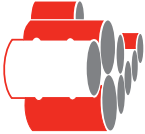


Interior Lined Steel Drums and Pails

For over 100 years, steel drums and pails have been the container of choice for packaging a wide variety of products. From baby food to highly purified solvents to hazardous materials, they have stood the test of time. A significant segment of the steel container market is in the form of lined containers. These are containers that have a coating applied to the interior that is designed to protect the customer's product.

Many of these coatings have undergone rigorous laboratory and field testing over the years to insure that they are suitable for the lading being packaged. However, with the introduction of new products and/or reformulations of existing ones, linings that may have been acceptable before may no longer perform the same way. This document is designed to assist container customers in the lining selection process.

Steel Shipping
Container Institute



1101 14th Street, NW, Suite 1001

Washington, DC 20005

202.408.1900

www.steelcontainers.com

This brochure is published and copyrighted by the Steel Shipping Container Institute, Inc. The brochure was developed by the Institute's Technical Projects Committee collaboratively with Associate Member firms that provide lining products to the industry.

Lining Selection – New Products

The first step in determining the proper lining for a new product is the submission to the drum or pail manufacturer of the product's MSDS, the distribution environment in which the package will be exposed, the fill temperature, the product's pH, whether or not the product is food related or is intended for food contact, and any other attributes that are unique to the product. The drum or pail manufacturer will forward the information to the lining manufacturer who will compare the ingredients and characteristics of the product to those of existing products and suggest a lining. If no absolute match can be found, the lining manufacturer will request a sample of the actual product so that accelerated exposure studies can be performed to determine the product's effect on various lining types. Once these exposure studies are completed, usually after three months, the lining manufacturer will report the data and make a suggestion as to the type of lining that should be used.

Lining Selection – Reformulations

Product reformulations usually happen gradually over time, with little regard to the effect on the drum or pail lining. For this reason, it is extremely important to notify the drum or pail supplier when product reformulations are being considered, even with something as seemingly innocuous as a change in the product's pH. Other changes that should also be reported to the drum or pail supplier include, but are not limited to, a change in raw materials, fill temperatures, or material handling issues. Sometimes, the submission of an MSDS for the reformulated product is all that's needed. Other times, it will require that a sample of the reformulated product be sent to the lining supplier for further testing. As with new products, the lining manufacturer will report the data and make a suggestion as to the type of lining that should be used.



Shelf Life

Because of the strength and durability of lined steel drums and pails they are often incorrectly thought of and used as storage containers. It is extremely important to remember that they are designed and built as

shipping containers, whose primary purpose is to safely transport your product from point A to point B with limited shelf life. Product exposure tests that are conducted by lining manufacturers on drum and pail linings are designed to evaluate the lining's ability to resist attack from the lading for a specified period of time. There are potential issues associated with the use of linings that exceed those time periods suggested by the lining manufacturer.

Responsibility

Whether dealing with a new product or the reformulation of an existing one, full disclosure as to the product's characteristics, including submission of a product sample is essential in determining the correct lining and other drum components including gaskets, seaming compound, fittings, etc. It is the responsibility of the container filler to select the proper lining, and provide written documentation to the container manufacturer of the lining that is acceptable for your specification. Your container supplier will be happy to work with their lining suppliers to help you select the proper lining for your product line.

Note: The information contained in this brochure is based on SSCI's best knowledge as of the date of publication in 2006. It is the responsibility of any filler or user of steel drums and pails to ensure that the unique characteristics of products contained therein or any reformulation of products are accurately described to the drum/pail and lining manufacturers. Customers, fillers and users should consult the appropriate professional for assistance in compliance with the responsibilities outlined hereunder.