The production of meat preparations obtained by desinewing meat

**Update: 25 May 2012:** Due to the introduction of a UK-wide moratorium, this Information Note ceased to apply to the production of desinewed meat (DSM) from the bones of ruminant species (cattle, sheep and goats) at 00:01hrs on Saturday 28 April 2012 and to the production of DSM from the bones of non-ruminant species at 00:01hrs on Saturday 26 May 2012. Further information and guidance on the moratorium can be found at [http://www.food.gov.uk/news/newsarchive/2012/may/dsm-guidance2](http://www.food.gov.uk/news/newsarchive/2012/may/dsm-guidance2)

The Agency has received a number of enquiries from both potential producers and from authorised officers about the legality of producing ‘desinewed’ meat. This document attempts to explain what desinewed meat is, where it fits into the food hygiene legislation, the requirements for its production and how it differs from mechanically separated meat (MSM). It also covers the requirements of the TSE legislation as it relates to the production of desinewed meat. It does not go into the requirements of the Food Labelling legislation.

This document has been produced to provide informal, non-binding advice on the legal requirements for the production of meat preparations in the form of desinewed meat. The text should be read in conjunction with the Community food hygiene and TSE regulations, in particular:

**Regulation (EC) No. 852/2004 on the hygiene of foodstuffs:**

**Regulation (EC) No. 853/2004 laying down specific hygiene rules for food of animal origin:**

**Regulation (EC) No. 999/2001 laying down rules for the prevention, control and eradication of certain transmissible spongiform encephalopathies:**

The Food Hygiene (England) Regulations 2006 (this legislation has been amended by the Food Hygiene (England) (Amendment) Regulations 2007 and the Food Hygiene (England) (Amendment) Regulations 2010. There is similar legislation in Scotland, Wales and Northern Ireland):


Every effort has been made to ensure that the information in this document is as helpful as possible. However, it is ultimately the responsibility of individual businesses to ensure their compliance with the law. Food business operators with specific queries may wish to seek the advice of FSA's Operations Group, in York or their local enforcement agency (usually the environmental health department of the local authority). The information in this document should not be taken as an authoritative statement of the law as only the courts have this power.

Desinewed meat
1. Desinewed meat is meat from which the sinews and tendons have been removed. It may be obtained from a number of sources including meat trim and the removal of residual meat from bones.

2. It is produced by passing trim or meaty bones through a low pressure machine where the material obtained appears to retain its muscle fibre structure. Some machines remove and desinew the meat as part of a continuous process; others do it in a two stage operation. The resulting product is variously known as Baader meat, 3mm meat or desinewed meat; for the purposes of this document it is called desinewed meat. Whether a ‘one stage’ or a ‘two stage’ method is used it is the end result of both stages that should be considered to be the desinewed meat. Such material would appear to fall within the definition of a meat preparation (paragraph 1.15, Annex I of Regulation (EC) No. 853/2004), which includes “fresh meat that has been reduced to fragments ………….. or which has undergone processes insufficient to modify the internal muscle fibre structure of the meat and thus to eliminate the characteristics of fresh meat”. As the muscle fibre structure is maintained, the material falls outside the definition of MSM in Regulation (EC) No. 853/2004, (ie. where the mechanical process results in the loss or modification of the muscle fibre structure). It cannot be considered to be minced meat because it is produced under pressure and not by cutting.

3. Whilst this desinewed meat is derived from fresh meat and still retains the characteristics of fresh meat it has, nevertheless, undergone a process (ie it has been removed from the bone and been desinewed, whether in one stage or two stages). However the process was insufficient to substantially alter the initial product and thereby turn it into a meat product. (The definition of a ‘meat product’ in paragraph 7.1, Annex I of Regulation (EC) 853/2004 and of ‘processing’ in Article 2.1(m) of Regulation (EC) 852/2004, refer.)

Mechanically separated meat (MSM)

4. The production of MSM is covered in Section V, Annex III of Regulation (EC) No. 853/2004. This Regulation defines MSM as: “the product obtained by removing meat from flesh-bearing bones after boning or from poultry carcases, using mechanical means resulting in the loss or modification of the muscle fibre structure” (paragraph 1.14, Annex I of Regulation (EC) No. 853/2004, refers). A product meeting the description of MSM should comply with the specific legislative requirements for MSM in Regulation (EC) No. 853/2004. MSM is different to, and should not be confused with, meat preparations or desinewed meat.

5. The production of MSM will generally be from pig and poultry bones; MSM from specified risk material (SRM), and the bones, or bone-in cuts, of cattle, sheep and goats is, in most cases, prohibited under the Community TSE Regulation (Article 9(2) and point 5, Annex V of Regulation (EC) No. 999/2001). (See also paragraphs 10 and 18, below.)

6. If the pressure used to remove the meat from the bone (paragraph 2 refers) is too great the resulting product may be MSM. Microscopy analysis can be used to assess whether there has been a loss or modification of the internal muscle fibre structure to determine whether the product meets the definition of MSM. Once a product has been classified as MSM it cannot be reclassified as a meat preparation or as desinewed meat.
Defining Muscle fibre structure

7. Neither the definition of meat preparations nor that of MSM in the food hygiene regulations provides a clear indication of what is meant by ‘loss or modification of the muscle fibre structure’ or the level of modification or loss necessary before a product ceases to be ‘fresh meat’ and becomes MSM. Recent enquiries to the European Commission indicate that any modification of the muscle fibre structure of the ‘meat’ during the removal process would cause the product to be classified as MSM. (See the Note towards the end of this document.)

8. It is worth noting that there is, generally, no muscle fibre structure present in samples of pork, chicken and turkey MSM examined under a microscope. However, even mincing processes and passing through a 3mm plate can result in some modification of muscle fibre structure. Microscopic analysis therefore allows only a subjective assessment of the appropriate categorisation of a product.

9. There are many machines on the market that can be set up to remove meat from the bone or remove sinew from trim to produce a variety of grades of product. It is therefore recommended that, before they start operations, food business operators agree with their authorised officer a standard operating practice for the production of desinewed meat. This will avoid later problems. The process should be covered in the food business operator’s HACCP plan for the premises.

Identifying desinewed meat and MSM

10. It is the food business operator’s responsibility to be able to demonstrate, including to the competent authority, that their product (at the end of the process, whether this is a one stage process or a two stage process) meets the criteria for desinewed meat and in particular that the muscle fibre structure of the product has not been lost or modified. Microscopic analysis can be used to assess the disruption of muscle fibre structure and hence assist in the decision as to whether a product falls within the definition of a ‘meat preparation’ and can be considered to be desinewed meat, or whether it is MSM. If the food business operator is unable to demonstrate that the product is desinewed meat then, in the case of product produced from cattle, sheep or goats, it could be illegal under Community TSE legislation. (See also paragraph 5 and 18.)

11. The Agency has funded the development of a simple microscopy method to assess the level of integrity of muscle fibre structure and the presence of other structural aspects in mechanically separated pork, chicken and turkey meat. The method involves sectioning and staining the sample, followed by examination of the structural parameters by comparing them with reference samples of pork, chicken and turkey MSM, desinewed meat, hand-deboned and minced meat. The presence or absence of key structural features and the extent of muscle fibre disruption is assessed, allowing a judgement to be made as to whether a product meets the definition of MSM or falls outside this definition. This method, applied to pork, chicken and turkey, has been made available to UK public analyst laboratories. The Agency is in the process of assessing whether the same method is suitable for the analysis of muscle fibre structure in beef and lamb MSM, desinewed meat, hand-boned and minced meat.

12. Food business operators who wish to have samples analysed are advised to contact a public analyst laboratory and confirm that the laboratory offers this service and are willing to accept samples for analysis. Your local authority will be able to advise you of
your nearest laboratory. Further information on public analyst services is available from: http://www.publicanalyst.com/The_Laboratories/the_laboratories.html

For those food business operators who have a FSA York/DARD presence on site, the Official Veterinarian should also be able to provide advice on appropriate laboratories. Alternatively, Leatherhead Food Research may be able to offer this analysis1. Other laboratories may also offer the same service. A standard operating procedure detailing the microscopic analysis, including images of reference materials is available on request from: foodauthenticity@defra.gsi.gov.uk.

Desinewed meat and the food hygiene legislation

13. Desinewed meat falling within the definition of a meat preparation should meet the requirements for meat preparations set out in Section V, Annex III of Regulation (EC) No. 853/2004. This includes the requirements for raw materials (paragraph 2 in Chapter II, of that part of the legislation) and the hygiene requirements (paragraphs 1, 2 and 5 in Chapter III, of that part of the legislation). It must also be produced in premises that meet the requirements of Chapter I, Section V, Annex III of Regulation (EC) No. 853/2004 and those of Regulation (EC) No. 852/2004, as appropriate. This includes having in place, implementing and maintaining permanent procedures based on HACCP principles. Food business operators should also undertake checks to ensure compliance with both the TSE and the hygiene legislation. See page one for links to this legislation.

14. In Annex I of Regulation (EC) 853/2004 a ‘meat preparation’ means ‘fresh meat, including meat that has been reduced to fragments, which has had foodstuffs, seasonings or additives added to it or which has undergone processes insufficient to modify the internal muscle fibre structure of the meat and thus to eliminate the characteristics of fresh meat’. By virtue of point 2(a), Chapter II, Section V, Annex III of Regulation (EC) 853/2004, fresh meat may be used to produce a meat preparation. It therefore follows that one meat preparation can be used as a raw material in the preparation of another.

15. There is more information on the production of meat preparations in the “Guide to Food Hygiene and Other Regulations for the UK Meat Industry” – the Meat Industry Guide (MIG). A copy of this is available at: http://www.food.gov.uk/foodindustry/meat/guidehygienemeat

Desinewed meat and the TSE Regulations

16. The raw materials for the production of desinewed meat must also comply with the TSE legislation. SRM, or any material that includes SRM, from cattle, sheep and goats is prohibited from use in any food or food product and therefore it must not be used in the production of desinewed meat.

17. SRM is those tissues of cattle, sheep and goats most likely to contain BSE infectivity in an infected animal. The TSE Regulations state that SRM removal must take place in the slaughterhouse or, in the case of SRM bovine vertebral column, in a cutting plant specifically authorised to do so. If ovine or caprine SRM spinal cord is to be removed at a cutting plant, it must also be specifically authorised for that purpose.

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1 The contact at Leatherhead Food Research is Kathy Groves: KGroves@LeatherheadFood.com
18. At the date of publication of this document the following tissues are SRM (Annex V of Regulation (EC) 999/2001):

Bovine:
(i) the skull excluding the mandible and including the brain and eyes, and the spinal cord of animals aged over 12 months;
(ii) the vertebral column excluding the vertebrae of the tail, the spinous and transverse processes of the cervical, thoracic and lumbar vertebrae and the median sacral crest and wings of the sacrum, but including the dorsal root ganglia, of animals aged over 30 months; and
(iii) the tonsils, the intestines from the duodenum to the rectum and the mesentery of animals of all ages.

Ovine/Caprine:
(i) the skull including the brain and eyes, the tonsils and the spinal cord of animals aged over 12 months or which have a permanent incisor erupted through the gum, and
(ii) the spleen and ileum of animals of all ages.

19. All SRM should have been removed from the bones and bone-in cuts from which the desinewed meat is produced before they reach the plant or area of a plant where the production takes place. However food business operators should pay particular attention to vertebral column from cattle between 12 and 30 months and necks and rib cages from sheep or goats over 12 months to ensure no spinal cord is present. Most older sheep and goat carcasses processed in the UK will be split and have spinal cord removed. However, both whole or part cages from unsplit sheep over 12 months must not be processed as these will still contain SRM spinal cord. Vertebral column from cattle over 30 months of age is SRM so cannot be used for the production of desinewed meat.

NOTE:

20. As the law currently stands, production of desinewed meat from the bones of cattle, sheep and goats is legal, provided no SRM is included in the production process. The production of MSM from the same bones is illegal.

21. However the Commission is expected to publish a report on MSM production in Member States in the autumn and this may lead to discussion on the current definition of MSM. We are advised that at present it is thought unlikely that this will result in changes in the definition of ruminant MSM for the purposes of the TSE Regulations, but food business operators contemplating significant investment related to the production of desinewed meat from cattle, sheep or goats, may wish to be aware that the possibility of a change in the rules remains.

Supervision and enforcement of premises producing desinewed meat

22. Premises that produce – or intend to produce - desinewed meat and that have satisfied themselves that the material they produce meets the requirements for meat preparations should therefore:
• seek approval as a meat preparations establishment under Regulation (EC) 853/2004. (This will be from local authorities when the premises are stand-alone premises and from FSA’s Operations Group, in York, when co-located with a slaughterhouse, cutting plant or game handling establishment.); and
• comply with the hygiene and microbiological testing rules for meat preparations.

NB: All bones/raw material used for the production of desinewed must come from an approved slaughterhouse or cutting plant and from animals that have passed ante- and post-mortem inspection. It must also bear a health or identification mark.

23. Existing slaughterhouses, cutting plants, minced meat and/or MSM plants wishing to produce desinewed meat will need to seek approval from the appropriate authority, as above.

24. If you would like to discuss this further please contact Rosalind Glover at: Rosalind.glover@foodstandards.gsi.gov.uk