



## Reduced Oxygen Packaging Fact Sheet

### What is reduced oxygen packaging (ROP)?

- Encompasses a variety of packaging methods
- Internal environment contains less than the normal ambient oxygen level
- Includes vacuum packaging (VP), modified atmosphere packaging (MP), controlled atmosphere packaging (CAP), cook-chill processing (CC), and sous vide (SV).

### Benefits of ROP

- Provides extended shelf life
- Prevents growth of aerobic spoilage bacteria
- Time and labor savings
- Portion control and quality retention

### What are the food safety concerns?

- Certain foodborne pathogens grow in a reduced oxygen environment
- *Clostridium botulinum* which can produce a deadly toxin that can cause paralysis and death
- *Listeria monocytogenes* can grow very slowly down to 30°F and can be fatal in high risk individuals.

### Reduced oxygen packing without a variance 310:257-5-64

- ROP with two barriers
  - Stored at or below 41°F **and**
  - $A_w$  of 0.91 or less;
  - pH of 4.6 or less;
  - Cured, USDA inspected meat or poultry products
  - High levels of competing organisms
- ROP with one barrier
  - Cook-chill
  - Sous vide
- ROP with Cheese
  - Limited to commercially manufactured in a food processing plant
  - No ingredients added in food establishment
  - Meet Standards of Identity for hard cheeses, pasteurized process cheese and semisoft cheeses
- ROP with Fish
  - Must be frozen before, during and after packaging

**\*\*NOTE\*\*** HACCP Plan is required for ROP and must be approved by Oklahoma City-County Health Department before conducting ROP processes.