

Australian Standard™

**Equipment for the pasteurization of milk  
and other liquid dairy products—  
Continuous-flow systems**

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This Australian Standard was prepared by Committee FT-012, Dairy Factory Equipment. It was approved on behalf of the Council of Standards Australia on 11 March 2003 and published on 15 April 2003.

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Australian Stainless Steel Development Association  
Dairy Industry Association of Australia  
Dairy Process Engineering Centre  
Health Department of Western Australia  
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**Equipment for the pasteurization of milk  
and other liquid dairy products—  
Continuous-flow systems**

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## PREFACE

This Standard was prepared by the Standards Australia Committee FT-012, Dairy Factory Equipment to supersede AS 3993.1—1992, *Equipment for the pasteurization of milk and other liquid dairy products, Part 1: Continuous-flow systems*.

The objectives of this revision are as follows:

- (a) To maintain the established principles of the continuous-flow systems.
- (b) To revise the Standard to reflect the current industry practice.
- (c) To add a new Clause on heat transfer security, to ensure that no contamination of pasteurized product can occur by unpasteurized product, heating medium or cooling medium.
- (d) To allow a greater freedom in the choice of equipment.

Appendix A of this Standard sets out guidelines for inspection, testing, certification and maintenance of a pasteurizer. Detailed operating procedures have not been described as they vary according to the design of the installation. It is emphasized that the equipment covered by this Standard should be operated under the supervision of properly trained and authorized personnel. Occupational health and safety issues that could arise during the construction, operation or maintenance of pasteurizers have not been addressed in this Standard.

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

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## FOREWORD

The aim of the Standard is to ensure that equipment is designed so that, when installed and operated correctly, the milk and other liquid dairy product is heated to the specified temperature and held at that temperature for the specified time in order to avoid public health hazards arising from pathogenic organisms associated with milk and to reduce spoilage organisms, consistent with minimum chemical, physical and organoleptic changes in the product.

The Standard deals with the important aspects of the design and performance of continuous-flow pasteurizer installation including controls and instrumentation. Safeguards include a flow diversion device to ensure that any product which fails to reach the specified pasteurizing temperature is automatically directed back to the raw product tank.

This Standard deals with the continuous-flow pasteurizers. The Standard applies to high-temperature short-time (HTST) pasteurizers operating at temperatures between 60°C and up to 100°C.

## STANDARDS AUSTRALIA

## Australian Standard

**Equipment for the pasteurization of milk and other liquid dairy products—Continuous-flow systems****1 SCOPE**

This Standard sets out requirements for the design and critical operation of equipment, including control and recording instrumentation, used for continuous-flow pasteurization at temperatures between 60°C and 100°C, of milk and other liquid dairy products.

For the purpose of this Standard, a pasteurizer is deemed to begin with the inlet of the raw milk balance tank and end with the product discharge from the heat exchanger, up to vacuum prevention or recirculation valve, as appropriate.

This Standard does not cover direct steam heating processes such as vacuumation.

This Standard does not cover ultra-high temperature (UHT) systems.

**2 REFERENCED DOCUMENTS**

The following documents are referred to in this Standard:

## AS

- 1528 Tubes (stainless steel) and tube fittings for the food industry (series)  
2300 Methods of chemical and physical testing for the dairying industry  
2300.1.10 Part 1.10: General methods and principles—Determination of phosphatase activity

## AS/NZS

- 2541 Guide to the cleaning-in-place of dairy factory equipment

## ISO

- 4288 Geometrical Product Specifications (GPS)—Surface texture: Profile method—Rules and procedures for the assessment of surface texture

## ASTM

- A480/ Specification for general requirements for flat-rolled stainless and heat-resisting steel plate, sheet and strip  
A480M

Australian Quarantine and Inspection Services Export Control (Processed Food) Orders — 1992 Schedule 2, Part 1: *General requirements* can be obtained from the National Health Research Council, Canberra or from the Agriculture, Fisheries and Forestry, Australia website: [www.affa.gov.au](http://www.affa.gov.au).

**3 DEFINITIONS**

For the purpose of this Standard, the definitions below apply.

**3.1 Continuous-flow system**

A system in which the product passes in continuous flow through heating and cooling equipment in order to receive the required heat treatment. Such systems usually incorporate one or more regeneration sections in which there is transfer of heat between the hot pasteurized product and incoming raw product.