

# COMMISSION OF THE EUROPEAN COMMUNITIES

COM(76) 365 final

Brussels, 15 July 1976

REPORT FROM THE COMMISSION TO THE COUNCIL CONCERNING  
CHILLING PROCESSES FOR SLAUGHTERED POULTRY

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## PROPOSAL FOR A COUNCIL DIRECTIVE

supplementing, with regard to the chilling process, amended  
Directive 71/118/EEC on health problems affecting trade in  
fresh poultrymeat.

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(submitted to the Council by the Commission)



REPORT FROM THE COMMISSION TO THE COUNCIL CONCERNING  
CHILLING PROCESSES FOR SLAUGHTERED POULTRY

1. After prohibiting the use of the so-called "Spinchiller" poultry chilling process currently in use, Article 14 of the Council Directive No 71/118/EEC(1) of 15 February 1971 on health problems affecting trade in fresh poultrymeat as last amended by Directive No 75/431/EEC(2) charged the Commission with preparing and submitting to the Council, before 1 July 1976 and after consulting the Member States within the Standing Veterinary Committee, a report concerning the chilling processes which are not covered by the above-mentioned prohibition; the prohibition will not become binding until 18 months after the submission of the report, and with effect from 1 January 1978 at the latest.

2. The prohibition contained in Article 14 was based on the fact that the immersion chilling process, in the form which it took in 1971, did not offer satisfactory results as regards hygiene (considerable increase in bacterial load, cross-contamination, development of bacteria which considerably reduce the preservation period, resulting in particular from the absorption of extraneous water). By way of example, in a study carried out on the problem of chilling by experts from the Federal Office for Meat Research at Kulmbach in the Federal Republic of Germany, on the system then in existence (see Doc No R/1242/69(Agri 392)), a 490% increase was recorded in the total bacterial count of the carcasses after being placed in the Spinchiller (14 500 before being placed in the Spinchiller (100%) and 71 170 after) and a 120% increase in the enterobacteriaceae count (6 430 before (100%) and 7 560 after). In a second test the increases were 487% and 337% respectively. In other studies, experts recorded that the bacterial contamination of the carcasses after being placed in the Spinchiller was three times higher than before immersion.

With regard to water absorption, certain experts recorded an absorption rate of 3-10-11% and even more.

It may be noted that this system was practised without provisions being laid down as regards the conditions of functioning, in order to assure satisfactory results in respect of hygiene.

3. Certain experts, however, had already observed, during discussions preceding the Council's decision, that, by modifying the abovementioned process and adopting certain criteria with regard to installation and operation, it is possible to obtain a process of chilling by immersion in water which gives satisfactory results from the hygienic point of view. These criteria relate in particular to the washing of the carcasses before immersion in the chill water tanks, the use of the counter-current water system, and the use of a minimum quantity of water at a specified temperature.

(1) OJ No L 55, 8.3.1971, p.23.  
(2) OJ No L 192, 24.7.1975, p.6.

In these circumstances and owing to the diversity of the results obtained by the experts concerning the bacteriological condition of carcasses chilled by the different processes and in order to permit the preparation of the report requested by the Council, the Commission considered it advisable to organise at Community level a study to make it possible:

1. to know the comparative value from the hygienic point of view of the immersion chilling processes used in certain slaughterhouses in 1975, and those obtained from the old process;
2. to compare the results obtained by the immersion chilling process with those of the air-chilling process already in use in industry.

Thus the study should offer the elements necessary to appreciate the possibility of using an immersion chilling process giving satisfactory results in respect of hygiene.

The study was carried out after a test programme had been drawn up so as to obtain comparable results.

The study did not relate to the spray-chilling processes on which experiments and studies have been conducted in the Federal Republic of Germany; these have not reached the stage of industrial application.

4. Experts from the following Member States took part in this study: France, Italy, the Netherlands, Denmark and the United Kingdom. Coordination was undertaken by a Belgian expert. The Commission had invited all the Member States to collaborate in the study. The experts in the Federal Republic of Germany did not carry out any of the experimental work; they did, however, collaborate in the drafting of the test programme and in the discussions on the results obtained.
5. The immersion chilling process was studied in five slaughterhouses and the air chilling process was studied in six.

Since chilling is only one stage in the slaughter chain for poultry, it appeared advisable to conduct bacteriological research on other important stages in the slaughter chain (plucking, evisceration, spray-cleaning, packaging).

This enables a broader picture to be obtained of the hygienic value of the different chilling processes. This study was conducted between 28 October and 18 December 1975.

The Standing Veterinary Committee was consulted concerning the present report on 17 June 1976.

6. The main conclusions of the study are as follows:
  - a.) It is generally found that the bacterial load of the carcasses, after the evisceration operations, is greater than at the preceding stage (plucking). The passing of the carcasses under a shower before being placed in the chilling unit has a favourable effect on the standard of hygiene.

- b) On the basis of the results obtained, it does not appear that the process of chilling by immersion in water, provided that it is correctly used, has, in relation to the air-chilling process, an unfavourable influence on the standard of hygiene of the poultry carcasses.

On the contrary, this process, in addition to the chilling effect, has a washing effect which results in a reduction in the contamination of the surface of the carcasses and consequently an improvement in their standard of hygiene. This washing effect does not exist in the air-chilling process. Nevertheless, an acceptable standard of hygiene can be obtained in the finished product by air-chilling as well as by immersion provided that the hygienic conditions applied during the operations preceding chilling are adequate. To that end, the system of spray-cleaning carcasses before chilling should be generalised.

- c) The bacteriological quality of the final product in both processes depends to a large extent on the bacteriological quality of the poultry and on the standard of hygiene during the different stages preceding chilling, and in particular during plucking and evisceration.
- d) In both processes, the reduction of the temperature of the carcasses in such a way as to avoid the rapid multiplication of bacteria may be obtained within an acceptable time.
- e) Certain partial results from air- or water-chilling plants are less favourable than others, or even unsatisfactory; this shows that improvements or alterations must be made to the plant or to the operating procedures.
- f) Water absorption: unlike the air-chilling process, which causes a slight weight loss in the carcasses, the immersion chilling process causes a weight increase owing to the absorption of extraneous water. In the study effected, the weight increase during spray-washing and immersion varied from a minimum of 4.1% (1 slaughterhouse) to a maximum of 8.9% (1 slaughterhouse); in three slaughterhouses, the rate varied from 5.3% to 6.6%.  
The absorption of water depends on several factors; the rate is too high in certain slaughterhouses; this shows that the chilling system must be improved. It can, however, be stated with regard to this problem that the water absorption rate in an improved and correctly applied immersion chilling process can be maintained at a low level.
- g) The study does not provide any conclusive results concerning the problem of cross contamination. It should, however, be borne in mind in this respect that:
- the problem of cross contamination is not restricted to chilling; it can happen throughout the slaughter chain;
  - this problem must be judged in the light of the effect of cross contamination on the final product from the point of view of hygiene and consequently of the increase in the bacterial load and the risk to the consumer from the increase in the number of animals contaminated by pathogenic bacteria:

- assessment of the degree of cross contamination should be based on the use of technically precise methods and procedures;
- it is above all by introducing preventive measures against salmonella in poultry farms that the danger of contamination of carcasses by salmonella in slaughterhouses can be reduced or avoided.

On the basis of the results obtained by this study it may be concluded that it is possible, by making certain alterations to the previous system, by adopting certain criteria with respect to the construction of installations and their operation, to obtain a chilling process by immersion in water which will give satisfactory results as far as hygiene is concerned.

However, the guarantee of obtaining such results must be based on the introduction of systematic control, which must be carried out by means of apparatus allowing a permanent verification of the correct functioning of a chilling plant and by means of microbiological examinations. It may be noted that the control of correct functioning of a chilling plant is under the responsibility of the official veterinarian, according to the Directive mentioned under point 1.

The criteria concerning the chilling plant and its functioning, as well as the provisions for control which assure that satisfactory and reliable results as regards hygiene are obtained, are the following:

- a) The immersion chilling process consists in passing the carcasses through one or more tanks of water or of ice and water which is continuously renewed.  
A system whereby the carcasses are pushed along by mechanical means through a counter flow of water is acceptable.
- b) The temperature of the water in the tank measured at the place of entry and exit of the carcasses must not be more than + 14°C and 4°C respectively. A tolerance of 2°C is allowed.
- c) The immersion chilling process must be carried out in such a way that the average temperature of the carcasses on exit is not more than + 8°C. The temperature should be measured in the following way: 10 carcasses are placed in a box of suitable dimensions and made of insulated material. The temperature is measured in the centre between the carcasses after 30 minutes.
- d) The water must be of drinking quality. The ice must be obtained from drinking water.
- e) Immediately prior to immersion the carcasses must be washed by spraying. The minimum quantity of water to be used per kilo of carcase is one litre.
- f) The minimum flow of water must be 2.5 litres per kilo of carcase and must be regulated in such a way as to ensure a continuous flow from each tank. The minimum flow of water from the last tank must be 0.5 litres per kilo of carcase. The water used for the first filling of the tanks must not be included in the calculation of quantity.

- g) The equipment used for chilling by immersion must be made of stainless steel. The carcasses must on no account remain in the first part of the apparatus or the first tank for more than one half hour. During each pause of more than one half hour by the elevators or conveyors used to remove the poultry from the chilling units agitation must cease, whether it is produced mechanically or by displacement of air.
- h) At the end of the day each piece of equipment must be entirely emptied, cleaned and thoroughly disinfected in accordance with the rules of hygiene.
- i) The chilling process must be provided with control equipment to:
- measure and record the temperature of the water in the tank at the following places: entrance and exit of the carcasses;
  - measure and record water consumption during spray washing before immersion;
  - measure and record water consumption during immersion;
  - record the number of carcasses that pass through the tank or tanks.
- j) The correct functioning of the chilling plant must be checked by a standardised microbiological control of the carcasses. This control must be carried out when it is first brought into use and after that periodically and in any case each time any alterations are made.
- The functioning of the various parts of the plant must be regulated so as to ensure a satisfactory standard of hygiene.
- The effect of the chilling equipment on the hygiene level is evaluated by comparing the contamination of the carcasses by total and enterobacteriaceae bacteria before and after immersion.
8. Account should be taken of the fact that at present the processes of chilling by air and by immersion in water are the only processes which can be employed by industry. Chilling by immersion is the more common in most Member States. Abolition of this process would therefore create serious economic problems for the poultrymeat industry without improving hygiene. For, although as far as cross contamination is concerned chilling by air has an advantage, as regards the total bacterial surface load the immersion system gives the best results.
- On the other hand, the old Spinchiller process must continue to be banned.
9. In conclusion, the Commission considers that the immersion chilling process performed in compliance with the conditions set out above (point 7) does not fall under the ban in Article 14(1) of the Directive referred to in point 1 of this Report.
- The introduction of the principle of control, as mentioned in point 7, will enable an evaluation to be made, whether a chilling plant is acceptable in respect of hygiene.
10. The Commission therefore proposes that the Council adopt the proposal for a directive contained in Annex I.

Proposal for a Council Directive  
of  
supplementing, as regards the chilling process,  
Directive 71/118/EEC on health problems affecting trade in  
fresh poultrymeat

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The Council of the European Communities,

Having regard to the Treaty establishing the European Economic Community,  
and in particular Articles 43 and 100 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament,

Whereas Article 14 of Council Directive No 71/118/EEC of  
15 February 1971 on health problems affecting trade in fresh poultrymeat  
as last amended by Directive No 75/431/EEC(2),  
the use of a certain process for chilling poultry which is not satisfactory  
from the point of view of hygiene;

Whereas such prohibition will not be binding until 18 months after the  
Commission has submitted a report on chilling processes which are not  
covered by the prohibition or until 1 January 1978 at the latest;

Whereas the Commission, after consulting the Member States within the  
Standing Veterinary Committee, submitted to the Council on .....  
a report **laying** down the conditions governing plant, operation and control  
which the process of chilling by immersion in water must meet in order  
not to be considered to fall within the said prohibition; whereas this  
Directive is based on the conclusions of that report;

Whereas it would be useful to provide for a rapid and efficient procedure  
to amend the said conditions in the light of technological developments  
and of experience acquired;

HAS ADOPTED THIS DIRECTIVE:

Article 1

The Council Directive of 15 February 1971 is hereby amended in accordance  
with the following Articles.

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(1) OJ No L 55, 8.3.1971, p.23.  
(2) OJ No L 192, 24.7.1975, p.6.

Article 2

Article 14 is amended to read as follows:

"The Member States shall prohibit the use of the process of poultry chilling by immersion in water, with the exception of the process carried out in accordance with the conditions laid down in point 28a of Chapter V of Annex I."

Article 3

The following sentence is added to Article 3(1)(A)(c):

"The provisions contained in point 28a of that chapter may be amended or supplemented in accordance with the procedure laid down in Article 12a."

Article 4

The following point 28a is added to Chapter V of Annex I, after point 28:

- a) The immersion chilling process consists in passing the carcasses through one or more tanks of water or of ice and water which is continuously renewed. A system whereby the carcasses are pushed along by mechanical means through a counter flow of water is acceptable.
- b) The temperature of the water in the tank measured at the place of entry and exit of the carcasses must not be more than + 14°C and 4°C respectively. A tolerance of 2°C is allowed.
- c) The immersion chilling process must be carried out in such a way that the average temperature of the carcasses on exit is not more than + 8°C. The temperature should be measured in the following way: 10 carcasses are placed in a box of suitable dimensions made of insulated material. The temperature is measured in the centre between the carcasses after 30 minutes.
- d) The water used must be of drinking quality. The ice used must be obtained from drinking water.
- e) Immediately prior to immersion the carcasses must be washed by spraying. The minimum quantity of water to be used per kilo of carcass is one litre.
- f) The minimum flow of water must be 2.5 litres per kilo of carcass and must be regulated in such a way as to ensure a continuous flow from each tank. The minimum flow of water from the last tank must be 0.5 litres per kilo of carcass. The water used for the first filling of the tanks must not be included in the calculation of these quantities.
- g) The equipment used for chilling by immersion must be made of stainless steel. The carcasses must on no account remain the first part of the apparatus or the first tank for more than half an hour. During each pause of over half an hour by the elevators or conveyors used to remove the poultry from the chilling units the agitation must cease, whether it is produced mechanically or by displacement of air.

- h) At the end of the day each piece of equipment must be entirely emptied, cleaned and thoroughly disinfected in accordance with the rules of hygiene.
- i) The chilling process must be provided with control equipment to:
  - measure and record water consumption during spray-washing before immersion,
  - measure and record the temperature of the water in the tank at the following places: entrance and exit of the carcasses;
  - measure and record water consumption during immersion,
  - record the number of carcasses that pass through the tank or tanks.
- j) The correct functioning of the chilling plant must be checked by a standardised microbiological control of the carcasses. This control must be carried out when it is first brought into use and after that periodically and in any case each time any alterations are made. The functioning of the various parts of the plant must be regulated so as to ensure a satisfactory standard of hygiene.
- The effect of the chilling equipment on the hygiene level is evaluated by comparing the contamination of the carcasses by total and enterobacteriaceae bacteria before and after immersion.

Article 5

The Member States shall bring into force the laws, regulations and administrative provisions required in order to comply with this Directive by 1 January 1978.

Article 6

This Directive is addressed to the Member States.

Done at Brussels,

For the Council

The President

