The Guide to
Chicken Frankfurter Sausage

Chicken Frankfurter is popular among all age and ethnic groups.
The following guide is intended to disclose all possible ingredients
which could be used to make Chicken Frankfurter Sausage in 3
variations – premium, medium and cost effective. According to local
meat qualities and machinery park, results and acceptance may vary.

1. Raw Materials

The industrial production of Chicken Frankfurter Sausage may require the use of
mechanically deboned meat [MDM] and skin emulsions. The use of these lean
meat substitutes require an extra binding ingredients, such as Agagel 220. This
will excess moisture whilst improving texture and mouthfeel, yet resulting into a
better product acceptance

<table>
<thead>
<tr>
<th>Possible meat formulations</th>
<th>Premium</th>
<th>Medium</th>
<th>Economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken meat, well trimmed, skinned, chilled</td>
<td>60 kg</td>
<td>45 kg</td>
<td>30 kg</td>
</tr>
<tr>
<td>Chicken MDM</td>
<td>10 kg</td>
<td>13 kg</td>
<td>20 kg</td>
</tr>
<tr>
<td>Chicken skin emulsion</td>
<td>20 kg</td>
<td>20 kg</td>
<td>15 kg</td>
</tr>
<tr>
<td>Water / flaked ice</td>
<td>10 kg</td>
<td>20 kg</td>
<td>30 kg</td>
</tr>
<tr>
<td>Starch, such as Potato Starch Superior</td>
<td>0 kg</td>
<td>2 kg</td>
<td>5 kg</td>
</tr>
<tr>
<td>Total meat / water content</td>
<td>100 kg</td>
<td>100 kg</td>
<td>100 kg</td>
</tr>
<tr>
<td>Curing salt, pre-blended from CureMix</td>
<td>1.8 kg</td>
<td>2.0 kg</td>
<td>2.0 kg</td>
</tr>
<tr>
<td>Texture improver, such as Agagel 220</td>
<td>0.5 kg</td>
<td>1.0 kg</td>
<td>1.0 kg</td>
</tr>
<tr>
<td>binder &amp; colour stabilizer [page 3 for details]</td>
<td>0.5 kg</td>
<td>0.5 kg</td>
<td>0.5 kg</td>
</tr>
<tr>
<td>seasoning [refer to page 3 for details]</td>
<td>0.5 kg</td>
<td>0.6 kg</td>
<td>0.7 kg</td>
</tr>
</tbody>
</table>

For optional ingredients, please refer to pages 2 and 3 for details
1. **Raw Materials** [continued]

_ProTip_: The chicken meat should be skinless and free of connective tissue which would reduce binding properties. Best chicken meat temperature is 0° - 2° C. For best results, grind the chicken meat through a 3 mm plate before placing into the bowl cutter.

Chicken Frankfurter Sausage recipes can use up to 30% _added water_. Depending on the local water temperature and desired product texture, between 50 and 100% of the added water should be _flaked ice_. Flaked ice allow longer and faster knife speed resulting in finer emulsions.

Modern ice machines offer UV-Disinfections which has direct influence to the final product’s shelf life. More information on ice machines can be obtained from [http://www.maja.de](http://www.maja.de).

2. **Seasoning and Ingredients per 1 kg Total Sausage Recipe** [meat + water/ice]

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount (g/kg)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1%</strong> Starch</td>
<td></td>
<td>We recommend to use <strong>Potato Starch Superior</strong>. Use in all cooked sausage products to bind excess moisture, and in recipes with high portions of MDM, fat or added water. ISP, milk protein or other proteins may be used instead to improve cost.</td>
</tr>
<tr>
<td><strong>10</strong> Nitrite Curing Salt</td>
<td></td>
<td>We recommend to use our curing salt concentrate to <strong>CureMix</strong> which contains 5% sodium nitrite and 5% potassium nitrate. Mix 1 part Cure Mix with 19 parts of regular salt to achieve a curing salt with 0.5% active cure content. Mix 1 part Cure Mix with 9 parts of regular salt to achieve a curing salt with 1% active cure content.</td>
</tr>
<tr>
<td><strong>5</strong> Dextrose</td>
<td></td>
<td>Use to cover unwanted salt-flavour when higher salt addition is needed to preserve freshness and yield. Improves mouthfeel and texture. Reduces the $a_w$-value which results into reduced micro-biological activities.</td>
</tr>
<tr>
<td><strong>5</strong> Agagel 220</td>
<td></td>
<td>Semi-refined <strong>carrageenan</strong> to improve texture, mouthfeel and yield, and reduce <strong>syneresis</strong> sausages. Use 5 – 10 g/kg, depending on desired Chicken Frankfurter Sausage quality – refer to previous page [premium – medium - economy] for details. Always pre-blend Agagel 220 with some salt for best dispersion results.</td>
</tr>
<tr>
<td><strong>5</strong> Meister KutMaxx</td>
<td></td>
<td>Phosphate based sausage binder and colour stabilizer for safe and economical production. Contains phosphate for instant binding, and sodium ascorbate and ascorbic acid [Vitamin C] for best colour development results. For a bird’s eye view on all sausage binders/colour stabilizers, click <a href="http://www.maja.de">here</a>.</td>
</tr>
<tr>
<td><strong>5</strong> Seasoning</td>
<td></td>
<td>Use 25 – 50% higher addition rate when using MDM or filling agents, such as starch, ISP, milk powder and others. For a bird’s eye view on all seasonings for Chicken Frankfurter Sausage, click <a href="http://www.maja.de">here</a>.</td>
</tr>
</tbody>
</table>
2. Seasoning and Ingredients per 1 kg Total Sausage Recipe [continued]

**Chicken Flavour**

- **2 Optional:** BouillionMaxx Chicken to boost flavour. Concentrated stock seasoning based on HVP [hydrolysed vegetable protein]. Use to add chicken flavour to sausage products.
- **5 g/kg**
  - If used, seasoning may be reduced by 20-30% [i.e. 4 g/kg instead of 5 g/kg].

**Smoke Flavour**

- **1 Optional:** Smokin’ Joe smoke flavour in powder form, on carrier salt.
- **1 to 5 g/kg**
  - Adds old-fashioned smoke flavour to chicken sausage products without the need of actually smoking the product after cooking.
  - Save time and energy, and reduce pollution by using Smokin’ Joe instead of naturally burnt smoke.

**Garlic Flavour**

- **1 Optional:** Garlic Extra, highly concentrated liquid garlic extract, made from fresh garlic cloves. Use to round off flavour and to cover undesired off-flavours. Long-lasting flavour retention. Garlic has anti-bacterial properties.
- **1 to 2 g/kg**
  - Clean label declaration [spice or garlic].

**Freshness Keeper**

- **2% Optional:** Freshness Keeper: There are several different possibilities to prevent freshness of fresh or frozen Chicken Frankfurters:
  - **2% FreshKeeper Sausage** is based on sodium diacetate [dried vinegar] and fruity acids
  - **3% FreshKeeper Sausage [liquid]** is based on lactic acid

  FreshMaxx Potassium Lactate 60% and FreshMaxx Sodium Lactate 60% liquid are most effective for fresh and frozen products. The use of this product line is very economical yet effective – increase shelf life by 30-50%, i.e. 15 days instead of 10 days for fresh sausages.

  Both ingredients are supplied in disposable plastic containers of 25 kg and IBC’s of 800 kg.

  For a bird’s eye view on all Freshness Keeper for sausages, check here.

**Casings:** Either natural sheep casings, cal. 18-22 mm are used, collagen casings or skinless casings of same diameter. Skinless casings are removed from the sausage after processing, prior to packing.

For skinless casings please inquire with us for a tailor-made quotation.

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Check our website for more information, including ingredient declaration and prices: [http://www.ingredients.de](http://www.ingredients.de)
3. Processing Information

Manufacturing of Chicken Skin Emulsion

Use the following formulation:

- 50.0 kg / % Chicken fat from skin
- 40.0 kg / % Hot water, near boiling temperature [90° C]
- 7.0 kg / % ISP 90% - please inquire with us for a tailor-made quotation
- 1.2 kg / % Agagel 220 semi-refined carrageenan
- 1.8 kg / % salt or curing salt made from our curing salt concentrate CureMix
- 100.0 kg / % total skin emulsion recipe.

Place the chicken skin in bowl cutter and add the Agagel 220 and cut for a few rounds at low or medium speed. Then, add the salt and the ISP and change to full speed. Continue cutting for 1 minute, or until an emulsion is formed. Place into plastic containers, chill or freeze and keep for further use.

ProTip: Increase shelf life by briefly cooking the chicken skin/fat.

Cutting/Chopping

Cut the lean chicken meat first for a few rounds without adding any other ingredients. Then, add the binders [Meister KutMaxx, Agagel 220], the salt and the cure. Add some of the ice [or the frozen skin emulsion] when the meat shows binding. At around 8° C meat temperature, add the seasoning, the starch and all remaining dry/liquid ingredients while adding the remaining ice. Final meat temperature: 12° C.

ProTip: Increase cutting time by using flake ice instead of water. The result is a finer emulsion with increased water absorption and improved texture/mouthfeel.

Friedrich ingredients recommends Maja for flake ice machines: http://www.maja.de

Filling

After the emulsion is processed and optional ingredients are well blended, the meat mix should be placed into a sausage filler and filled into well-cleaned natural casings or collagen/skinless casings. Modern vacuum fillers prevent holes in the emulsion causing discolouration and lack of acceptance.

Photo courtesy of handtmann: http://www.handtmann.de

Cooking, Smoking, Chilling

Chicken Frankfurter Sausage should be hot smoked, followed by a cooking cycle. Chicken Frankfurter Sausage require an internal temperature of 72° C to be considered as safe in most countries.

ProTip: Stop the cooking process as early as 70° C. The temperature will still go up to 72 or even 73° C, even if the oven is shut off. This will avoid loss of juices and yield.

Store at 2 – 4 ° C for at least 24 h before freezing or shipping

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¹ This recipe was developed with the best of knowledge, and according to today’s technical standards. However, we cannot accept any responsibility for the result or lack of acceptance.

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