

Common Problems in Oxygen Generator

1. Oxygen Concentration Decrease

From the perspective of molecular sieves, the main reasons for this problem are temperature and humidity. The source of temperature comes from the compressor and the heat generated during the adsorption process of the molecular sieve. The optimal adsorption temperature of the molecular sieve during the adsorption process is 25°C. The temperature measured from the nitrogen outlet of the oxygen generator is generally 48°C-55°C. Therefore, the inlet temperature of molecular sieve can be judged. There is a phenomenon that generally exists in the alternate period of spring and summer. The concentration of the oxygen generator fluctuates greatly and the oxygen concentration is more difficult to adjust. The main reason is the large change in air temperature, which is generally in the range of 30°C-35°C.

In addition, the molecular sieve for oxygen production is highly sensitive to moisture, so if the inside of the molecular sieve absorbs water molecules, the cage-like structure will be filled without being desorbed, which will affect the molecular sieve to adsorb nitrogen and cause the oxygen concentration of the oxygen generator to decrease.

2. Dust Problem

The reason for this situation is the fluctuation of the zeolite bed. There are two main situations that cause this phenomenon. One is that the molecular sieve is affected by moisture. During the adsorption process under pressure, the friction between the molecular sieves causes powder to fall, causing the bed gaps and bed fluctuations. On the other hand, the compaction problem can also cause the fluctuation of the adsorbent bed, resulting in the problem of dust problem.

3. Oxygen Production Capacity Decrease

There are two situations in which oxygen production decreases. One is that the oxygen production capacity of the new equipment is less than the design value and fails to meet the design requirements. The main reason is that the process settings of the oxygen generator are generally unreasonable, or the process parameters such as the adsorption cycle, back

flush time, and back flush flow of the oxygen generator are not matched, or the working environment has changed, such as increased altitude and decreased of oxygen percentage in the ambient air. Secondly, after the oxygen generator has been running for a period of time, it cannot meet the oxygen production design requirements under the specified concentration requirements. The main reason is that the efficiency of the air compressor is reduced or the molecular sieve may partially fail.

4. Oxygen Concentration Fluctuation

The concentration of oxygen cannot be stabilized at a concentration value, but periodically changes within a certain concentration range with the adsorption cycle. The main reason is that the resistance of the two adsorption towers of the oxygen generator is unbalanced. It may be that the weight of the packed adsorbent is different or the packing density is different.

5. Agglomeration of Zeolite Molecular Sieve

After the oxygen generator runs for a period of time, the adsorbent forms agglomerates in the adsorption tower. Agglomeration of molecular sieves can cause problems such as a decrease in oxygen production or concentration of the oxygen generator. The main reason is that the adsorbent absorbs water.

6. The oxygen has a unpleasant smell

An unpleasant smell can be smelled in the oxygen product of the oxygen generator. The reason is improper selection of adsorber structural materials and pipeline materials or poor air quality in the working environment of the oxygen generator.

7. Decreased Zeolite Molecular Sieve Performance

It mainly manifests the decrease in oxygen concentration or output, but does not affect the use. The reason is shown in "**Oxygen Concentration Decrease**".

8. Molecular Sieve Performance Failure

The main performance is that the oxygen concentration of the oxygen generator product cannot meet the requirements even at extremely low flow rates. The main reason is that the molecular sieve absorbs water or pulverizes seriously.