

## Packaging System Utilizing Free Radical Scavengers Prevent Oxidation

### Description:

This technology features an oxygen scavenging system created within packaging headspace comprising free radical scavenger(s) and a transition metal. Oxygen scavenging is initiated by activation of oxygen molecules through a reaction with a transition metal to form oxygen free radicals. The oxygen free radicals gain electrons from identified free radical scavenger(s) to return the radicals to their ground state, thereby eliminating the oxygen content in the headspace.

### Applications:

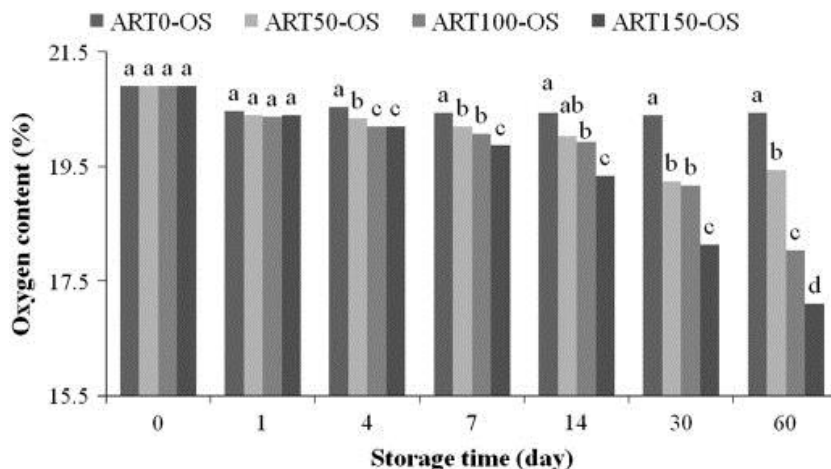
- Protects food from environmental conditions and contamination due to removal of oxygen
- Can be used in various packaging applications

### Benefits:

- Better oxygen scavenging system than vacuum packaging and modified atmosphere packaging
- Better results than patented iron power oxidation
- Generally, scavenging capacity can be as low as 1 cc oxygen per gram and the scavenging rate can be as low as 0.1 cc oxygen per gram per day. This technology showed an oxygen scavenging capacity of 6.72 cc oxygen per gram and a scavenging rate of 0.11 cc oxygen per gram per day.

### Related publications:

- Byun, Y., Darby, D., Cooksey, K., Dawson, P., Whiteside, S. (2011). Development of oxygen scavenger system containing a natural free radical scavenger and a transition metal. *Food Chemistry*, 124, 615-619



Free radical scavengers are compared for oxygen removal over time. Scavenger compounds with different letters differ significantly. One compound shows exceptional oxygen removal after a period of sixty days within packaging.

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