Stabilising systems for meat and sausage

- Cooked ham and restructured meat products
- Cooked sausage, sausage from cooked meat, liver sausage
- Vegetarian and vegan alternatives

Systems of Synergy

Viscosity
Texture
Volume

Hydrosol can do more!
We also have the right compounds for dairy, deli und ready meals, along with plenty of inspiration.

The Hydrosol Applications Technology Team

Meat and sausage

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The meat and sausage market is always changing – and we’re always a step ahead.

Worldwide demand for meat is rising rapidly, and with it interest in new meat and sausage products that meet the highest requirements of flavour, texture and economy. Hydrosol addresses market demands with functional systems for butchery products and customer-oriented application service.

We see ourselves not just as a supplier of innovative stabilising systems, but also as a source of ideas for new, trend-ready products that become successful through close cooperation between us and our customers. Our large and growing team of food technologists and experts works daily to make food better, by developing highly effective functional systems from combinations of individual ingredients, in constant communication with customers in many industries. Our long international experience in the development of custom systems is the foundation on which we have become a worldwide supplier of first-class, application-specific stabilising and emulsifying systems.

Our Technology Centre in Ahrensburg near Hamburg, Germany – a place for creativity and innovation

Our team for application-centric R&D combines passion, enthusiasm and curiosity. In 3000 square meters of lab space, they create innovative product solutions that improve our customers’ products and in some cases even make them possible in the first place. Our Technology Centre has applications laboratories for different foods, where our process and food technologists and scientists develop, analyse, and improve stabilising systems for dairy, meat, deli and fish products.

Direct communication and a culture of dialogue accelerate the creation of solutions that are an exact fit, and whose effectiveness we tailor precisely to customer wishes through extensive test runs on our pilot production lines. Throughout, we keep our customers’ actual production conditions firmly in mind.
The Stern-Wywiol Gruppe – a unique competence centre for custom ingredients in many categories

Hydrosol is part of the Stern-Wywiol Gruppe, an owner-operated family company active around the world that is known for its high-quality, custom functional systems. To offer our worldwide customers the best in on-site service, our Hamburg-based group maintains offices in 17 countries and is represented in all of the world’s key markets through certified partners. The Stern-Wywiol Gruppe has 11 ingredient companies in Germany, whose research and development work is concentrated in the group’s own Technology Centre near Hamburg.

Here, Hydrosol’s experts find all the applications technology resources they need, and plenty of room to think through and test innovative solutions. This naturally takes place in close collaboration with customers, as well as exchanges of information with colleagues in the Group’s other specialist companies.
Research and development: the future belongs to synergies.

From among hundreds of individual ingredients, we can test the right combinations to develop stabilising systems that are an exact fit for specific customer needs. It takes a great deal of specialist knowledge and experience to anticipate how individual raw materials will interact, to develop the optimum synergistic effects.

An understanding of the way each component works is the key to good results. Only a comprehensive knowledge of customer manufacturing processes and the interplay of all ingredients, such as proteins, hydrocolloids and emulsifiers, makes it possible to develop formulations with the desired synergy effects that fit the target application.

Stabilising systems that are an exact fit: formulation development and improvement

Economy, processing, shelf life, texture, stability and flavour – almost all the qualities of meat and sausage products can be influenced with the targeted compounding of ingredients. Therefore, before we do anything else we clarify the requirements for the final product. Key factors in developing Hydrosol systems with multiple effects include the sequence in which ingredients will be added, the process, temperature, transportation and storage conditions, and naturally consumer expectations.
To make sure the results meet all demands, we test the product many times over together with the customer.

The meat laboratory – focus on cost effectiveness

High quality with low production costs is what our customers look for most of all. Frequently, they want to reduce the proportion of lean meat in cooked sausage and ham, or substitute more economic raw materials. Longer shelf life and – especially with restructured meat products – good binding are very important in developing just the right functional systems. We use animal and vegetable proteins, thickening and gelling hydrocolloids, special starches, phosphates and flavourings. Thanks to the versatile and advanced equipment in our meat laboratory, we can test each formulation and tune it to the customer’s production conditions.

Meat laboratory equipment:
- Vacuum and microcutter
- Combined cooking and smoking plant
- Various injector and tumbler machines
- Vacuum filler
- Autoclave
- Coextrusion line for alginate casings

What you can expect from us:
- Development of tailor-made stabilising solutions
- Development of new formulations and recipe improvements
- Process improvements
- Versatile applications lab with extensive test facilities
- Assistance with product testing
- Training and seminars
- Help with new marketing concepts
- On-site consulting
Each year, up to 40,000 tonnes of food ingredients, effective ingredient complexes and functional systems leave our Wittenberg facility. Eight separate mixing lines let us fill orders simultaneously while preventing cross-contamination. A central process control and visualisation system makes it possible to mix and reproduce any order. Our mixing lines with spray and tempering functions create the basis for compounding even poorly miscible substances into homogeneous premixes.

Rigorous quality management to ensure top product quality

Our stabilising systems are based exclusively on selected raw materials. In–house and external test labs ensure their quality. To ensure the high functionality of our compounds, all process steps are precisely defined and subject to constant monitoring. Customers can be sure that the products they receive meet all quality criteria.

In Wittenburg near Hamburg, Hydrosol operates one of the most advanced compounding lines in Europe. Precision mixing systems and advanced fluidised bed technology enable the production of customer-specific functional systems of the highest quality.

Our production plant in brief:

- Mixing, agglomerating, instantising, coating, drying, spray granulation, grinding
- Precise formulations down to the gram with very finely homogeneous distribution
- Various batch and order sizes, flexibly and efficiently
- The highest recipe compliance and top process safety

Our standards and certifications:

- FSSC 22000
- Allergen management
- Kosher and halal management
- Organic seal
The right stabilising system for any application

Whether for fresh meat, ham, sausage or restructured meat products, Hydrosol offers many highly specialised emulsifying and stabilising systems. If desired, we work with customers to develop individual ingredient compounds, tailored to the gram for the specific need.

Cooked sausage
- Sausage products
- Sausages with extra bite
- Cold cuts

Sausage from cooked meat
- Emulsifiers for liver sausage and marinades

Cooked ham
- Delicatessen cooked ham
- Restructured ham

Raw sausage
- Hot smoked raw sausages

Fresh meat
- Fresh meat, plain or marinated
- Restructured fresh meat
- Burgers, nuggets, meat fillings for pastas

Fat emulsions
- Back fat, external fat, meat, chicken skin, oil
- Oil in water emulsions, gelling / non-gelling
- Fat emulsions without fat

Vegetarian and vegan alternatives
- Vegetarian and vegan cold cuts
- Vegetarian sausages and bratwursts
- Vegetarian ground meat
- Vegan hot dogs

Preservation
- Preservatives for raw and pasteurised meat and sausage products

Seasoning
- Sausages and hot dogs
- Cold cuts, poultry products
- Cooked ham, ham products
- Cooked sausages and vegetarian products
### Cooked sausage

A homogeneous emulsion in the cutter and stable structure when heated – with Hydrosol you can adjust protein, fat and water phase to suit. The result is sausage with less meat and more fat and/or water content.

#### For eating hot

<table>
<thead>
<tr>
<th>Application</th>
<th>Stabilising system</th>
<th>Properties</th>
<th>Dosing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sausage products</td>
<td>PLUSmulson PROT 300-F</td>
<td>Compound for improving the structure of sausages. Low dosing</td>
<td>3–10 g/kg</td>
</tr>
<tr>
<td>Sausage products</td>
<td>PLUSmulson F-03</td>
<td>Compound for improving the structure of sausages</td>
<td>3–10 g/kg</td>
</tr>
<tr>
<td>Sausages with extra bite</td>
<td>HydroTop FBT 300</td>
<td>Top product for thermally stable sausages. Excellent texture for economy as well as premium products</td>
<td>3–7 g/kg</td>
</tr>
<tr>
<td>Sausages with extra bite</td>
<td>HydroTop Firm–Tec LA</td>
<td>Bite and texture for economy products, alternative to soy isolate (ISP)</td>
<td>10–20 g/kg</td>
</tr>
</tbody>
</table>

#### For eating cold

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Cold cuts</td>
<td>PLUSmulson Prot 30</td>
<td>For the production of cooked sausages. Very good emulsifying ability, for high fat formulations with up to 40 % fat content</td>
<td>10–20 g/kg</td>
</tr>
<tr>
<td>Cold cuts</td>
<td>HydroTOP Mix 50</td>
<td>Improves elasticity and sliceability, reduces synaeresis</td>
<td>3–7 g/kg</td>
</tr>
</tbody>
</table>
Cooked ham

Stabilising systems of proteins, fibre and special hydrocolloids for ham ensure good water binding, problem-free shaping, high slicing firmness and minimal dripping loss.

Injection system

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Delicatessen cooked ham and cured pork</td>
<td>PLUSstabil Unibac PP 2.0</td>
<td>A special combination of functional ingredients minimises carrageen stripes. For injection of 40–80%</td>
<td>4–5 kg/100 l water</td>
</tr>
<tr>
<td>Necks, bellies and poultry</td>
<td>PLUSstabil Unibac ST</td>
<td>Specially developed for streaky cuts of meat and white meat. For injection of 20–60%</td>
<td>4–6 kg/100 l</td>
</tr>
</tbody>
</table>

Tumbling system

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Restructured cooked ham</td>
<td>PLUSstabil Unibac 40 OA</td>
<td>Outstanding texture and elasticity for high +80% to +150% yields</td>
<td>2% in the final product</td>
</tr>
<tr>
<td>Restructured cooked ham</td>
<td>PLUSstabil Ham 100 Plus</td>
<td>Makes it possible to make restructured products from ends for up to +50% higher yield</td>
<td>2% in the final product</td>
</tr>
</tbody>
</table>
Fresh meat

Special functional systems for moisture-enhanced and marinated meat ensure that natural meat fibres are retained for a tender, moist consistency.

**Injection system**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Fresh meat, plain or marinated</td>
<td>PLUSstabil Meat 15/C</td>
<td>Based on organic edible acids. Freeze/thaw-stable</td>
<td>5 kg/100 l water</td>
</tr>
</tbody>
</table>

**Restructured fresh meat**

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Schnitzel and steaks</td>
<td>PLUSmulson PROT 300-F</td>
<td>Makes it possible to make restructured products from trimmings. Freeze/thaw-stable</td>
<td>2 % in the final product</td>
</tr>
<tr>
<td>Schnitzel and steaks</td>
<td>PLUSmulson F-03</td>
<td>Makes it possible to make restructured products from ends for up to +50 % higher yield</td>
<td>2 % in the final product</td>
</tr>
</tbody>
</table>

**Ground meat**

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Burgers, nuggets, meat fillings</td>
<td>HydroTOP 35 HA-ST</td>
<td>Improves water binding and cohesion</td>
<td>15–30 g/kg</td>
</tr>
<tr>
<td>Burgers, nuggets, meat fillings</td>
<td>HydroTOP High Gel 1000</td>
<td>Outstanding texture improvement, oil and water binding</td>
<td>5–20 g/kg</td>
</tr>
</tbody>
</table>
### Vegetarian and vegan meat alternatives

Hydrosol’s all-in compounds for vegetarian and vegan cold cuts and cooked sausage alternatives promise a familiar bite, authentic mouth feel and appetising appearance with appealing basic seasoning.

#### Vegetarian

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</tr>
</thead>
<tbody>
<tr>
<td>Vegetarian cold cuts</td>
<td>HydroTOP VEG 15</td>
<td>Soy–free all–in system</td>
<td>9 % in the final product</td>
</tr>
<tr>
<td>Vegetarian sausages and vegetarian ground meat</td>
<td>HydroTOP VEG Wiener</td>
<td>All–in system, outstanding texture for eating hot and cold, enables a host of applications</td>
<td>20 % in the final product</td>
</tr>
<tr>
<td>Vegetarian bratwursts</td>
<td>HydroTOP Bratwurst</td>
<td>All–in system, outstanding texture for eating hot. Without colourants, for light–coloured products</td>
<td>20 % in the final product</td>
</tr>
</tbody>
</table>

#### Vegan

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</tr>
</thead>
<tbody>
<tr>
<td>Vegan cold cuts</td>
<td>HydroTOP Vegan</td>
<td>All–vegetable all–in system, optimum bite and excellent sliceability</td>
<td>15 % in the final product</td>
</tr>
<tr>
<td>Vegan hotdogs</td>
<td>HydroTOP Vegan HT</td>
<td>All–in system, outstanding texture for eating hot</td>
<td>21 % in the final product</td>
</tr>
</tbody>
</table>
Sausage from cooked meat

Liver sausage and patés are made of pre-cooked ingredients. Emulsifier systems of special emulsifiers assist in the formation of a water in oil emulsion and ensure a creamy consistency.

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Emulsifier for liver sausage and marinades</td>
<td>PLUSmulson RTU</td>
<td>Pasty emulsifier (esterified monoglycerides). For direct application</td>
<td>5–10 g/kg</td>
</tr>
</tbody>
</table>

Raw sausage

Our solutions for raw sausage improve the cohesion of raw meat and fat inclusions, and improve the homogeneous distribution of both components.

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Hot smoked raw sausages</td>
<td>Hydrolon CASAL</td>
<td>Integrated compound/fast curing compound with seasoning</td>
<td>30 g/kg raw sausage mass</td>
</tr>
</tbody>
</table>
**Fat emulsions**

With our stabilising systems for fat emulsions, the visible fat pieces characteristic of salami and mortadella can be made from vegetable fat. The use of vegetable instead of animal fats significantly cuts production costs.

<table>
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</thead>
<tbody>
<tr>
<td>Bacon, fat, meat, chicken skin, oil</td>
<td>PLUSmulson PROT 300−F</td>
<td>For gelling, heat-stable fat emulsions, low dosing</td>
<td>1:16:32 (Emulsifier: Fat:Water)</td>
</tr>
<tr>
<td>Oil in water emulsions, non−gelling</td>
<td>PLUSmulson Prot 200 Plus</td>
<td>Gives spreadable fat emulsions, very high yield</td>
<td>1:20:30 (Emulsifier: Fat:Water)</td>
</tr>
<tr>
<td>Oil in water emulsions, gelling</td>
<td>PLUSmulson F−03</td>
<td>Gives a heat-stable, firm gel, especially for oil emulsions</td>
<td>1:8:12 (Emulsifier: Fat:Water)</td>
</tr>
<tr>
<td>Visible fat pieces for cooked sausage and cooked salami</td>
<td>PLUSmulson Prot 300−VEG</td>
<td>For production of fat emulsions, no further fat source necessary</td>
<td>(Emulsifier: Water)</td>
</tr>
</tbody>
</table>
**Preservation**

Hydrosol’s preservatives for raw and pasteurised meat and sausage products are antibacterial and help foods to retain their appetising colour and good taste.

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Preservative</td>
<td>Hydrolon Super</td>
<td>A combination of proven preservatives</td>
<td>2–3 g/kg in final product</td>
</tr>
</tbody>
</table>

**Seasoning**

Seasoning and stabiliser in one – these stabilising systems from Hydrosol are enriched with flavourings and seasonings, and enable individual product tuning.

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Gives a savoury flavour</td>
<td>Naturom TopNAT</td>
<td>In combination with other seasonings and flavourings, the specific product flavour (as of ham, sausage, marinated meat, ketchup, mayonnaise, sauces) stays fresh longer</td>
<td>20 g/kg in the final product</td>
</tr>
<tr>
<td>Sausages and hot dogs</td>
<td>Naturom Wiener Würstchen</td>
<td>Classic flavour</td>
<td>5–7 g/kg</td>
</tr>
<tr>
<td>Cold cuts and poultry</td>
<td>Naturom BM</td>
<td>Warm, harmonious flavour note</td>
<td>2–5 g/kg</td>
</tr>
<tr>
<td>Cooked ham and ham products</td>
<td>Naturom Ham K</td>
<td>Spice and herbal extracts</td>
<td>1–3 g/kg</td>
</tr>
<tr>
<td>Cooked sausages and vegetarian products</td>
<td>Naturom WD1</td>
<td>With flavourings and seasonings</td>
<td>6–9 g/kg</td>
</tr>
</tbody>
</table>
Hydrosol can do more!

We also have the right compounds for dairy, deli und ready meals, along with plenty of inspiration.
The Hydrosol Applications Technology Team
for meat and sausage

And what can we do for you?

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