

# Protect your goods with Brownell Packaging products range



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# Company profile

## ***World Leaders in Moisture Control***

Since 1963 Brownell has developed its experience and a range of products dedicated to providing solutions to prevent and protect against the effects of condensation, humidity and pressure control.

Brownell now offers a comprehensive range of products including desiccators, humidity indicators, pressure relief valves and gas purging systems for applications in all of today's commercial and industrial sectors.

An ongoing commitment to research and development continues to offer customers and user's knowledge and products capable of proving solutions for their needs and requirements. We welcome opportunities to work and cooperate with customers to develop solutions and products for their specific needs.

Brownell is based in North West London on the modern Park Royal Industrial estate and holds ISO 9001:2008 approval.

We also have a comprehensive data library and test facility for the performance of moisture barriers, equipment housings and operational scenarios to assist customers with the best design practices for the performance of their system.

### **Our Products**

Desiccant Bags

Desiccants

Desiccators

Electronic Humidity Indicator

Immersion Proof Breathers

Moisture Adsorbing Board

NEPS1000

Pipeline Dryers

Pressure Relief Valves

Relative Humidity Indicators

VMAP-G



Brownell Ltd is offering a range of products catered for all your packaging requirements.



## DESICCANT SACHETS

- Range from 0.5g to 2,500g
- Shelf life up to 2 years
- Operating temperature  $-50^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$
- Adsorption capacity up to 25% @ 50% Rh
- Ability to maintain low relative humidity
- Rapid adsorption performance
- Meets DEF STAN 81/68 & MIL-D3464E

The use of desiccant bags provides an economic way to protect against moisture damage during transit and storage. Humidity adsorbing bags are a low cost option to protect goods against humidity damage during transportation by air, land or sea. Various desiccants are available including ENVIROGEL and molecular sieves.

### Types of desiccant bags:

- Silica Gel Bags
- ENVIROGEL Bags
- Molecular Sieve Bags
- Activated Clay bags
- Ultra Clean
- Container Dri® II

### Applications:

- Standard packaging & storage
- Indicates desiccant saturation
- Switchgear & sensitive optics
- General electronics packaging
- Low dusting applications
- Large shipping containers

### Types of materials:

- Tyvek
- FDA Tyvek
- Heatlon
- Non-Woven

### Applications:

- Clean room applications
- Food & pharmaceutical use
- General Packaging
- General packaging & transit



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## DESICCANTS

- Selective adsorption
- Ultra low moisture concentration
- Low dusting
- High capacity
- Saturation indication
- Uniform flow distribution
- Odour adsorption

### Silica Gel

Silica gel is the most commonly used desiccant for providing efficient climatic protection. It is a refined form of silica which is produced by the reaction of a mineral acid, usually sulphuric, and a sodium silicate solution. It is capable of adsorbing up to approximately 30% of its own weight of water at 50% RH and 25°C.

Two types of silica gel are produced: INDICATING (Envirogel - when saturation indication is required) and NON-INDICATING (for when no indication is required). Silica gel is produced in granular and beaded forms. Beaded silica gel has a higher mechanical strength than the granular form and therefore less likely to generate dust. Silica gel may be reactivated for re-use by heating.

### Molecular Sieve

Molecular Sieves are synthetic crystalline zeolites in which the atoms are arranged in a definite pattern. Internally, the structure has many cavities inter-connected by smaller pores of a uniform size. These pores are only able to accept and pass to the cavities molecules of the same and smaller size, hence the name molecular sieve. The water vapour adsorption characteristics are very different from those of silica gel. Molecular sieves can adsorb up to approximately 20% by weight of water before the relative humidity of the surrounding air increases significantly. Any further increase causes a large rise in relative humidity.

Molecular Sieves are available in four primary generic forms, 3A, 4A, 5A and 13X. Each form has its own specific properties and applications, and all retain a polar preference for adsorption of water.

### Activated Clay

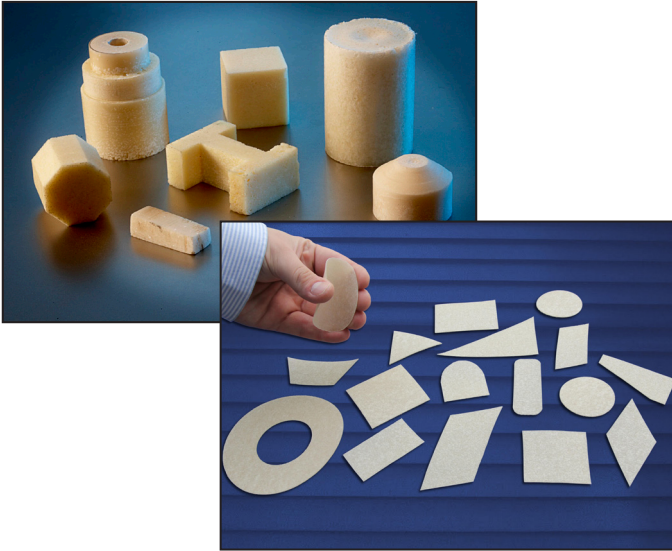
Activated clay is a naturally occurring porous mineral which has been dried to produce an adsorbent material. The clay has a good adsorption capacity within normal temperature and relative humidity ranges. Activated clay retains its structure as it becomes saturated and can be easily reactivated for re-use by heating.

Activated clay is chemically inert and non-toxic which makes it safe to handle and can be easily disposed of. The clay is usually more economical than chemically synthesized adsorbents like silica gel or molecular sieves.

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# MOISTURE ADSORBING POLYMERS

- Optional Shapes and Sizes
- Uniform Thickness
- No Loose Desiccant
- Flexible / thermo-formable
- Long term adsorption characteristic
- High strength & stiffness
- Excellent electrical insulator
- Low dusting
- High temperature resistance



## Moisture Adsorbing Board

Moisture Adsorbing Board is a practical alternative to desiccant bags for applications with limited or restricted free space. Moisture adsorbing board can be manufactured to size by cutting, punching and thermo forming. The compactness of the moisture adsorbing board allows installation into spaces and apertures which are inaccessible to desiccant bags.

### Specification

Polymer: TCP

Desiccant: Silica Gel

Operating Temperature: +70 °C to - 40 °C

Adsorption Capacity (Nom): 10% by weight at 50%rh at 22 °C

Adsorption Rate: 0.03 grams per hour

### Applications

- Electronics
- Optics
- Telecommunications
- Packaging
- Underwater Systems
- Hi Voltage Switchgear
- Lasers
- Semiconductors
- Computers

## VMAP

VMAP is a molecular sieve desiccant combined with a polymer to form a versatile product which adsorbs moisture and humidity. VMAP is also capable of adsorbing odours and volatile organic compounds. VMAP can be moulded into precise shapes providing maximum space utilisation along with the ability to be bonded or mounted in place.

### Specification

Polymer: TCP

Desiccant: Molecular Sieves

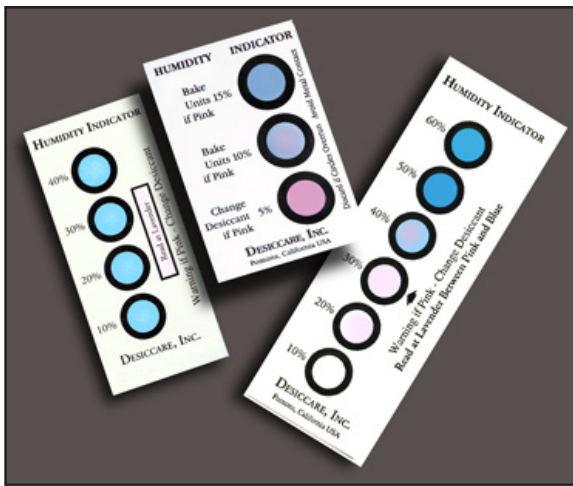
Operating Temperature: +90 °C to - 40 °C

Adsorption Capacity (Nom): 10-15% by weight at 50%rh at 22 °C

Adsorption Rate: 0.03 grams per hour

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# HUMIDITY INDICATOR CARDS



- Relative humidity ranging from 5%Rh to 90%Rh (at 20°C)
- Distinctive colour change indication
- Reversible and non-reversible option
- Temperature range from -40°C to +80°C
- Multiple level reading

Humidity Indicator are designed for use in the packaging of moisture sensitive electronic or electro-optic equipment, or any other humidity controlled enclosure. They readily detect changes in the humidity of the space being monitored by using a colour change indicator which turns from blue to pink as the humidity increases, and turns back to blue when the humidity decreases. There are two main types of humidity indicator cards: reversible and irreversible. Reversible humidity indicator cards work much like a thermometer, fluctuating to indicate the current relative humidity level. Maximum, or irreversible, cards are designed to indicate the highest relative humidity level to which goods have been exposed.

Humitector HI Cards provide visual proof of the relative humidity level within a given package environment. If the card indicates high levels of humidity, users know to replace their desiccant bags and check their products for possible damage.

## Foil Bags

Barrier foils provide total climatic protection for any product which may deteriorate due to attack from moisture vapour, oxygen and other gasses, UV light, outdoor transfer and temperature extremes. We offer a wide range of sizes and thicknesses for various applications.



## Polybags

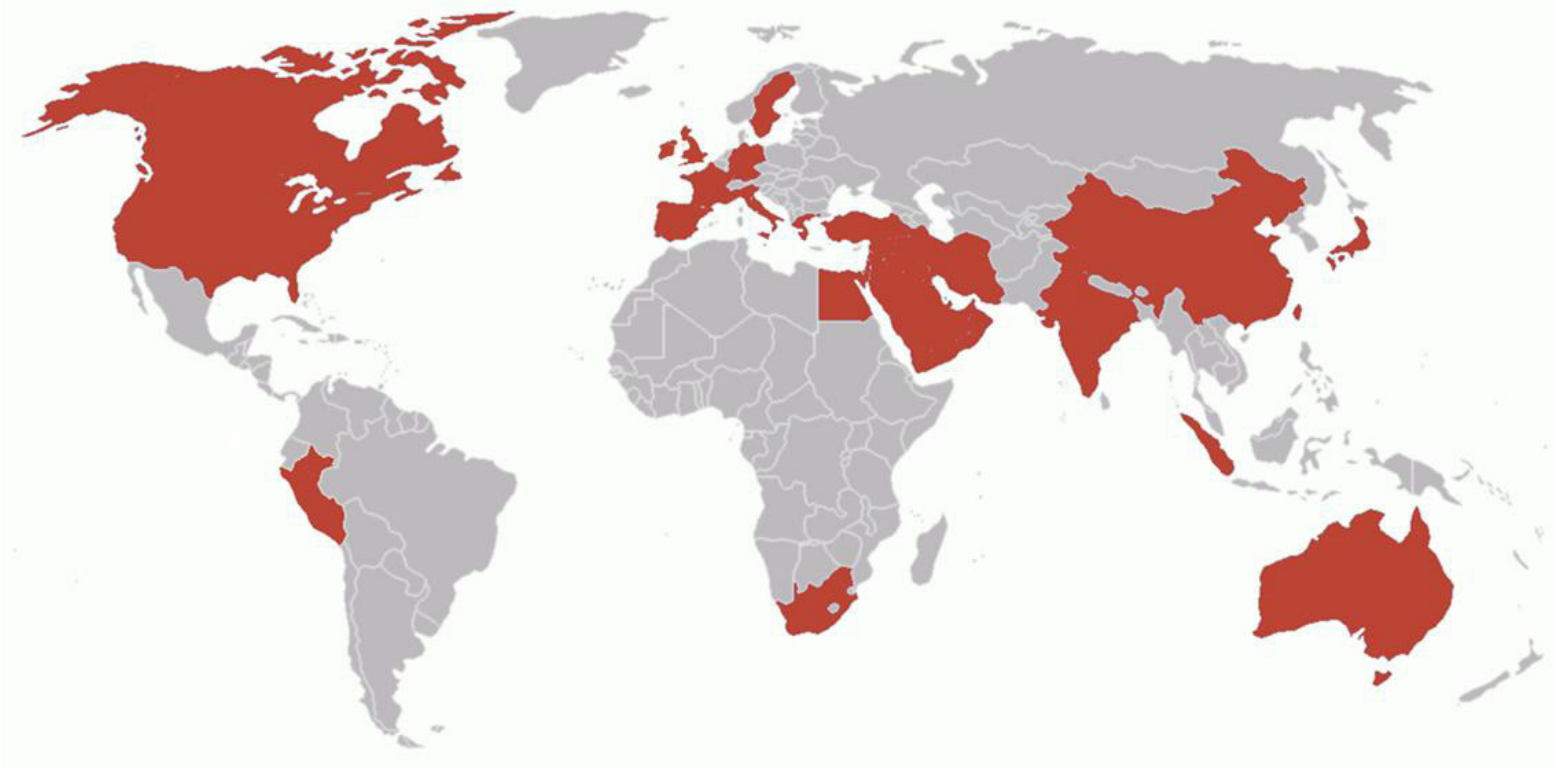
Polybags provide low cost packaging needs for protection of products from either dirt or dust during production or presentation.



*Both these products can be used in combination with humidity indicator cards and desiccant bags to ensure your items are fully protected when stored.*

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# Brownell around the world



Australia  
Canada  
China  
France  
Germany  
Greece  
Hong Kong

Israel  
Italy  
Japan  
Middle-East  
Peru  
Portugal  
Singapore

South Africa  
Spain  
Sweden  
Taiwan  
Turkey  
United Kingdom  
United States

Brownell has a network of appointed representatives and technical support centre's around the world proving localised support and assistance.



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