

# Sous Vide & MYLAR<sup>®</sup> COOK

# Introduction to Sous Vide

- Sous Vide is French for “under vacuum”
- Sous Vide cooking started in the 1970s in France and is the process of cooking vacuum sealed (hence the name) food in a low temperature water bath.
- Advantage of sous vide cooking include great texture, evenly cooked foods, enhanced natural flavors, convenience and improved nutrition.
  - For example, normally, a steak would be cooked on a hot grill or oven at 400-500°F and pulled off at the right moment when the middle has reached 131°F. This results in a bull's eye effect of burnt meat on the outside turning to medium rare in the middle; however, a sous vide cooked steak would be cooked at 131°F over a course of several hours. This will result in the entire piece of meat to be cooked medium rare.



Sous vide

Perfectly cooked edge to edge



Skillet Cooked

Grey and overcooked around the edges

# Basic Steps of Sous Vide

1. Season and Seal - season food as desired (most likely not as much will be needed compared to other cooking methods). Vacuum seal food in food-grade plastic pouches certified as suitable for cooking (such as MYLAR® COOK).
2. Place the pouch in a water bath that has been brought to the designated cooking temperature. Typical sous vide water temperatures range from 135°F to 185°F.
3. Let food cook for at least the time specified in the recipe. Longer is generally fine. Time can range from as little as 15 minutes up to 72 hours. As with traditional cooking, lean, tough cuts of meat need more time to breakdown connective tissue. Items that typically require the least amount of time include eggs, seafood and fruit.
  - For steak example below: A 1 inch thick steak takes about 60 minutes in a water bath set to the core temperature desired (130°F).
4. Remove and serve! Before serving, meat dishes may benefit from searing in a hot pan, on a grill, or with a kitchen torch briefly to create a browned surface and impart a caramelized flavor.



Raw steak

After cooking sous vide  
to core temperature  
(130°F - medium rare)

After searing

# MYLAR<sup>®</sup> COOK can improve the sous vide experience

- Film provides better shelf-life & puncture resistance
- Products can be high pressure processed (HPP) in film, which is good for eliminating bacteria for low temperature cooking such as sous vide (higher risk to be in danger zone (41°F -135°F)).
- Cook, freeze and ship in one package
- Easier for restaurants to make sous vide products (already seasoned and packed)
- Easier for customers to make sous vide dishes at home (already seasoned and packed)

# MYLAR<sup>®</sup> COOK & Sous Vide

- Raw products that are packaged in MYLAR<sup>®</sup> COOK can be cooked via sous vide, then chilled / frozen, shipped and rethermed by consumers or food service operators all in the original MYLAR<sup>®</sup> COOK package
- Products that have been prepared via sous vide can be repackaged in MYLAR<sup>®</sup> COOK for added convenience during the retherm process by consumers & foodservice operators

# Sous Vide with Mylar<sup>®</sup> CKP5

- Mylar<sup>®</sup> 200CKP5 maintained package integrity under the sous vide conditions tested (individual chicken breasts; 165°F for 12 hr), frozen storage (3-4 weeks) and the retherm process in an electric home oven (425°F for 30-35 min).
- A tight vacuum seal is recommended during packaging.
- Oversizing the package is advantageous for sous vide as it provides a secondary seal area (decreases chance of venting).
- Overall eating quality (taste, texture, etc.) was not evaluated in the formal study conducted.

# Unseasoned Chicken Breast in Mylar® CKP5



Raw



After Sous Vide



After Retherm

- Raw weight = 8.3 oz (235 g) & thickness = ~28 mm
- Cooked sous vide at 165°F (74°C) for 12 hr
  - Set at 166.5°F, reading 165°F
- Purge and coagulate protein within package surrounding chicken breast
- IT was not recorded, sample was immediately placed into freezer after inspection and kept frozen for 3-4 weeks
- Cooked from frozen in an electric home oven set at 425°F (218°C) for 30 min
  - IT = 176°F (80°C)
  - min safe IT = 165°F (74°C)
- Vented on all sides and edges slightly curled over
- Overall good package integrity
- Chicken felt tender to the touch with a slightly boiled appearance
  - Purge and coagulated protein visible in package



# Re thermed Sous Vide Products – Osso Buco

- The osso buco was cooked sous vide (not using MYLAR® COOK) and repackaged in MYLAR® COOK for retherming
- The osso buco was reheated from thawed in an electric home oven at 375°F for 30 min and reached an internal temperature of 175°F
  - Raw weight = 1.7 lbs
  - 200CKP5 and 400CKFP
- The osso buco was tender and moist with a nice flavor
- Deeper pocket is recommended to prevent sauce from spilling.
- A minimum internal temperature of 145°F is required for veal, so the cook time needed at 375°F would be around ~22 – 25 min





## Re thermed Sous Vide Products – Chicken Marsala

- The chicken marsala was cooked sous vide (not using MYLAR® COOK) and repackaged in MYLAR® COOK for retherming
- The chicken marsala was reheated from thawed in a 1000W microwave on high for 4 min and allowed it to rest for 1 min in the microwave
  - Raw weight = 0.72 lbs
  - An internal temperature of 169°F was reached
- Overall a nice flavor and texture was achieved



# Rethermed Sous Vide Products – Lamb Shank

- The braised lamb shank with rosemary and mint sauce was cooked sous vide (not using MYLAR® COOK) and repackaged in MYLAR® COOK for retherming



## Home Oven

- The braised lamb shank was reheated from thawed in an electric home oven at 350°F for 22 min and reached an internal temperature of ~155°F
- Milder flavor compared to the microwave sample
- Recommend trying 375°F for faster cook time



## Microwave

- The braised lamb shank was reheated from thawed in a 1000W microwave on high for 3 min 45 sec and reach an internal temperature of ~153°F
- Tender with a stronger overall flavor when compared with the home oven sample

# Notes & Recommendations

- MYLAR<sup>®</sup> COOK films can be used for cooking sous vide.
- Sous vide water bath temperature should be restricted to 185°F or below.
- Time and temperature for sous vide varies between products. The food item, size (weight & thickness), desired internal temperature and food safety must be considered.
- It is recommended that every company does their own testing to determine if MYLAR<sup>®</sup> COOK is suitable for their application.