

Silica Gel Manufacture:

Sodium Silicate + Mineral Acid = Hydrogel (Weak, young, gel)

Hydrogel is washed for different conditions (pH & temp) to get different physical characteristics. Low pH = dense; High pH = porous.

Still has alot of H₂O, and must dehydrate.

If dry slowly, the pores collapse and get very dense i.e. SYNO G. XEROCEL.

Quick drying gives large pore no. & like SYOX; called XEROCEL.

* 'Micronize' in a mill.

Amorphous = no crystalline character -> SiO₂

* Justshell: the washing pH and temp... along with the drying procedure is critical to characteristics.

- 200 - 700 M²/g
- 0.3 - 2.5 cc/g
- 20 - 400 Å (pore)
- 2 - 20 µ (diameter) _{particle}
- 2 - 10% moisture
- 5 - 30 #/ft³
- 4 - 9 pH

TYPICAL RANGE OF PROPERTIES FOR AMORPHOUS SILICAS. (SEE ACCOMPANYING LITERATURE)

* The pore diameter may be the key to activity SYNO @ low acid; SYOX @ high acid. 10-30 Å 1000 - 10,000 Å

Working on denser material; adding caustic will drastically reduce the pore area.

* These materials (SYNO) adsorb moisture well.

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MECHANISMS OF FREE FLOW & CAKING:

The flow agents can make a good showing after aging.

Causes of Caking: Physical excitation on particle
Humidity
Temperature
Processing
Also, internal forces. (H₂O absorption)

Processing:
- Latent moisture after drying. Will migrate.
- Friction and energy may cause cohesiveness; especially in the presence of moisture.

These phenomena apply more to fats and similar products and mostly to powders.

① SYLOD may act on jagged particles to break down the physical alignment of spheres. This is most likely the action. CONTRACTION RESISTANCE and MOISTURE SCAVENGING. Particle size is critical. → seems that added amount is not as critical. (?)

HUMIDITY CAKING: particles joining and becoming hard caked.

Silicon can be used as liquid carriers - fats, waxes, colors, fragrances, etc.

* SYLOD has low static charge which is beneficial.
Add silica in spray dryer slurry, etc.

NO OF PRESENTATION

MSDS sheet to A. Moon

May be able to use a combination of SYLOX & SYLOD.

GOAL: 16 HRS/DAY; 5 DAYS/WK.

SYLOD may be acting as cleaner to clean off the "pate".

"PHYSICAL PROPERTIES OF FOODS"

PE & LE & SDALEY

Try Calcium Stearate

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