

SILICA GEL

DESICCANTS

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What is Silica Gel ?

- Silica gel is an amorphous form of silicon dioxide, is a highly active adsorbing material. It is usually formed through the reaction between sodium silicate and sulfuric acid.
- Silica gel is a porous material used as a adsorbent, it adsorbs water vapors from the air and acts as drying agent.
- Despite its name, Silica gel (its not a gel) is made available in form of beads in different sizes made from sodium silicate Therefore, silica Gel is a type of desiccant and a hygroscopic desiccant has the ability to attract water molecules from the surrounding environment through.

Absorption Can be defined as process in which attraction of atoms or molecules absorbed or consumed, molecules undergoing absorption are taken up by the volume, not by the surface

It is a bulk phenomenon, endothermic process ,it is not affected by temperature, it occurs at uniform rate, concentration is through out the material.



Adsorption is the process of attraction of atoms or molecules from an adjacent gas or liquid to an exposed solid surface and due to this Adsorption surface phenomena absorber doesn't change it's characteristic. This process creates a film of the adsorbate on the surface of the adsorbent. It is surface phenomenon, Exothermic process, favoured by low temperature, it steadily increases and reach to equilibrium.

Types of Silica Gel Beads



Indicating Silica gel

BLUE BEADS

APPLICATIONS:

- INDUSTRIAL GAS DRYING
- LEATHER PRODUCTS PACKAGING
- PURIFICATION OF INDUSTRIAL NATURAL GASES
- PHARMACEUTICALS BOTTLES, TABLETS & CAPSULES PACKAGING
- DEHYDRATION PROCESS
- ELECTRONIC MATERIALS PACKAGING

FEATURES:

- PREVENTS MOISTURE, SPOILAGE, MOULD, AND MILDEW
- THE BLUE COLOUR TURNS TO PINK AFTER ABSORPTION
- DEHUMIDIFICATION AND MOISTURE ADSORPTION FROM A SEALED VESSEL
- BREATHER TRANSFORMER PROCESS

Indicating Silica gel



ORANGE BEADS

APPLICATIONS:

- PHARMACEUTICALS DIAGNOSTIC KITS PACKAGING
- OPTICAL INSTRUMENTS AND DEVICE PACKAGING
- DEHYDRATION OF INDUSTRIAL GASES AND SYNTHESIS PRODUCTS
- DRYING ANALYTICAL SAMPLES
- SOLVENTS DRYING PROCESS
- HEARING AIDS

FEATURES:

- STORAGE AND DRYING OF SEEDS AND FLOWERS
- PREVENTS MOISTURE FROM PACKAGING MATERIAL DURING EXPORT CONSIGNMENTS
- ORANGE BEADS CHANGE THEIR COLOUR TO DARK GREEN
- REPLACING THE BLUE SILICA IN THE BREATHER PROCESS

Non indicating silica gel



Silica Gel Blue Turns into Pink



Silica Gel Orange Turns into Green



Comparative Specification

Descriptions	Silica Gel White	Silica Gel Blue	Silica Gel Orange
Forms	Beads/Crystal	Beads/Crystal	Beads
PH	4-8	4-8	4-8
Bulk Density(gm/ml)	0.65- 0.8	0.55-0.7	0.65-0.7
Adsorption Capacity at 100% Humidity	38-40	35-38	36-40
Loss on Drying (%)	<3	<6	<6
Indicating Dye	-	Cobalt Chloride	Phenolphthalein

Application



Seeds & Flower Drying

- To dry seeds place equal weight of seed and silica gel together in an airtight jar for 7 days. A muslin bag, piece of remade or other permeable cloth may be used to keep seed and gel separate inside the airtight container.
- Use a small container in relation to the amount of seed, to insure faster, more thorough drying. After the seed has dried, remove it from the drying container and store it in an airtight container such as a seed saver vial. Barrier pouch or any jar with a rubber gasket lid. When used as directed, silica gel dries seed from 12% typical moisture content to desired 3-5% moisture content.



Hearing Aids Dry Kit

- Because hearing aids are worn on the body, they absorb moisture internally which can cause corrosion or other damage to the electrical components. Drying the hearing aid out overnight will improve its reliability and help ensure satisfactory operation and extended life. All sets are suitable for earmoulds and tubes as well as hearing aids.
- Drying kit for all hearing aids. Useful for small CIC aids and people who sweat a lot to remove moisture build up in the aids. Daily drying of your hearing instrument and earmould is recommended, ideally overnight. The frequency of drying is dependent on the environmental humidity, eg. the atmospheric humidity, perspiration etc



Clean Rooms

A clean room is an artificially-created environment characterized by very low levels of particulates such as dust and microbes. The ability to control humidity in a cleanroom is of crucial importance in a range of chemical, electronics and food processing sectors, as well as the pharmaceuticals industry.



A dry room, meanwhile, is a room where the relative humidity is strictly controlled. It's possible to reduce relative humidity levels to 20% or even as low as under 2%. These very low levels of humidity are needed during the manufacturing processes of everything from semiconductors and solar panels to LEDs and rechargeable batteries.

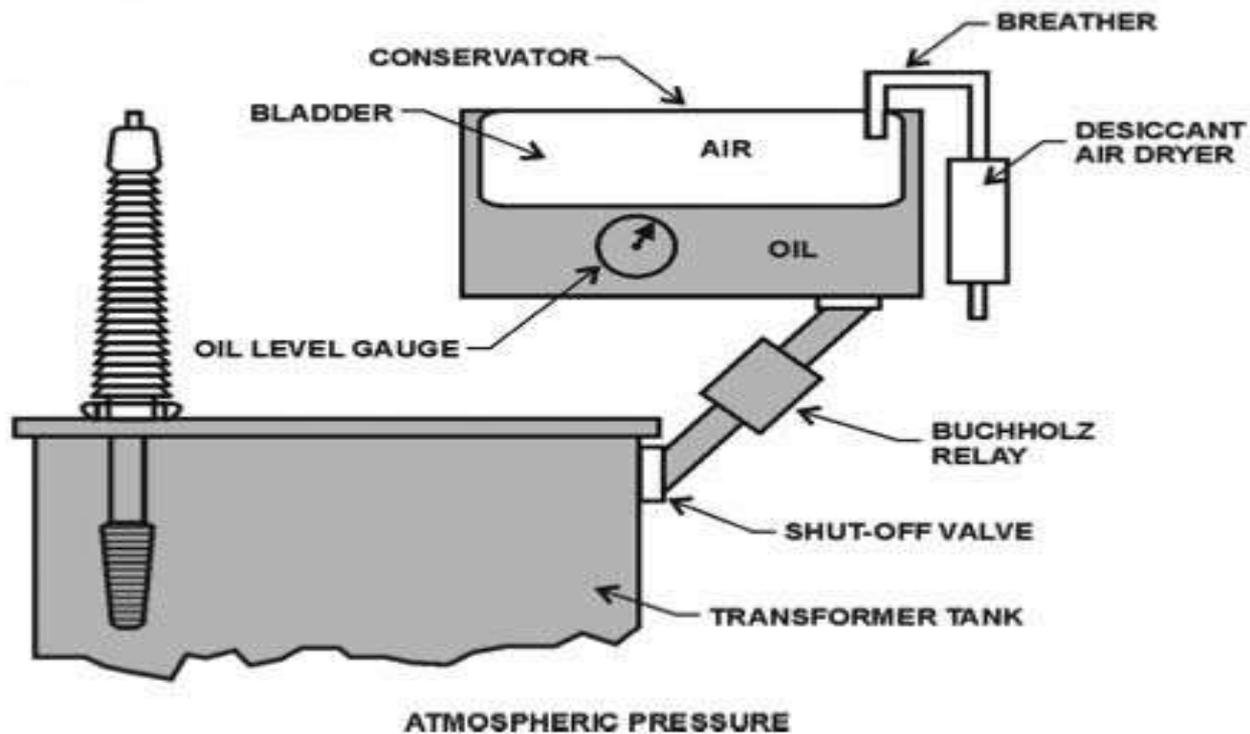
Transformer Breathers

Breathing Out :

When load on transformer increases, the insulating oil of the transformer gets heated up, expands and gets expelled out into the conservator tank present at the top of the power transformer and subsequently pushes the dry air out of the conservator tank through the silica gel breather. This process is called breathing out of the transformer.

Breathing In:

When the oil cools down, air from the atmosphere is drawn in to the transformer.



Thank You..!!!