



Grades for Potable Water and Beverage Applications



Sarlink® 3400 Series

Sarlink® 3400 series materials exemplify our commitment to developing TPV materials that have the physical properties necessary for demanding applications. Even more critical, these grades also ensure the well-being of consumers by meeting or exceeding regulatory requirements for product safety. Because Sarlink® materials are based on dynamically vulcanized rubber within a polypropylene matrix, solutions based on Sarlink® take advantage of the cost, design flexibility, and recyclability of thermoplastic processing without sacrificing the elastic properties critical to part performance.

A wide variety of water applications

Sarlink® 3400 series materials are an excellent choice for soft touch grips, flexible tubing, and elastic seals requiring beverage and potable water contact, both cold and hot. Thermoplastic processing methods and

compatibility with other polyolefins provide unique opportunities for part integration and reduced overall system costs. The Sarlink® 3400 grade series has been specifically developed for can liners, beverage and drinking water applications, water stops, home plumbing, laundry gaskets, tubing for food appliances and industrial liquid conveying hoses.

With Sarlink®, Teknor Apex is a TPV leader in material development, quality, and program support. Coupled with the application expertise of our customers, there are endless opportunities to be explored. Regardless of the complexity of your new idea or application development, Teknor Apex has the materials and knowledge to help you achieve your goals. Contact your representative to find out if our materials, practical application support, and customer focus can be a key component to your successful product launch.



Main Characteristics

The materials that make up the Sarlink® 3400 series combine flexibility and elastic properties (such as low tension and compression set) with excellent flexural fatigue resistance and long term stability (thermal, UV, and ozone). These products also have good fluid resistance properties over a wide temperature range.

Sarlink® 3400 series materials are available in hardnesses from 45 to 90 shore A, and are produced in both black and natural color. Table 1 illustrates the basic physical properties of Sarlink® 3400 series materials. More extensive and detailed data can be provided by your representative. Sarlink® materials can be processed using standard thermoplastic

processing techniques such as injection molding, extrusion, and blow molding. As a result, total system costs and design flexibility are improved when compared to traditional thermoset rubber solutions. Additionally, Sarlink® is fully recyclable from both process scrap and post-consumer waste.

Table 1: Physical properties of Sarlink® 3400 grades

Data Sarlink® 3400 general purpose grades								
Typical properties	Test standard	Units S.I.	3440	3450	3460	3470	3480	3490
Density	ISO 1183	kg/m ³	930	950	950	950	950	940
Hardness (5 sec delay)	ISO 868	Shore A or D						
Extruded sample			42A	55A	64A	70A	81A	90A
Injection molded sample			47A	57A	67A	74A	85A	93A
Tensile properties	ISO 37							
<i>Flow direction</i>								
Tensile strength at break		MPa	2.4	4.2	5.4	6.6	8.7	12.3
Modulus at 100% elongation		MPa	2.4	2.9	3.7	5	6.8	10.2
Elongation at break		%	215	235	280	290	335	400
<i>Cross flow direction</i>								
Tensile strength at break		MPa	4.3	5.2	6.4	7.6	9.5	13.7
Modulus at 100% elongation		MPa	1.2	1.8	2.6	3.4	4.6	6.7
Elongation at break		%	620	590	650	660	710	720
Tear strength (cross flow)	ISO 34B							
Unnicked angle		kN/m	17	23	33	43	52	82
Compression set	ISO 815							
22 hrs@23°C		%	19	21	24	26	33	47
22 hrs@70°C		%	30	33	36	41	52	60
70 hrs@125°C		%	51	52	57	64	67	76
Hot air aging (cross flow direction)	ISO 188							
<i>168 hrs@150°C</i>								
Change in hardness		pts	2	3	3	4	3	3
Retention tensile strength at break		%	115	110	100	100	90	100
Retention modulus at 100% elongation		%	110	105	110	110	110	110
Retention elongation at break		%	110	110	90	90	85	90
<i>1000 hrs@135°C</i>								
Change in hardness		pts	-2	2	2	0	1	-1
Retention tensile strength at break		%	110	90	100	90	90	90
Retention modulus at 100% elongation		%	105	110	100	110	120	110
Retention elongation at break		%	110	90	95	90	85	85
Volume swell	ISO 1817							
70 hrs@125°C in IRM 903 oil		%	130	130	125	120	100	70
Apparent shear viscosity	ISO 11443							
@2061/s, 200°C	Capillary	Pa.s	260	275	300	300	300	300

Some grades may not be available locally
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NSF/ANSI approvals for Sarlink® 3400

The Sarlink® 3400 series product line meets the requirements of NSF and ANSI (NSF 61) for both hot and cold potable water applications requiring a surface area to volume ratio of 100 in² / l. (0.16mm² / L). Sarlink® 3400 series materials are also suitable for End Uses defined as (P)ipe, (F)itting, and (A)ppurtenances other than pipe and

fitting; as outlined in Table 2. Sarlink® 3400 series materials also meet the NSF and ANSI requirements for food system components (NSF 51). These grades are suitable for use at temperatures up to 212°F (100°C) in contact with dry solids, aqueous liquids, acidic liquids, and beverages with up to 50% alcohol content. Additional information on suitable grades and use types can be found in Table 3. NSF / ANSI

standards NSF 61 and NSF 51 outline crucial requirements for drinking water and food system components, and define acceptable levels of migration from these components into a liquid. Sarlink® 3400 series materials have been tested and approved against these requirements, and are also backed by our uncompromising commitment to product safety.

Table 2: Sarlink® potable water grades approved according NSF/ANSI STANDARD 61 drinking water system components.

Sarlink® grade	End Use	Water Contact Temp
Sarlink® 3440B[1]	P,F,A	C. HOT
Sarlink® 3440N[1]	P,F,A	C. HOT
Sarlink® 3450N[1]	P,F,A	C. HOT
Sarlink® 3450B[1]	P,F,A	C. HOT
Sarlink® 3460N[1]	P,F,A	C. HOT
Sarlink® 3460B[1]	P,F,A	C. HOT
Sarlink® 3470N[1]	P,F,A	C. HOT
Sarlink® 3470B[1]	P,F,A	C. HOT
Sarlink® 3480N[1]	P,F,A	C. HOT
Sarlink® 3480B[1]	P,F,A	C. HOT
Sarlink® 3490B[1]	P,F,A	C. HOT
Sarlink® 3490N[1]	P,F,A	C. HOT

[1] Certified for a maximum surface area to volume ratio of 100 sq. in./L.

Table 3: Sarlink® 3400 grades approved according NSF/ANSI STANDARD 51 for food equipment materials.

Sarlink® grades	Color	Type of food	Maximum temperature of use in ° F
3460N, 3470N, 3480N, 3490N	Natural	Dry solids Aqueous Acidic Beverages up to 50% alcohol	212° (100°C)

Other Teknor Apex Products

Sarlink® 3400 series materials are only one portion of our extensive product portfolio. Teknor Apex TPE materials are used for many diverse and demanding applications in automotive, building product, medical device, packaging closure, consumer product, and other markets where excellent elasticity, sealing properties, and design flexibility are required.

Chances are that there is an existing Teknor Apex TPE grade that will offer a solution for your next development program. If there is not, we also have an long-established track record of developing specialty materials to meet unique customer requirements. If you are interested in learning more about the Teknor Apex TPE product line please contact your local Representative or visit us at www.teknorapex.com/tpe.

sarlink®

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About Teknor Apex TPE

The Thermoplastic Elastomer Division of Teknor Apex Company (TA TPE) is the most diversified manufacturer of TPEs, offering seven broad product families based on generically distinct chemistries and operating plants in the US, Europe, and Asia. The processes used by TA TPE produce compounds that exhibit outstanding rubber-like properties with particular characteristics while being processable at high rates like any other thermoplastic, as well as being recyclable. Visit www.teknorapex.com/tpe to see the TPE product families.

Headquartered in Pawtucket, Rhode Island, US, the Division is an international supplier to the appliance, automotive, construction, medical-device, wire and cable, and other consumer and industrial product industries. Other plastics businesses of Teknor Apex include the Bioplastics, Nylon, Specialty Compounding, and Vinyl Divisions and Teknor Color Company. Visit www.teknorapex.com.

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