DAREX Cover, Drum and Pail Compounds

Industrial Sealing Compounds

Darex®

Henkel

Introduction

Metallic drums and pails are often used as packaging for the transportation of industrial goods and food products. DAREX Drum and Pail Compounds are used to seal the seam channels of double or triple seams of steel drums and pails. Many drums and pails are also constructed with an open-top or lid not seamed but crimped onto the package. DAREX Cover Compounds are used to form a seal with the crimped open-top or closing-ring of metal, plastic drum and pail packages.

The Importance of the Sealing Compounds

The hermetic seal performs the following functions: it keeps micro-organisms out of the package, probably its most important function; it prevents seepage of the pack from the can; prevents leakage of liquids or vapors into or out of the drums or pails; and maintains the desired vacuum or pressure inside. Sealing compounds of high quality must be used after consideration of the requirements of the pack. The proper type, amount and placement of the compounds are required to obtain maximum sealing efficiency, resistance to leakage caused by abuse protection of the can body and the can end in the double seam area. DAREX sealing compounds meet these needs.

Optimal Sealants for Different Sealing Technologies

Double or Triple Seam Applications
DAREX Drum and Pail Compounds are latex dispersions delivered in a liquid form for application. They are typically dried or cured prior to seaming. In some cases, the product may also be applied wet during the seaming operation. The gasket must be properly compressed during the seaming operation. The compressive force results in controlled movement of the gasket, filling the voids resulting from double or triple seam construction. Compound placement in the seam provides robustness and abuse resistance during container transportation.

Cover Applications
DAREX Cover Compounds utilize two different technologies: latex dispersion for water-based compounds or PVC dispersions for plastisol compounds, both of them are used for top metal covers. DAREX water-based cover compounds utilize a two component system to create a “puffed” gasket with cell structure to fill large channels in some covers and lids. DAREX Plastisol Cover Compounds utilize a single component, PVC resin based technology. Both water-based and PVC cover compound technologies rely upon proper compression of the gasket during the crimping operation to fill the voids in the cover assembly. DAREX Cover Compounds are delivered in a liquid form for application and in most segments are cured prior to crimping.

Compound Characteristics
DAREX products are specially formulated to have good chemical resistance to a wide variety of aggressive packs. The excellent performance of DAREX compounds in contact with different oils or solvents is largely due to the tendency of the compounds to swell slightly in the presence of these packs, providing additional assurance that any leakage path is filled. DAREX products do not become brittle when dried. They retain their rubbery, elastic characteristic providing abuse resistance and sealing integrity to the package during handling and transportation of the drum or pail.

In order to get the optimum sealing properties, several considerations have to be taken. The first criteria is to match the selection of the compound with the product that is being packed. Then proper storage and compound conditioning prior to application are important. Compound application (placement, volume, film weight and appearance) and correct drying and curing with the right compression of the gasket will provide the best hermetic seal.

DAREX Compounds for Seaming of Steel Drums and Pails

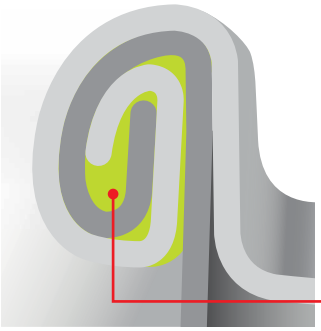
The purpose of these products is to fill the voids and potential leakage paths in the double and triple seam. This might occur in drum or pail seam during manufacture or as a result of subsequent abuse.

Composition
DAREX Drum and Pail Compound latex dispersions are used to seal the seam of steel drums and pails. These products are single component.

Preparation
DAREX compounds must be properly mixed to obtain a good dispersion and the correct viscosity.

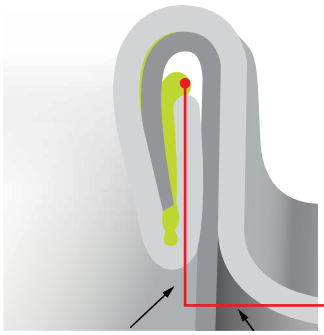
Drying/Curing
DAREX Drum and Pail Compounds should be oven dried, though in some cases air drying may be acceptable.

Applications



Schematic of **Triple Seaming**

Compound



Schematic of **Double Seaming**

Compound

Black Steel Drum

Tin Plate Pail

Small Steel Drum

Motor Car Oil Filter

DAREX Compounds for Cover Applications

The DAREX Cover product portfolio is composed of two different technologies: water-based or plastisol-based compounds.

Cover Product Portfolio

	DAREX Water-Based Cover Compound	DAREX Plastisol-Based Cover Compound
Composition	This product is a 2-component system: a mechanically blown compound to which an activator containing blowing and vulcanization agents will be added.	This single component product contains heat-activated blowing agents which create a soft and elastic gasket.
Preparation	The activator must be added to the base compound and stirred properly with a cage stirrer to get a well dispersed activator and a mechanically blown compound.	The product should be mixed with a paddle stirrer to homogenize the product and re-mix any slight separation occurring during storage and transportation.
Drying / Curing	To get a fully cured and elastic gasket, a 2-zone oven is commonly used: 1st zone at 90°C and the 2nd zone at 120°C.	A high temperature oven (over 190°C) must be used for several minutes to get a correct gelation of the product.
Advantages	The puffed vulcanized gasket provides very good chemical resistance.	The plastisol technology provides very good adhesion of the gasket on the cover and highly resilient sealant.
Remarks	Adhesion between compounds and the metal cover can vary depending on the lacquer type on the cover.	Plastisols have good chemical resistance, except to solvents such as ketones and esters.

Mixing Application for Each Compound Technology

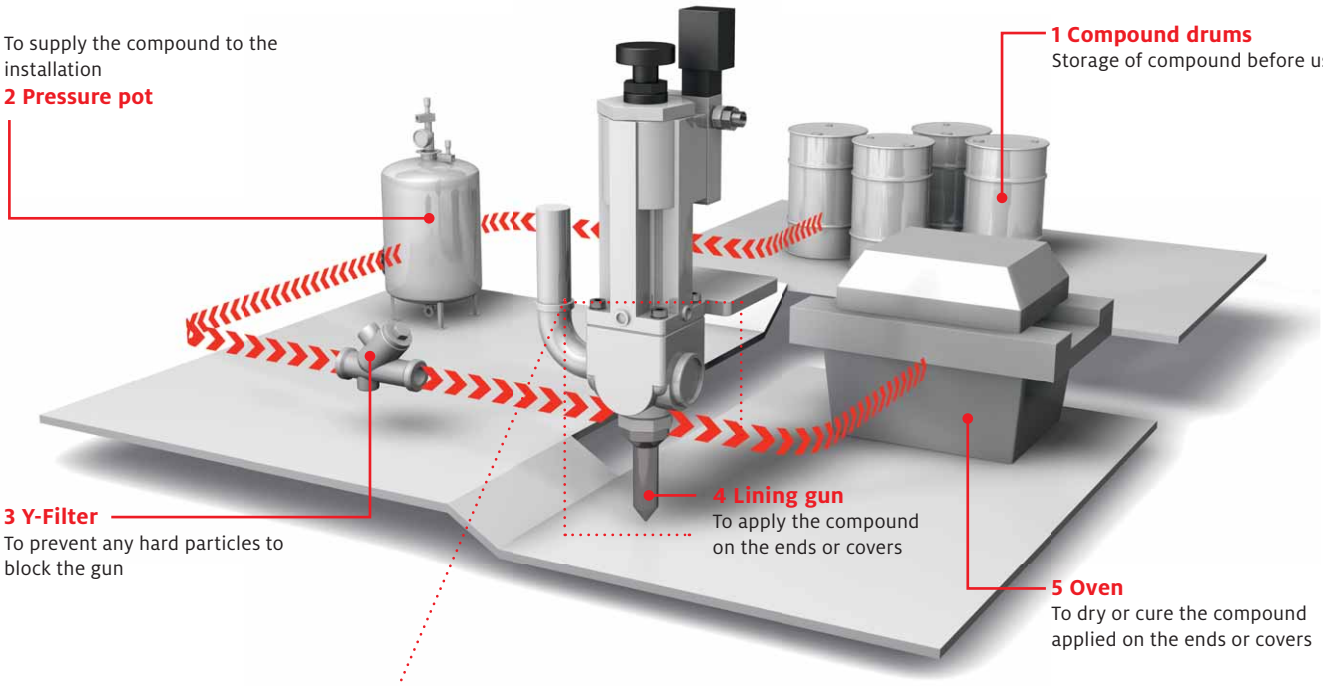
Cage stirrer

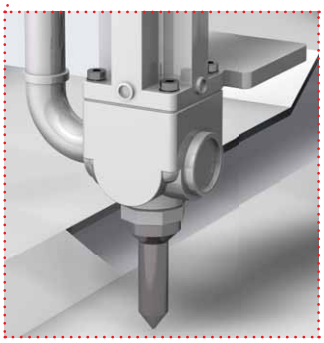
Standard paddle stirrer

Application/Lining Recommendations

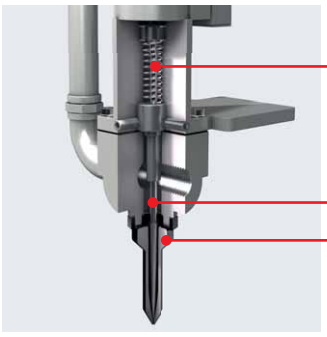
DAREX Compounds can be applied in one of two methods depending upon equipment installations. The first method is PRE-APPLICATION, whereby the compound is applied to pail and drum ends before triple seaming. The second method is WET SEAMING, whereby the compound is applied during triple seaming. In either case, the gaskets are heat resistant and, under normal conditions, will not boil out of a seam when a drum or pail goes through a paint or lacquer oven.

Typical Compound Supply Installation





Inside view of the lining gun



Equipment Recommendations

Consult your Henkel sales engineer for support with equipment installation or recommendations.

Compound List by Applications and Regions

Reference	Available in North America	Available in Latin America	Available in Europe	Available in Asia	Suitable for Food Application(1)	Chemical Resistance(2)	Adhesion	1-2 Component	Polymer Technology
Sealants for Drums									
DAREX Drum 7 family		●	●	●	Yes	II	III	1	NR
DAREX Drum 159 family		●	●	●	Yes except R version	III/II	II	1	NR
DAREX Drum L14 family	●	●			Yes	II	III	1	SR
DAREX Drum L595 family	●	●		●	Yes	III	II	1	SR
DAREX Drum 74D family				●	Yes	III	II	1	NR
DAREX OP643DR family				●	Yes	II	I	1	NR
DAREX Pail 70 family		●	●	●	Yes	III	II	1	NR
WBC Cover Application									
DAREX WBCOV 202 family		●	●	●	Yes	III	II	2	NR
DAREX WBCOV 559 family		●	●		Yes	II	I	2	SR
DAREX WBCOV 212 family				●	Yes	III	III	2	NR
DAREX WBCOV 702C family	●				No	II	II	2	SR
DAREX WBCOV 740C family	●			●	Yes	II	II	2	SR
PVC Cover Application									
DAREX COV 23 family			●	●	(1)	III except for ketones	II	1	PVC
DAREX COV 499 family			●	●	(1)	III except for ketones	I	1	PVC
DAREX COV 53 family			●	●	No	III except for ketones	III	1	PVC
DAREX COVH29 family				●	Yes	III except for solvents	II	1	PVC

(1) For information relative to the food law compliance of this product, please refer to the food law statement, which can be provided upon request. Food law compliance may vary and this product may be restricted based on application or region.
(2) For complete food law statement and chemical resistance, please contact your Henkel representative.

NR = Natural rubber **SR** = Synthetic rubber

I Acceptable II Good III Very good

Global Presence

Henkel manufactures its products globally and keeps records of traceability from raw materials to finished products. We have representatives in all regions of the world to provide the best-in-class service for its customers.

Coding of Henkel Compounds

Each container (pail, drum, IBC) is labeled with a batch number and a container number.

Batch Structure for Premixes, Bulks and FGs
PPYWWnnnnn = 10 Digits

PP = 2 Digits Henkel plant code identifier
Y = 1 Digit year
WW = 2 Digits calendar week of the year
nnnnn = Last 5 Digits of process order

Note:
Filling batch number different than Bulk batch number

Storage

DAREX Water Base Cover, Drum and Pail Compounds must be protected from freezing because freezing causes coagulation, rendering the compound unfit for use. DAREX Cover, Drum and Pail compounds should be stored in a warehouse where the temperature is fairly uniform between 10°C and 35°C (50-95°F). They should be stored away from direct sunlight and heaters. Product should be used on a first in, first out basis (FIFO). It is recommended that for optimum performance, the compound is used within six months from the date of shipment unless otherwise stated in the Product Information Sheet. Compound gaskets must be stored away from light and heat to prevent accelerated oxidation/degradation.

Technical Customer Services

Henkel Technical Services are unparalleled in the industry. Our technicians are authorities on the chemical and physical properties of sealants, their storage, handling and application. They understand end-user requirements in terms of application equipment, process conditions, and pack properties.

With extensive resources such as comprehensive analytical laboratories and can testing facilities, we apply our broad-based knowledge to help customers in a variety of ways: helping them choose and use the best sealant for optimum application and performance; troubleshooting field problems; evaluating new can technology; setting standards for film weight, placement and other application parameters; and sharing our knowledge through training and support materials. Please contact your local sales representative about our services – we are happy to help.

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