# CEN

# WORKSHOP

# AGREEMENT

# CWA 17047

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English version

# Comminuted and fragmented poultry meat - Quantification of muscle fibre structure degradation

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# European foreword

CWA 17047:2016 was developed in accordance with CEN-CENELEC Guide 29 "CEN/CENELEC Workshop Agreements – The way to rapid agreement" and with the relevant provisions of CEN/CENELEC Internal Regulations - Part 2. It was agreed on 2016-03-01 in a Workshop by representatives of interested parties, approved and supported by CEN following a public call for participation made on 2016-01-27. It does not necessarily reflect the views of all stakeholders that might have an interest in its subject matter.
The final text of CWA 17047:2016 was submitted to CEN for publication on 2016-05-30.

The document has been developed through the collaboration of a number of contributing partners in this Workshop covering the range of actors within the industry: machinery manufacturers, producers and users of comminuted and/or fragmented meat, food laboratories, scientific organisations, political organisations and consumer organisations. It was developed and approved by:

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# Introduction

As one example of comminuted and/or fragmented meat, mechanically separated meat (MSM) is not considered as meat. If used for human consumption it should be included in the list of ingredients. There are currently no accepted methods available by which level of degradation of muscle fibre structure can be measured. This is a prerequisite for quantification of loss or modification of muscle fibre structure and as such has implied that all MSM in the strict sense of the legal text is not to be considered as meat. It is consequently downgraded and with very limited and strictly regulated use for human consumption.

According to the definition given in Reg (EC) 853/2004, annex 1 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." As interpreted by the European Court of Justice flesh bearing bones are materials from which the intact muscles have already been detached, or poultry carcasses, to which residual meat remains attached.

Bone-in portions (recognised cuts such as legs, wings, wishbones) when put through mechanical separation machinery have not been previously boned and so do not meet the first of the current criteria for MSM [1].

As the development of machinery for mechanical separation of meat has now reached a state where the product cannot be distinguished in important quality traits from minced meat there are no longer any objective reasons for downgrading the product exclusively on the way it was produced. This has also implied that the Regulation now is interpreted and implemented differently in individual member states and this means competition on uneven conditions. This was documented in a series of audit reports on implementation and interpretation of present legislation in a number of member states. The conclusion on these reports made the Commission ask EFSA for a scientific opinion, which issued a report on the topic in December 2013 [1]. 'A key driver to this CWA document is that the Opinion viewed microscopic examination of tissue changes as a promising method, but without providing specific detail.'

The European Parliament and the Council of the European Union expressed a wish on the definition of MSM in the point 20 of the Preamble to the Reg (EC) 853/2004. It is stated that 'the definition of Mechanically Separated Meat should be a generic one covering all methods of mechanical separation. Rapid technological developments in this area mean that a flexible definition is appropriate. The technical requirements for MSM should differ, however, depending on a risk assessment of the product resulting from different methods'.

The results presented in this document are part of the EU project entitled 'MACSYS - Development of an objective method to perform quality classification of comminuted poultry meat'. The project has received funding from the European Union's Seventh Framework Program managed by REA-Research Executive Agency, http://ec.europa.eu/research/rea ([FP7/2007-2013] under grant agreement SME- SME-2013-1-605621. The method, which was the outcome of the project, will be described in this CEN Workshop Agreement CWA 17047:2016.[1]



[1] In 2010 a different method to quantify the loss or the modification of the muscle fibre structure in a meat raw material has been accepted as a CEN Workshop Agreement: CWA 16255:2010 "Meat raw materials obtained by deboning – Assessment of the muscle fibre structure – pork, poultry and rabbit"

# 1 Scope

This document describes a method to determine the degradation of muscle fibre structure in comminuted and/or fragmented poultry meat using immuno-histochemical stainings of the sections in combination with image analysis. The method measures the level of degradation of muscle tissue.

Note: The method has been successfully trialed on broilers [2]

# 2 Normative references

There are no normative references in this document.

# 3 Terms and definitions

For the purposes of this document the terms and definitions given in the European legislation and the following apply.

**3.1**
**laminin**
structural protein observed in the cell membrane to visualize the outline of muscle fibres by using an antibody stain

**3.2**
**myosin**
structural protein in muscle tissue responsible for producing muscle contraction in muscle cells only observed in muscle tissue

Note: Several classes of myosin exist. This document refers to myosin class II.

**3.3**
**muscle fibre structure degradation**
ratio of the area of fibres with intact muscle fibre membranes to the total area of muscle fibres in a sample of muscle tissue

Note: The image analysis system identifies three elements: Structured muscle Tissue (ST), Non Structured muscle Tissue (NST) and Other Substances (OS). ST is recognised as coloured vs. NST which stain opaque, and OS are colourless. Any other tissue elements not identified by the laminin staining are considered as OS.

Note: The level of degradation is calculated as (ST/(ST+NST)*100).

# 4 Criteria for establishing a sampling procedure

For the purpose of sampling consistency, the following criteria should be recorded. The information should be available for traceability purposes for each sample of comminuted and/or fragmented meat:

— Temperature of the sample at the time of sampling

— Input material (traceability reference)

— Relevant parameters of the meat separator (e.g. pressure, arbitrary scale, yield, amps)

— Sample reference number/ID, including monitoring frequency