



Designers & manufacturers of products and solutions preventing the problems caused by condensation, high humidity & pressure variations

BB **BROWNELL**
L I M I T E D

www.brownell.co.uk

Company profile

World Leaders in Moisture Control & Humidity Protection

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.

Products Covered

Desiccants
Drum Vent Dryers
Molecular Sieve
Pipeline Dryers
Pressure Relief Valves
Re-Actrans
Tank Vent Dryers
Transformer Breathers



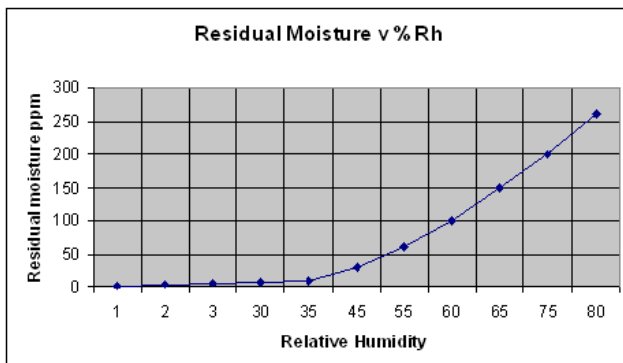
Transformer Breathers

Protect the oil from high humidity

BROWNELL Transformer Breathers eliminate the problems caused by moisture laden air being drawn into electricity transformers during their operation. These breathers are filled with self-indicating Envirogel adsorbent. A cartridge design enables an operator to change out in a matter of minutes. Envirogel is a safe and environmentally friendly adsorbent that changes colour when it reaches the required maximum moisture concentration levels in transformers.

Key Features

- High performance plastic or metal construction
- Simple installation
- ISO9001/2008 design approved
- Suitable for 1250 kVA to 750 mVA Transformers
- Low dusting beaded ENVIROGEL adsorbent
- Up to 25% adsorption capacity
- Definitive colour change saturation indication
- IP 65 rating
- Operating temperature range -30°C to $+70^{\circ}\text{C}$
- Vandal proof
- Weather resistant
- All round visual saturation indicator
- Two way low pressure valve



Water content of oil increases as it is exposed to high relative humidity

Tank Vent Dryers

Protection of products from water contamination

Brownell Tank Vent Dryers prevent the contamination of valuable stored products from the harmful effects of moisture. The effects of air transfer will lead to a dry gas blanket over the stored product. Installation of these breathers has been made quick and simple, with a direct connection to an existing breather or vent pipe. The desiccant has a built in colour change indicator which provides an at a glance condition monitor.

Key Features

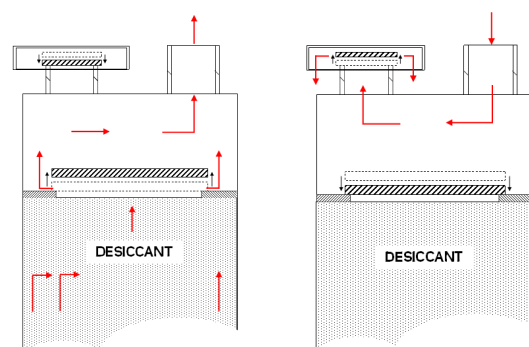
- Quick and easy to install
- Visual colour change indication
- IP 65 rating
- Available in mild or stainless steel
- ISO9001/2000 design approved
- Polycarbonate or glass sight window
- Easy ENVIROGEL replacement
- Floor and wall mounting
- Refillable
- ATEX Directive 94/9/EC approved



Typical materials which can be readily protected:

- Acetic Acid
- Brake Fluid
- Glycerol
- Polyalcohols
- Polyethers
- Acid and Oil Vapours
- Sulphuric Acid
- Transformer Oils
- Heat Transfer Fluids
- Printing Inks

Flow Schematic



DRYING

VENTING

Desiccants

Remove water vapour and other contaminants

A desiccant is a moisture adsorbing material that can create and maintain a dry environment or gas stream. Silica gel, activated clay or molecular sieves are the most common desiccants. The applications in which they are used include: Double glazing, pharmaceuticals, process drying, electricity transformers and semi-conductors.

Key Features

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

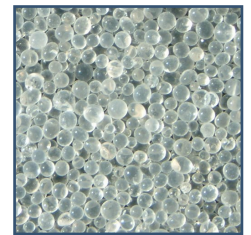
Packaging

- 500g – 170kg commercial containers
- Desiccant Bags 0.5g-2500g
- Shelf life special packaging
- Re-useable /Recyclable packaging

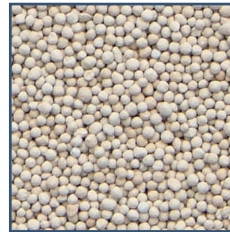
Desiccants available



ENVIROGEL®



Non Indicating Silica Gel



Molecular Sieves



Activated Alumina



Activated Carbon



Activated Clay

General Packaging
Electronic Equipment
High Voltage Switch Gear
Optical Equipment
Electro-optical Equipment
Telecommunications

Molecular Sieves	✓	✓	✓	✓	✓	✓
Activated Clay	✓	✓	✗	✗	✗	✓
Silica Gel	✓	✓	✗	✓	✓	✓
ENVIROGEL®	✗	✓	✗	✓	✗	✓
Activated Alumina	✗	✓	✗	✗	✗	✓

Drum Vent Dryers

Protecting Drums, Tanks & Reservoirs

The BROWNELL range of Vent Dryers has been developed to protect storage drums, tanks and reservoirs during use and operation. Many fluids are hygroscopic (adsorb water vapour and condensate) in nature. Once exposed to normal atmospheric humidity these materials will adsorb water vapour. Water vapour which subsequently condenses can cause a fluid to be permanently damaged from the resulting physical and chemical changes.

Key Features

- *Quick and easy to install*
- *Visual colour change*
- *Prevents product contamination*
- *Rechargeable*
- *No energy requirements*
- *Constant protection*
- *Minimised pressure differentials*
- *Provide full weather protection*
- *Assist flame suppression*
- *Reduced odour emissions*
- *Dual thread mounting option*



Applications

- *Hydraulic reservoirs*
- *IBC containers*
- *Drums*
- *Gearboxes*
- *Fluid dispensers*



Water vapour can be seen being adsorbed by the silica gel desiccant at the orange/green interface and as it progresses through the adsorbent bed.



Re-Actrans

Self reactivating transformer breather

Brownell has introduced a new self reactivating dry air breather to prevent contamination of gearbox lubricating oil by water and condensation. The REGEN8 has a robust all weather construction with complete automatic process control including a Telemetry option for remote monitoring and control management. Many lubricating oils have a water vapour adsorption characteristic. Commercially available lubricating oils are delivered by most manufacturers with low residual water content. Maintaining this low residual moisture level throughout the gearbox life is a major challenge and requires an active moisture control and management system.

Key Features

- *Easy installation*
- *Compact design*
- *Intelligent control*
- *Minimal energy consumption*
- *Maintenance free*
- *All weather protection*
- *Telemetry option*
- *Up to 10000 litre oil capacity*
- *Floor mounting option*
- *Maximum adsorbent efficiency*
- *Non condensation operation*

Material	mild steel with passivation and powder coating finish
Connection	flange, pipe thread or remote connection
Mounting modes	direct floor mounting
IP Rating	54
Operating temperature	-20 C° to + 60 C°
Humidity	95% RH non condensing
Desiccant type	Non indicating Silica gel
Desiccant contents	RT1 2 kilograms RT2 4 kilograms
Desiccant capacity	at 30% RH 15% by weight
Reactivation control temperature	90 C°
Saturation indicator	RH display
Maximum pressure	2 psi
Maximum flow rate	20 litres/min
Reactivation time	Nominal 6 hours
Power consumption	RT1; RT3 230 volts 5 amps RT2; RT4 100 volts 10 amps



Molecular Sieve

Powder, Paste, Beads and Pellets

Versatile adsorbent for all applications

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.

- **Dries mixed streams**
- **Purifies and dries**
- **Achieves low dewpoints**
- **Low investment and operating costs**
- **Versatile range of adsorbents for varied applications**



Paste



Beads & Pellets

Powder



STANDARD PACKAGING

Powder: 20kg PE bag

Paste: 30kg steel drums; 100kg steel drums; 1000kg IBC

Pellets: 125kg steel drums; 135 steel drums

Beads: 125kg steel drums; 135 steel drums; 150kg steel drums

Other packaging (available upon request) includes bulk bags and bulk trucks.



1000 Kg IBC container

Pipeline Dryers

Reducing water vapour content in pipelines

Brownell Pipeline Dryers are primarily used for reducing the water vapour content to a safe level in compressed air or process gas pipelines. These dryers are suitable for small diameter pipelines, up to 10mm or 3/8", and working pressures up to 7 bar. Dryers are usually filled with either silica gel or molecular sieves desiccant for water vapour removal, but the use of different grades of molecular sieves desiccant can provide selective adsorption of other components.

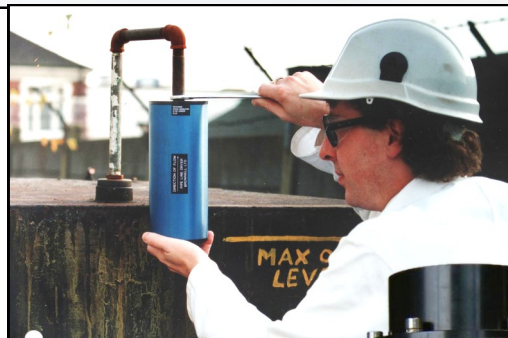
Key Features

- *Point of use dry air*
- *Low cost*
- *Easy installation*
- *Available with condition indicator*
- *Different filtration levels available*
- *Compression fitting interface*
- *Low - medium pressure ratings*



Applications

- *Air Exhaust Lines*
- *Vacuum Lines*
- *Low Pressure Compressed Air Lines*
- *Marine Vehicles*



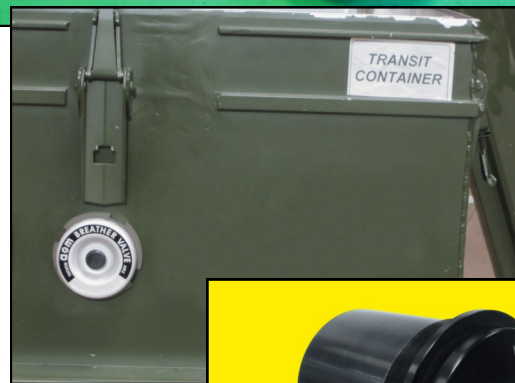
Pressure Relief Valves

Prevent damage caused by pressure differentials

Pressure and vacuum differentials will occur in equipment and transit containers when they are subject to changes in temperature and/or altitude. The installation of relief valves in equipment and transit containers will prevent damage caused by pressure or vacuum differentials. The use of relief valves allows designers to reduce the constructional strength and weight in equipment or transit containers.

Key Features

- Fully automatic
- Optional valve operated indicator
- Wide operating temperature range
- Two way valves for pressure and vacuum relief
- Fully automatic opening and closing
- Manual override facility for equalisation
- Protection against waterspray (optional)
- Flow rates range from cc/min to litres/h
- Low cohesion providing reliable opening
- Available in aluminum, brass, stainless steel and plastic

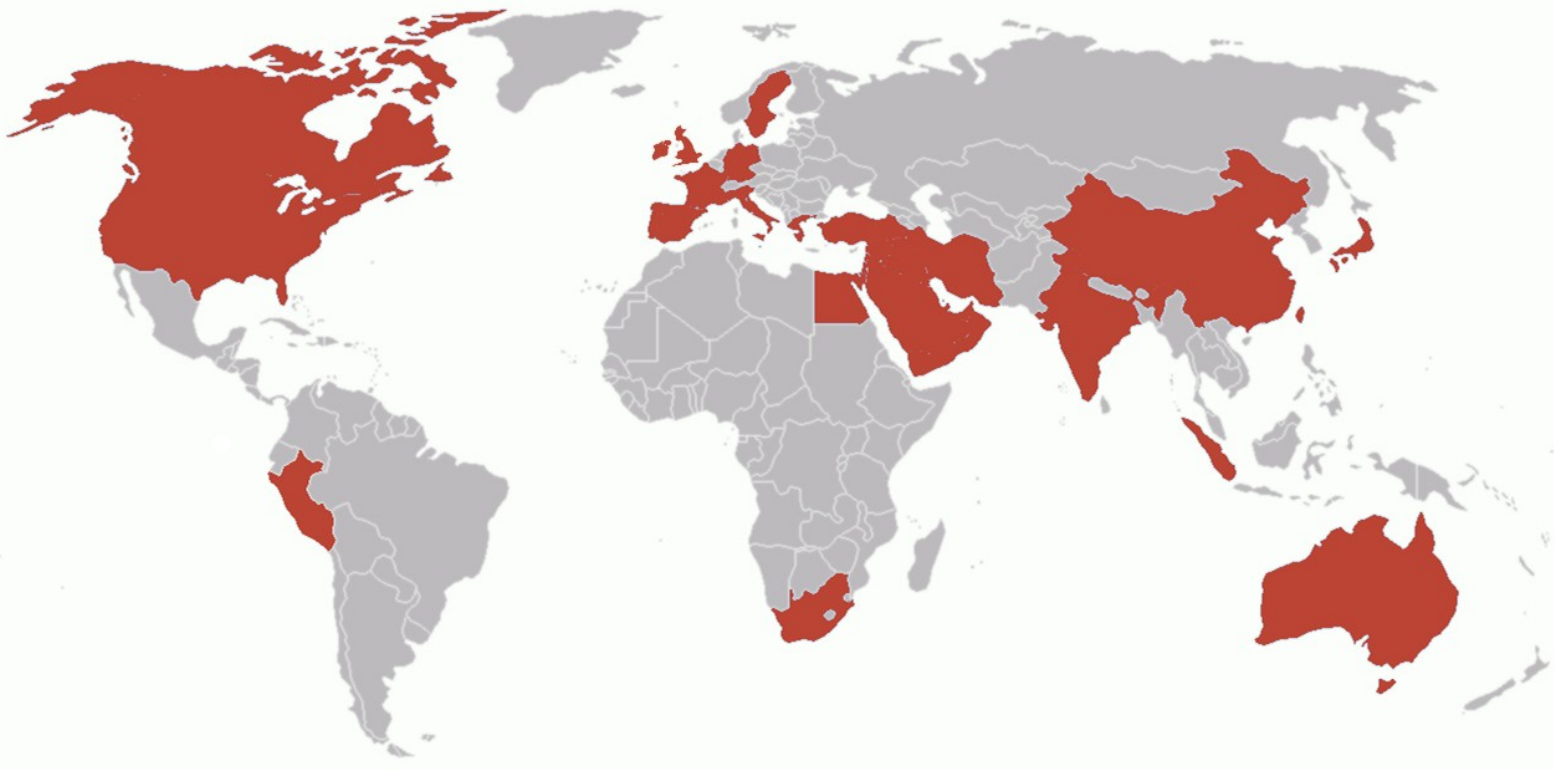


Applications

- Transit/Storage/Missile containers
- Pressure sensitive applications
- Air portable containers
- Non return valves
- Out gassing protection
- Airborne equipment
- Sealed enclosures
- Gas pipelines



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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