shear. The remaining liquid of remaining part of the formulation should then be added to reduce the KUNSIL content to the required level. In principle the thickening effect of KUNSIL increases with decreasing primary particle size. However, as particles become increasingly fine, they necessitate higher shear levels to achieve the optimum thickening effect. An additional advantage worth noting is the high temperature stability of viscous systems thickened with KUNSIL. The use of KUNSIL for rheology control is very suited for coatings, plastics, printing inks, adhesives, lubricants, creams, ointments and in toothpastes.

► ADSORBENT & CARRIER

Due to its high specific surface area, KUNSIL is able to adsorb gaseous, liquid or solid materials, the latter must be of course in a dissolved form. KUNSIL will preferentially adsorb those compounds capable of forming hydrogen bond linkages with the silanol groups on its surface or which can interact on an acid-alkali basis. In addition to forming genuine adsorbates, KUNSIL is also able to hold substantial quantities of liquid within the micropore structure of its agglomerates, thus enabling it to act as a carrier. Liquids and pastes can be converted into powder form by this method, making them considerably easier to dose and handle.

KUNSIL SILICONES INDUSTRY



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► SUSPENSION, DISPERSION, GRINDING

KUNSIL prevents or delays the sedimentation of solids in liquid systems, such as pigmented coatings or resins containing fillers. This effect can be mainly explained by the formation of a yield point, which results from the use of KUNSIL. Stability is achieved within the system when the weight of the filler or pigment particles is insufficient to overcome this yield point. Even in instances where settling is unavoidable, the sediment may be re-dispersed without problems. The agglomerates are deposited between the solid particles and have a loosening effect on the solid structure, which provides for an easy remixing.

PACKING, STORAGE AND STABILITY

KUNSIL will remain chemically stable for many years under suitable storage conditions, providing it does not come into contact with hydrofluoric acid or any highly alkaline substances, since these types of material will always react with silicon dioxide. In the case of water, any adsorption is reversible. It is possible for slight compaction to occur during longer storage time, particularly in the lower layers of a pallet. This can lead to a minor increase in tapped density and to a change in the structure. It is advisable to store KUNSIL and other fumed oxides in closed containers under dry conditions and to protect them from volatile substances. The product should be used within two years of the date of manufacture.

Packaged in multiple layer Kraft Paper

Net Wt.: 10 Kg.

Gross Wt.: 10.7 kg

Specification of KUNSIL FS-200

PROPERTIES	UNITS	STANDARD
Appearance		White Free Flowing Powder
Specific Surface Area (BET)	m ² /g	200 ± 15
PH Value		3.8 - 4.2
SiO ₂	wt. %	>99.8
Moisture 2 Hours at 105°C	wt. %	≤ 1.5
Ignition Loss 2 hours at 1000°C based on material dried for 2 hours at 105°C	wt. %	≤ 1.5
Tamped Density	g/l	Approx. 50
Bulk Density	g/l	Approx. 30
Chlorides	ppm	≤ 5
Iron	ppm	≤ 5



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