The chart below is a written cured ham example processing procedure for establishment 38. Review the information in the chart and answer the questions on the next page.

Processing Procedures for Cured, Cooked, and/or Smoked Ham

STYLE Fully Cooked
EST. # 38 **PRODUCT** Bone-in Ham with Natural Juices **Weight Ranges** 14/16

PICKLE FORMULA			USUAL PROCEDURES	
100 Gal Pickle weighing 1000 lb	LB	% PUMP	% PUMP	16
			LB. PRESSURE	60
			SPEED	—
SALT	92.5		BEGIN S.H. TEMP.	140° F
CORN SYRUP	40		TIME	2 hours
WATER 100 GAL	833		MIDDLE S.H. TEMP.	160° F
PHOSPHATE	30		TIME	2 hours
NITRITE	1.25		FINISH S.H. TEMP.	180° F
ASCORBATE	3.25		TIME	8 hours
			TOTAL S.H. TIME	12 hours
			INT. FINISH F°	152° F
			% S.H. SHRINK	12%
			% COOLER SHRINK	2%
			S.H. HUMIDITY	70
TOTALS	1000.0		COOLER TIME	24 hours

EST. REP. Rue De Bagga

Calculate the maximum percent pump permitted for each restricted ingredient.

Phosphate

$$5000 = \frac{30 \times X \times 1{,}000{,}000}{1{,}000}$$

$$X = \frac{5{,}000 \times 1{,}000}{30 \times 1{,}000{,}000} = \frac{5{,}000{,}000}{30{,}000{,}000}$$

X = .1666 or 16.66% pump

Nitrite

$$200 = \frac{1.25 \times X \times 1{,}000{,}000}{1{,}000}$$

$$X = \frac{200 \times 1{,}000}{1.25 \times 1{,}000{,}000} = \frac{200{,}000}{1{,}250{,}000}$$

X = .16 or 16% pump

Ascorbate

$$547 = \frac{3.25 \times X \times 1{,}000{,}000}{1{,}000}$$

$$X = \frac{547 \times 1{,}000}{3.25 \times 1{,}000{,}000} = \frac{547{,}000}{3{,}250{,}000}$$

X = .1683 or 16.83% pump

6. Is the % of pump indicated on the procedure chart acceptable?

Yes

Limiting RI is nitrite which is 16% pump. A pump above 16% would add more than 200 ppm ingoing nitrite.

PROCEDURE REVIEW

DATE	PUMP TEST			SMOKEHOUSE PERIODS						SHRINK			
	GREEN WT	PUMPED WT	% PUMP	FIRST		SECOND		FINISH		SMOKEHOUSE		COOLER	
				TIME	F°	TIME	F°	TIME	F°	HOT WT	%	CHILL	%
2/15	455	528	16.0	1:55	140	2:20	162	8:00	182	472 lb	10.94	458 lb	2.96
2/23	420	486	15.7	2:00	140	2:00	160	8:00	180	432 lb	11.83	422 lb	2.31

Calculate the pump tests and compare your answers to the procedure chart.

7. Test dated 2/15 16.04% pump

528 (pump wt) – 455 (green wt) = 73 ÷ 455 (green wt) = 16.04% pump

8. Test dated 2/23 15.71% pump

486 - 420 = 66 ÷ 420 = 15.71% pump

The % Yield/Shrink task is on the task calendar today. The establishment is producing product labeled Corned Beef Brisket. The target pump on the establishment's written procedure for the beef briskets is 18%. There is a 30 minute drain time for the pumping procedure. The establishment has data indicating that it does % added solution (pump) checks once a month. You select a stainless steel bin with several corned beef briskets (approximately 90) and follow the establishment to the scale and have them weighed. After the weight of the bin is removed, the beef briskets weigh 895 lb green. You accompany the bin of beef briskets to the pumping machine and observe them being pumped with a curing solution. You place a U.S Retained tag on the bin with the pumped briskets and write pump test on the tag. Thirty minutes later you return to the processing room and have the bin moved to the scale and weighed. After the weight of the bin is removed, the beef briskets weigh 1,105 lb pumped. Are the briskets in compliance?

9. Calculate _____% pump (added solution)

23.46% pump

1105 pumped wt.
- 895 green wt.
210 lb added solution

210 lb ÷ 895 green weight = .2346 = 23.46 % pump (added solution)

Not in Compliance. The % pump is above 20%. The establishment does not have sufficient data (pump test records) to demonstrate that the added solution pumped into beef briskets is consistently or routinely 20% or less. The IPP should retain the briskets until they either drain to 20% or less added solution which is the maximum amount of solution allowed for beef briskets (9 CFR 319.101) or the establishment labels the briskets with an X% solution declaration. The IPP should also verify restricted ingredient (nitrite, cure accelerator, etc.) compliance based on a 23.46% effective pump.

10. Are the briskets in compliance?

No

The establishment is producing product labeled Country Style Bone-in Hams. The Bone-in hams are place on stainless steel rack and covered with the salt, curing agents, spices, etc. Each rack hold 80 hams. After the hams are placed on the racks but before the dry curing ingredients applied to them, you have the establishment weigh a single rack of hams. The hams weigh 1,280 lb. You place a U.S Retained tag on the rack with the uncured hams and write shrink test on the tag. The establishment begins covering the hams with the dry curing ingredients. Each time the establishment overhauls the hams (adds new dry curing ingredients) they notify you. After 45 days they notify you they are going hang the hams on tree and move them to the drying (ripening) room. You observe the hams transferred from the rack to a tree and you transfer the U.S. Retained tag to the tree. After another 155 days the establishment informs that they want to remove the hams from drying room and package and label them. While on the way to the packaging room, you have the establishment weigh the hams on the tree. After the weight of the tree is removed, the finished hams weigh 1,042 lb.

11. Calculate _____% shrink

18.59%

12. Are the hams in compliance?

Yes

1280 – 1042 = 238 ÷ 1280 = 0.1859 or 18.59 %

In Compliance. The weight of the hams is at least 18% less than the fresh uncured (green) weight of the hams.