

OZO

New-type hygroscopic desiccant





Hygroscopic desiccant OZO contributes to every industry.

Made from seawater minerals, OZO is safe and natural.

OZO is a unique non-combustible hygroscopic desiccant made from specially treated seawater minerals. It is safe to eat. OZO is certified by Japan Food Research Laboratories as having less arsenic, and heavy and precious metal contents than the food additive standard.

OZO exerts powerful absorbing and drying capacity even in sub-zero temperatures.

The most distinctive feature of OZO is its powerful hygroscopic capacity regardless of temperature difference. OZO maintains stable hygroscopic capacity from room temperature up to minus 20 degrees Celsius. OZO helps maintain the quality of packaged contents in severe environments by preventing dew condensation in very cold areas and desiccating in hot and humid tropical areas. It is a highly reliable hygroscopic desiccant throughout the year.



We can optimize the OZO system according to your needs.

Detailed discussion with our customers beforehand enables us to optimize our OZO compositions according to the specific packaging contents and transport and distribution conditions. Customers can select either fast or slow moisture absorption speed according to their requirements.

Contrary to conventional hygroscopic desiccants that only remove moisture and odors, OZO can add fragrance and bitterness to distinguish its contents from foods by special treatment.

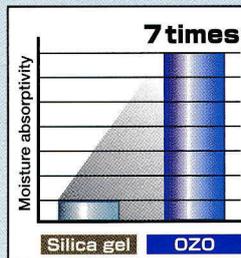
Outstanding 180% moisture absorptivity downsizes transport packages.

OZO's moisture absorptivity is 6 to 7 times more than commercially available hydrated desiccants (silica gel). As shown in the following test results, 10 grams of OZO increases its weight to 28 grams in five days by absorbing 12.5 grams of moisture (i.e. 180% moisture absorptivity), thus enabling transport packages inside and outside Japan to be downsized.

OZO-Z moisture absorptivity: 160-200%

Silica gel moisture absorptivity: 30-35%

* Measurement conditions: 40°C, 90% RH



OZO achieved 6-7 times more moisture absorptivity compared with silica gel.

Reduction of volume (1/6 to 1/7) with similar moisture-absorption as silica gel.

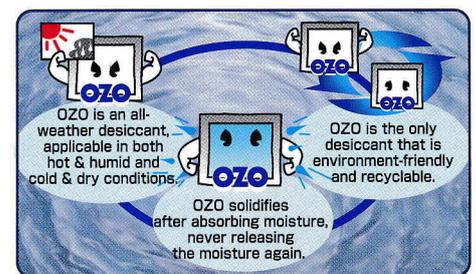


Environment-friendly natural materials enable zero-emission recycling.

Any type of OZO is collectible and recyclable. Including packaging, OZO emits almost no toxic gas. By removing the outer bag, OZO transforms into its original powder form at 600°C or more and returns to the soil with no pollution. The outer bag can be incinerated as combustible garbage.

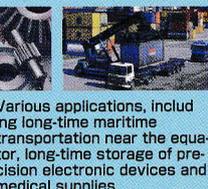
OZO chemically removes moisture and completely prevents development of rust and mold.

Contrary to commercially available moisture-absorbing (silica gel) or deliquescent (calcium chloride) hydrate desiccants that only transfer water (moisture) inside a package, OZO completely absorbs water (moisture) and chemically converts it to other substances. The absorbed moisture is crystallized into water and never released again, completely preventing development of rust, microbes, or leakage by dew condensation, so effectively maintains product quality during storage and transportation. Meanwhile, as OZO expands and solidifies while absorbing moisture, you can quickly identify its effect and replacement time.



Various applications: OZO is used in various fields.

OZO's outstanding moisture absorptivity, never achieved by conventional hydrate desiccants, enables complete dehumidification and economical and simpler quality control.



Various applications, including long-time maritime transportation near the equator, long-time storage of precision electronic devices and medical supplies

Industrial materials	Rust prevention of parts, materials, and facilities in automobile, consumer electronics, and machine industries
Electronics and precision equipment	Rust prevention of ICs, LSIs, SSDs, HDDs, etc.
Foods	Storage and prevention of mold for general foods, and prevention of ticks and microbes for health foods and imported foods.
Transportation and logistics	Inter-factory transportation, domestic transportation, and export packing
Medical and pharmaceutical	Storage and preservation of medical supplies, medicines, herbal medicines, etc.
Commerce	Storage and preservation of art, fur, musical instruments, cosmetics, powdered flavors, dyes, books, and paper products
General household items	Mold prevention in closets, chests, clothing storage boxes, kitchen shelves, and food storage

OZO-C/S/Y/Z Product types

Slow-acting type

OZO-C

For a wide variety of food and industrial products

(long-term moisture-absorption)

2 times more moisture absorptivity as silica gel.

x2

Applications

Lead frames, bearings, cartridges, cookies, dried flowers, supplements, foods, herbal medicines

OZO-S

For electronic and precision equipment

(long-term moisture-absorption)

4 times more moisture absorptivity as silica gel.

x4

Applications

Small motors, bearings, metal parts, PET films, fine iron powder, electronic parts

Fast-acting type

OZO-Y

For electronic and precision equipment

(short-term moisture-absorption)

4 times more moisture absorptivity as silica gel.

x4

Applications

Small motors, HDDs, metal parts, PET films, nylon-molded products

OZO-Z

In logistics and packaging as a strong dryer

(short-term moisture-absorption)

6 to 7 times more moisture absorptivity as silica gel.

x6~7

Applications

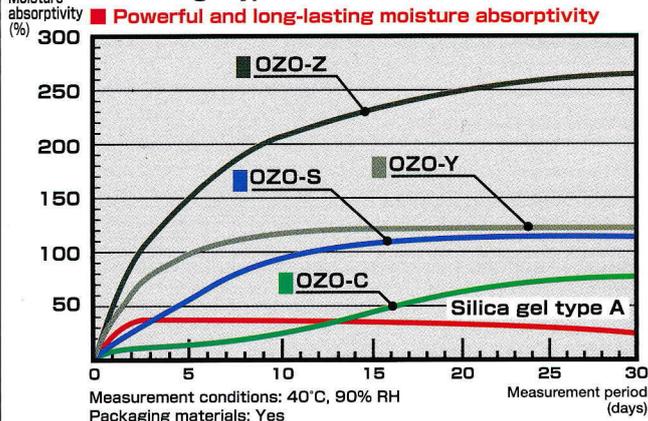
Container transport, silicon materials, cartridges, logistics, packaging, dew condensation prevention

Hygroscopic properties of OZO-C/S/Y/Z and Silica gel type A

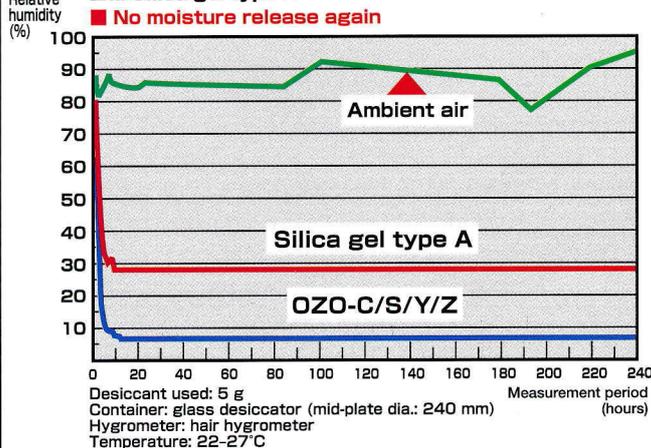


Depending on its type, OZO-C/S/Y/Z absorbs moisture and prevents development of rust and mold. It strongly and quickly defogs and maintains dry conditions for a long period.

Comparison of moisture absorptivity of OZO-C/S/Y/Z and Silica gel type A



Comparison of moisture desorptivity of OZO-C/S/Y/Z and Silica gel type A



Calculating the required volume of OZO desiccant

The required volume of OZO desiccant is calculated by using the following formulae with the factors of the package surface area, temperature, and humidity at which the package is stored, and moisture permeability of moisture-proof barrier used in the packaging materials in the same period.

- Package contents are dry and packed using non-hygroscopic moisture-proof barrier packaging materials.

$$W = \frac{A \times R \times M}{K} \times 1 \text{ (Coefficient)} \times 1.2 \text{ (Safety factor)}$$

- Package contents are packed using hygroscopic materials.

$$W = \frac{A \times R \times M}{K} \times 4 \text{ (Coefficient)} \times 1.2 \text{ (Safety factor)} + \frac{D}{5}$$

- Rust-prone contents are packed directly into a fully air-tight vessel, such as a metal can.

$$W = 0.15 V \times 1 \text{ (Coefficient)}$$

- W: Volume of desiccant used (kg)
- A: Moisture-permeable area of moisture-proof barrier used in the packaging materials (m²)
- R: Moisture permeability of moisture-proof barrier used in the packaging materials (g/m²/24 hr)
- M: Period (months)
- K: Coefficient of expected weather conditions (please inquire separately)
- D: Mass of hygroscopic materials in a package (e.g. paper, cardboard, wood) (kg)
- V: Volume in a package

※ Please calculate the volume of OZO-Z to be used according to your applications and use conditions. The above formulae help you calculate the reference volume of desiccant to be used. Determine the actual volume according to the results of your demonstration test.

Maintaining stable, consistent, and long-lasting moisture absorptivity

Slow-acting type

OZO-C maintains stable, moderate moisture-absorption for an extended period of time. Provides long-term, stable efficacy, regardless of outdoor temperature or humidity.

OZO-C



Package composition: grease-proof paper, CLAF(R), and perforated polyethylene
Package form: cardboard box

Standard	Prod. name (g)	Dimensions (mm)	Qty per carton (pcs)	Cardboard box size (mm)
	C-1	35×50	10,000 (2,000×5)	① 570×370×280
	C-2	45×50	7,000 (3,500×2)	① 570×370×280
	C-3	55×50	5,000 (1,250×4)	① 570×370×280
	C-5	70×50	3,000 (1,000×3)	① 570×370×280
	C-10	55×100	1,500 (500×3)	① 570×370×280
	C-30	90×100	500	③ 380×310×300
	C-50	100×100	300	③ 380×310×300
	C-100	100×100 duplex packages	150	③ 380×310×300

Maintaining moderate and consistent moisture absorptivity

Slow-acting type

OZO-S provides long-term, stable, moderate moisture-absorbing effect. Protects delicate electronic equipment/precision instruments from humidity during transport or in storage.

OZO-S



Package composition: waterproof paper, CLAF(R), and perforated polyethylene
Package form: cardboard box

Standard	Prod. name (g)	Dimensions (mm)	Qty per carton (pcs)	Cardboard box size (mm)
	S-1	35×50	10,000 (2,000×5)	① 570×370×280
	S-2	45×50	5,000 (2,500×2)	① 570×370×280
	S-3.5	55×50	3,000 (500×6)	③ 380×310×300
	S-5	70×50	2,500 (1,250×2)	① 570×370×280
	S-10	55×100	1,500	① 570×370×280
	*S-15	70×100	1,000	① 570×370×280
	*S-30	110×100	400	③ 380×310×300
	*S-40	110×100	300	③ 380×310×300
	S-50	110×100	250	③ 380×310×300
	S-100	110×100 duplex packages	150	③ 380×310×300

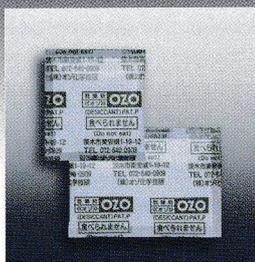
*No stock: Ships in 7-10 days

Maintaining stable, long-lasting moisture absorptivity for electronic devices

Fast-acting type

OZO-Y produces immediate moisture-absorption. Quickly absorbs moisture around electronic equipment/precision instruments that are vulnerable to changes in temperature and humidity, and provides long-term, stable moisture-proofing.

OZO-Y



Package composition: water and air impermeable film and PET non-woven cloth
Package form: cardboard box

Standard	Prod. name (g)	Dimensions (mm)	Qty per carton (pcs)	Cardboard box size (mm)
	Y-1	45×50	10,000 (1,000×10)	① 570×370×280
	Y-2	45×50	5,000 (2,500×2)	① 570×370×280
	Y-5	70×50	2,500 (1,250×2)	① 570×370×280
	*Y-50	150×100	250 (50×5)	③ 380×310×300

*No stock: Ships in 7-10 days

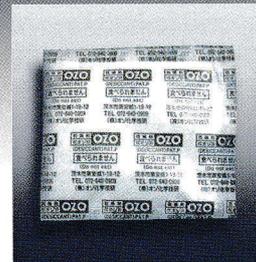
Maintaining fast-acting, strong moisture absorptivity

Fast-acting type

Strong desiccant

OZO-Z absorbs moisture powerfully and quickly. Maintains powerful absorptivity for an extended period of time to prevent rust and mold, as well as to provide superior defogging effect.

OZO-Z

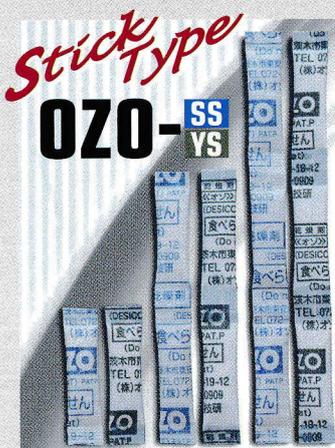


Package composition: water and air impermeable film and PET non-woven cloth
Package form: cardboard box

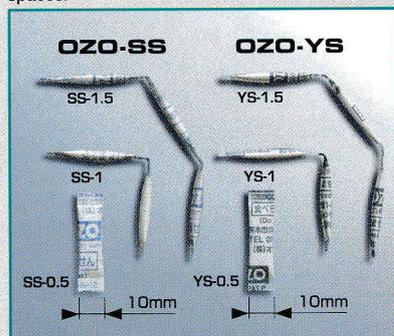
Standard	Prod. name (g)	Dimensions (mm)	Qty per carton (pcs)	Cardboard box size (mm)
	Z-2	55×50	2,000 (500×4)	② 430×320×240
	Z-5	55×100	3,000 (500×6)	① 570×370×280
	Z-10	70×100	1,500	① 570×370×280
	Z-30	110×100	500 (250×2)	③ 380×310×300
	*Z-75	150×120	200 (100×2)	② 430×320×240
	*Z-100	150×150	150 (75×2)	② 430×320×240
	Z-150	150×200	100 (50×2)	② 430×320×240
	*Z-200	150×150 duplex packages	100	③ 380×310×300

*No stock: Ships in 7-10 days

Space-saving, easy-to-use stick-type desiccant



- Retaining OZO-S/Y properties, the stick type achieves downsizing.
- 3 forms of stick type are available: simplex (40 mm), duplex (80 mm), and triplex (120 mm) packages. Duplex and triplex packages are bendable as shown in the picture, enabling installation in narrow corners and restricted spaces.



Backside of substrate



Storage of medical supplies and pharmaceutical products

OZO-SS Slow-acting type

Package composition: waterproof paper, CLAF(R), and perforated polyethylene
Package forms: SS-0.5/can 240 x 240 x 350 (mm)
SS-1, SS-1.5/cardboard box 380 x 310 x 300 (mm)

Prod. name	Dimensions (mm)	Volume (g)	Qty per carton (pcs)
SS-0.5	10×40	0.5	5,000 (1,000×5)
SS-1	10×80	1.0	5,000 (1,000×5)
SS-1.5	10×120	1.5	3,000 (500×6)

OZO-YS Fast-acting type

Package composition: water and air impermeable film and PET non-woven cloth
Package forms: YS-0.5/can 240 x 240 x 350 (mm)
YS-1, YS-1.5/cardboard box 380 x 310 x 300 (mm)

Prod. name	Dimensions (mm)	Volume (g)	Qty per carton (pcs)
YS-0.5	10×40	0.5	5,000 (1,000×5)
YS-1	10×80	1.0	5,000 (1,000×5)
YS-1.5	10×120	1.5	3,000 (500×6)

Handling and storage precautions

- Please seal the polyethylene bag that contains a product after opening.
- Never splash water directly on products.
- Do not store products in high moisture/humidity
- Do not bend when using.
- Do not open the bag that directly contains the products.
- Do not eat. (Keep out of reach of babies and small children.)
- Please contact us for special use and conditions.



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