



How Much Meat is in your Sausage?

Regulations covering meat and meat products

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How Much Meat is in your Sausage?

Manufacturers should be aware of the intricacies of both UK and EU regulation if they are planning to export meat products to the UK. In this white paper, Oliver Leedam gives practical advice on the quantity and quality of meat needed for meat products to satisfy regulatory and labelling requirements.

An EU based or Turkish manufacturer (outside of the UK) manufacturing meat products for export to the UK must conform to EU and UK regulation about meat products (unless the goods are lawfully marketed in the country of manufacture inside the EU).

Since the implementation of Commission Directive 2002/86/EC, meat has had a legal definition in the EU and set rules on how it should be declared in the ingredients list. In 2011, the definition of meat in EU regulation¹ was further developed as part of the provision of Food Information to Consumers' Regulation (FICR)². The definition of meat has been taken even further in some member states, such as the United Kingdom, where the Meat Products Regulation (MPR)³ lays down reserved descriptions (essentially compositional standards) for 11 categories of meat products.

How is meat defined?

If you thought you knew how to define meat, then think again. There are a number of definitions which manufacturers need to be

aware of. EU regulation 853/2004 Annex I paragraphs 1.1 states:

'Meat' means edible parts of the animals... , including blood.'

The Food Information to Consumers' Regulation or FICR⁴ gives a more detailed definition of meat, stating:

'Skeletal muscles of mammalian and bird species recognised as fit for human consumption with naturally included or adherent tissue, where the total fat and connective tissue content does not exceed the values indicated below and where the meat constitutes an ingredient of another food [comes under the designation of] meat and the name(s) of the animal species from which it comes.'

DEFRA (The Department of the Environment Food and Rural Affairs) and the FSA (Food Standards Agency) separate the two definitions of meat given above, stating that the definition of meat from the FICR should be used for labelling purposes.

¹ EU regulation 853/2004 Annex I paragraphs 1.1-1.8

² Regulation (EU) 1169/2011 on the provision of food information to consumers (FICR)

³ The Products Containing Meat etc. (England) Regulations 2014 Statutory Instrument 2014/3001 (MPR)

⁴ Annex VII part B "Designation of certain ingredients by the name of a category rather than a specific name" (17)

In respect to the FICR definition, when labelling in English there is a derogation that states ‘this designation may be replaced by the generic name of the ingredient for the animal species concerned’; this means there is no obligation to use, for example, the term ‘pig meat’ and the ingredient can instead just be listed as Beef, Rabbit, Pork, and Chicken etc.

What ratio of fat to collagen/meat protein should I use?

The FICR definition lays down maximum levels of fat and collagen/meat protein ratio that meat can contain before fat and connective tissue have to be declared separately from meat. The table below details the ratios for different types of meat.

Species	Fat Content	Collagen/meat protein ratio*
Mammals (other than rabbits and porcines) and mixtures of species with mammals predominating,	25%	25%
Porcines	30%	25%
Birds and Rabbits	15%	10%

*The collagen/meat protein ratio is expressed as the percentage of collagen in meat protein. The collagen content means the hydroxyproline content multiplied by a factor of 8

Table 1. Table showing fat and collagen/meat protein ratios meat must contain by species

The UK regulation (the MPR) also prohibits the use of brains, feet, intestine (except as sausage skin), lungs, oesophagus, rectum, spinal cord, spleen, stomach, testicles and udder in meat products produced in the UK where they are sold uncooked. This does not apply to uncooked meat products that have been legally produced and sold in a different EEA state.

How does this meat definition relate to mechanically separated meat?

It is important to note that products covered by the definition of ‘mechanically separated meat’ (MSM) cannot currently be classified as meat. This led to problems in the UK when ‘desinewed meat’ was classified by the EU as mechanically separated meat. Many food business operations which produced sausages and similar products subsequently needed to reformulate as they could no longer count desinewed meat against the meat content of their product.

However, there are some interesting developments in this area which may mean that certain types of MSM or desinewed meat may actually be classified as meat in the future. A method developed by Leatherhead was used in the recent Newby court case⁵ on this very issue. In the judgement at the High Court, the final conclusion essentially found that ‘the product that results from the first stage of Newby’s manufacturing process (‘the Stage One Product’) is not mechanically separated meat...’ As such, it can contribute to the meat content of a product. This judgement, based on Leatherhead’s microscopy method

⁵ Newby court case in the determination by Mr Justice Edwards-Stuart in The High Court of Justice Queen's Bench Division Administrative Court on the 23rd March 2016

and findings, ultimately means that Newby Foods Ltd can label their product 'meat'.

Leatherhead is the only UK UKAS accredited testing laboratory for muscle fibre structure analysis for determination of quality in MSM.

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How do the regulations affect my choice of meat ingredients?

When manufacturing products containing meat, you have two options: using a quality cut of meat such that it counts as 100% meat with no excess fat or connective tissue, or using a mixture of meats so that the fat and connective tissue levels are closer to the limits allowed under the definition of meat. Both of these options would be listed on the ingredients list as meat, but the second choice would be considerably cheaper. This is where quality comes into play; blending the meats may make a cheaper product, however, it may have an impact on the sensory characteristics of your product.

How do I calculate how much meat needs to be in my meat product?

First a manufacturer must consider which category their meat product falls into. As mentioned in the introduction, the UK Meat Products Regulations (the MPR)⁶ lays down reserved descriptions for 11 categories of meat products (detailed below) and sets out how much pig meat, meat from birds or rabbits or meat from other species or other mixtures of meat each of the products needs to contain.

Example: *If you were making a 180g beef pie, the UK regulations state that it has to contain at least 11% beef, but the question is which beef do you use?*

There are at least 32 different types of beef to choose from (as shown in table 2 below)! You could obviously choose '100 visible lean (VL) beef' and be safe in the knowledge that you would have no excess fat or connective tissue to declare in your ingredients list.

However, looking at the FICR meat definition, you are allowed up to 25% fat and 25% connective tissue in beef, so using 100VL beef

The 11 UK categories of meat product

Burgers, Economy Burgers, Hamburgers, Chopped X, there being inserted in place of "X" the name "meat" or "cured meat" or the name of a type of meat or cured meat, whether or not there is also included the name of a type of meat, **Corned X**, there being inserted in place of "X" the name "meat" or the name of a type of meat, unless qualified by words which include the name of a food other than meat, **Luncheon Meat, Meat Pie or Pudding, Game Pie, Scottish or Scotch Pie**, The name "**pie**" or "**pudding**" qualified by the words "meat" or "cured meat" or by the name of a type of meat or cured meat and also qualified by the name of a food other than meat or cured meat, **Pasty, pastie Bridie or sausage roll, Sausage** (excluding the name "sausage" when qualified by the words "liver" or "tongue" or both), **chipolata, link or sausage meat**.

⁶ The Products Containing Meat etc. (England) Regulations 2014 Statutory Instrument 2014/3001 (MPR)

is the expensive option. If you want to consider a cheaper blend of meats, the UK Food Standards Agency (FSA) has created a meat content calculator which allows you to calculate a blend which meets regulatory requirements.

When we run our example through the calculator, you could replace at least 25% of the 100VL beef with beef fat and still call it beef on the ingredients label. The calculator carries figures for pork, lamb and mutton, poultry and beef.

FSA meat calculator:
<http://www.food.gov.uk/northern-ireland/niregulation/niguidancenotes/meat-products-guidance>

Balancing the cost, quality and the consumer

The regulations clearly show that manufacturers need to put a great deal of thought into the meat content of their products. First, they need to determine that what they are using actually counts as meat and then consider how much of it they should use. If a manufacturer makes any changes to the product, they need to determine if there is any effect on the meat content of the product. It is ultimately a balancing act, where manufacturers must consider the quality of the meat ingredients used, the cost of those ingredients, as well as the consumer sensory requirements. Leatherhead’s Regulatory, Sensory and Quality and Integrity Teams are here to help you find that perfect balance.

BEEF meat types
Beef - Lean-top quality 100VL*
Beef - Lean containing a small amount of visible fat and connective tissue 95VL
Beef - Lean with a moderate amount of visible fat and connective tissue 85VL
Beef - Lean with some fat 75VL*
Beef - More fat than lean 30VL*
Beef Fat
Beef Brisket Lean
Beef Brisket 75VL*
Beef Jacobs Ladder Lean
Beef Jacobs Ladder 85VL*
Beef Fore Rib Lean
Beef Fore Rib 80VL*
Beef Chuck Lean
Beef Chuck 95VL*
Beef Thin Flank Lean
Beef Thin Flank 80VL*
Beef Shin & Leg Lean
Beef Shin & Leg
Beef Clod & Sticking Lean
Beef Clod & Sticking 90VL*
Beef Topside Lean
Beef Topside 95VL*
Beef Loin Rump & Fillet Lean
Beef Loin Rump & Fillet 85VL*
Beef Thick Flank & Silverside Lean
Beef Thick Flank & Silverside 95VL*
Beef Side Lean
Beef Side 90VL*
Beef Pistola Lean
Beef Pistola 90VL*
Beef Fore Quarter Lean
Beef Fore Quarter 85VL*

*VL stands for visible lean, the amount of fat visible at the surface of the meat

Table 2. Table showing different beef meat types for use in meat products

How Leatherhead can help

If you are looking to create a new or reformulate an old meat product, our Regulatory, Sensory and Quality and Integrity Teams are ready to help. We have a department of over 30 regulatory advisors, covering all major international markets. We can also provide training on food supplement legislation and give advice on additives, flavourings and ingredients, as well as label and formulation checks.

As the only UK UKAS accredited testing laboratory, No. 9365, for muscle fibre structure analysis for determination of quality in MSM, Leatherhead can also help with your questions about MSM and desinewed meat.

Further information

Commission Directive 2002/86/EC <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002L0086&qid=1456494562761&from=EN>

The Products Containing Meat etc. (England) Regulations 2014
<http://www.legislation.gov.uk/ukSI/2014/3001/contents/made>

EU Regulation 1169/2011 (The FICR) <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02011R1169-20140219&qid=1424173813952&from=EN>

EC Regulation 853/2004 <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02004R0853-20141117&qid=1456495021690&from=EN>

About the author

Oliver Leedam is a Senior Regulatory Advisor at Leatherhead Food Research with over 20 years' experience in the food industry, with experience of providing regulatory support and training to both regulators and industry, and working in the soft drinks, food additives, ready meals, meat products and breakfast cereals industries. A highlight has been providing training on the European Commissions' Better Training Safer Food courses across Europe on their Better Training Safer Food sessions, for two years being one of the specialist trainers on the nutrition and health claims section of the course. Oliver covers English, Irish, American and European food legislation.

About Leatherhead Food Research

Leatherhead Food Research provides expertise and support to the global food and drink sector with practical solutions that cover all stages of a product's life cycle from consumer insight, ingredient innovation and sensory testing to food safety consultancy and global regulatory advice. Leatherhead operates a membership programme which represents a who's who of the global food and drinks industry. Supporting all members and clients, large or small, Leatherhead provides consultancy and advice, as well as training, market news, published reports and bespoke projects. Alongside the Member support and project work, our world-renowned experts deliver cutting-edge research in areas that drive long term commercial benefit for the food and drink industry.

Leatherhead Research is a Science Group (AIM:SAG) company. Science Group provides independent advisory and leading-edge product development services focused on science and technology initiatives. It has six offices globally, two dedicated, UK-based R&D innovation centres and more than 350 employees. Other Science Group companies include Oakland Innovation, Sagentia and OTM Consulting.

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