

3-A[®]Sanitary Standard for Plate Type Heat Exchangers, Number 11-09

Standards Developing Organizations

3-A Sanitary Standards, Inc. (3-A SSI)

In Collaboration With

United States Public Health Service (USPHS)

United States Food and Drug Administration (USFDA)

United States Department of Agriculture (USDA)

European Hygienic Engineering & Design Group (EHEDG)

Effective: August 1, 2010

TABLE OF CONTENTS

TITLE	i
TABLE OF CONTENTS	ii
DISCLAIMERS AND FOREWORD	iv
A SCOPE.....	1
B NORMATIVE REFERENCES	1
C DEFINITIONS.....	2
C1 Bond	2
C2 Heat Exchange Media or Media.....	2
C3 Cleaning	2
C3.1 Clean-in-Place (CIP) Cleaning	2
C3.2 Manual Cleaning.....	2
C3.3 Cleanable or Cleanability.....	2
C3.4 CIPable	2
C4 Corrosion Resistant	2
C5 CIP Fittings	2
C6 Inlet.....	2
C7 Inspectable.....	2
C8 Nontoxic Materials	2
C9 Outlet/Product Outlet	2
C10 Product	2
C11 Readily Accessible	2
C12 Readily Removable	3
C13 Plate Carrying Bars	3
C14 Roughness Average (R_a)	3
C15 Sanitizing or Sanitization	3
C16 Simple Hand Tools.....	3
C17 Soil	3
C18 Solution	3
C19 Sterilization	3
C20 Surfaces	3
C20.1 Product Contact Surfaces	3
C20.2 Nonproduct Contact Surfaces.....	3
C20.3 Mechanically Retained Gaskets	3
C20.4 Terminals.....	3
C21 Surface Modification.....	3
C21.1 Surface Treatments.....	3
C21.2 Coatings, Overlays and Encapsulations	3

D	MATERIALS	4
D1	Product Contact Surfaces	4
D1.1	Metals	4
D1.2	Nonmetals	4
D1.3	High-Temperature Materials	4
D2	Nonproduct Contact Surfaces	4
E	FABRICATION	5
E1	Product Contact Surfaces	5
E1.1	Surface Texture	5
E1.2	Permanent Joints	5
E1.3	Bonded Materials	5
E1.4	Coatings, Overlays, and Encapsulations	5
E1.5	Cleaning and Inspectability	5
E1.6	Draining	6
E1.7	Plate Gaskets and Plate Gasket Retaining Grooves	6
E1.8	Radii	6
E1.9	Threads	7
E1.10	High-Temperature Systems	7
E2	Nonproduct Contact Surfaces	8
E2.1	Surfaces	8
E2.2	Gasket Leak Detection Grooves	8
E2.3	Joints	8
E2.4	Coatings	9
E2.5	Cleaning and Inspectability	9
E2.6	Draining	9
E2.7	Guards and Other Safety Devices	9
E2.8	Supports	9
E2.9	Name and Information Plates	9

APPENDIX

F	STAINLESS STEEL AND EQUIVALENT MATERIALS	10
G	PRODUCT CONTACT SURFACE FINISH	12
H	DETERMINATION OF CONFORMANCE TO PLATE RADII	
	SPECIFICATIONS OF SECTION E1.8.1.3	12
I	INSPECTION OF PLATE GASKETS	12
J	PLATE HEAT EXCHANGER LEAK TESTING AND VISUAL INSPECTION	12
K	LOCATION	12
L	ENGINEERING DESIGN AND TECHNICAL CONSTRUCTION FILE	13
M	HANDBOOK FOR INSTALLATION, USE, MAINTENANCE, AND CLEANING	15

Disclaimers

3-A Sanitary Standards and 3-A Accepted Practices are developed through the efforts of experts, working on a volunteer basis, using science-based information and their professional experiences to reach consensus decisions on the sanitary (hygienic) criteria in these 3-A documents.

3-A SSI, its employees and its volunteer committees/working groups shall not incur any obligation or liability for damages, including consequential damages, arising from or in connection with the development, use, interpretation, or reliance upon this 3-A Sanitary Standard.

3-A Sanitary Standards and 3-A Accepted Practices do not include provisions for mechanical, electrical, or personnel safety. Such safety criteria are established by government regulations and other standards development organizations (SDOs). Other SDO standards may be referenced.

Drawings and illustrations contained herein are examples to assist in understanding the criteria in this 3-A Sanitary Standard. Appendix drawings and illustrations are not intended to show all variations of the equipment or system nor are they exclusive of alternate approved methods. Appendix drawings and illustrations are non-normative.

Foreword

This 3-A Sanitary Standard establishes minimum sanitary (hygienic) requirements for design, materials, fabrication, and installation of Plate Type Heat Exchangers.

This 3-A Sanitary Standard is for use on a voluntary basis by directly and materially affected organizations such as equipment and machinery fabricators, processors, regulatory agencies and by other SDOs to assure adequate public health protections exist for plate type heat exchangers. 3-A SSI will use this document as its source of sanitary criteria for 3-A Symbol authorization.

This 3-A Sanitary Standard was developed jointly by 3-A SSI, the United States Public Health Service (USPHS), the United States Food and Drug Administration (USFDA), the United States Department of Agriculture – Dairy Programs (USDA), and the European Hygienic Engineering & Design Group (EHEDG).

It is our intent to encourage inventive genius and provide a forum to discuss new developments. Suggestions for improvement and new technology are welcome at any time for consideration by 3-A SSI. Please forward comments to 3-A Sanitary Standards, Inc., 6888 Elm Street, Suite 2D; McLean, VA 22101-3829, USA or by fax: 703-761-6284, or by e-mail to: 3-ainfo@3-a.org.