



The solution to all
moisture-induced problems

휴시트
Husheet

What are your concerns about dehumidification and deodorization?

Have you tried traditional dehumidifiers and deodorizers?

1

Did few silica gel packets solve your problems?

2

Are silica gel and calcium chloride the only dehumidifiers available?

3

Are products are fully dehumidified during transport?

4

Is there enough room for dessicants in your compact product packaging?

5

Sensors and diagnostic chemicals can deteriorate depending on how they are stored.

6

Having trouble with moisture in gunpowder and solid fuels?

7

Are blood glucose test strips, diagnostic kits, and diagnostic reagents susceptible to moisture?

8

Looking for a way to eliminate odors without masking them with fragrance?

9

Want to prevent mold growth without using harmful chemicals like fungicides?

“ Are you still relying on silica gel and calcium chloride? ”

The Unfortunate Reality of Dehumidifying and Deodorizing Products

Dehumidification and deodorization needs are growing across many industries. Yet, with few effective solutions available, many still rely on limited options like silica gel and calcium chloride.

As a result, many dehumidifiers and deodorizers are sold with the same ingredients but under different packaging and brands.

This is why there has been little to no difference in performance between products until now.

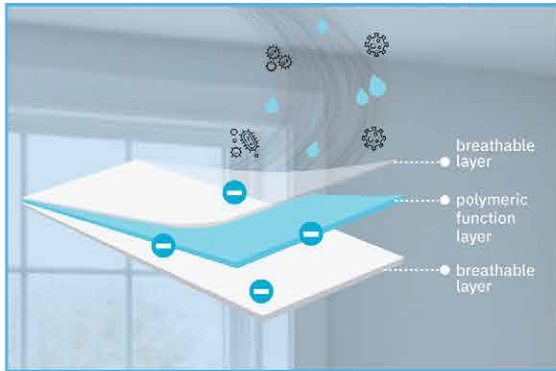
Limitations of Silica Gel and Calcium Chloride

Silica gel and calcium chloride have limited dehumidification and deodorization capabilities, and their rigid forms make them difficult to use in confined spaces.



When calcium chloride absorbs moisture, it dissolves into a liquid brine. This is acidic and can damage various materials, including metals.

Now is the time for a change. Don't take your discomfort for granted. Husheet can solve the problem.



A sheet coated with super desiccant polymer, developed by Humaster, is layered between breathable layers.

The large surface area of the sheet allows it to perform quickly and efficiently.

It absorbs moisture when the surrounding air is humid, and when the surrounding air is dry, it releases moisture to maintain pleasant humidity.



absorption capacity 94.0g/m²
desorption capacity 93.4 g/m²



Trimethylamine 99.6%
Acetic acid 94.0%
Ammonia 99.8%



Coliform bacillus 99.9%
Staphylococcus aureus 99.9%



Mixed strain culture 0 grade
(No mycelium development)



No harmful impact on cultural property



No harmful substances
such as lead and cadmium



Plasticizer-free confirmation



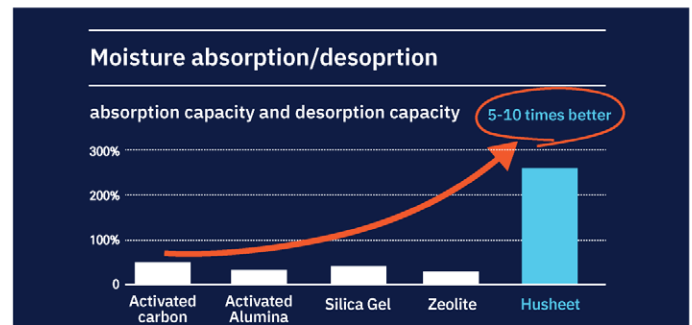
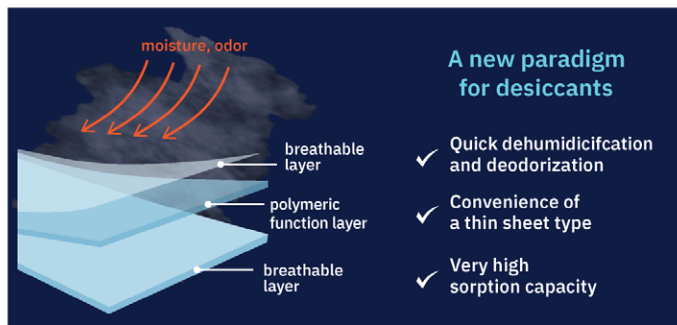
completed

Husorb, Super Desiccant Polymer

Husorb is a super desiccant polymer material developed by Humaster, patented in Korea and the U.S. It boasts five times the dehumidifying power of silica gel and provides over 99% deodorizing efficiency. Husorb also features antibacterial, antimicrobial, and antifungal properties, effectively removing moisture and harmful substances for a healthier environment.

Husheet, a new humidity control sheet produced using Husorb

Husheet is a thin dehumidifying sheet created by layering Husorb between breathable layers. It offers five times the sorption capacity of traditional desiccants, providing exceptional dehumidification and deodorization. Thanks to its large surface area, Husheet acts quickly and efficiently, making it the perfect choice for superior moisture control.



How it works

Dehumidification function
The best in the world

HuSorb H₂O

Attracting water vapor molecules by electrical attractions

Feature	Evaluation Items	Results
Maximum absorption capacity	Absorption capacity @ 90%RH	241% (5 times more than silica gel)

Deodorization function
99% deodorization

HuSorb odorous molecules

Attracting polar odorous molecules by electrical attractions

Feature	Evaluation Items	Results
Deodorization rate 99% deodorization	Ammonia Trimethylamine Acetic Acid	99.8% 99.6% 94.0%

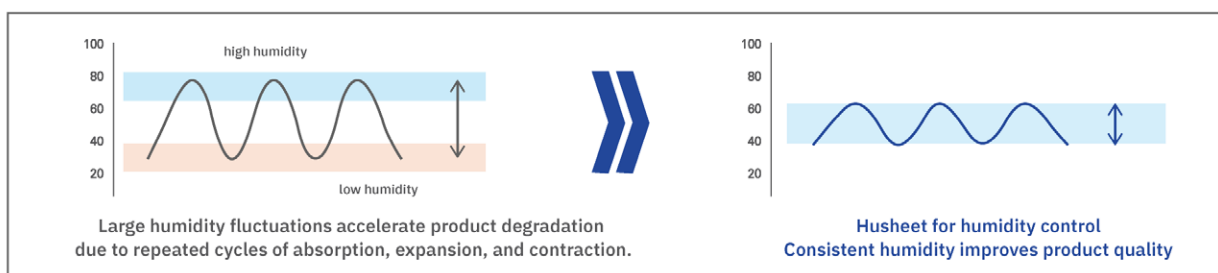
Antifungal, Antibacterial
The highest grade

HuSorb Bacteria

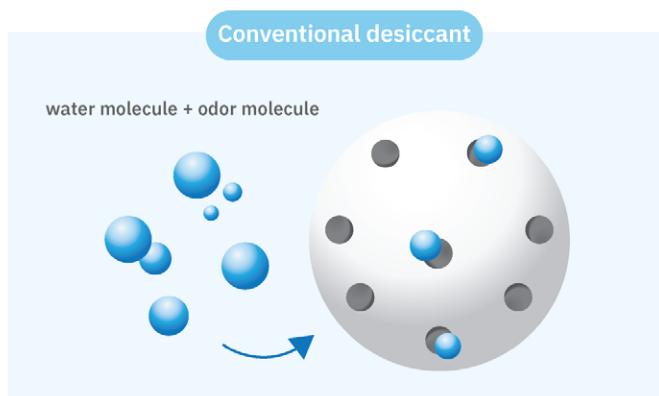
Absorbing water from bacteria cells by osmosis phenomena

Feature	Evaluation Items	Results
Anti bacterial	coliform bacillus	99.9%
	Staphylococcus aureus	99.9%
Anti fungal	Mixed strain culture	0 grade (No mycelium development)

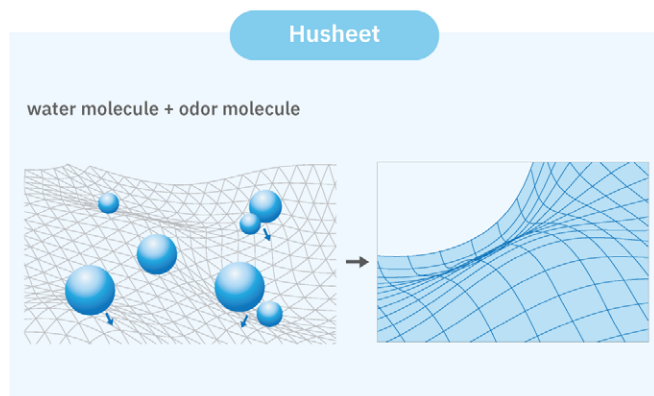
○ Reduced Humidity fluctuations



Conventional desiccant vs Husheet



- Conventional desiccant materials, such as silica gel, are porous materials that adsorb microscopic water molecules and odor molecules through microspores.
- It can only adsorb as many water molecules as there are voids, which limits its dehumidifying power.



- Husheets are elastic net-like structures that increase in volume when water molecules are absorbed.
- The increased volume allows it to absorb more water molecules than conventional desiccant materials.

Comparison table of Husheet and dehumidification materials

Details		Silica gel	Demumidification box	Husheet
Feature		Dehumidification	Deodorization	Dehumidification, deodorization, reverting bacteria and mold
Materials	Characteristic	Porous	Gel	Power (coating)
	Specification	Absorb humidity through small porous (smaller than 2 mm diameter)	Release gas and deodorization	Hydrogel with outstanding dehumidification and deodorization performance.
Physical characteristic	Product	Sachet	Box	Sheet
	Size	Large	Large	Thin sheet
Performance	Dehumidification capacity	1 time (40% maximum)	Not applicable	5 times (240% maximum)
	Deodorization	Not applicable	1 time	7.5 times
Usage	Adjusting size	Yes, with limited option	Not applicable	Flexible and adjustable
	Usage in confined space	Not applicable	Not applicable	Able to use in confined space
	Disposal	Easy	Difficult to manage	Easy and eco-friendly
Reusable		Some part can be reusable	Not applicable	Reusable
Customizaiton		Not applicable	Not applicable	Yes (the material can be customized as per requirement)

Husheet Applications

Husheet have already demonstrated their effectiveness.

Husheets are extensively utilized in industrial dehumidifiers for applications such as semiconductor production, museum artifact preservation, bioscience, and IT. They are also popular in consumer products, including home bedding and desiccants/deodorizers, for superior moisture control and protection.

Thanks to their unique material properties, Husheets are perfect for any dehumidification and deodorization needs. They can be customized to suit your specific requirements, ensuring optimal performance in any application.

Husheet in specific applications.



HANSSEM Four season mattress system to provide the right humidity for deep sleeping.

Husheet inside the mattress controls humidity



Husheet creates ideal environmental conditions for museum storage.

Husheet passed the ODDY Test.



Husheet for packaging moisture-sensitive medicines and supplies, such as diagnostic kits.

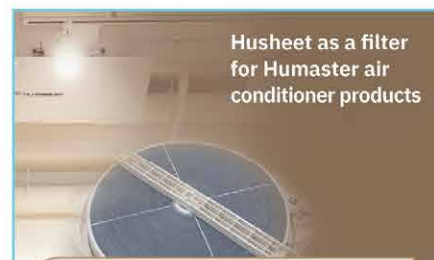
Husheet for packaging moisture-sensitive drugs



Husheet for wrapping cooling tubes to prevent condensation



Husheet for humidity-sensitive headphones, hearing aids, and earphone cases



Husheet as a filter for Humaster air conditioner products

Husheet as a filter for Humaster air conditioner products

Husheet is useful when..



packaging a printed circuit board(PCB)



packaging pharmaceutical products



storing gunpowder and solid fuels



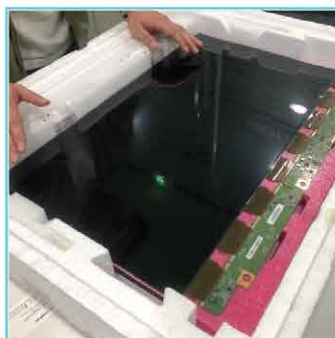
packaging powdered ingredients



storing musical instruments and cameras



packaging for container shipping

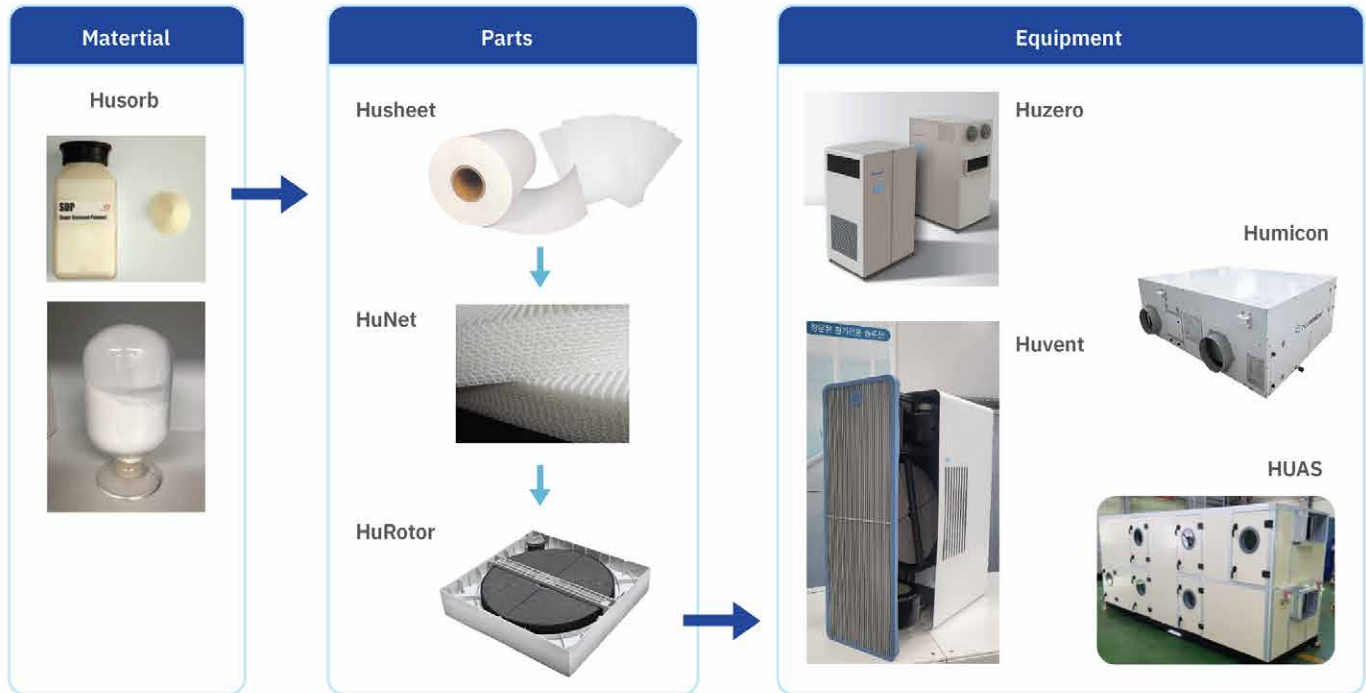


packaging LCD panels



packaging any kinds of film.

Humaster offers vertical integration that encompasses everything from material development to the production of core parts and equipment.



Humaster is a startup company from the Korea Institute of Science and Technology.



LEE Dae-young

Humaster CEO

- Ph.D, Mechanical Engineering, Seoul National University
- Member of national academy of engineering of Korea
- Former Senior Researcher, KIST
- 140 patent Application, 112 patent registration, 10 technology transfers (37 implementation patents)





**The best solution for all
humidification in the world**