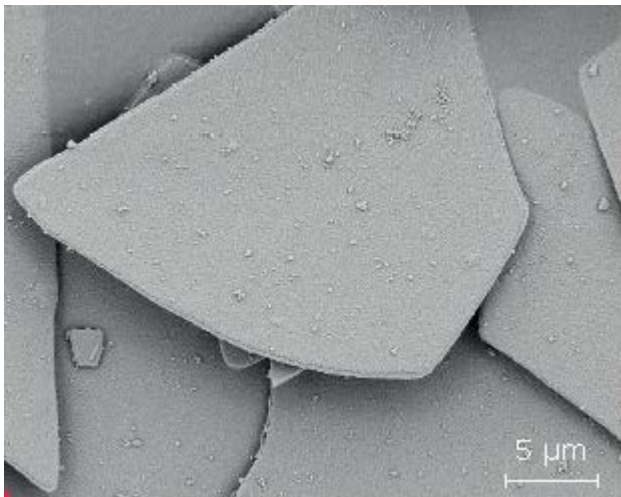


Novel developments of effect pigments by aqueous sol-gel-processes

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The paper provides an overview of sol gel technology activities at Merck, emphasizing the manufacturing of defined platelet shaped particles and pearlescent pigments. In the area of high-precision silica flakes, process improvement resulted in a high degree of control of the flake thickness allowing access to unique pigments with unmatched properties.



SEM-image: Iron-oxide coated silica

The recent announcement in increasing the capacity of this type of pigments demonstrates the importance for effect colors in various areas as automotive coatings, cosmetics, plastics.

The sol gel technology was recently extended to obtaining single crystalline platelets by controlling the size and shape of primary crystals. The final morphology of single crystalline flakes is finally accomplished in calcination processes under controlled conditions.

Polysilazanes are widely used as coating materials for various surfaces by non-aqueous sol-gel processes. Under hydrolytic conditions silicone polymers are formed that are tightly attached to their substrates. This interesting class of materials can be applied in particle chemistry as well.