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SEALING SOLUTIONS FOR
Food and Beverage

A photograph of industrial machinery, likely a distillation or processing unit, featuring large, polished stainless steel vessels and pipes. The scene is brightly lit, creating strong reflections on the metal surfaces. A semi-transparent dark blue rectangular box is overlaid on the lower-left portion of the image, containing white text.

We succeed
when you
succeed.



Our Vision

Evolution isn't a choice in today's business landscape; it's the only way to succeed.

Progress relies on everything moving forward, from people to machinery to production. Everything must flow.

As we engineer our way to a better world, we are breaking down barriers, making sure each process is in place, always reflecting and improving. We are experts at delivering the best sealing solutions to help our customers unlock their highest potential.

Our global community of industry-leading specialists drives the development of innovative products and materials to consistently raise the bar.

Whether exposed to the stresses of everyday use, specialized applications, high-temperature environments, liquids, or gases, our products deliver reliable sealing integrity.

At Durlon®, we succeed when you succeed.

DURLON®
SEALING SOLUTIONS

Sealing Solutions for **Food and Beverage**

The global food and beverage industry is a vast and complex sector responsible for feeding the world's population, and a major contributor to the global economy, with a market value of over \$5 trillion. This industry encompasses everything from growing and harvesting crops to processing and packaging food and beverage products, and is constantly evolving, driven by advances in technology and changing consumer preferences.

One of the biggest trends in the industry is the increasing demand for natural, organic, and non-GMO products. Consumers are becoming more conscious of the ingredients in their food and are choosing products that are free from artificial preservatives, colors, and flavors.

Another trend is the growing demand for convenience and ready-to-eat products. Consumers are looking for easy-to-prepare and quick-to-consume food and drinks, which is leading to an increase in the development of new packaging and preservation technologies.

The global food and beverage industry faces many challenges, including food safety, environmental sustainability, and economic competitiveness. The industry is under increasing pressure to reduce its environmental footprint, for example, by reducing packaging waste and the amount of energy and water

used in production. Additionally, the industry must strive to ensure the safety of its products by implementing strict regulations and quality control measures.

There are several challenges in food and beverage processing related to process media and their effects on piping and flange sealing systems. These include:

Corrosion: Many food and beverage products are acidic or alkaline, which can cause corrosion in piping and flange systems. Long-term exposure to certain ingredients can negatively impact equipment performance if the correct sealing materials are not used.

Sanitation: The food and beverage industry has strict sanitation requirements to prevent the growth of bacteria and other microorganisms. In addition, the types of cleaners and sanitizers involved in the manufacturing process of certain products must also be considered, along with the frequency and duration of the cleaning process itself. Even brief exposure to cleaning and sanitizing chemicals can subject sealing materials to aggressive alkaline, acidic, oxidizing, or other chemically demanding conditions.

Temperature: When it comes to the temperature conditions in which food and

beverages are processed, both extremes need to be considered. Elevated temperatures typically accelerate chemical reactions and material degradation. Steam used in the sterilization process is often more aggressive than the food or beverage product itself. Material compatibility should therefore be evaluated at the actual operating temperatures encountered in service. On the other end of the temperature spectrum, extremely low temperatures can cause seals to become brittle and crack, leading to failure and potential contamination issues.

Food safety: The food and beverage industry is highly regulated, and facilities must comply with a wide range of regulations and standards. Piping and flange systems must be designed, manufactured, and installed according to these regulations to ensure the safety and quality of the final product. This includes using sealing materials that are suitable for food contact and do not release substances beyond applicable regulatory limits.

Durlon® understands that the food and beverage processing industry faces a range of challenges. Every product needs to meet strict international safety and hygienic regulations. The materials used in processing equipment must meet applicable food-contact requirements and must not release substances above permitted limits. Sealing systems must also help prevent leaks or other malfunctions that could expose products to contamination. Further, sealing materials used in the production process must be able to withstand aggressive cleaning agents and greases, as well as high- and low-temperature extremes. That's why our sealing solutions provide exceptional performance in food and beverage applications, delivering unsurpassed product integrity, safety, and reduced downtime.

Our food and beverage sealing materials include products that meet applicable FDA 21 CFR and USP Class VI requirements, with select products also passing API fire testing. Durlon® 8500 complies with FDA 21 CFR 177.2600 for repeated food-contact use.



A close-up photograph of industrial machinery, likely a food processing or pharmaceutical manufacturing line. The image shows stainless steel pipes, valves with blue handles, and a complex mechanical assembly. A semi-transparent dark blue rectangular box is overlaid on the lower-left portion of the image, containing white text.

Innovative products
Unparalleled service

Durlon® FDA Compliant Products

Durlon® understands that products used in food and beverage applications must meet strict safety and hygienic regulations. Select Durlon® products are designed for CIP (Cleaning in Place) and SIP (Sterilization in Place) environments, helping reduce material complexity across sanitary processing systems. They comply with applicable FDA 21 CFR requirements, USP Class VI, NSF, and 3-A requirements, depending on the material and application. Applicable products comply with specific FDA 21 CFR food-contact requirements, and select materials meet USP Class VI requirements.

Our FDA-compliant Durlon® products are used in mixers, homogenizers and blenders along with other food processing machinery. All of our raw

materials and finished products are tested in our in-house laboratory to ensure our materials meet our high quality standards throughout the production process. That's why our sealing solutions provide exceptional performance in food and beverage applications, delivering unsurpassed product integrity, safety and reduced downtime.

Our products are designed to reduce sealing failures, helping minimize contamination risk, production loss, and potential safety concerns. Safety is our number one priority at Durlon®. Our commitment to safety extends from our employees and facilities to the products we manufacture. Safety remains a core priority at Durlon®.

Durlon® PTFE products listed below are compliant to FDA regulations as indicated.

CFR Title 21 - Food and Drugs Part # Section #	Durlon® 9000, 9000N, 9002			Durlon® 9200			Durlon® 9600		
	Branding	Fillers	Finished Product	Branding	Fillers	Finished Product	Branding	Fillers	Finished Product
Part 175 - Indirect Food Additives: Adhesives and Components of Coatings Section 300 - Resinous and polymeric coatings	✓	N/A	✓	✓	N/A	✓	N/A ¹	N/A	N/A ¹
Part 177 - Indirect Food Additives: Polymers Section 1550 - Perfluorocarbon Resins	N/A	N/A	✓	N/A	N/A	✓	N/A	N/A	✓
Part 177 - Indirect Food Additives: Polymers Section 2600 - Rubber articles intended for repeated use	N/A	✓	✓	N/A	✓	✓	N/A	N/A	N/A
Part 178 - Indirect Food Additives: Adjuvants, Production Aids, and Sanitizers - Polymers Section 3297 - Colorants for polymers	N/A	N/A	✓	N/A	N/A	✓	N/A	N/A	✓

✓ = Compliant to stipulated regulation N/A = not applicable to stipulated regulation

¹ = Durlon® 9600 is supplied unbranded as standard offering

CFR Title 21 - Food and Drugs Part #177 - Indirect Food Additives: Polymers Section #1550 - Perfluorocarbon Resins Extraction Test (2 hours)	Durlon® 9000, 9000N, 9002		Durlon® 9200		Durlon® 9600	
	Fluoride Extractives	Total Extractives	Fluoride Extractives	Total Extractives	Fluoride Extractives	Total Extractives
Distilled Water	✓	✓	✓	✓	✓	✓
50% Ethanol	✓	✓	✓	✓	✓	✓
n-Heptane	✓	✓	✓	✓	✓	✓
Ethyl Acetate	✓	✓	✓	✓	✓	✓

✓ = Pass

Durlon® Product Recommendations



Durlon® 8500



Durlon® 9000



Durlon® 9000N



Durlon® 9200



Durlon® 9600



Durlon® 9645



Durlon® LT100

Physical Properties & Certifications

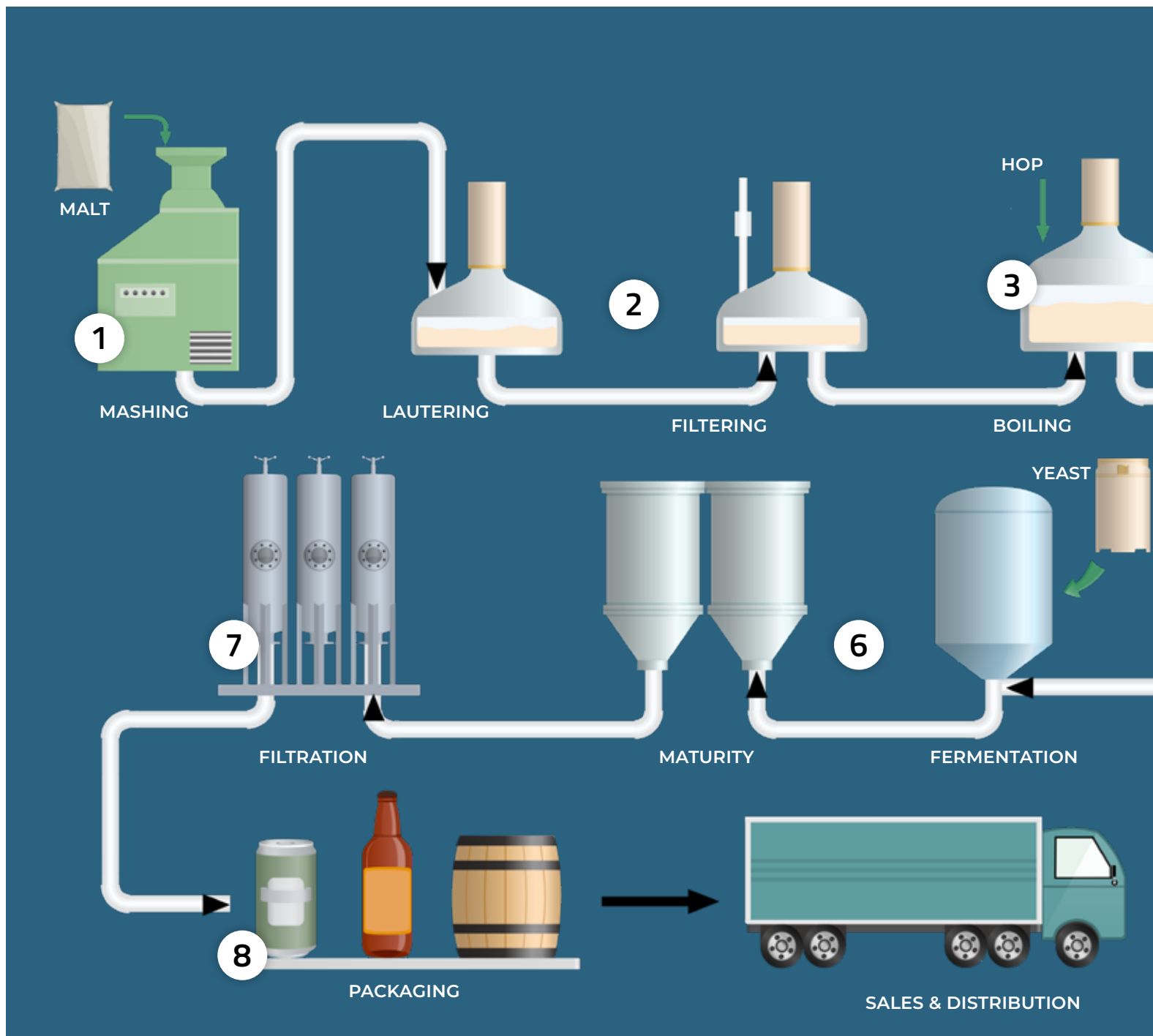
Physical Properties	8500	9000/9000N	9200	9600	9645	LT100
Composition	Aramid-Inorganic NBR	Inorganic Filler / Pure PTFE Resins	Barium Sulfate Filler / Pure PTFE Resins	100% Pure Expanded PTFE	Modified PTFE with rigid PTFE core	Pure PTFE, bonded to EPDM
Color	Green	Blue/White	Off White	White	White	White/Blue
Temperature: Min Max Continuous, Max	-40°C (-40°F) 371°C (700°F) 287°C (548°F)	-212°C (-350°F) 271°C (520°F) 260°C (500°F)	-268°C (-450°F) 260°C (500°F) -	-268°C (-450°F) 316°C (600°F) 260°C (500°F)	-260°C (-436°F) 260°C (500°F) -	-40°C (-40°F) 150°C (300°F) -
Pressure, max, bar (psi)	103 (1,500)	103 (1,500)	83 (1,203)	200 (2,900)	60 (870)	17 (250)
Density, g/cm ³ (lb/ft ³)	1.7 (106)	2.2 (138)	-	0.9 (56.2)	1.3 (81)	-
Compressibility, %	8-16	8-16	4-10	50-60	>44	-
Recovery, %	50	40	40	>10	>6.3	-
Creep Relaxation, %	20	30	15	22	<26	-
Tensile Strength, MPa (psi)	13.8 (2,000)	13.8 (2,000)	14 (2,030)	20 (2,800)	-	-
Nitrogen Sealability ASTM F2378	0.03 mL/min	0.01 mL/min	-	-	-	-

Style	Certifications
8500	California Proposition 65 and RoHS Reach Declaration compliant, API 6FB Fire Test with avg. temperature >650°C, 30 minutes, 40 bar, 1 mL/(in·min.) max allowable leakage, Conforms to the FDA requirements of 21 CFR 177.2600, ABS Tier 2 - PDA Issued.
9000	Passed API 6FA, 3rd Edition Fire Test, Meets USP Plastic Class VI requirements at 121°C (250°F), Conforms to the requirements of 21 CFR 177.1550 for FDA, TA-Luft (VDI Guideline 2440) approved material, ABS-PDA approved and listed in Chlorine Institute Pamphlet 95, (EC) 1935/2004 & EU (10/2011) approved material.
9000N	Meets USP Plastic Class VI requirements at 121°C (250°F); complies with FDA 21 CFR 177.1550 for food and drug contact; ABS-PDA approved and listed in Chlorine Institute Pamphlet 95; compliant with (EC) 1935/2004 and EU 10/2011.
9200	TA-Luft (VDI Guideline 2440), BAM Oxygen Service, ABS-PDA & Pamphlet 95, (EC) 1935/2004 & EU, Blow-Out & DVGW approved materials, and conforms to FDA requirements of 21 CFR 177.1550 for food and drug contact.
9600	Meets USP Plastic Class VI requirements at 121°C (250°F) and complies with FDA 21 CFR 177.1550 for food and drug contact, and compliant with RoHS Reach Declaration. Approved material for ABS-PDA. RoHS Reach Declaration compliant.
9645	Conforms to FDA requirements of 21 CFR 177.1550 for food and drug contact, TA-Luft (VDI Guideline 2440) approved material.
LT100	Manufactured with FDA-compliant materials. LT100 delivers a technically advanced, regulatory-compliant sealing solution designed to meet the stringent demands of modern low-torque, high-integrity gasketing applications.

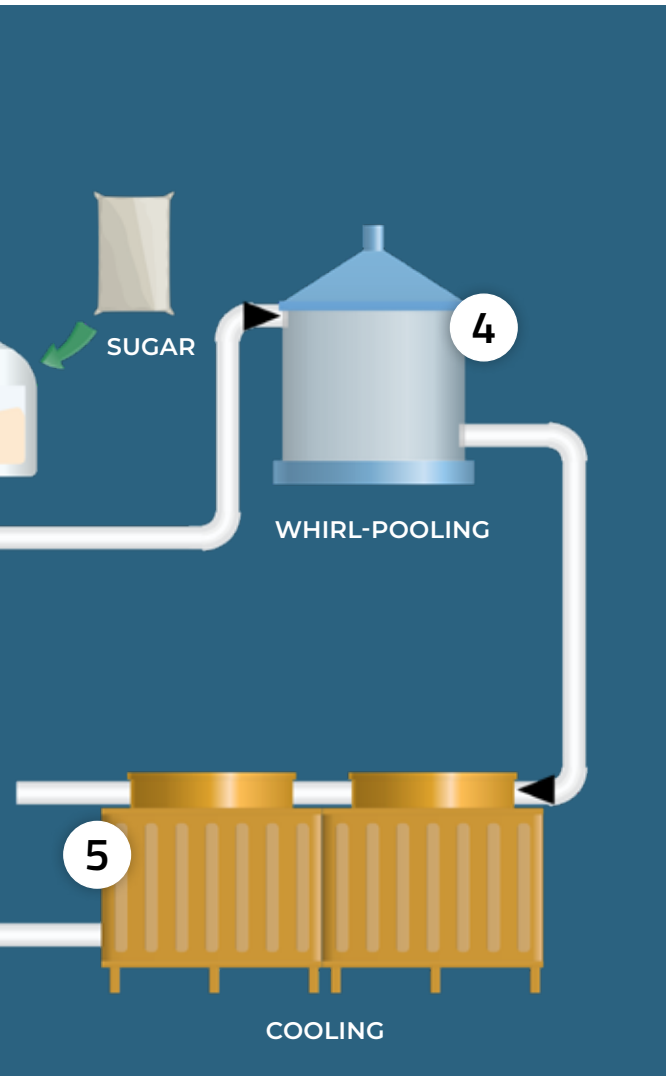
Note: ASTM properties are based on 1/16" sheet thickness, except ASTM F38 which is based on 1/32" sheet thickness. This is a general guide only and should not be the sole means of accepting or rejecting this material. The data listed here falls within the normal range of product properties, but should not be used to establish specification limits nor used alone as the basis of design. For applications above Class 300, contact our technical department.

Warning: Durlon® gasket materials should never be recommended when both temperature and pressure are at the maximum listed. Properties and applications stated are typical. No applications should be undertaken by anyone without independent study and evaluation for suitability. Never use more than one gasket in one flange joint and never reuse a gasket. Improper use or gasket selection could cause property damage and/or serious injury. Data reported is a compilation of field testing, field service reports and/or in-house testing. While the utmost care has gone into publishing the information contained herein, we assume no responsibility for errors. Specifications and information contained within are subject to change without notice. This edition cancels and obsoletes all previous editions.

Beer Production Process Flow Diagram



NOTE: This is a simplified graphical representation of a typical beer production process showing the primary process flow. It does not illustrate every processing step or piece of equipment; rather, it highlights the major stages and equipment used from wort production through fermentation, finishing, and packaging.



Durlon® Product List

- 1 8500
- 2 8500
- 3 Process line: 9000/9000N or 9600
Boiler: 8500
- 4 Process line: 9000/9000N or 9600
Line that drains waste/solids: 8500
- 5 Process line: 9000/9000N or 9600
Cooling tower/air-cooled chiller: 8500
- 6 Process line: 9000/9000N or 9600
- 7 Process line: 9000/9000N or 9600
- 8 Process line: 9000/9000N or 9600

8 Main Steps that make up the Brewing Process:

1. MASHING

Milled malt is mixed with water and held at controlled temperatures so natural enzymes convert starches in the grain into fermentable sugars. The resulting sugar-rich liquid is called wort.

2. LAUTERING

The mash is transferred to the lauter system, where the liquid wort is separated from the spent grain. The clarified wort is then transferred to the brew kettle.

3. BOILING

The wort is boiled in the brew kettle, and hops are added to contribute bitterness, flavor, and aroma. Boiling also helps sterilize the wort and promotes other important changes before downstream processing.

4. WHIRL-POOLING

After boiling, the hot wort enters the whirlpool, where rotational flow helps separate hop material, coagulated proteins, and other solids from the wort.

5. COOLING

The wort is rapidly cooled, typically through a heat exchanger, to the temperature required for fermentation. Rapid cooling prepares the wort for yeast addition and helps limit unwanted microbial growth.

6. MATURATION

The cooled wort is transferred to a fermentation vessel, where yeast converts fermentable sugars primarily into alcohol and carbon dioxide. After fermentation, the beer is conditioned or matured under controlled conditions to allow flavor development, clarification, and stabilization.

7. FILTRATION

Where filtration is used, the beer passes through filtration equipment to remove remaining suspended solids and yeast before packaging.

8. PACKAGING

The finished beer is transferred to bottles, cans, kegs, or other containers for distribution.



The core of the Durlon® brand is to provide fluid sealing solutions that make sense, both financially and strategically. We accomplish this through process-oriented design, sector-specific knowledge, and extensive testing. Our goal is to ensure performance and safety while operating under

a quality management system registered to ISO 9001:2015.

At Durlon®, we offer specially developed sealing solutions tailored to your specific needs.

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