ZeeMail

Zeeospheres® Ceramics, LLC

129 Valentine Drive, Lockport, Louisiana 70374

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Oil Absorption

The oil absorption of a pigment/filler is linked to its surface area and its demand for binder and solvent. The oil absorption of a pigment/filler reflects the composite effect of all of the foregoing factors – particle shape, particle size distribution, surface area and mineral-matrix interaction. Larger particles have a smaller surface area and therefore a lower binder demand. As the size of the pigment particle is decreased, the surface area of the particle increases, thus increasing the binder demand. As a result, the end formulation needs a larger amount of binder to "wet out" each pigment particle during the dispersion process.

Zeeospheres Ceramics, LLC had an independent third party lab conduct oil absorption testing on our G-series products (we expect our N-series products to have similar results). As per ASTM test methods, the oil absorption is based on the amount of raw linseed oil required to "wet out" 100 grams of pigment/filler.

Pigment	Particle Size Median (microns)	Oil Absorption
Zeeospheres		
Zeeosphere G-200	5	26
Zeeosphere G-400	8	26
Zeeosphere G-600	10	23
Zeeosphere G-800	14	18
Common Extenders		
LVT Talc	9.5	27
Wollastonite	3.5	30
Zinc Oxide	<1	18

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Summary

- All grades of the G-series Zeeospheres have an Oil Absorption lower than many extender pigments, including LT Talc and Wollastonite.
- Advantages of Low Oil Absorption may include:
    - Higher Loading Levels
    - Lower VOC
    - Higher Coating Solids
    - Reduction in Resin Demand (reducing RMCs)
- Resin Demand is a function of both Oil Absorption and Surface Area. Since the Zeeospheres are in the shape of a sphere, they will have a lower total surface area compared to other pigments/fillers.
- The amount of oil required to "wet out" and coat the mineral particles depends on the particle's surface area
    - **Surface Areas (m^2/g)**
        - Zeeospheres: .38-1.1
        - Talc: 3-14
        - Wollastonite: 1.5-4.2
        - Calcium Carbonate: 1.0-10.5

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