Reduced Oxygen Packaging (ROP), is done in many ways. The most common restaurant use of ROP is to mechanically remove air from around food in a plastic bag to create a tight seal, called vacuum packaging. Packaging food in re-sealable zipper storage bags is not considered ROP.

There are many benefits to using ROP, such as reducing freezer burn, portioning product, prolonging shelf life. Unfortunately, by removing the oxygen from around a food, you are also creating an environment favorable to the growth of *Clostridium botulinum*. This can make a safe food into a potentially lethal food after packaging. It is because of this that there are many requirements around ROP.

You can ROP some foods without a variance because they have barriers to the growth of the botulism, but you must write a Hazard Analysis of Critical Control Points (HACCP) plan first and have it approved by your local Public Health Authority.

All packaged foods must be held below 41°F and:
- Have a water activity of .91 or less, or
- Have a pH of 4.6 or less, or
- Be a cured meat from a USDA-regulated facility from an intact package, or
- Have a high level of competing organisms, such as raw meat, raw poultry or raw vegetables.

Raw fish is more strict than other raw products because *C. botulinum* is found in all species. Fish is required to be frozen before, during and after being packaged, even if it is in the bag less than 48 hours.

ROP also includes the cook/chill and sous vide methods of bagging foods. See Fact Sheet #4 for specific information about cook/chill and sous vide processes.

Reduced Oxygen Packaging without a Variance

**PUBLIC HEALTH REASONS:**
When followed as written, the ROP methods in this section all provide controls for the growth and/or toxin production of *C. botulinum* and *L. monocytogenes* without a variance.

The Variance Fact Sheet has information about variances if you want to ROP cooked foods or other products not listed here.

If you only leave the food (except fish) in the sealed bag for ≤48 hours, then it is not considered ROP.