Attachment 1: FSIS Directive 7221.1 Table 1 Required Label Features

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

**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

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

\[= \text{meat factor} \times \text{Restricted agent/accelerator level per (or cure accelerator)}\]

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

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

*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

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

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*

<table>
<thead>
<tr>
<th>Curing Agent</th>
<th>Curing Method</th>
<th>Immersion Cured</th>
<th>Massaged or Pumped</th>
<th>Comminuted</th>
<th>Dry Cured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Nitrite</td>
<td></td>
<td>200</td>
<td>200</td>
<td>156</td>
<td>625</td>
</tr>
<tr>
<td>Potassium Nitrite</td>
<td></td>
<td>200</td>
<td>200</td>
<td>156</td>
<td>625</td>
</tr>
<tr>
<td>Sodium Nitrate</td>
<td></td>
<td>700</td>
<td>700</td>
<td>1718</td>
<td>2187</td>
</tr>
<tr>
<td>Potassium Nitrate</td>
<td></td>
<td>700</td>
<td>700</td>
<td>1718</td>
<td>2187</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Cure Accelerator</th>
<th>Maximum Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ascorbic Acid</td>
<td>469 ppm*</td>
</tr>
<tr>
<td>Erythorbic Acid</td>
<td>469 ppm*</td>
</tr>
<tr>
<td>Sodium Ascorbate</td>
<td>547 ppm*</td>
</tr>
<tr>
<td>Sodium Erythorbate (isoascorbate)</td>
<td>547 ppm*</td>
</tr>
</tbody>
</table>

*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**

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

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

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