

3-A[®] Sanitary Standard for Machine Leveling Feet and Supports

*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)*

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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/or installation of Machine Leveling Feet and Supports.

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 the equipment or systems and covered products. 3-A SSI uses these documents 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 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 the 3-A Secretary, 1451 Dolley Madison Boulevard, Suite 150; McLean, VA 22101-3850, USA or by fax: 703-761-6284, or by e-mail to: 3-ainfo@3-a.org.

A SCOPE

- A1 This standard covers the sanitary aspects of machine leveling feet and supports used on equipment in a wet processing area of dairy, food and other comestible products plants, including dry processing areas cleaned with water. These feet or supports attach to the equipment and support the equipment from the floor. The feet or supports begin at the point where the feet or supports attach to the leg(s) or the body of the equipment and end at the support point on the floor. This standard does not include supports that attach to a wall or ceiling.

These feet and supports are not product contact surfaces but have a hygienic significance because they may become a harborage of soil and create a source of secondary contamination to the products.

This standard does not cover Casters.

This standard does not cover mounting to a Slab or Island.

- A2 In order to conform to this 3-A Sanitary Standard, machine leveling feet or supports shall conform to the following criteria for design, material of construction, fabrication techniques and installation, as appropriate, and the current revisions or editions of all referenced documents cited herein.

B NORMATIVE REFERENCES

Ref. No. Title

1. *Advanced Materials and Processes*, Volume 137(1), "Coatings and Coating Practices" by H. Herman, "Surface Modification" by F. A. Smidt. ASM International, Materials Park, OH 44073, Phone: (216) 338-5151.
2. AMS-S-13165, *Shot Peening of Metal Parts*. Society of Automotive Engineers (AWS), 400 Commonwealth Dr., Warrendale, PA 15096-0001.
3. The Code of Federal Regulations (CFR), Title 21, Parts 175 – Indirect Food Additives: Adhesives and Components of Coatings. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, Phone: (202) 512-1800 or at: <http://www.gpoaccess.gov/cfr/index.html>.
4. *AISI Steel Products Manual, Stainless & Heat Resisting Steels*, Table 2-1. American Iron and Steel Society, 410 Commonwealth Drive, Warrendale, PA 15086, Phone: (412) 776-1535.
5. Steel Founders Society of America, Cast Metal Federation Building, 455 State Street, Des Plaines, IL 60016, Phone: (708) 299-9160.

C DEFINITIONS

- C1 *Product*: Milk, milk products, or food products.

- C2 *Machine Leveling Feet or Supports*: Those equipment components that are attached to the legs or base of equipment and which may be adjustable to provide a means for leveling the equipment. They may also provide for other attributes such as anti-slip, raising or lowering the equipment, vibration dampening, or to secure the equipment to the floor.

C3 Surfaces

- C3.1 *Exposed Surfaces*: Areas which are not sealed, and which are in contact with the surrounding environment.
- C3.2 *Non-exposed Surfaces*: Surfaces which are not exposed, including internal components which are sealed from contact with the surrounding environment.

C4 Sealed

- C4.1 *Sealed*: A juncture, which is provided with a gasket or other type of seal to prevent the entry of air or water under ambient conditions.

C5 Cleaning

- C5.1 *Manual Cleaning*: Soil removal is effected with chemical solutions and water rinses with the assistance of one or a combination of: brushes, nonmetallic scouring pads and scrapers, high or low pressure hoses, and with all cleaning aids manipulated by hand.
- C5.2 *Cleanability*: Shall mean the suitability of materials, design and fabrication used for the equipment to be freed from soil.

C6 Surface Modification

C6.1 *Surface Treatments:* Processes where chemical composition or mechanical properties of the existing surface are altered. There is no appreciable build-up of new material or removal of existing material. (See section B, Ref. No. 1)

C6.1.1 Surface treatments include:

1. Mechanical (shot peening, glass beading, and polishing) (See section B, Ref. No.2.)
2. Electropolishing

C6.2 *Coatings, Overlays and Encapsulations:* A process where a different material is deposited to create a new surface. There is a build-up of new material. The coating, overlay, or encapsulation material does not alter the physical properties of the substrate.

C6.2.1 Coating processes include:

1. Thermal spraying (e.g., flame, plasma, arc spray, chromium)

C7 *Bond:* The adhesive forces holding materials together. This definition excludes press and shrink fits.

C8 *Soil:* Unwanted organic residue or inorganic matter on the exposed surfaces.

D MATERIALS**D1 Metals**

D1.1 Exposed surfaces shall be of stainless steel of the American Iron and Steel Institute (AISI) 300 Series, excluding 301, 302, and 303 (See section B, Ref. No.4) or corresponding Alloy Cast Institute (ACI) types (See section B, Ref. No.5) or metal which under conditions of intended use is at least as corrosion resistant as 304 stainless steel, and is nontoxic and nonabsorbent. (See Appendix, Section F.) Where welding is involved, the carbon content of the stainless steel shall not exceed 0.08%.

D1.2 Leg components and adjustable foot assemblies may also be made of other nontoxic metal(s) that have their surfaces modified by coating(s).

D2 Nonmetals

D2.1 Rubber, rubber-like and plastic materials may be used for gaskets, seals, swivel joint inserts, feet, and footpad inserts. These materials shall be relatively nonabsorbent, durable and cleanable.

D2.2 Adhesives used for bonding rubber and rubber-like materials and bonding plastic materials shall be nontoxic, relatively nonabsorbent, durable and cleanable. (See section B, Ref. No.3.)

E FABRICATION**E1 Surface Texture**

E1.1 All exposed surfaces shall have a smooth finish such that soil may be cleaned from the surface using manual cleaning techniques and be free of pits, folds, cracks, crevices, and other imperfections in the final fabricated form, when installed on the machinery and within the specified load conditions.

E1.2 Knurled surfaces shall not be used.

E2 Permanent Joints

E2.1 All permanent joints in metallic surfaces shall be continuously welded, except that:

E2.1.1 Press or shrink fits may be used to produce crevice-free permanent joints between a support and a foot. Joints of these types may only be used to assemble parts having circular cross sections, free of shoulders or relieved areas.

E2.2 Legs or components of machine leveling feet or supports made of hollow stock shall be continuously welded except for adjustable components covered by E8.1.

E3 Bonded Materials

E3.1 Rubber and rubber-like materials and plastic materials may be bonded. The bond shall be continuous and mechanically sound. The rubber and rubber-like material or the plastic material shall not separate from the base material to which it is bonded when exposed to the conditions encountered in the environment of intended use, including cleaning.