

Raw Milk Cheese

Guidelines for Processors

Terminology

“Raw milk cheese” is the common term used to describe cheese made from milk that has not been pasteurized (i.e., ‘raw milk’). Other descriptions of raw milk cheese included in legislation referred to in this document include ‘*cheese made from unpasteurized milk*’. Pasteurized cheese includes only cheeses made from milk that has been pasteurized according to regulations.

Recent Change to Ontario Regulations

The Ontario *Health Protection and Promotion Act* (HPPA) states that:

s. 18.(2) “No person shall sell, offer for sale, deliver or distribute a milk product processed or derived from milk that has not been pasteurized or sterilized in a plant that is licensed under the Milk Act or in a plant outside Ontario that meets the standards for plants licensed under the Milk Act.”

Ontario Regulation 493/17 – Food Premises under the *HPPA* provides an exemption for processors to manufacture cheese from raw milk, provided that it,

s. 43. “...has been subjected to conditions of storage that are sufficient to destroy pathogenic bacteria and toxins and any other forms of contamination that would render the cheese unsafe to eat”.

This requirement came into effect July 1, 2018 and replaces an earlier requirement to age cheese made from unpasteurized milk at a temperature not lower than 2° Celsius for a period of not less than sixty days following the time of manufacture.

Federal Regulations Still Apply

The federal [Food and Drug Regulations](#) (under the *Food and Drugs Act*) state specific requirements for raw milk cheese that continue to apply to Ontario dairy plant operators.

Cheese made from raw milk:

- *must be stored* at a temperature of 2°C or more for a period of 60 days or more from the date of the beginning of the manufacturing process (‘aging’);
- within three days of manufacture, must be marked or labelled with the date of the beginning of the manufacturing, and
- may not be sold if it contains more than 500 *Escherichia coli* or 1,000 *Staphylococcus aureus* per gram.

Guidance to Processors

Processors must comply with both federal and provincial requirements for producing safe cheese from unpasteurized milk. In addition to the 60 day aging required under federal law, dairy plant operators must demonstrate that their products have been “... subjected to conditions of storage that are sufficient to destroy pathogenic bacteria and toxins and any other forms of contamination that would render the cheese unsafe to eat” (O.Reg. 493/17, s.43).

(Pathogenic bacteria are micro-organisms that cause illness or disease in humans. Some examples of these bacteria are pathogenic *Escherichia coli*, *Listeria monocytogenes*, *Salmonella* spp., and *Staphylococcus aureus*).

Considering that there are many different varieties of cheese and associated food safety risks, the Food Safety Inspection Delivery Branch has developed some guidelines to assist processors of raw milk cheese with understanding how they can meet the new requirements. As individual situations may vary, it remains the responsibility of the plant operator to ensure compliance with the law and to produce cheese that is safe to eat.

Option 1: Test All Lots (Batches)

Following 60 days of aging at a temperature above 2°C, operators should test all lots (or batches) of cheese and withhold the lots from sale until test results are received and determined to be satisfactory. It is recommended that cheese testing be conducted close to the date of sale. Possible tests to include are:

Pathogen or indicator organism	Standard
<i>Escherichia coli</i> (<i>E. coli</i>)	max 500 cfu*/g
<i>Staphylococcus aureus</i> (<i>S. aureus</i>)	max 1000 cfu/g
<i>Listeria monocytogenes</i> (<i>L. monocytogenes</i>)	not detected
<i>Salmonella</i> spp.	not detected
Coliforms	<1000 cfu/g

*cfu = colony forming units

The specific tests and sample numbers are developed based on International Commission on Microbiological Specifications for Foods (ICMSF) statistical sampling tables (ICMSF 2011). A number of factors are taken into consideration including the size of lot, the risk associated with the specific cheese type (includes cheese-making process, the characteristics of the finished cheese, the likelihood of survival and growth of specific pathogens and degree of associated health risks) and any other circumstances that could affect the quality of finished products (such as single sourcing milk from one farm, or finished product storage conditions that are known to increase the destruction of a pathogen). It is a good idea to speak to your Dairy Plant Specialist when designing your testing program as they may be able to provide you with additional information. Ultimately you remain responsible for the program that is developed.

Raw milk testing controls

Depending on the finished product test results, subsequent raw milk testing may be necessary to help determine and eliminate the root cause of any contamination. For this reason, operators are encouraged to source their raw milk from a single, dedicated supplier to simplify traceback and troubleshooting of quality and safety issues related to the raw milk supply.

Raw milk is reasonably likely to be contaminated, despite on-farm preventative efforts.

Operators who manufacture raw milk cheese are advised to, routinely:

- test every lot of milk for indicator organisms, including total bacteria, coliforms, and *E. coli*. If making a low risk cheese, test periodically (e.g., weekly, monthly) (D'Amico 2013).
- process the raw milk within a maximum period of 24 hours after milking, and
- also test the raw milk supply for pathogenic microorganisms as follows:

Pathogen	Testing frequency	Standard
<i>S. aureus</i>	monthly	max 500 cfu/ml
<i>L. monocytogenes</i>	monthly	not detected
<i>Salmonella</i> spp.	monthly	not detected
Shiga toxin-producing <i>E. coli</i> (STEC)	monthly	not detected

- maintain records of raw milk quality monitoring

Option 2: Follow a Validated Method

An alternative means for processors to demonstrate that their raw milk cheeses are free from '*pathogenic bacteria and toxins and any other forms of contamination that would render the cheese unsafe to eat*' is to follow a method or 'recipe' that has been scientifically demonstrated to control these hazards (i.e., a validated method).

What is Validation?

Validation is the process of obtaining evidence that a control measure or combination of control measures, if properly implemented, is capable of controlling the hazard to a specified outcome. Validation also confirms that a process can be relied upon, with a high degree of confidence, to produce the same or similar outcomes every time. Validation focuses on collection and evaluation of scientific, technical and observational information such as referencing previous validation studies in peer-reviewed journals, or conducting laboratory challenge testing to demonstrate that a particular control measure is adequate.

Production of Raw Milk Cheese Using a Validated Method

Processors may wish to make a particular type of raw milk cheese by following a method that has been demonstrated to effectively control any associated food safety risks to acceptable levels (i.e., a validated method). The method may be an existing one, or based on the operator's own process. In either case, the method must be supported by data demonstrating that the process controls a given hazard to a specified outcome and has been reviewed and approved by a number of academic experts on the food safety of cheese manufacturing (e.g., a peer-reviewed publication). In most instances, this will require the assistance of technical expertise and a third-party accredited laboratory. Note that the procedures must be specific to the type of cheese and must be demonstrated to control pathogens of concern, such as pathogenic *E. coli*, *Listeria monocytogenes*, *Salmonella* spp., and *S. aureus*.

Detailed written procedures with measurable outcomes, process records, and test result records should be maintained by the operator and made available for review by the dairy plant inspector.

Contact Us

Individuals considering making a raw milk cheese product should contact their Dairy Plant Specialist or ask to speak with the Dairy Food Safety Advisor by calling (toll free) 1-877-424-1300 or by sending an email to ag.info.omafra@ontario.ca.

