

Guidance on Mechanically Separated Meat (MSM): Annexes

All annexes for the draft mechanically separated meat (MSM) guidance, including Q&A and relevant legislation.

Annex A: MSM Questions and Answers

General queries

What is mechanically separated meat (MSM)?

MSM is obtained by removing meat from flesh-bearing bones after boning has occurred (for red meat species, this typically includes pork, as MSM derived from cattle, sheep and goats is prohibited); or from poultry carcasses. The product is MSM if it is obtained using mechanical means resulting in loss or modification of the muscle fibre structure.

MSM is safe for consumers, assuming it is produced in accordance with legislative requirements, and is used as an ingredient in a wide variety of final products. It cannot, however, count towards the percentage meat content indicated on the labelling of those products under assimilated Regulation (EC) No 1169/2011 in GB / Regulation (EC) No 1169/2011 in NI.

What are the different types of MSM?

There are two MSM subtypes depending on the techniques used during mechanical separation. The subtype produced determines its permitted uses. The subtypes are:

MSM produced using techniques that do not alter the structure of the bones, and the calcium content of which is not significantly higher than that of minced meat (does not exceed 0.1 % (=100 mg/100 g or 1000 ppm)). This subtype is sometimes referred to by industry as 'low pressure' MSM; however, this is not a defined term in the regulations.

Production and uses are subject to hygiene requirements set out in Annex III to the Regulations, Section V, Chapter III, paragraph 3; and labelling requirements in Chapter IV.

This subtype can be used in meat preparations clearly intended to be cooked, and in meat products. Typical examples include products that are not ready-to-eat, such as burgers and chicken nuggets.

MSM produced using techniques other than those mentioned in the point above. This subtype is sometimes referred to by industry as 'high pressure' MSM; however, this is not a defined term in the regulations.

Production and uses are subject to hygiene requirements set out in Annex III to the Regulations, Section V, Chapter III, paragraph 4; and labelling requirements in Chapter IV.

This subtype can only be used in the manufacture of heat-treated, ready-to-eat products by approved establishments. Typical examples include cooked sausages such as frankfurters, and canned meat.

What other terms are used by industry for MSM?

'Baader meat' and '3mm meat' are among alternative terms used by industry to describe products of mechanical meat separation, often referring to the machinery brand used or the sieving aperture of the equipment. Such terms often do not relate to the type of product produced and they are not defined in law. Products produced per the three cumulative criteria that determine whether a product is MSM must always be classified as 'mechanically separated meat' or 'MSM' and labelled appropriately.

Are there any food safety concerns associated with the production of MSM?

Where MSM is produced in line with food hygiene requirements, risks are reduced to an acceptable level minimising food safety concerns.

MSM has an inherent risk influenced by its preparation and structure and, as a result, more stringent risk mitigation measures must be in place for this product. The stricter production requirements for MSM (e.g. permitted raw materials, permitted uses per subtype and hygiene controls, microbiological requirements etc), compared to meat preparations and minced meat, are due to the comminuted or fragmented nature of the product.

Is MSM derived from cattle, sheep or goat a risk to public health?

The use of bovine, ovine and caprine (cattle, sheep and goat) bones, or bone-in cuts, as raw material for MSM is prohibited and has been since 2001 due to public health concerns, specifically, the potential risk of Transmissible Spongiform Encephalopathies (TSE) including Bovine Spongiform Encephalopathy (BSE).

Does the withdrawal of the previous guidance documents* relating to MSM and the publication of new guidance mean changes to the law on MSM?

There have been no changes to the Regulations as a result of the Judgments; no legislative requirements regarding MSM have been added, amended or removed. The Courts have delivered judgments that clarify how the definition of MSM in Annex I to the Regulations is to be interpreted and applied.

*The guidance to the moratorium on 'desinewed meat' was withdrawn (as was the moratorium itself) on 14 November 2022.

Implications for FBOs

What must FBOs do?

FBOs must ensure that they are compliant with legislative requirements regarding MSM.

Given the clarification of the definition of MSM, there may be products that previously (i.e., before the withdrawal of the moratorium in November 2022) were not classified as MSM that now must be correctly classified as MSM. This affects the categorisation of the meat as MSM and the use of MSM as an ingredient in other products. There will be instances where an approval to produce MSM might be required, and it is the FBO's responsibility to ensure they have this by applying to their competent authority (FSA or LA).

The guidance is intended to assist FBOs to achieve regulatory compliance. Specific measures to be taken by FBOs (e.g. labelling changes or product reformulation) will differ on a case-by-case basis. If an FBO needs additional support, they should contact the FSA or their local authority for advice.

What are the requirements for producing MSM and placing it on the market?

Food hygiene requirements are set out in the Regulations regarding the production of MSM from pork and from poultry. Different requirements apply for each of the two subtypes of MSM (see question [What are the different types of MSM?](#)).

MSM does not contribute to the meat content of final products and must be labelled in accordance with legislative requirements (see question [When MSM is used as an ingredient, how should it be labelled?](#)).

Will removal of sinews and/or tendons from boneless meat by mechanical means result in MSM?

This guidance highlights the three cumulative criteria that must be met for a product to be classified as MSM, as set out by the Courts.

The removal of sinews and/or tendons from boneless meat cuts does not meet the first criterion. As the raw material does not contain bone, the cumulative criteria are not met therefore, in this case, the end product is not MSM.

Some FBOs use mechanical means to separate meat from unwanted tissues (e.g. tendons, sinews, cartilage, grit etc), as part of a quality check. If the raw materials used are not bone-in portions or meat without bones, this does not result in the production of MSM. FBOs should have procedures in place detailing the purposes of their processes to clarify the intentions of activities.

How will poultry wishbone meat be classified?

The definition of MSM in the Regulations reads: “mechanically separated meat or MSM means the product obtained by removing meat from flesh-bearing bones after boning or from poultry carcasses, using mechanical means resulting in the loss or modification of the muscle fibre structure.”

Regarding the use of “the removal of meat from poultry carcasses” in the definition: mechanically recovering meat from whole carcasses, any bones, and meat portions with bones, may result in the production of MSM.

Regarding the use of the term “boning” in the definition: this refers to removal of the meat left on the bones of animals after the initial phase of butchering has taken place. This means anything after the first cut or the first act of removal or separation of bones or portions of meat from the carcass.

Wishbone trims consist of the wishbone with some muscle attached after it is initially removed or separated from the breast of poultry carcasses. If mechanical separation is then used to remove the meat from the wishbone, this results in MSM, if there is loss or modification of the muscle fibre structure.

What are the implications for bone-in portions with intact muscles attached?

Bone-in portions with intact muscles attached result in the production of MSM if they undergo a mechanical separation process and there is loss or modification of the fibre muscle structure.

Some bone-in portions used as raw materials for mechanical separation have some intact muscles attached (e.g., pork ribcage). Previously (i.e., under the moratorium) products resulting from such 'cuts' may not have been classified as MSM as it was considered that the first criterion (i.e., the use of bones from which the intact muscles have already been detached) was not met. That application of the first criterion is incorrect where the bone-in portion or 'cut' has been subjected to some prior type of deboning and removal of muscles even if that deboning did not involve the removal of the bulk of the meat that was originally attached to the bone.

Is there any difference between the products of mechanical separation depending on the amount of residual meat on the raw material used?

No. The legislation does not distinguish between the amount of residual meat left on the raw material. Any bones or portions of meat with bones that go through mechanical separation result in MSM, if there is loss or modification of muscle fibre structure, irrespective of the proportions of meat and bone present.

How should loss or modification of muscle fibre structure be assessed?

There is no need to assess the muscle fibre structure by microscopy methods to determine whether a product is MSM.

When MSM is used as an ingredient, how should it be labelled?

In terms of MSM labelling during production and before manufacturing into the final products, Article 18 of assimilated Regulation (EC) No 178/2002 in GB / Regulation (EC) No 178/2002 in NI states that traceability of products must be established at all stages of production, processing and distribution. Article 3 of assimilated Regulation (EC) No 931/2011 in GB / Regulation (EC) No 931/2011 in NI also provides traceability requirements about information to be made available to suppliers and competent authorities.

MSM as defined in Annex I of the Regulations must be labelled in the ingredients list as 'mechanically separated meat' with the name(s) of animal species from which it derives.

The Regulations state that packages intended for the final consumer containing meat preparations that contain MSM must bear a notice indicating that such products should be cooked before consumption.

Defra leads on labelling legislation in England; the FSA in Wales and NI; Food Standards Scotland in Scotland.

Food labelling law in the UK is set out in a combination of assimilated law (GB), directly applicable EU law (NI), and domestic legislation. [The Food Information to Consumers \(FIC\) assimilated Regulation \(EU\) No 1169/2011 in GB / Regulation \(EC\) No 1169/2011 in NI](#) is one of the principal pieces of legislation that specifies food labelling requirements.

FIC Article 7.1 requires that information may not be provided which is misleading as to the characteristics of food, particularly its nature, identity, properties, composition, quantity, durability, country of origin or place of provenance and method of manufacture or production. Article 17 requires that the name of the food shall be its legal name or, in the absence of such a name, its customary name or, if there is no customary name or it is not used, a descriptive name.

Annex VII (to FIC) Part B makes clear that products classified as MSM may not be labelled as 'meat'. In declaring the meat content of food, MSM must not be considered meat content.

Will the Court Judgments or the implementation of this Guidance result in meat being disposed of, increasing food waste?

The Judgments do not prevent any products produced in line with the Regulations from entering the food chain. MSM is safe to eat and to use as an ingredient. Some products that previously were not considered to be MSM (under the guidance to the moratorium) must now be classified, treated and used only as MSM, where the three criteria laid out in this guidance are met.

Can MSM be exported to the EU/NI?

If a food business is approved to produce MSM and is listed by the EU as authorised to export MSM to the EU, then the products can be exported to the EU and NI, if compliant with EU requirements. All exports to the EU/NI, including MSM, must meet EU requirements and must be accompanied by the appropriate export health certificate (EHC). GB has adopted an EHC for pork MSM. It can therefore be exported to the EU and NI (with the EHC) from a GB establishment listed by the EU as authorised for export of pork MSM.

An EHC for the export of poultry MSM from GB to the EU and NI has not been established. Therefore, poultry MSM cannot currently be exported to the EU and NI. However, poultry MSM used in the manufacture of meat preparations or meat products in GB can be exported as part of those meat preparations or meat products. Pre-packed goods for retail containing MSM can be moved to NI via the NI Retail Movement Scheme under one general certificate (MSM in bulk for further processing will need to be exported to NI via an EHC).

To find EHCs and associated documentation for live animals and animal products, please use this link: [Find an export health Certificate](#).

Annex B: List of relevant legislation

[Assimilated Regulation \(EC\) No 853/2004](#) in GB / [Regulation \(EC\) No 853/2004](#) in NI

[Assimilated Regulation \(EU\) No 1169/2011](#) in GB / [Regulation \(EU\) No 1169/2011](#) in NI

[Assimilated Regulation \(EC\) No 999/2001](#) in GB / [Regulation \(EC\) No 999/2001](#) in NI

[Assimilated Regulation \(EC\) No 2073/2005](#) in GB / [Regulation \(EC\) No 2073/2005](#) in NI

The FSA undertakes regular reviews to ensure guidance remains relevant. However, the FSA cannot guarantee that links provided are continuously up to date. FBOs are responsible for ensuring that they are compliant with food law and should take necessary measures to ensure that they have access to current versions of legislative requirements.