October 2020

Virtual Further Processing and Labeling Quick Reference Guide

Labeling

Attachment 1: FSIS Directive 7221.1 Table 1 Required Label Features

Feature	Reference	Location	Applies to
Product Name	9 CFR 317.2(c)(1) or 381.117	Principal display panel	All products
Inspection Legend and Establishment Number*	9 CFR 317.2(c)(5) or 381.123	Principal display panel, or 20% panel of a cylindrical container	All products
Handling Statement (e.g. "Keep Frozen")	9 CFR 317.2(k) or 381.125(a)	Principal display panel	Products requiring special handling to maintain wholesomeness
Net Weight Statement	9 CFR 317.2(h) or 381.121	Principal display panel	Product sold at retail, unless the net weight is applied at retail
Ingredients Statement**	9 CFR 317.2(f) or 381.118	Principal display panel, Information panel, 20% panel of a cylindrical container, or Front riser panel of a frozen food carton	Products with multiple ingredients
Name and Place of Business of the Manufacturer, Packer, or Distributor	9 CFR 317.2(g) or 381.122	Principal display panel, Information panel, 20% panel of a cylindrical container, or Front riser panel of a frozen food carton	All products
Nutrition Facts Panel	by 9 CFR 317.300 or 381.400	Principal display panel or Information panel	Products not exempted by 9 CFR 317.400 or 381.500
Safe Handling Instructions	9 CFR 317.2(l) or 381.125(b)	Anywhere on the immediate container	Products with a not-ready-to-eat meat or poultry component

Net Weights

Determine Package Error

Nominal Gross Weight = *Average Tare Weight* + *Labeled Weight*

Package Error = *Gross Weight* – *Nominal Gross Weight*

Sausage Operations

Antioxidant and Added Water Regulatory Limits for Raw Sausages

Individual Antioxidant = **0.01%**
Antioxidants in Combination = **0.02%**
Added Water = **3%** in Total Ingredients

Added Water Calculation Steps

Step 1: Total batch lb. – added water lb. = formula wt. *[excluding water]*
Step 2: Formula wt. *[no water]* ÷ .97 = total formula wt. *[3% water allowed]*
Step 3: Total formula wt. × 0.03 = amount of water allowed

Antioxidants Added through a Compound Calculation Steps

Step 1: Determine fat content *(target or through raw materials in the formula)*
Step 2: Determine % of each antioxidant/synergist in the compound
Step 3: Determine the total % of antioxidants *(i.e., add up %)*
Step 4: Determine maximum amount of antioxidant allowed using these rules
- No antioxidant or synergist > 50%, multiply fat content by .02%
- One antioxidant or synergist > 50%, multiply fat content by .01%
- One antioxidant or synergist = 50%, multiply fat content by .01% or .02%

Step 5: Max. antioxidant allowed ÷ by ***major*** antioxidant or synergist % *[> 50% of total antioxidants]* = max. antioxidant compound

OR

Max. antioxidant allowed ÷ by total antioxidants % *[no antioxidant/synergist > 50% of total antioxidants]* = max. antioxidant compound

Step 6: Convert into ounces (oz.) if needed

Ingoing Curing Agent and Curing Accelerator PPM

$$\text{ppm} = \frac{\text{lb. RI} \times 1{,}000{,}000}{\text{lb. meat block}}$$

RI (Restricted Ingredient) = specific curing agent or curing accelerator
Meat block = meat, meat byproducts, poultry, and/or poultry byproducts

Curing Agent Added to Formula in a Curing Compound or Mix

$$\text{ppm} = \frac{\text{lb. of cure mix} \times \text{\% of cure agent in mix} \times 1{,}000{,}000}{\text{lb. of meat block}}$$

Maximum Curing Agent or Curing Accelerator Allowed

$$\text{Max. cure agent (or cure accelerator)} = \left(\frac{\text{lb. of meat block}}{100\text{ lb.}}\right) \times \text{Restricted agent/accelerator level per 100 lb. of meat block}$$

[Meat block ÷ 100 lb. = meat factor]

Regulatory Limits

Curing Agents

(1) Nitrite - **.25 oz./100 lb.** of chopped meat, meat byproduct, poultry, and poultry byproduct **(156 ppm)** ingoing

(2) Nitrate - **2.75 oz./100 lb.** of chopped meat, meat byproduct, poultry, and poultry byproduct **(1,718 ppm)** ingoing

Cure Accelerators

(1) Ascorbate/erythorbate - **.875 oz./100 lb.** of chopped meat, meat byproduct, poultry, and poultry byproduct **(547 ppm)** ingoing

(2) Ascorbic acid/erythorbic acid - **.75 oz/100 lb.** of chopped meat, meat byproduct, poultry, and poultry byproduct **(469 ppm)** ingoing

Regulatory Limits for Additives in Cooked Sausages Based on Projected Finished Weight (PFW)

Binders and Extenders: Cereal, NFDM, CRDSM, etc. *[listed in §424.21(c)]* - **3.5%** maximum, individually or collectively

Phosphates - **0.5%** or **5000 ppm**

PFW Calculation Steps/Ingredient Compliance Determination Based on PFW

Step 1: Remove water wt. from batch wt. ***and*** target % water represents (e.g., 10, 12, 15, etc.) = formula wt.

Step 2: Continue by removing wt. of any ingredients with a regulatory limit based on PFW (e.g., binders and phosphates) from remaining formula wt. ***and*** their % regulatory limit from remaining formula % = remaining formula wt.

Step 3: Divide remaining formula wt. by % it represents = PFW

Step 4. Multiply PFW by ingredient's % regulatory limit = maximum amount of that ingredient allowed in formula

Potential Pitfalls: Not removing any rework from formula (batch) weight before starting the PFW calculation.

Fresh (Not Cured) Sausage Allowable Ingredients

	General	Fresh Pork+	Whole Hog+	Breakfast+	Fresh Beef+	Italian+	Bratwurst+	Chorizo+
Antioxidants	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Water/Ice	3%	3%	3%	3%	3%	3%	3%	3%
Mechanically Separated Species	20%	20%	20%	20%	20%	20%	Yes	Yes
Fat	No limit	50%	50%	50%	30%	35%	No limit	No Limit
Binders and Extenders	None	None	None	3.5% 2.0%*	None	None	3.5% 2.0%*	3.5% 2.0%*
Paprika	None	None	None	None	None	Yes	None	Yes
By-products	Yes	None	Natural Proportions	Yes	None	Yes	Yes	Yes
Nitrite	No**	No**	No**	No**	No**	No**	No**	No***
Phosphate	No	No	No	No	No	No	No	No
Meat or Meat and Fat Content						85% Minimum		
Reference	§319.140	§319.141	§319.144	§319.143	§319.142	§319.145	§319.140, FSLPB	§319.140, FSLPB

+Product with Standard of Identity

*Isolated soy protein and sodium caseinate are limited to 2% of finished product weight due to their high protein content. Other binders and extenders are limited to 3.5%, individually or collectively.

**If curing agents are added, product name would have to include term "Cured" (e.g., "Cured Italian Sausage" or "Cured Bratwurst").

***When curing agents are added to chorizo, "cured" is *not* required to be part of product name. It cannot be labeled with the term "Fresh."

Cured Meat and Poultry Product Operations

PPM Equation

$$\text{ppm} = \frac{\text{lb. RI (Restricted Ingredients)} \times \text{\% Pump} \times 1{,}000{,}000}{\text{lb. Pickle}}$$

Note: If a curing compound is used, multiple wt. of the compound by % of nitrite/nitrate in the compound to determine wt. of the nitrite/nitrate (RI).

Pump, Pick-up, Added Solution or Gain Equation

$$\text{\% pump, pick-up, gain} = \frac{\text{pumped wt. - green wt.}}{\text{green wt.}} \times 100$$

Percent Yield Equation

$$\text{\% yield} = \frac{\text{finished wt.}}{\text{green wt.}} \times 100$$

Volume of Rectangular Tank Equation

$$\text{cubic inches} = (\text{length in inches}) \times (\text{width in inches}) \times (\text{height in inches})$$

Note: 1 gallon = 231 cubic inches

Maximum Ingoing Nitrite and Nitrate Limits (in PPM) for Meat and Poultry Products*

	Curing Method			
Curing Agent	Immersion Cured	Massaged or Pumped	Comminuted	Dry Cured
Sodium Nitrite	200	200	156	625
Potassium Nitrite	200	200	156	625
Sodium Nitrate	700	700	1718	2187
Potassium Nitrate	700	700	1718	2187

*Except for bacon

Maximum Ingoing Cure Accelerators (in PPM) for Meat and Poultry Products

Cure Accelerator	Maximum Limit
Ascorbic Acid Erythorbic Acid Sodium Ascorbate Sodium Erythorbate (isoascorbate)	469 ppm* 469 ppm* 547 ppm* 547 ppm*

*Except in bacon

RI Regulatory Limits for Pumped or Massaged Bacon

Establishment's written procedure:

- Must demonstrate 120 ppm ingoing sodium nitrite or 148 ppm potassium nitrite ***AND***
- Must demonstrate 550 ppm of sodium erythorbate or sodium ascorbate

Note: A plus or minus 20% allowance at the time of injecting or massaging.

Meat and Poultry Products with Added Solutions

Pump, Pick-up, Added Solution or Gain Equation for RAW Products

$$\% \text{ pump, pick-up, gain} = \frac{\text{pumped (treated) wt. - green wt.}}{\text{green wt.}} \times 100$$

Pump, Pick-up, Added Solution or Gain Equation for COOKED Products

$$\% \text{ pump, pick-up, gain} = \frac{\text{finished wt. - green wt.}}{\text{finished wt.}} \times 100$$