

Siliporite® molecular sieves for insulated glass

8+1

Siliporite® molecular sieves protect the insulating glass units for years thanks to a genuine 3A zeolite structure, high adsorption capacity, and superior physical properties.

Why using a Siliporite® molecular sieve?

- an insulated glass unit is composed of two glass lites at least. These are separated by a space filled with air or a special gas (argon, krypton, SF6, etc.). The lites are supported and separated by a spacer and then sealed,
- water from the air and solvents from the sealant can be trapped inside the unit during fabrication. Water can also penetrate through the sealant during the life of the insulated glass unit,
- both phenomena lead to fogging (water or solvent condensation on glass lite).



Benefits of using Siliporite® molecular sieves

- to avoid fogging, a desiccant is introduced between the two glass lites to ensure the gas space is water-free
- there are many desiccants in the market, but only synthetic zeolite based desiccants, the only genuine molecular sieves, guarantee a water-free space for years in industry condition.

Siliporite® molecular sieves are the **only effective desiccants at low moisture levels.**

Focus on aluminum spacer bar systems

What molecular sieves?

In the traditional systems, the lites are supported and separated by an aluminium spacer bar and then sealed. Molecular sieves in beads of 0.7mm to 2.0mm are used in this technology. The beads are filled under the spacer by means of dedicated equipment.

Key requirements

- Molecular sieves must show a high water adsorption capacity at low moisture levels (below 10%) that will ensure high durability of the glass.
- It is a must that 3A molecular sieves are used to avoid co-adsorption of air which would translate into glass deflection and deflection of the glass panel.
- The molecular sieve should be free of dust and static electricity.

Benefits of using Siliporite® molecular sieves

- very high adsorption capacity at the right moisture levels: below 10%
- avoiding co-adsorption and protecting your products against long-term defects
- avoiding dust and static electricity that could lead to deposits on the lites

Why use CECA's Siliporite® range??

- ▀ forty years of experience in the glass industry
- ▀ synthetically produced zeolite
- ▀ true 3A molecular sieves
- ▀ controlled grain size distribution
- ▀ low density

Beware of imitations

Some of the products on the market claim to be "molecular sieves", but are not suited to the insulated glass market. Some of them are made of natural zeolite, simple clay, lime or calcium chloride, and are very attractive to the industry because of their lower costs.

However, their performances are far below the industry requirements and could result in high guarantee costs at a later stage. These products' poor performance in the conditions of insulated glass are not always clear to non-chemists, and the suppliers present some of their weaknesses as advantages.

In order to help you identify these imitations, we have listed some criteria:

1. The water adsorption data supplied by these vendors always show very good adsorption at high relative humidity such as 32% or more (60%). This is however outside the application requirement, since moisture in the glass is only a couple of percent, a level at which these products are not effective.
2. The density (weight in grams per liter) should not exceed 800g per liter. High densities are generated by the use of diluents, such as lime, calcium chloride or high clay rates and reflect a poor product.
3. These suppliers do not report any data on the co-adsorption of gas: it is most probably not a 3A zeolite and gas adsorption will occur, generating stress to the window pane and ultimately loss of integrity.
4. The loss on ignition (also called water pre-loading or moisture package) is often measured at temperatures around 400°C instead of 950°C, in order to hide the poor quality of diluents
5. These suppliers often report slow adsorption, reflecting the poor performance of products in moderate humidity, which is what you want to avoid if you do not want fogging.

Focus on "warm-edge» desiccant matrix

What molecular sieves?

Widely used in the United States and now developing in Europe, this technology consists in using a desiccant seal to avoid the need for metallic spacer, and subsequent thermal bridge. Molecular sieves in powder form are incorporated into the elastomer seal by the seal producer.

Benefits of using Siliporite® molecular sieves

- ▀ very high adsorption capacity at the right moisture levels: below 10%
- ▀ avoiding co-adsorption and protecting your products against long-term defects
- ▀ very consistent process yielding a consistent quality in grain size distribution, viscosity, and pore size

Key requirements

- ▀ Molecular sieves must show **high water adsorption capacity at low moisture levels** (below 10%) that will ensure high durability of the glass.
- ▀ It is a must that **3A molecular sieves** are used to avoid co-adsorption of air which would translate into glass deflection and deflection of the glass panel.
- ▀ The molecular sieve powder should be **extremely consistent** to produce a perfect finish.