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Legal consideration on the use of Heat Decontamination Techniques (Hot Water) of Red Meat Surfaces

- **Can meat that has been treated with hot water still be considered as fresh meat?**

Legislation:

- Annex I Chapter 1.10 of Regulation 853/2004 'Fresh meat' means meat that has not undergone any preserving process other than chilling, freezing or quick-freezing, including meat that is vacuum-wrapped or wrapped in a controlled atmosphere. In this respect changes to the characteristics of the meat are an important factor to be considered.

Observations:

- Canada: significant changes to bovine meat in the bovine establishments, not much change to pig meat in the porcine establishment. The organoleptic changes are not controlled by CFIA.
- Denmark: the use of the hot water technique leads to a slight discoloration of meat which was mostly disappearing during chilling.

Conclusions / Proposal:

- The meat has to fulfill the definition of fresh meat.
- Heat decontamination is not to be considered as a preservation method, but as a method to reduce bacterial contamination, what is intended for food of animal origin, Reg. 853/2004, Chapter II, Art.3.
- There does not seem to be any prolongation of the shelf life due to the heat decontamination treatments. This supports the reasoning that it is not a preservation method.

- **Were the general hygiene requirements still fulfilled?**

Principal considerations:

- Heat decontamination has to be integrated into good hygienic practices and HACCP-based systems. The method must be regarded as an additional measure providing acceptable hygienic production of meat and in no way as a substitution for good hygienic slaughtering practices and operating procedures. The vertically integrated approach to food safety (farm-to-table) must still be fulfilled.

Observations:

- Canada: Despite some deficiencies observed, the mission team did not have the impression that the heat treatments were used as replacement to good hygiene practice. HACCP was in place in all establishments and the CCPs were defined and well controlled.
- Denmark: The hot water technique is used on pig carcasses within the framework of a HACCP system while applying a good/acceptable hygiene practice at all stages of the slaughter process.

Conclusion:

- The general hygiene requirements have to be fulfilled. There may be no need for further provision in the legislation.

- **Location of application of the heat treatment: Is there an interruption of the cold chain?**

Legislation:

- According to EC Regulation 852/2004, Annex II, Chapter IX, the cold chain is intended for food that cannot be stored safely at ambient temperature. Fresh meat belongs to this category. When using the heat decontamination directly after slaughter, the cold chain has not yet started. Therefore, no interruption of the cold chain occurs.

Observation:

- The treatments were all carried out before the chilling. It can therefore be considered that there is no interruption of the cold chain. However there was no legal prohibition of the use of the heat treatments at a later stage.

Conclusion:

- There may be no need for further provision in the legislation.
- **Does the heat treatment lead to condensation in the food premises?**

Legislation:

- According to EC Regulation 852/2004, Annex II, Chapter I, Paragraph 5, in the food premises "There is to be suitable and sufficient means of natural or mechanical ventilation. Mechanical airflow from a contaminated area top a clean area is to be avoided. Ventilation systems are to be so constructed as to enable filters and other parts requiring cleaning or replacement to be readily accessible." Enough ventilation avoids and minimises air-borne

contamination, and protects against the formation of condensation. However, the possible formation of aerosol can increase the risk of *Listeria* contamination especially when the normal flora has been destroyed.

Observation:

- The ventilation was sufficient, some insubstantial deficiencies observed.

Conclusion:

- There may be no need for further provision in the legislation.

- Is it necessary to lay down specific rules for heat decontamination techniques (temperature, duration)?

- In principle no, the legislation should only set minimum standards, the heat decontamination techniques go beyond the minimum food safety standards.
- It should be the responsibility of the operators to set the appropriate parameters (temperature, duration) in order to fulfill the legislation requirements (e.g. definition of fresh meat).

- Can recycled water be used for hot water decontamination?

Legislation:

- Article 3 of 853/2004 lays down that for products of animal origin surface contamination can be removed only with potable water and authorized substances, unless the use of clean water is permitted by Regulation (EC) No 852/2004 or Regulation (EC) No 853/2004.
- According to Regulation EC 852/2004, Annex II, Chapter IX, Paragraph 3 "at all stages of production, processing and distribution, food is to be protected against any contamination likely to render the food unfit for human consumption, injurious to health or contaminated in such a way that it would be unreasonable to expect it to be consumed in that state."
- Recycled water used in processing or as an ingredient is not to present a risk of contamination. It is to be of the same standard as potable water, unless the competent authority is satisfied that the quality of the water cannot affect the wholesomeness of the foodstuff in its finished form. (852/2004, Annex II, Chapter VII, Paragraph 3).

Observations:

- In practice, recycled water is only used for hot water decontamination and not for steam or steam vacuum decontamination. In fact, hot water decontamination is economically and environmentally not feasible without the recycling of water.
- Recycled water was used in the hot water decontamination in a bovine slaughterhouse in Canada, where the water was exchanged periodically. In Denmark recycled water was used in a pig slaughterhouse where the water quality was regulated by a light spectrum (turbidity) and fresh water was added on necessity.

Consideration:

- The water in the hot water decontamination is used at temperatures where no microbial growth is present. The appearance of sporulae is not an issue due to the regular exchange of water. In principle no microbiological risk due to the recycling of the water.

Conclusions:

- The current EU legislation provides for the use of recycled water but only in processing, not for the removal of surface contamination from products of animal origin.
- The conditions under which hot water decontamination may be used need further investigation before taking any official position on the matter.