



**NSF International Standard /  
American National Standard /  
3-A SSI Standard**

## **NSF/ANSI/3-A SSI 14159-3-2014**

**Hygiene Requirements for the  
Design of Mechanical Belt Conveyors  
Used in Meat and Poultry Processing**



*NSF International, an independent, not-for-profit, non-governmental organization, is dedicated to being the leading global provider of public health and safety-based risk management solutions while serving the interests of all stakeholders.*

*This Standard is subject to revision.  
Contact NSF to confirm this revision is current.*

Users of this Standard may request clarifications and interpretations, or propose revisions by contacting:

Chair, Joint Committee on Food Processing Equipment  
c/o NSF International  
789 North Dixboro Road, P.O. Box 130140  
Ann Arbor, Michigan 48113-0140 USA  
Phone: (734) 769-8010 Telex: 753215 NSF INTL  
FAX: (734) 769-0109 E-mail: [info@nsf.org](mailto:info@nsf.org)  
Web: <http://www.nsf.org>

NSF International Standard/  
American National Standard  
for Food Processing Equipment —

## **Hygiene requirements for the design of mechanical belt conveyors used in meat and poultry processing**

Standard Developer

**NSF International**

**NSF International**

**Designated as an ANSI Standard**

December 22, 2014

**American National Standards Institute**

Recommended for Adoption by  
**The NSF Joint Committee on Food Processing Equipment**  
**The NSF Council of Public Health Consultants**

Adopted by  
**NSF International**  
**May 2003**

Revised April 2005  
Revised January 2010  
Revised January 2015

Published by

**NSF International**  
**PO Box 130140, Ann Arbor, Michigan 48113-0140, USA**

For ordering copies or for making inquiries with regard to this Standard, please reference the designation "NSF/3-A/ANSI 14159-3-2014."

Copyright 2015 NSF International  
Previous editions @ 2010, 2005, 2003

Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from NSF International.

Printed in the United States of America.

## Disclaimers<sup>1</sup>

NSF, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of NSF represent its professional judgment. NSF shall not be responsible to anyone for the use of or reliance upon this Standard by anyone. NSF shall not incur any obligation or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Standard.

NSF Standards provide basic criteria to promote sanitation and protection of the public health. Provisions for mechanical and electrical safety have not been included in this Standard because governmental agencies or other national standards-setting organizations provide safety requirement.

Participation in NSF Standards development activities by regulatory agency representatives (federal, local, state) shall not constitute their agency's endorsement of NSF or any of its Standards.

Preference is given to the use of performance criteria measurable by examination or testing in NSF Standards development when such performance criteria may reasonably be used in lieu of design, materials, or construction criteria.

The illustrations, if provided, are intended to assist in understanding their adjacent standard requirements. However, the illustrations may not include **all** requirements for a specific product or unit, nor do they show the only method of fabricating such arrangements. Such partial drawings shall not be used to justify improper or incomplete design and construction.

Unless otherwise referenced as *normative*, the annexes are not considered an integral part of NSF Standards. They are provided as general guidelines to the manufacturer, regulatory agency, user, or certifying organization.

---

<sup>1</sup> The information contained in this Disclaimer is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. As such, this Disclaimer may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the Standard.

This page is intentionally left blank.

## Contents

1	General.....	1
1.1	Purpose.....	1
1.2	Scope.....	1
1.3	Measurement.....	1
2	Normative references.....	1
3	Definitions.....	2
4	Materials of construction.....	4
4.1	General.....	4
4.2	Product contact surfaces.....	4
4.3	Non-product contact surfaces.....	5
5	Design and construction.....	6
5.1	Product contact surfaces.....	6
5.2	Non-product contact surfaces.....	9
6	Assessment for cleanability of belting materials.....	10
6.1	Performance requirement.....	10
6.2	Test method.....	10
6.3	Acceptance criteria.....	13
7	Instruction handbook, maintenance, and cleaning.....	13
7.1	Instruction handbook.....	13
7.2	Maintenance and cleaning.....	13
Annex A	.....	A1
Annex B	.....	B1
Annex C	.....	C1
Annex D	.....	D1
Annex E	.....	E1
Annex F	.....	F1
Annex G	.....	G1

This page is intentionally left blank.



## Foreword<sup>2</sup>

The purpose of this Standard is to establish minimum public health and sanitation requirements for mechanical belt conveyors used in meat and poultry processing.

This edition of the Standard includes the following revision:

Issue 3 - updated the language regarding cleaning and inspection in Section 5.2.2 and added a supporting definition for the term "Clean out of place (COP)."

Issue 6 - As required by ANSI, Standards must be reviewed at least every five years. In accordance with this requirement, the Joint Committee updated the normative references and the boiler plate language within the Standard.

This Standard was developed by the NSF Joint Committee on Food Processing Equipment using the consensus process described by the American National Standards Institute. During the development of NSF/ANSI/3-A SSI 14159-1 it was determined by the Joint Committee that the sanitary design and construction requirements for mechanical belt conveyors should be included in a separate standard so as to not cause confusion with the requirements for general processing equipment.

Suggestions for improvement of this Standard are welcome. This Standard is maintained on a Continuous Maintenance schedule and can be opened for comment at any time. Comments should be sent to Chair, Joint Committee on Food Processing Equipment at standards@nsf.org, or c/o NSF International, Standards Department, PO Box 130140, Ann Arbor, Michigan 48113-0140, USA.

---

<sup>2</sup> The information contained in this Foreword is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. As such, this Foreword may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the Standard.

This page is intentionally left blank.

NSF/ANSI/3-A SSI Standard 14159-3  
For Food Processing Equipment —

# Hygiene requirements for the design of mechanical belt conveyors used in meat and poultry processing

## 1 General

### 1.1 Purpose

This American National Standard establishes minimum food protection and sanitation requirements for the materials, design, fabrication, construction, and performance of meat and poultry processing equipment. This Standard does not contain operator safety requirements.

### 1.2 Scope

This American National Standard applies to exposed product mechanical belt conveyors, either singularly or as a component of equipment, intended for use in the slaughter, processing, and packaging of meat and poultry products.

### 1.3 Measurement

Decimal and Metric (SI) conversions provided parenthetically shall be considered equivalent. Metric conversions have been made according to IEEE/ASTM SI 10.

## 2 Normative references

The following documents contain provisions that, through reference, constitute provisions of this NSF/ANSI/3-A SSI Standard. At the time of publication, the editions indicated were valid. All referenced documents are subject to revision, and parties are encouraged to investigate the possibility of applying the most recent editions of the documents listed below.

3-A Accepted Practice, No. 604-05 2004. *Supplying air under pressure in contact with milk, milk products, and product contact surfaces*<sup>3</sup>

ANSI/ASME B46.1 – 2009, *Surface texture (surface roughness, waviness and lay)*<sup>4</sup>

Code of Federal Regulations, Title 21, (21 CFR) Parts 170-199. *Food and Drugs*<sup>5</sup>

Federal Food, Drug, and Cosmetic Act of 1938, as amended<sup>5</sup>

---

<sup>3</sup> 3-A SSI, 1451 Dolley Madison Boulevard, McLean, VA 22101-3850 [www.3-a.org](http://www.3-a.org)

<sup>4</sup> American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016-5990 [www.asme.org](http://www.asme.org)

<sup>5</sup> Superintendent of Documents, U.S. Government Printing Office, Mailstop SSOP, Washington, DC 20402-0001 [www.gpo.gov](http://www.gpo.gov)