RP System™

Revolutionary Preservation System

Oxygen free packaging solutions

MITSUBISHI GAS CHEMICAL AMERICA, INC.

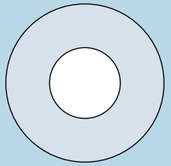
The RP System by Mitsubishi Gas Chemical

Mitsubishi Gas Chemical's **RP system** is a unique packaging innovation developed and manufactured in Japan, designed to protect industrial parts from corroding and cultural products from deteriorating during transportation or storage.

Benefit

Savings derived from long-term storage, protection during transportation and improving production efficiency.

Protection from Oxygen and Moisture



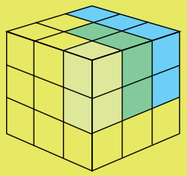
Import Export

Allows for storage in less than ideal locations

Less waste from disposing damaged goods

Less time trying to fix or repair damaged goods

Long-term storage



Protected products made available for a long time

Produce End of Life parts and focus on next generation production

Production efficiency (due to storage)

1×

Decrease number of production runs to save money and time

O_2

Save the environment by running production less

Focus on producing new and innovative products

Automobile Industry

Example Applications

Packaging sensitive products with RP System can provide multiple benefits such as product protection, long-term storage and savings.

Protection

Protect automotive parts during transportation to cut down on loss due to damage.

Storage

Long-term storage allows manufacturers to produce less often and store without worrying about product degradation and waste.

Savings

Produce once instead of multiple times to cut down on fixed cost. Keep these parts safe after production whether during transportation or less than ideal storage.

APPLICATIONS FOR THE RP SYSTEM

The RP system protects the quality of the product until it is used by the customer.

Industrial products like automotive parts, electronic devices and other raw materials tend to deteriorate during transportation and storage. RP System is the only technology on the market that combines protection from both oxygen and moisture, effectively allowing these sensitive materials to be stored for years in pristine condition.

A B C

RP System
Dual Function Protection

Absorbing both oxygen and moisture adds multiple levels of protection to products that need it. Shelf-life tests run over **6 years** at room temperature.

A – Copper coin with RP Agent

B – Copper coin with Silica Gel

C – Copper coin control

RP-AN

The RP-AN type absorbs oxygen, moisture, and corrosive gas, preventing the corrosion of the material. Due to the moisture absorption function, avoid using with paper-based applications.

RP-K

The RP-K type absorbs oxygen and corrosive gases. This is designed to protect non-metallic materials, acting effective towards dust control, insect repellent, and protection of non-metallic applications.

Industrial and Car Parts

Application	Purpose	Effect
Car Components	Protection	Reduce Shipping Waste
Bearings	Storage	Improve Production Efficiency
Soldering Agents	Savings	Prevent Deterioration and Damage

Electronics

Application	Purpose	Effect
Mother Boards	Storage	Maintain Reliability
Substrates	Savings	Prevent Deterioration
Connectors		Long Term Storage
Other Electrical Components		

Cultural Artifacts

Application	Purpose	Effect
Excavated Hardware	Protection	Maintain Quality
Archaeological Iron, Metals and Coins	Storage	Prevent Deterioration
Historical Materials		Extra Long Term Protection

HOW TO USE

The RP System is a user-friendly four-step process. The below steps indicate how to select the correct products for your application, how to handle the RP Agent and how to correctly seal the bag for immediate protection.

<0.1%
Oxygen content in 1 day

<10%
Relative humidity within several hours

<1ppm
Corrosive gas within several hours

1. What type of bag?

- PTS Bag – Clear high barrier bag for easy inspection
- Aluminum Bag – Long-term storage for sensitive materials
- ESCAL Ultra High Barrier Film – Clear Long-term storage film for high value items

Guideline of the quantity of the RP agent

Bag size(mm)	Bag Type	Expected bag volume(ml)
180X250	PTS/Aluminum	300
220X300	PTS/Aluminum	500
350X500	PTS/Aluminum	1000 or more
400X620	PTS/Aluminum	2000 or more
More sizes available		

2. What type of RP Agent?

- Contact us for a free consultation about size and type of RP Agent
- Different sizes and types of RP Agent for a multitude of applications

Total Air Volume

RP agent	Corresponding of the RP agent
RP-1AN	100 ml
RP-3AN/RP-3K	300 ml
RP-5AN	500 ml
RP-20AN/RP-20K	2000 ml

$$\text{Air vol}_{(ml)} = \text{Tot Vol (ml)} - \frac{\text{Weight (g)}}{\text{Density}}$$

3. Simple Packaging

- Simply place the RP Agent and your product in the properly sized barrier bag.
- Oxygen Indicators also available to show that the oxygen has been absorbed.
- 30 minutes from when you open the master bag to when you need to finish packing.indicator use

4. Air Tight Heat Seal

- Push as much air out of the bag as possible by hand.
- Use a heat sealer to make a clean flat seal to protect the product.
- Products will be fully protected from oxygen and moisture with a proper seal.

RP System™
Creates an oxygen, moisture and corrosive gas free condition. RP Agent does not release previously absorbed oxygen and moisture.

RP Agent™
Absorbs oxygen, moisture, and corrosive gas by means of chemical reaction.

Gas-barrier Bag
A high gas barrier container is required to maintain an oxygen and moisture free condition.

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