DURLON®
SEALING SOLUTIONS



www.durlon.com
info@durlon.com

SEALING SOLUTIONS FOR
Rail Tank Cars



Durlon is a registered trademark of Triangle Fluid Controls Ltd. and Gasket Resources Inc. • durlon.com • trianglefluid.com • gasketresources.com • durlon.cn • durablaasia.com.sg • 2026/11



Our Vision

Continuous improvement is essential to success in today's industrial environment. Progress depends on advancing people, equipment, manufacturing processes, and technology.

At Durlon®, we develop sealing solutions that support reliable operation, process efficiency, and safety across demanding industrial applications. Our global network of technical specialists combines material expertise, manufacturing capabilities, and ongoing product development to address evolving industry requirements.

From routine service conditions to applications involving elevated temperatures, aggressive chemicals, and pressurized liquids or gases, Durlon sealing products are designed to support reliable containment and long-term operational performance.

At Durlon, we succeed when you succeed.

DURLON®
SEALING SOLUTIONS

Sealing Solutions for **Railroad Tank Cars**

Railroad tank cars play a critical role in the safe and efficient transportation of liquids and gases over long distances. Their robust construction, cargo capacity, and specialized containment systems support the transportation requirements of a wide range of industries.

Chemical and Petrochemical Transportation:
Railroad tank cars transport a broad range of chemical and petrochemical products, including acids, solvents, fertilizers, and liquefied gases. Specialized tank designs, fittings, and sealing systems support the containment of hazardous and nonhazardous commodities while reducing the risk of leaks and spills.

Material compatibility is an important consideration when transporting chemically aggressive products. Tank construction materials, protective linings, and gasket materials must be evaluated against the specific commodity and operating conditions to help maintain containment integrity throughout transportation and handling.

Key Factors:
- Safe transport of hazardous materials
- Efficient distribution
- Corrosion resistance

Crude Oil and Petroleum Products:
With the growth of oil production in various regions, railroad tank cars are instrumental in moving these resources from extraction sites to refineries and distribution centers.
To ensure secure and safe transportation of refined petroleum products such as gasoline, diesel fuel, and jet fuel, these cars are designed to meet the safety standards and regulations associated with flammable liquids. Tank cars are equipped with specialized fittings and proper venting systems to manage pressure changes during transportation.

Railroad tank cars support the transportation of crude oil and refined petroleum products between production facilities, refineries, storage terminals, and distribution centers. Tank car equipment, including valves, closures, pressure-relief devices, and sealing components, must be appropriate for the transported commodity and applicable safety requirements.

Key Factors:
- Crude oil transportation
- Petroleum product distribution

Food and Beverage Industry:
Railroad tank cars are utilized for transporting liquid commodities such as vegetable oils, corn syrup, fruit juices, and dairy products. These tank cars are designed to meet stringent hygiene and safety regulations required for transporting food-grade materials, ensuring that the food and beverage products help protect product quality and reduce contamination risks.

Durlon is a registered trademark of Triangle Fluid Controls Ltd. and Gasket Resources Inc. • durlon.com • trianglefluid.com • gasketresources.com • durlon.cn • durablaasia.com.sg • 2026/11

Rail transportation supports the efficient bulk distribution of food-grade liquids between production facilities, processing plants, and distribution centers. Appropriate tank car equipment and compatible sealing materials help maintain product quality and containment integrity throughout transit.

This is more relevant to a gasket manufacturer's literature than the general supply-chain discussion.

Key Factors:
- **Hygienic transport**
- **Efficient supply chain**

Bulk Liquids and Gases:
Railroad tank cars support the transportation of bulk liquids and gases used in chemical processing, industrial manufacturing, water treatment, and other sectors. Depending on the commodity, tank cars incorporate specialized valves, fittings, pressure-relief devices, and sealing systems designed to maintain containment under applicable service conditions.
Material compatibility, pressure and temperature requirements, and maintenance procedures are important considerations when selecting gaskets for these applications. Proper gasket selection and installation help reduce the risk of leakage and support reliable tank car operation.
Rail transportation also offers an efficient method of moving large commodity volumes over long distances, potentially reducing transportation-related emissions per ton-mile compared with alternative methods.

- **Efficient and cost-effective transport**
- **Safety, containment, and handling**
- **Diverse cargo compatibility**
- **Environmental considerations**





Innovative products. Technical Expertise. Reliable Sealing.

Durlon is a registered trademark of Triangle Fluid Controls Ltd. and Gasket Resources Inc. • durlon.com • trianglefluid.com • gasketresources.com • durlon.cn • durablaasia.com.sg • 2026/11

Durlon® Manway & Nozzle Railcar Gaskets

We provide high-performance gaskets for rail tank car manways, components, and flanged connections for applications involving elevated temperatures, water, steam, oils, acids, and other chemical media.

Our range of polytetrafluoroethylene (PTFE), compressed non-asbestos (CNA), Viton® fluoroelastomers, EPDM, nitrile rubber, and other elastomeric materials are designed to provide exceptional sealing properties.

Compressed non-asbestos (CNA) gasket sheet is a sealing material composed of a blend of chemically resistant organic and inorganic fibers, fillers, and an elastomeric binder. The type of binder used is a key factor when selecting a CNA sheet for specific gasketing applications.

Gaskets manufactured from CNA sheets can provide excellent sealing performance, bolt-load retention, thermal resistance, and chemical resistance. These gaskets are suitable for a wide range of applications involving water, air, steam, oils, acids, and various industrial chemicals, depending on material compatibility and operating conditions.

Our high-performance compressed non-asbestos gasket sheets incorporate aramid fibers, specialized fillers, and elastomeric binders to provide reliable sealing performance in demanding industrial environments. Depending on the material grade and service conditions, these gasket sheets are suitable for applications in the petrochemical, chemical processing, steam, pulp and paper, pharmaceutical, and potable water industries..

How does Compressed Non-Asbestos differ from elastomers?

An elastomer is a polymeric material capable of substantial elastic deformation and recovery.Many industrial rubber compounds are vulcanized using heat and appropriate curing systems to develop their final elastic and mechanical properties. Natural and synthetic rubbers, such as styrene-butadiene rubber (SBR) and Buna-N (NBR), are elastomers.

Compressed Non-Asbestos, in contrast, is a material that combines organic and inorganic chemically resistant fibers and fillers. This type of binder employed gives the sheet the properties of elasticity and flexibility, while the fibers used give the sheet specific sealing characteristics and properties.

Polytetrafluoroethylene (PTFE) gasket material

The unique properties of PTFE lend themselves well for use in a variety of industrial, manufacturing, and engineering facilities. The broad chemical resistance and tolerance to a wide operating temperature range has not only improved the efficiency of many industries, but worker safety that work around those conditions as well.

Durlon® 9000 Filled PTFE

Various shapes of inorganic fillers are homogeneously blended with pure PTFE resins to provide Durlon® 9000 with its physical and mechanical properties. Suitable for use in steel flanges, Durlon® 9000 is designed to reduce the creep and cold flow associated with virgin PTFE while avoiding the excessive hardness of some other filled PTFE products. The material cuts easily and separates cleanly from flange surfaces after use.

Durlon® 9000 is designed for general industrial applications requiring resistance to highly aggressive chemicals. Additionally, the filler geometry helps prevent wicking, which can contribute to corrosion on flange surfaces.

Durlon® 9000 sheet material is produced using an advanced manufacturing process designed to deliver consistent material properties. Its performance characteristics include excellent sealability, torque retention, and material consistency, offering reliable sealing performance and value for rail shippers across a broad range of applications.

Durlon® 9000 is manufactured in a contaminant-free environment using a computer-controlled process that follows strict quality control procedures within an ISO 9001-certified quality management system.





SecureSnap®

The Challenge

Conventional rail tank car manway gaskets require precise dimensional tolerances to fit securely within dovetail grooves. Variations in gasket dimensions may complicate installation, affect gasket retention, and increase manufacturing scrap. Improper gasket positioning can compromise sealing performance and increase the risk of leakage or non-accidental releases (NARs).

The Solution

The increased flexibility of the SecureSnap® manway gasket enables the user to install the gaskets more quickly than the conventional gasket. The tabs allow for the SecureSnap® manway gasket to easily snap into the dovetail groove. Thus, the time required to install the SecureSnap® gasket is significantly less than the time required to install a standard manway gasket.

Utilizing a patented manufacturing process, the SecureSnap® technology incorporates the Durlon® 9000 sealing features as well as elastomer gasketing material to help insure a tighter seal and superior bolt load retention in less than ideal bolting conditions.

“A single gasket universally fits the AAR-1, TRN-1, and TRN-2 manway models.”

The Benefits

SecureSnap® is available for AAR-1, TRN-1, and TRN-2 manway styles, providing application flexibility across supported tank car configurations.

Its retention design can simplify gasket installation and reduce the risk of gasket displacement during assembly. Where approved for the applicable manway systems, common gasket configurations may also help distributors and maintenance facilities consolidate inventory and reduce associated costs.

Gasket Factors	1/16”	1/8”
m	2.2	4.6
Y psi (MPa)	1,937 (13.4)	1,639 (11.3)
Gb psi (MPa)	639 (4.4)	495 (3.4)
a	0.220	0.262
Gs psi (MPa)	55 (0.379)	65 (0.448)

For Physical Properties and Certifications of SecureSnap® gasket material, refer to page 15.

Patent No.: US 12,746,953 B2, Dated Sep.29, 2026

Durlon is a registered trademark of Triangle Fluid Controls Ltd. and Gasket Resources Inc. • durlon.com • trianglefluid.com • gasketresources.com • durlon.cn • durablaasia.com.sg • 2026/11

Viton®, Elastomers & Other Rubber Products

We provide high-performance industrial rubber molded gaskets for rail rail tank car manways, fittings, and flanged connections. Our large selection of fluoroelastomers and other synthetic rubber product technologies are designed to provide reliable sealing performance in compatible applications for a wide range of applications and various commodities.



Our technicians will work with your company to develop or select gasket compounds to meet specified application requirements in the colors and durometers necessary. All products undergo rigorous testing processes throughout manufacturing and final quality inspection.

Our extensive knowledge of compression molding techniques as well as our state-of-the-art research and development facility allow us to provide application-specific sealing solutions that are practical and adhere to international safety protocols and standards. We pride ourselves on the production of durable and high-performance rubber molded parts for the most challenging applications.



All molded gasket materials are manufactured in conformance to our Quality Management System and are subjected to rigorous testing and quality-control procedures.

Molded Gasket Capabilities:
Available Manway Styles:
- AAR-1
- TRN-1
- TRN-2
- Collar Lid Style



Manufacturing Capabilities:
- Maximum outside diameter (OD): 26.5 in.
- Application-specific elastomer compounds
- FDA-compliant material options, where applicable
- Private branding (tooling may be required)
- Expedited lead times, subject to availability
- Material batch test reports available upon request

Materials:
- Viton® A and B
- EPDM
- NBR (Nitrile Rubber)
- Neoprene (CR)

Viton®, Elastomers & Other Rubber Products

Physical Properties	Viton® A	Viton® B	EPDM	Nitrile
Composition	66% fluorine	68% fluorine	-	-
Color	Black / Brown	Black	Black	Black / White
Temperature: Minimum Maximum	-17°C (0°F) 204°C (400°F)	-17°C (0°F) 204°C (400°F)	-30°C (-22°F) 150°C (302°F)	-35°C (-31°F) 120°C (248°F)

Fitting and Outlet Gasket Sizes		
ID (in.)	OD (in.)	Thickness (in.)
7.250	8.875	0.250
7.250	9.500	0.250
8.688	10.875	0.250
8.750	11.625	0.250
8.625	11.625	0.250
8.625	11.000	0.250
8.875	11.750	0.250
8.875	11.625	0.250
9.250	10.875	0.250
9.750	11.750	0.250
9.563	11.750	0.250
9.000	11.500	0.250
9.000	11.000	0.250

Manway Gasket Sizes		
ID (in.)	OD (in.)	Thickness (in.)
19.250	21.500	0.250
19.500	21.680	0.250
19.750	21.500	0.875





Durlon is a registered trademark of Triangle Fluid Controls Ltd. and Gasket Resources Inc. • durlon.com • trianglefluid.com • gasketresources.com • durlon.cn • durablaasia.com.sg • 2026/11

Durlon® Collar Lid Gaskets



Tank Car Manway Nozzle Gasket

- Designed to provide uniform compression and reliable sealing around compatible manway nozzles.
- Available for 20-in. manway configurations.
- Available in Viton® A, Viton® B, EPDM, Neoprene (CR), and Nitrile (NBR), with FDA-compliant material options where applicable.
- May serve as an alternative to certain manway cover gasket designs, subject to application and end-user approval.
- Adhesive-free installation facilitates gasket removal, inspection, and replacement.
- An extended inner leg helps retain the gasket on the manway nozzle.
- The J-shaped profile helps prevent gasket displacement into the tank car during installation.

**Additional colors may be available upon request.*



Durlon® Gasket Installation

Non-Pressure Tank Car Hinged and Bolted Manway — Eyebolt Tightening Procedure

Customer: _____ Tank Car No. _____

Location: _____ Part No. _____

AAR Manway Style: _____ Gasket Dimensions: _____

(Refer to GRI/TFC MW Gasket Style/Size Chart)

Gasket Material (Durlon® CNA & PTFE materials are "Hard" manway gasket styles as noted in Appendix D of M-1002)

(Circle One): Durlon® 9000 Durlon® 9600 Durlon® 8500

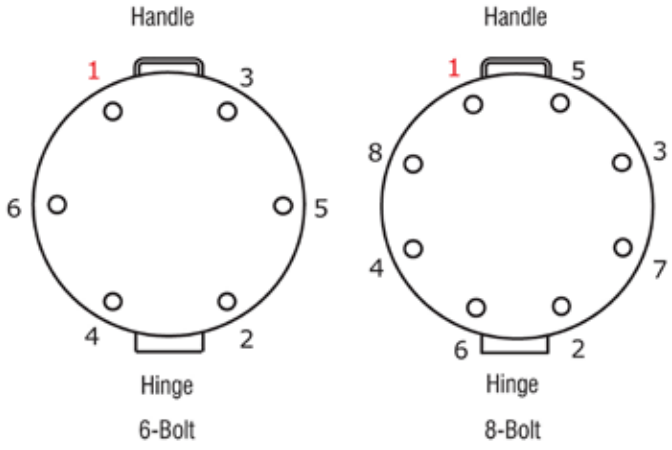
Eyebolt Grade: (Circle One): A307 A449 A193-B7 A193-B8/B8M Class 2 Eyebolt Diameter: _____

Lubrication Used: _____ Assembly Torque: _____

Assembly Sequence

- Pre-tightening. Hand tighten lubricated eyebolts then 1/4 turn with a hand wrench.
- Three star pattern tightening sequences in either a 6-bolt or 8-bolt pattern, increasing the torque in each sequence per the chart on the right.
- A rotational pass at full torque to equalize the stress on each eyebolt.
- Optional. Retorque after 4-24 hrs.

__WARNING:__ Bolts must be tightened in the cross-pattern tightening sequence, employing the incremental rounds of tightening as prescribed in this procedure. If this is not done, the flanges may become out of parallel relative to each other, an indicator of non-uniform gasket loading and potential joint leakage.

Manway Bolt Tightening Sequence	6 Eyebolts		8 Eyebolts	
	Hand-tight then 1/4 turn		Hand-tight then 1/4 turn	
	30%	1st Sequence	30%	1st Sequence
	60%	2nd Sequence	60%	2nd Sequence
	100%	3rd Sequence	100%	3rd Sequence
	100%	Rotational	100%	Rotational

Retorque after 4 to 24 hrs. A large percentage of the short-term bolt preload loss occurs within 24 hours after initial tightening with most occurring after 4 to 5 hours. This Round recovers this loss. Failure To Pre-Tighten The Nuts Result In Flanges That Are Not Parallel, And Could Result In Possible Leakage.

Joint Assembler: _____ Date: _____

For questions contact tech@durlon.com

Warning: These materials should never be recommended when both temperature and pressure are at the maximum listed. Properties and applications shown are typical. No application 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 personal injury. Data reported in this brochure 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 in this brochure are subject to change without notice. This edition cancels and obsoletes all previous editions.

Durlon is a registered trademark of Triangle Fluid Controls Ltd. and Gasket Resources Inc. • durlon.com • trianglefluid.com • gasketresources.com • durlon.cn • durablaasia.com.sg • 2026/11

Durlon® Typical Railroad Tank Car Torque Values

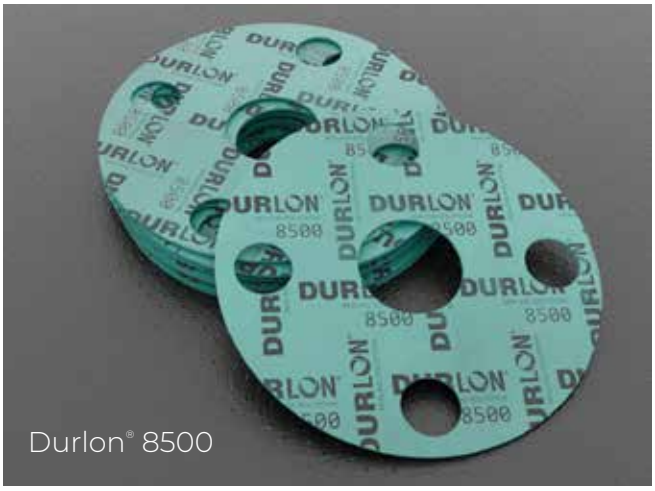
General Purpose Tank Cars								
Component	Material	Style	Gasket Material/Dimensions			Fasteners No. / Dia / Grade	Torque (ft-lbs)	
			Thickness	OD	ID		K = 0.15	K = 0.17
Manway Cover	Durlon® 9000 (Hard Dims)	AAR-1	1/8”	21-5/8”	19-1/2”	8 / 1” / A307	185	210
		AAR-1	1/8”	21-5/8”	19-1/2”	6 / 1” / A307	185	210
		AAR-1	1/8”	21-5/8”	19-1/2”	6 / 7/8”/ 1045	135	152
		TRN-1	1/8”	21-11/16”	19-5/8”	6 / 7/8” / A449	210	240
	*Viton® (Elastomeric Dims)	AAR-1	1/4”	21-11/16”	19-1/2”	8 / 1” / A307	70	80
		TRN-1	1/4”	21-1/2”	19-1/4”	6 / 7/8” / A449	70	80
Cover Flange	Durlon® 9000	-	1/8”	17-1/8”	15”	12 / 1” / A193-B7	535	600
		-	1/8”	17-3/4”	16-3/4”	12 / 3/4”/ 5	205	230
		-	1/8”	16-1/8”	14”	12 / 1” /A193-B7	535	600
Air / Liquid Valves	Durlon® 9000	1”	1/8”	2-5/8”	1-5/16”	4 / 1/2” / A193-B7	40	45
		2” RF	1/8”	4-1/8”	2-3/4”	4 / 5/8” / A193-B7	120	140
		2” FF	1/8”	4-1/8”	2-3/4”	4 / 5/8” / A193-B7	140	155
		3”	1/8”	5-3/8”	4-1/8”	4 / 5/8” / A193-B7	140	155
Gauge Device	Durlon® 9000	-	1/8”	3-3/8”	2-1/2”	4 / 3/4” / A193-B7	125	140
		-	1/8”	9-1/4”	7-3/8”	4 / 3/4” / A193-B7	250	280
		T/G	1/8”	2-1/4”	1-1/2”	4 / 5/8” / A193-B7	80	95
Safety Valve	Durlon® 9000	-	1/8”	5-3/8”	4-1/8”	4 / 3/4” / A193-B7	200	225
		-	1/8”	9”	8-1/4”	8 / 5/8” / A193-B7	110	125
Bottom Outlet	Durlon® 9000	T/G	1/8”	8-1/2”	7-1/2”	8 / 3/4” / A193-B7	190	210
		BOV / Outlet	1/8”	7”	5-1/4”	4 / 5/8” / A193-B7	140	160
			1/8”	8-3/8”	5”	4 / 5/8” / A193-B7	140	160
Number of bolts, bolt grade and lubrication can vary. *Contact GRI Technical Services for additional information. Revised May 2017								

Pressure Cars								
Component	Material	Gasket Material/Dimensions			Fasteners		Torque (ft-lbs)	
		Thickness	OD	ID	Size	Grade	Never-seize type lube	Halocarbon, or Copper lube
18” Manway	Durlon® 9000	1/8”	20-1/4”	19-1/4”	1-1/8”	A320-L7	550	485
20” Manway		1/8”	22-1/4”	21-1/4”	1-1/8”	A320-L7	600	530
22” Manway		1/8”	24-1/4”	23-1/4”	1-1/8”	A320-L7	660	580
Angle Valve / Gauging Device (C)	Durlon® 9000	1/8”	2-1/4”	1-1/2”	5/8”	A320-L7	85/95 (C)	75/83 (C)
		1/8”	2-1/4”	1-1/2”	3/4”	A320-L7	168/185 (C)	130/144 (C)
		1/8”	4”	3-1/4”	3/4”	A320-L7	168/185 (C)	130/144 (C)
PRD/Safety (C)	Durlon® 9000	1/8”	2-1/4”	1-1/2”	3/4”	A320-L7	168/185 (C)	130/144 (C)
		1/8”	4-3/4”	4”	3/4”	A320-L7	168/185 (C)	130/144 (C)
		1/8”	6-3/4”	6”	7/8”	A320-L7	273/300 (C)	212/233 (C)
K = 0.15 represents a nickel anti-seize type lubricant. K = 0.17 represents moly anti-seize type lubricant. K = 0.132 represents a copper anti-seize type lubricant. (C) designates torque using a crow’s foot wrench. For torque worksheets by component or car set, contact GRI Technical Services.								

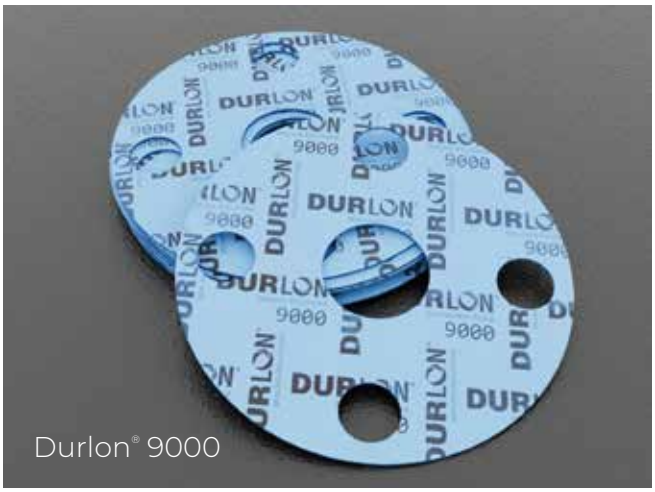
Durlon® Product Recommendations



Durlon® 7900 Series



Durlon® 8500



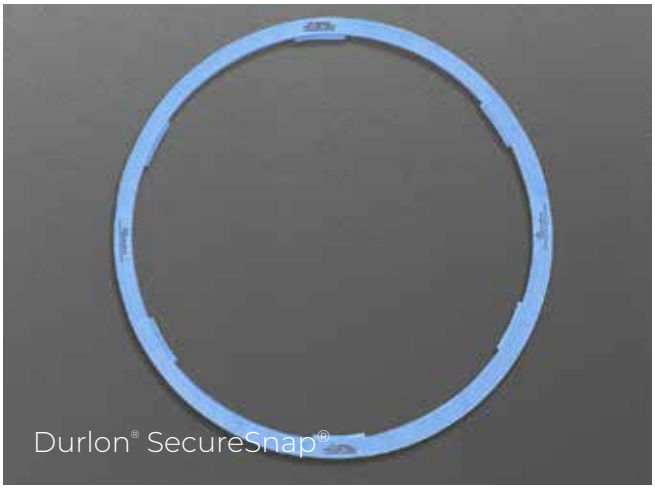
Durlon® 9000



Durlon® 9000N



Durlon® 9200


Durlon® SecureSnap®

Durlon is a registered trademark of Triangle Fluid Controls Ltd. and Gasket Resources Inc. • durlon.com • trianglefluid.com • gasketresources.com • durlon.cn • durablaasia.com.sg • 2026/11

Physical Properties & Certifications

Physical Properties	7900/7925 /7950	8500	9000	9000N	9200	SecureSnap®
Composition	Aramid -Inorganic NBR	Aramid -Inorganic NBR	Inorganic Filler / Pure PTFE Resins	Inorganic Filler / Pure PTFE Resins	Barium Sulfate Filler / Pure PTFE Resins	Inorganic Filler / Pure PTFE Resins
Color	Off White /Lt Green/Blue	Green	Blue	White	Off White	Blue
Temperature: Min Max Continuous, Max	 -40°C (-40°F) 371°C (700°F) 260°C (500°F)	 -40°C (-40°F) 371°C (700°F) 287°C (548°F)	 -212°C (-350°F) 271°C (520°F) 260°C (500°F)	 -212°C (-350°F) 271°C (520°F) 260°C (500°F)	 -268°C (-450°F) 260°C (500°F) -	 -212°C (-350°F) 271°C (520°F) 260°C (500°F)
Pressure, max, bar (psi)	83 (1,200)	103 (1,500)	103 (1,500)	103 (1,500)	83 (1,203)	103 (1,500)
Density, g/cc (lbs/ft^3)	1.7 (106)	1.7 (106)	2.2 (138)	2.2 (138)	-	2.2 (138)
Compressibility, %	7-17	8-16	8-16	8-16	4-10	8-16
Recovery, %	40	50	40	40	40	40
Creep Relaxation, %	20	20	30	30	15	30
Tensile Strength, MPa (psi)	11 (1,600)	13.8 (2,000)	13.8 (2,000)	13.8 (2,000)	14 (2,030)	13.8 (2,000)
Sealability ASTM F2378 (Nitrogen)	0.05 cm^3/min	0.03 cm^3/min	0.01 cm^3/min	0.01 cm^3/min	-	0.01 cm^3/min

Style	Certifications
79XX	California Proposition 65, RoHS REACH Declaration
8500	California Proposition 65, RoHS REACH Declaration, API 6FB Fire Test with avgerage temperature >650°C, 30 minutes, 40 bar, 1 mL (inch/min.) max allowable leakage, Conforms to the FDA requirements of 21 CFR 177.2600.
9000 & SecureSnap®	Passed API 6FA, 3rd Edition Fire Test, Met requirements of 121°C (250°F) for USP Class VI at 121°C (250°F), Complies with applicable requirements of FDA 21 CFR 177.1550, TA-Luft (VDI 2440) approved material, ABS-PDA & Pamphlet 95 approved material - Chlorine Institute, (EC) 1935/2004 & Commission Regulation (EU) No. 10/2011 approved material.
9000N	USP Class VI at 121°C (250°F) for 30 min., Approved material for ABS-PDA, (EC) 1935/2004 & EU (10/2011), and conforms to FDA requirements of 21 CFR 177.1550 for food and drug contact
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.

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 specifications 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.



Durlon® develops engineered fluid sealing solutions designed to support reliable operation, safety, and cost-effective performance across demanding industrial applications.

Through material innovation, application-specific engineering, controlled manufacturing processes, and technical testing, we help customers address complex sealing requirements.

Our commitment to consistent product quality and continuous improvement is supported by an ISO 9001:2015-certified quality management system.

Durlon offers sealing solutions tailored to specific operating conditions, equipment requirements, and industry applications.

DURLON®
SEALING SOLUTIONS

www.durlon.com • info@durlon.com

Distributed by: