



Retail Food Protection #29 Program Information Manual

Subject	INTERPRETATION	Applicable code(s) or section(s)
Food Supplies - Moldy Cheese		<u>76 FSV 2-101</u> <u>78 FVD 2-101</u> <u>82 FST 2.101</u>

Part 6 - Inspection
Chapter 01 - Code Interpretations
Number 2-101

Question

Is cheese from which mold has been removed considered sound and safe for human consumption?

Discussion

The term "moldy" refers to the presence on cheese of atypical contaminating molds, general species of Penicillium, Aspergillus, Fusarium, Cladosporium and Alternaria.(1) It does not refer to the presence of molds, principally Pennicillium roqueforti and P. caseicolum, which are intentionally added to curd or milk in order to produce such "mold-ripened" cheeses as roquefort, blue, gorgonzola, brie and camembert.(2)

Molds may grow on cheese during the ripening stage, during the curing process or during storage. Many of the common molds are psychrotrophic and grow at refrigeration temperatures.(1),(14) Temperatures around 40°F (4°C) favor the growth of Penicillium sp. over most of the other molds.(3)

All types of cheeses, from the very hard grating cheeses such as parmesan and romano to the soft cheeses like cottage and ricotta, are susceptible to mold growth.

Mold growth on food is usually considered undesirable for reasons of aesthetics. However some mold species, including some found on cheese, are known to produce toxic metabolites (mycotoxins). Aspergillus flavus and A. parasiticus may produce aflatoxins;(1), (4), (5), (6), (10), (16), (20) A. ochraceus - ochratoxin A;(1), (3) A. versicolor - sterigmatocystin; (7), (12), (18), (22) Penicillium-roqueforti - penicillic acid, (1), (2), (12), (14) PR toxin, (2), (13) mycophenolic acid (2), (11) and patulin; (1), (2), (19) P. caseicolum - cyclopiazonic acid;(2), (8) and P. crustosum - penitrem A.(9) These mycotoxins have caused cancer and other adverse effects in experimental animals.

Mold usually grows on the surface of cheese but may penetrate to the inside along air passages such as holes or eyes in swiss-type cheese. Mycotoxins, if produced, are produced by the mold filaments, are closely associated with those filaments and are therefore, near the surface. (4), (7), (8), (18) However, some research indicates that mycotoxins can grate into cheese, particularly if stored for long periods at room temperature.(5), (15)

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