

## CAGESPHERE® 13X / 3.0 – 5.0mm

Molecular Sieve 13X

### Section 1: Information about the supplier/distributor

**GIEBEL Desiccants GmbH**

Carl-Zeiss-Str. 5

74626 Bretzfeld-Schwabbach

Germany

Telephone: +49 7946 944401-11

Email: [desiccants@gf-dry.com](mailto:desiccants@gf-dry.com)

### Section 2: Name of substance

|                        |                                                                                                                                                                                  |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chemical Product Name: | Sodium Alumina Silicate;<br>Sodium form of the type X crystal structure                                                                                                          |
| Composition:           | $\text{Na}_2\text{O} / \text{Al}_2\text{O}_3 / (2.8 \pm 0.2) \text{SiO}_2 / (6 \sim 7) \text{H}_2\text{O}$ $\text{SiO}_2$ :<br>$\text{Al}_2\text{O}_3 \approx 2.0$ and $3.0/3.5$ |
| CAS No.:               | 1318-02-1                                                                                                                                                                        |
| EC No.:                | 215-283-8                                                                                                                                                                        |
| Binder:                | Clay                                                                                                                                                                             |
| Tannin:                | Myrica                                                                                                                                                                           |

### Section 3: Typical Application

- a) Removal of  $\text{CO}_2$  and moisture from air (air pre-cleaning) and other gases.
- b) Separation of enriched oxygen from the air.
- c) Removal of n-chain compounds from aromatics.
- d) Removal of R-SH and  $\text{H}_2\text{S}$  from liquid hydrocarbon streams (LPG, butane, etc.)
- e) Catalyst protection, removal of oxygenates from hydrocarbons (olefin streams).

f) Production of oxygen in mass production in PSA plants.

## Section 4: Specifications

|                                     |                                             |
|-------------------------------------|---------------------------------------------|
| Structure:                          | Sodium form of the type A crystal structure |
| Cations:                            | Sodium Alumina Silicate                     |
| Appearance and shape:               | Beige, solid balls                          |
| Particle size:                      | 3.0 – 5.0 mm                                |
| Qualified particles:                | 98 %                                        |
| Bulk density:                       | 0.68 g/ml                                   |
| Crushing strength:                  | 80 N/Piece                                  |
| Abrasion rate:                      | 0,2 %                                       |
| Static H <sub>2</sub> O adsorption: | 25 %                                        |
| Static CO <sub>2</sub> adsorption:  | 17 %                                        |
| Water content:                      | 1,5 %                                       |
| Regeneration temperature:           | 300 °C                                      |

## Section 5: Regeneration:

Type 13X molecular sieves can be regenerated either by heating in the case of thermal swing processes or by lowering the pressure in the case of pressure swing processes. To remove moisture from a 13X molecular sieve, a temperature of 300°C is required. A properly regenerated molecular sieve can reach moisture dew points below -100°C. The initial concentrations in a pressure swing method depend on the gas present and the process conditions.