



Technical specification for: TOMATO PASTE

Specification reference: **Tomato paste**

Version: **1.0**

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1. INTRODUCTION

1.1 Product type

Tomato Paste is prepared from sound, ripe red tomatoes (*Lycopersicon/Lycopersicum esculentum* P. Mill) and packed in tin cans.

1.2 Standards and recommendations

Tomato Paste shall be manufactured in accordance with: “Recommended International Code of Practice: General Principles of Food Hygiene”, CAC/RCP 1-1969 Rev 3 1997 Amended (1999) including Annex “Hazard Analysis and Critical Control Point (HACCP) System and Guidelines for its application” and Codex Standard for processed Tomato concentrates (Codex Stan 57-1981).

2. PROCESSING

Tomato Paste production must respect the national and international code practice for processing of this commodity.

For compliance with Codex standards, the processor must be able to demonstrate by principle and practice the adoption, implementation and recording of:

- Good Manufacturing Practice
- Hazard Analysis Critical Control Point program

In this context an appointed WFP Inspector / Quality Surveyor is entitled to visit the factory without prior notice during any period when WFP product is being manufactured to check that the GMP and HACCP systems are in place. The Inspector / Quality Surveyor may request to see:

- **Records** (i.e. names of people in charge of the process and quality control, temperatures of the process, mixing times / quantity, cleaning schedules, etc).
- **Procedures** (e.g. cleaning, personnel hygiene, HACCP, sampling and analysis).
- **Instructions** (e.g. process instructions, cleaning instructions).
- The **quality manual** for the process or factory.

The producer must be **registered under national food law** as a processor of foods for human consumption. In addition, the producer must have a **legal authorization** to produce this commodity in the country where the factory is located.

3. PRODUCT SPECIFICATIONS

3.1. Main requirements

Tomato Paste is manufactured according to a process that should confer to the finished product the following specifications:

| | |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Organoleptic | Normal/typical taste and odor. Absence of burnt taste, fermented taste and smell. |
| Concentration (Brix) | 28% minimum |
| Consistency by Bostwick (at 12 Brix, at 30 ⁰ C) | 4-11 cm/30s |
| Colour (at 12 Brix) | 2 minimum Gardner Color Scale |
| pH | 4.5 maximum |
| Acidity | 7% maximum |
| Sugar (at dry matter) | 42% minimum |
| Salt | 2% maximum |

If required by recipient country, **Tomato Paste** needs to be obtained from non-genetically modified varieties.

3.2. Microbiology

Microbiological contamination in the **Tomato Paste** shall not exceed the following levels:

| | |
|------------------------|----------------------|
| Total Coliform | 10 cfu/g maximum |
| Escherichia Coli | Absent |
| Salmonella | Absent |
| Staphylococcus aureus | Absent |
| Lysteria monocytogenes | Absent |
| Bacillus cereus | 50 cfu per g maximum |
| Howard mould count | 60% maximum |

3.3 Chemical Contaminants and Toxins

It shall be free from objectionable matter; free from radioactivity; not contain any substances originating from micro-organisms or any other poisonous or deleterious substances such as anti-nutritional factors, heavy metals or pesticide residues, in amounts which may represent a hazard to health.

Heavy metal content must be below levels specified in Codex Stan 193-1995, in particular:

| | |
|--------------|-----------------|
| Mercury (Hg) | 0.5ppm maximum |
| Cadmium (Cd) | 0.05ppm maximum |
| Lead (Pb) | 1.0ppm maximum |
| Arsenic (As) | 1.0ppm maximum |
| Tin (Sn) | 100ppm maximum |

3.4 Shelf life

It shall retain above qualities for at least two year from date of manufacture when stored dry at ambient temperatures prevalent in the country of destination.

4. PACKAGING

Tomato paste can be packaged into tin can to constitute the primary packaging. The secondary packaging is cartons to facilitate transportation and storage.

4.1. Tins

The metal containers (tins) must be coated internally and externally with lacquers appropriate for the product. Specifications and guarantees for the material, lacquers and other treatments used shall be available. Likewise, the facility must obtain the acceptable ranges and limits for the double seam dimensions and other characteristics of the filled can specific to the can type, size and supplier. Together with fill standards required for the product, these specifications will be used to ensure the finished product is hermetically sealed during the seaming operation.

4.2. Cartons

Cartons should be new, strong cardboard cartons containing tins, manufactured from well-constructed paper.

Slip sheets or plywood should be placed inside each container to provide the required stacking strength. Pallets with appropriate stacking configuration could also be used

5. MARKING

5.1. On tins

The following information should be available on tins:

- Name of the product
- Net weight
- Name of manufacturing facility (including country of origin)
- Batch number (should be traceable to retort and seamer used for manufacturing)
- Production date (and shift, if there is more than one shift)
- Best before date / Expiry date
- Additional marking as per contractual agreement

5.2. On cartons

The following information should be available on each carton:

- Name of the product
- Number of tins per carton
- Net weight
- Name and address of the supplier (including country of origin)
- Production date
- Expiry date
- Additional marking as per contractual agreement

6. STORING

Tomato paste must be stored under cool, dry and hygienic conditions.

7. ANALYTICAL REQUIREMENTS

Table 1: List of compulsory tests and reference methods

| N° | Specifications | Recommended value | Reference method* |
|----|-----------------------------------------------|-----------------------------------------------------------------------------------|-------------------|
| 1 | Organoleptic | Normal/typical taste and odor. Absence of burnt taste, fermented taste and smell. | |
| 2 | Concentration (Brix) | 28% minimum | |
| 3 | Consistency by Bostwick (at 12 Brix, at 300C) | 4-11 cm/30s | |
| 4 | Colour (at 12 Brix) | 2 minimum Gardner Color Scale | |
| 5 | pH | 4.5 maximum | AOAC 981. |
| 6 | Acidity | 7% maximum | |
| 7 | Sugar (at dry matter) | 42% minimum | |
| 8 | Salt | 2% maximum | ISO 3634:1979 |
| 9 | Total Coliform | 10 cfu/g maximum | |
| 10 | Escherichia Coli | Absent | |
| 11 | Salmonella | Absent | |
| 12 | Staphylococcus aureus | Absent | |
| 13 | Lysteria monocytogenes | Absent | |
| 14 | Bacillus cereus | 50 cfu per g maximum | |
| 15 | Howard mould count | 60% maximum | AOAC 965.41 |

* or equivalent