

Note de Synthèse
Problématique du critère *E. coli* sur les
fromages au lait cru imposé par la FDA
(English translation)

Rédaction : CL

Date : 19/09/2014

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1. Background

FDA is updating the levels of some microorganisms, including non toxigenic *E. coli* for dairy products.

The level recommended by FDA for all dairy products (raw milk and pasteurized milk) is:

m = 10

M = 100

n = 5

c = 2

This level is lower than level used in Europe and France for raw milk cheeses and cheeses made with milk heated under pasteurization temperature.

2. Interest of using *E. coli* as microbiological indicator of sanitation

E. coli characteristics:

Bacteria originate from animal or human feces.

It's not pathogenic for human (but exceptions toxigenic *E. coli*, like *E. coli* O157:H7)

Attachement: Extract from the future Hygienic Guidance for cheesemongers – Fiche danger – Germes indicateurs d'hygiène – GBPH pour la profession de Crémier-Fromager-Affineur (France)

Contamination occurs in dairy products:

- During milking: contamination of milk during milking due to contact with feces (on clean teats) and processing contaminated raw milk
- During processing: in facilities, by employees or improperly sanitized equipment
- During delivery to consumer: when cutting cheeses by cheesemongers and other handling, by employees or improperly sanitized equipment

Interest of searching *E. coli* in dairy products:

Raw milk cheese:

- During processing:
 - Finding improperly hygiene practices during milking (main moment for contamination occurs) (improper cleaning of teats, poor sanitation of milking parlor, poor living conditions of animals...)
 - Finding potential contamination by employees and equipment during processing
- During delivery to consumer:
 - Against ANSES (French safety agency), is no use to search *E. coli* at this moment because it is not possible to bring out secondary contamination from delivery, because of initial contamination occurring during processing

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Pasteurized milk cheese (and other heated milk):

- During processing:
 - Finding contamination by employees and equipment during processing. This is possible thanks to the heating treatment which destroy *E. coli*.
- During delivery to consumer:
 - Finding contamination by employees and equipment during delivery. This is possible thanks to the heating treatment which destroy *E. coli*, the cheese are supposed to be devoid of *E. coli*.

Comments:

- Given the observation above, even very good hygiene practices can't guarantee *E. coli* absence in milk before cheese making, due to the absence of heating treatment. This is widely admitted. The criterion lower than 10 MNP per gram seems to be very strict whereas its presence is obviously accepted and tolerated.

3. Criteria used for *E. coli* in Europe and France

Regulatory references and recommendations:

- (1) Commission Regulation (EC) No 2073/2005 of 15 November 2005 on microbiological criteria for foodstuffs modified by regulation No 1441/2007
- (2) Avis AFSSA (Agence Française de Sécurité Sanitaire des Aliments) du 18 mars 2008 concernant les références applicables aux denrées alimentaires en tant que critères indicateurs d'hygiène des procédés
- (3) Criteria of Cheese Retailers Federation in France : FCD (Fédération des entreprises du Commerce et de la Distribution) and FNDPL (Fédération Nationale des Détaillants en Produits Laitiers)
- (4) Guidance for alert management by DGAL (France) : Guide d'aide à la gestion des alertes d'origine alimentaire entre les exploitants de la chaîne alimentaire et l'administration lorsqu'un produit ou un lot de produits est identifié « *version révisée du 02/07/2009* » : DGCCRF (Direction Générale de la Concurrence, de la Consommation et de la Répression des Fraudes), DGAL (Direction Générale de l'Alimentation), DGS (Direction Générale de la Santé)
- (5) Hygienic Guidance for cheese making (France) : Guide de Bonnes Pratiques d'Hygiène – Collecte du lait cru et fabrication de produits laitiers : ATLA, ACTILAIT – Novembre 2012. *Les éditions des journaux officiels*

Criteria:

Food category	Stage where the criterion applies	Limits (cfu/g) Sampling plan	Reference	Comments
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Cheeses made from milk or whey that has undergone heat treatment	At the time during the manufacturing process when the <i>E. coli</i> count is expected to be highest	m = 100 M = 1 000 (n=5 ; c=2)	(1)	For cheeses which are not able to support the growth of <i>E. coli</i> , the <i>E. coli</i> count is usually the highest at the beginning of the ripening period, and for cheeses which are able to support the growth of <i>E. coli</i> , it is normally at the end of the ripening period.
Cheeses made from pasteurized milk or cooked under pasteurization temperature	At the time during the manufacturing process when the <i>E. coli</i> count is expected to be highest	m = 100 M = 1 000 (n=5 ; c=2)	(5)	
Raw milk cheese	/	/	(1)	They are not considered in the european regulation
Raw milk cheese	Processing At the expedition	100.000	(2) (5)	
Raw milk cheese	Delivery	10.000	(2)	
Raw milk cheese wrapped	Delivery at admission step	10.000	(3)	
Raw milk cheese wrapped	Delivery at the use-by date	10.000	(3)	
Raw milk cheese	Distribution pendant la durée de conservation	10.000	(3)	
Other food (including raw milk cheeses) than those for which there is a regulated criteria of sanitation indicator (<i>E. coli</i> or enterobacteriaceae)	1.000.000		(4)	A level of <i>E. coli</i> greater than 1.000.000 generate the beginning of a procedure with the withdrawal from the market and the recall of food.

The moment when the analysis may be done is specified. It's known that *E. coli* level moves during cheese processing and aging (affinage). In particular, *E. coli* decrease during aging, this had been proved by growth population of *E. coli* in raw milk soft cheese study.

Attachement: Translation of ACTILAIT studies – *Suivi des populations de Escherichia coli dans des lots de Brie de Meaux au lait cru. (2011)*

In European Regulation, for cheeses made with heat-treated milk (pasteurized and unpasteurized), analysis must be done at the time during the manufacturing process when the *E. coli* count is

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expected to be highest (before or after affinage). This could be determinate by producer because it depends on cheese technology, kind of milk (animal), processing conditions...

For raw milk cheeses, French criteria, analysis must be done when cheese is sent, so after affinage.

Consequence if *E. coli* level exceeding criteria

E. coli presence in cheese, especially made with raw milk, is not a public concern in France, and neither a sanitary risk for consumer.

It's only a sanitation indicator which serves to professional to evaluate the hygienic conditions of their facilities. And so, *E. coli* presence in cheese doesn't generate the establishment of alert procedure (unless of exceeding alert criterion (1.000.000 cfu/g (4)). Producer concerned may react. They are supposed to look for causes and improve the sanitary conditions, at all step of the production from husbandry, milking, processing to delivery.