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### ***Tin Stabilizers Enhance the Performance of Vinyl Packaging***

Vinyl is used for many types of packaging, for retail and industrial products, as well as home and restaurant use. Some common types of vinyl packaging include blister packs for pharmaceutical tablets and capsules, bottles for food products and cleaning supplies, and clear, rigid packaging for fresh food carryout and electronic gadgets. Vinyl is also used for stretch film – or cling wrap – used in food and non-food applications.

Tin stabilizers are the stabilizer of choice for rigid vinyl packaging because they are cost effective and offer good clarity and transparency. They also improve the processing of vinyl packaging, allowing the product to withstand high temperatures during the manufacturing process, while remaining both clear and tough.

Rigid vinyl has proven to be the optimum packaging for a wide variety of consumer articles. Clear vinyl bottles enhance the aesthetic appeal of products like shampoo, cosmetics and cooking oils, while allowing for safe distribution and a longer shelf life. Clear, rigid vinyl blister packs protect pharmaceutical products from deterioration and contamination, while also adding tamper- and child-resistant qualities to the packaging.

Form-fitted vinyl packaging also is used for consumer items such as batteries, toys, hardware, shop and kitchen tools, electronic equipment and computer software. Form-fitted, clamshell-style vinyl packaging has added benefits in point-of-purchase displays. Customers can view the item on display, and read promotional materials and product information. However, because the packages seal tightly, they provide additional anti-theft benefits.

Rigid, opaque vinyl packaging, some with recycled content, is used for motor oil and household cleaning supplies. The chemical-resistant qualities of rigid vinyl packaging make it ideal for these uses.

Vinyl film packaging is produced by the calendaring method, while the blow molding method is used to manufacture bottles. In addition to its excellent transparency, which allows for exceptional presentation and product protection, the advantages of vinyl over other materials include its high tear and impact resistance. It also is cost effective, lightweight and versatile. Vinyl packaging can be recycled, and the recycled material can be used as feedstock for valuable technical applications. Rigid vinyl film can be thermoformed to the shape of the product.

Tin stabilizers meet the stringent requirements of the vinyl packaging industry, allowing for processing at high speeds and high temperatures. Because tin stabilizers offer exceptional heat stability, a single unit of packaging can withstand the multiple and demanding processes necessary, including blending, calendaring, thermoforming and heat-sealing.

### ***Regulatory Approvals for Tin Stabilizers***

The U.S. Food and Drug Administration (FDA) regulates the safety of food packaging and has cleared certain tin stabilizers for use in food-contact and pharmaceutical packaging. (Pharmaceutical packaging is regulated by the FDA under the auspices of the Center for Drug Evaluation and Research.) Two types of tin stabilizers – methyl and octyl tins – have for many years had clearances both in the United States and other countries for indirect food-contact applications.

Information regarding regulatory clearances for specific applications is available by contacting TSA.

### ***Product Safety***

Any substance that migrates from packaging into food is of concern, if it could be harmful to the consumer. Consequently, considerable data has been gathered about the migration – or leaching – of substances from vinyl packaging to food. Regulatory authorities throughout the world have carefully studied this data, using a very conservative approach to protect human health and safety. Based on these evaluations, they have concluded that there is no health risk to consumers from tin stabilizers in packaging.

The Scientific Committee for Food of the European Union has defined specific migration limits for tin stabilizers based on tolerable daily intake (TDI) values. Based on these values, the use of certain tin stabilizers in food packaging is allowed, as it does not pose a risk for the consumer.

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