



**United States
Department of
Agriculture**

**Food Safety and
Quality Service**

**Fruit and Vegetable
Quality Division**

**Processed Products
Branch**

Methods of Analyses for Tomato Products Mold Count

**For Use of USDA Processed
Foods Inspectors**

P R E F A C E

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Chief
Processed Products Branch
Fruit and Vegetable Quality
Division, FSQS
U.S. Department of Agriculture
Washington, D.C. 20250

MOLD COUNT

INTRODUCTION AND BACKGROUND

Mold counts are only one of several methods for determining the acceptability of the finished product.

Only the fungus rots are characterized by the presence of mold filaments. Mold counts are not increased by the presence of rot caused by bacteria, virus or nonparasitic factors.

High mold counts confirm that large amounts of rotten material are present; low mold counts do not necessarily assure that the type of rot characterized by mold filaments is not present.

Food and Drug, has publically announced that:

"(a) Although high mold count is conclusive evidence of inclusion of substantial amounts of rot, mold count is not the only way of establishing that comminuted tomato product contain decomposed tomato material.

(b) Where factory observations or other evidence reveals that comminuted tomato products contain rot not caused by mold, such rot, as well as that caused by mold, will be taken into account in applying the provisions of the Federal Food, Drug and Cosmetic Act against adulteration.

(c) The blending of tomato products adulterated with tomato rot, of whatever kind, with tomato products made from sound tomatoes, or with other sound food, renders the blend adulterated."

Since canned tomatoes and various comminuted tomato products differ materially in physical characteristics of the finished product, the preparation of the sample will vary according to individual products or groups of similar products.

No change in text
February 1971

THIS INSTRUCTION DOES NOT ESTABLISH
A NEW OR REVISED SUBSTANTIVE RULE

TOMATO
PRODUCTS
METHODS

MOLD COUNT
February 1971

- RESERVED -

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PREPARATION OF SAMPLE

Canned Tomatoes, Diced Tomatoes, Tomatoes and Okra, Tomatoes and Puree, Stewed Tomatoes and Other Similar Products

For Canned Tomatoes and on products containing whole Tomatoes, mold counts are made on the drained liquid only, unless examination, visual observations, or other history indicate that mold counts should be made on pulped tomatoes also. If necessary to make mold counts on drained tomatoes, pass such tomatoes through a laboratory cyclone pulper. (See Chile Sauce, etc. -- next page)

Tomato Sauce and Tomato Juice

Use the sauce or juice as it comes from the container without dilution.

Tomato Paste, Tomato Puree, Concentrated Tomato Juice, and Dehydrated Tomato Powders.

* Add sufficient water to the puree, paste, or powder to make a mixture having a natural tomato soluble solids content of 7.9% to 8.8% (refractive index 1.3446 to 1.3460, corrected to 20° C.)

* See dilution chart, Inspection Aid No. 23, on last page of this instruction.

* Revised - February 1971

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PREPARATION OF SAMPLE -- continuation

Chili Sauce, Pizza Sauce and Similar Products

(Also, canned tomatoes when it is deemed necessary to make mold counts on pulped tomatoes.)

Pass the contents of the container through the laboratory pulper to remove seeds and large particles. If the container is a No. 10 can size (or larger) of Chili or Pizza Sauce, pulp a 20 ounce aliquot of a well-mixed sample from individual containers.

If tomatoes are pulped, use entire contents of individual containers if container is of No. 10 can size and smaller. For larger container, use a well-mixed five pound aliquot.

Specialty Products

These would include such products as Tomato Soup, Pork and Beans, Spaghetti with Tomato Sauce, Spaghetti with Meat Balls, or meat, Ravioli, Chili Con Carne, Tamales, and Tomato Sauce packing medium on fish.

Such items are prepared for mold counts in accordance with the appropriate sections in the AOAC.

No change in text

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PREPARATION OF SAMPLE -- continuation

* Tomato Catsup

The current official method for counting mold in tomato catsup requires a 1:1 dilution, by volume, of the catsup with one of the following stabilizing solutions:

1) 0.5% Sodium Carboxy Methyl Cellulose (CMC)

[This solution is preferred; when ordering, specify "Cellulose Gum CMC-7 HSP." It may be ordered from:

Hercules Powder Company
910 Market Street
Wilmington, Delaware 19801]

Preparation:

Place 500 ml of boiling water in a high speed blender. With blender running, slowly add 2.5 gms of the cellulose gum (CMC) and blend for one minute. Treat solution with heat or vacuum to remove air bubbles. After solution has cooled, add 2 ml. of formaldehyde per 100 ml of solution as a preservative, mix well and store in closed container. Larger volumes of the CMC solution may be made at one time.

2) 3% to 5% Pectin Solution

Preparation:

Follow the procedure for CMC solution except use 15 to 25 gms of Pectin.

-- continued on next page --

* Addition - February 1971

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* Tomato Catsup -- continuation

3) 1% Algin Solution

Preparation:

Follow the procedure for CMC solution except use 5 gms of Algin.

Caution:

Check stabilizer solution for mold growth if formaldehyde has not been added or if solution has been stored over a period of time.

Mixing the Catsup with the stabilizing solution, Official Method:

Place 50 ml of stabilizing solution in a 100 ml graduated cylinder.

Add 50 ml. of a well mixed catsup sample to the cylinder by displacement and mix thoroughly while in the cylinder. Drop catsup directly into the solution. This can best be done by using a spoon instead of pouring from a container into the cylinder. If catsup is allowed to run down side of cylinder, the graduations will be difficult to read.

Transfer mixture to suitable container and determine mold count.

Alternate Method:

Place tared beaker on triple beam balance.

Add 50 ml of stabilizer (weight of 50 ml of stabilizer can be predetermined so volume need not be taken each time).

Next add 50 ml. of catsup (weight of 50 ml. of catsup predetermined).

Mix thoroughly and determine mold count.

* Addition - February

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