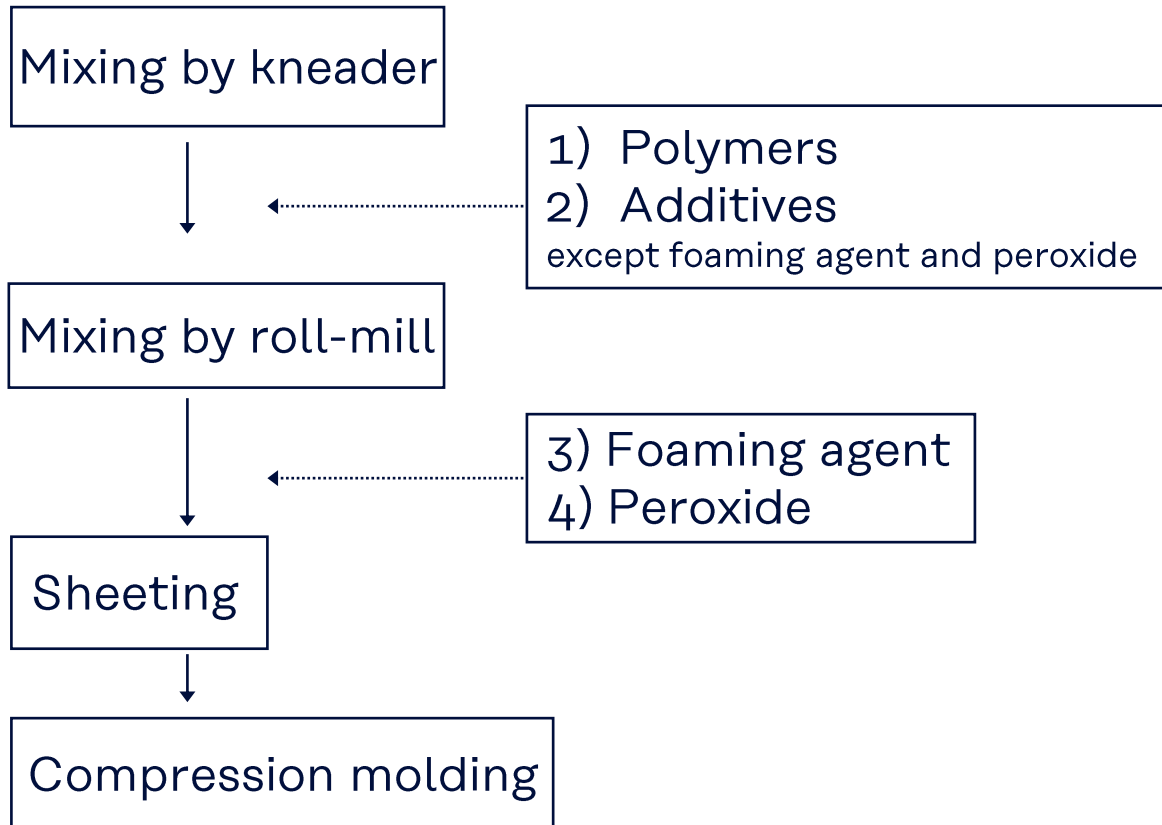


# Foams using SEPTON™ & SEPTON™ BIO-series

Elastomer R&D Dept.  
Elastomer Division

# Typical Preparation Method



Mixing condition

Equipment: kneader and roll-mill

		Condition
Temperature	deg. C	100-130

Compression molding condition

		Condition
Temperature	deg. C	170
Time	min	25
Pressure	MPa	10

## Foams using SEPTON™

Foam		EVA	2004F/EVA (80/20)	4030S/EVA (80/20)
EVAFLEX™	EV40LX (VA=41 wt%)	80	20	20
EVAFLEX™	EV460 (VA=19 wt%)	20		
SEPTON™	2004F		80	
SEPTON™	4030S			80
Additives*		8	8	8
Peroxide	DCP-40	1.0	1.8	1.1
Expansion ratio	%	620	580	610
Hardness@ 23 deg. C (after 15 s)	Type C	27	29	31
Tensile strength	MPa	1.2	2.4	2.6
Elongation	%	320	440	430
Tear strength	N/mm	6.3	9.0	8.1

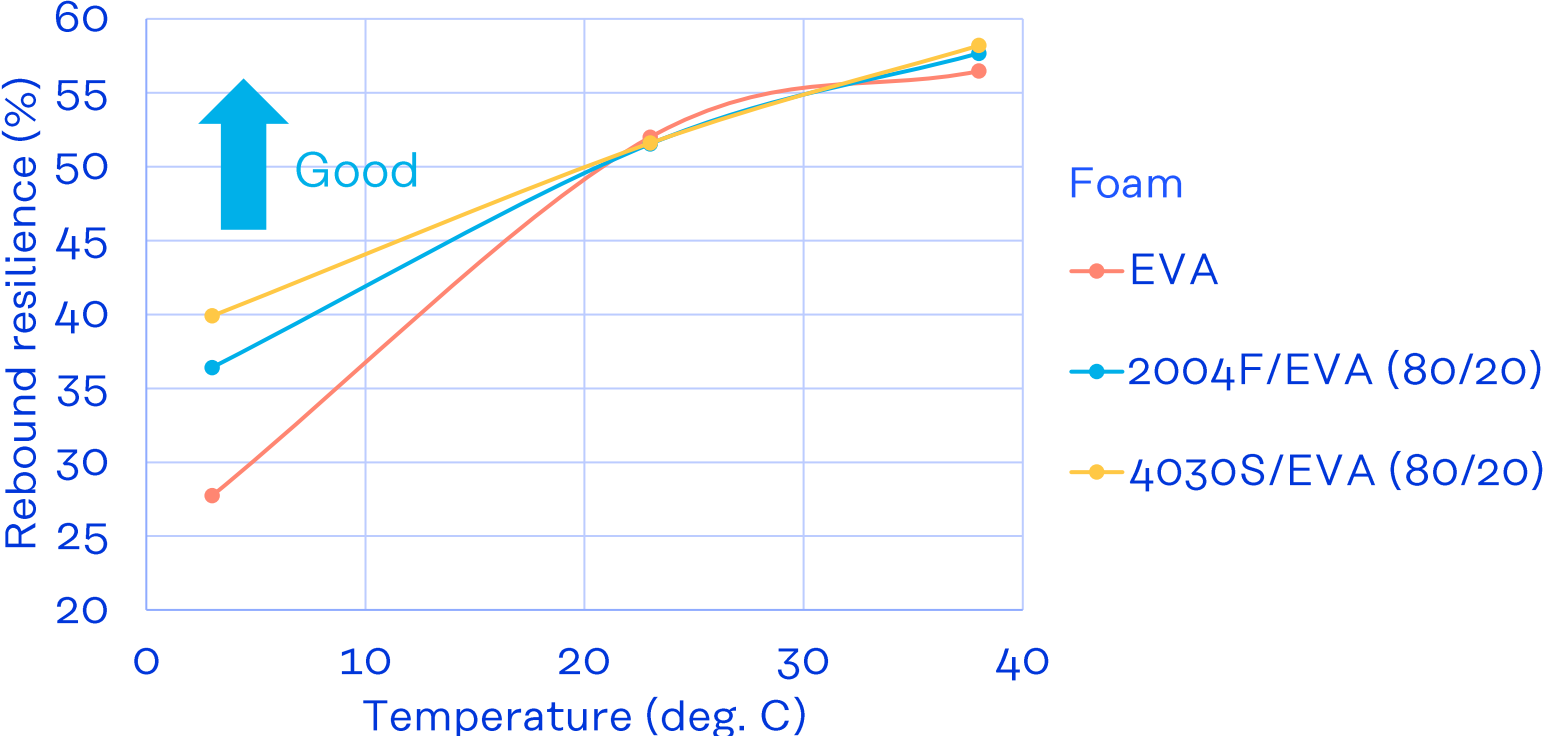
Stearic acid/TAIC-60/ZnO/CaCO<sub>3</sub>/Foaming agent (1/1/2/2/2 by wt)

EVA (Ethylene-vinyl acetate): EVAFLEX™ (Dow-Mitsui Polychemicals Co., Ltd.)

Foaming agent: ADCA

Foams using SEPTON™ and EVA show better strength and elongation than EVA foam.

# Foams using SEPTON™



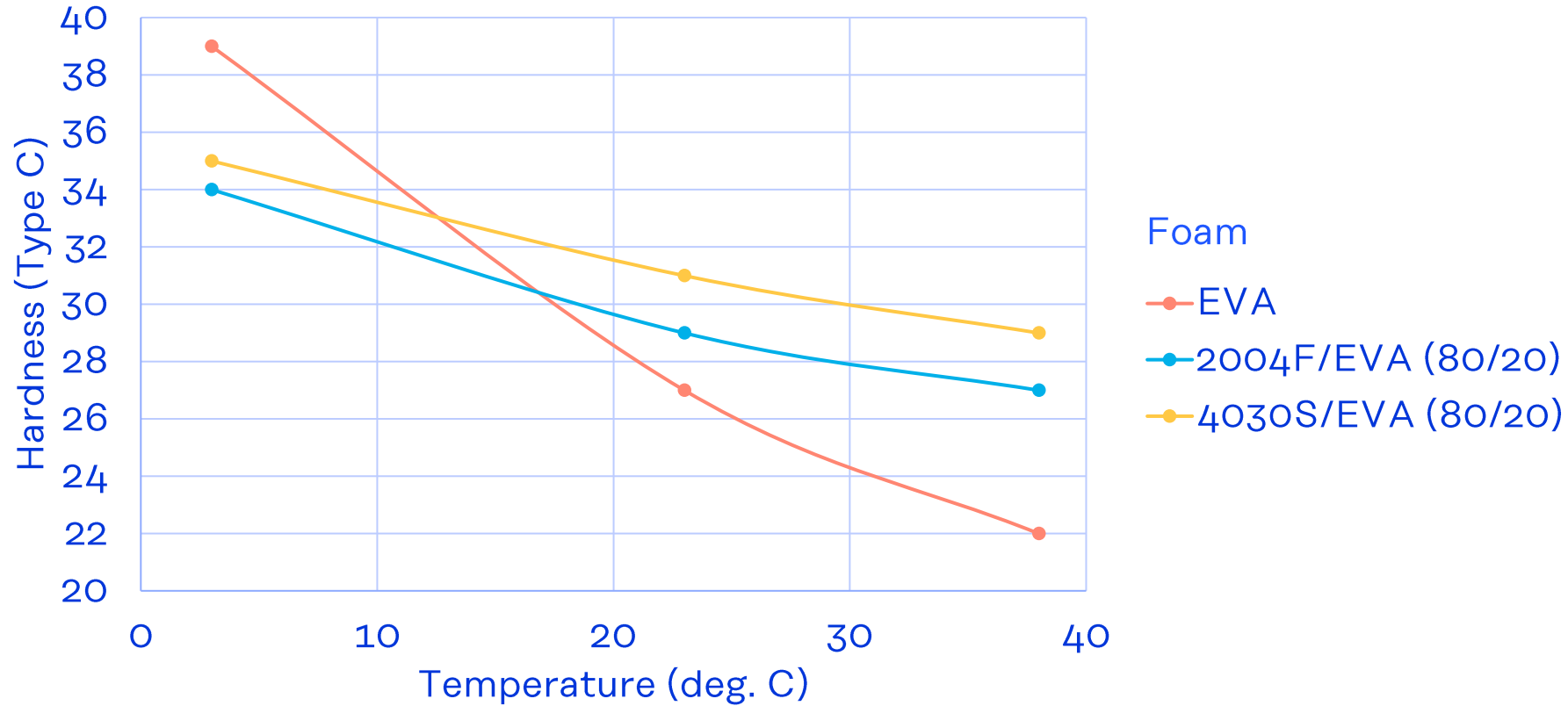
SEPTON™ 2004F  
SEPS  
Styrene content = 18 wt%



SEPTON™ 4030S  
SEPS  
Styrene content = 20 wt%

- ✓ Foams using SEPTON™ and EVA show high rebound resilience at low temperatures.
- ✓ Lower temperature dependence of rebound resilience of foams using SEPTON™.

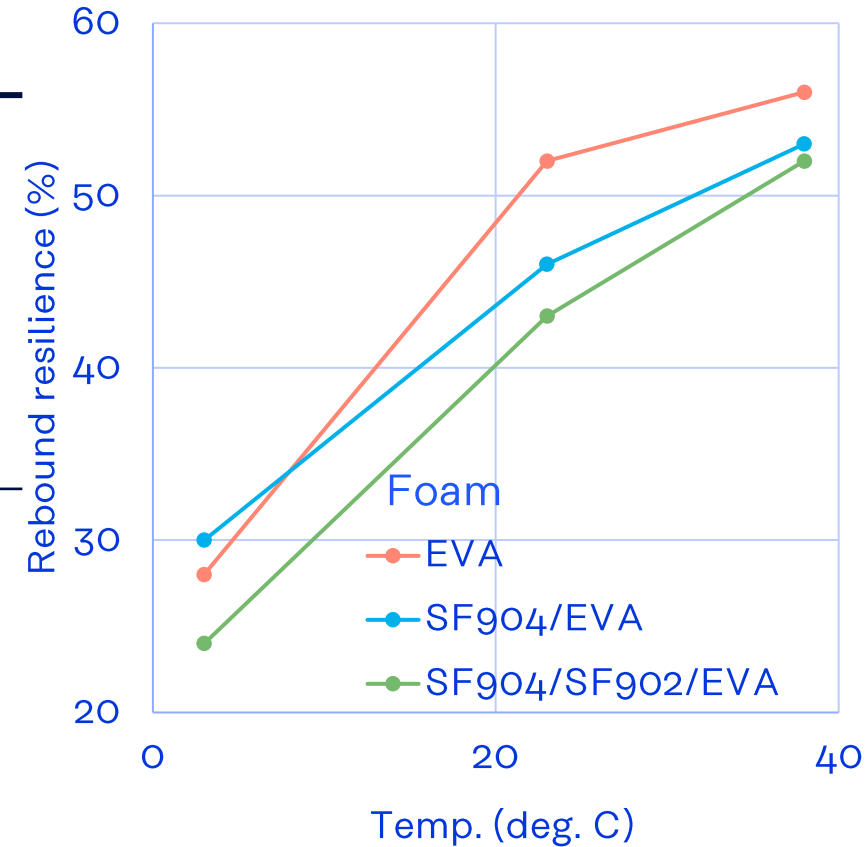
# Temperature Dependence of Hardness



✓ Lower temperature dependence of hardness of foams using SEPTON™.

# Foams using SEPTON™ BIO-series

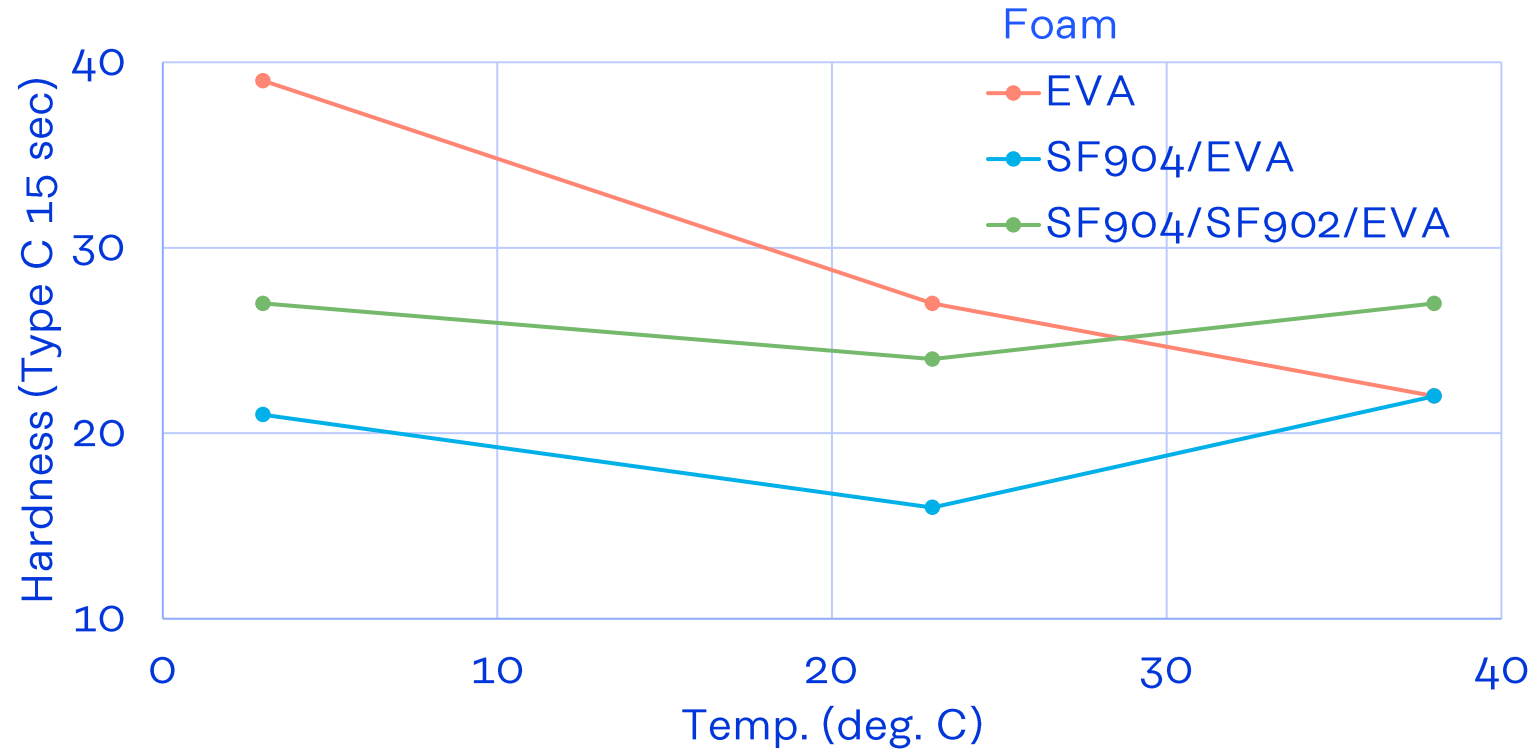
		EVA	SF904/EVA	SF904/SF902/EVA
EVAFLEX™	EV40LX (VA=41 wt%)	80	20	20
EVAFLEX™	EV460 (VA=19 wt%)	20		
SEPTON™ BIO-series	SF904		80	50
SEPTON™ BIO-series	SF902			30
Additives*		8	8	8
Peroxide	DCP-40	1.0	2.5	2.5
Expansion ratio	%	620	590	490
Hardness @23 deg. C (after 15 s)	Type C	27	16	24
Tensile strength	MPa	1.2	1.3	1.5
Elongation	%	320	380	320
Tear strength	N/mm	6.3	5.1	5.1
Bio-based content	wt%	0	36	45



Stearic acid/TAIC-60/ZnO/CaCO<sub>3</sub>/Foaming agent (1/1/2/2/2 by wt)  
 EVA (Ethylene-vinyl acetate): EVAFLEX™ (Dow-Mitsui Polychemicals Co., Ltd.)  
 Foaming agent: ADCA

✓ Foams using SEPTON™ BIO-series and EVA have high bio-based content.

# Temperature Dependence of Hardness



- ✓ Foams using SEPTON™ BIO-series are soft even at low temperatures.
- ✓ Lower temperature dependence of hardness of foams using SEPTON™ BIO-series

# Comparison of Foam Properties

		EVA	2004F /EVA	4030S /EVA	SF904 /EVA	SF904/SF902 /EVA
EVA FLEX™	EV40LX (VA=41wt%)	80	20	20	20	20
EVA FLEX™	EV460 (VA=19wt%)	20				
SEPTON™	2004F		80			
SEPTON™	4030S			80		
SEPTON™ BIO-series	SF904				80	50
SEPTON™ BIO-series	SF902					30
Additives*		8	8	8	8	8
Peroxide	DCP 40	1.0	1.8	1.1	2.5	2.5
Expansion ratio	%	620	580	610	590	490
Hardness@23 deg. C (after 15 s)	Type C	27	29	31	16	24
Tensile strength	MPa	1.2	2.4	2.6	1.3	1.5
Elongation	%	320	440	430	380	320
Tear strength	N/mm	6.3	9.0	8.1	5.1	5.1
Rebound resilience@23 deg. C	%	52	52	52	46	43
Bio-based content	wt%	0	0	0	36	45

\*Stearic acid/TAIC-60/ZnO/CaCO<sub>3</sub>/ADCA (1/1/2/2/2 by wt)



# Potential Applications of Foams using SEPTON™ and SEPTON™ BIO-series

Shoe sole



Grip



and so on...

**Kuraray Co., Ltd.**  
Elastomer Division  
Tokiwabashi Tower  
2-6-4, Otemachi  
Chiyoda-ku, Tokyo, 100-0004, Japan

✉ [elastomer@kuraray.com](mailto:elastomer@kuraray.com)

→ [www.kuraray.com](http://www.kuraray.com)

→ [www.elastomer.kuraray.com](http://www.elastomer.kuraray.com)

© KURARAY CO., LTD. 2023

SEPTON is a trademark or registered trademark of Kuraray Co., Ltd. Trademarks may not be applied for or registered in all countries.

The information provided herein corresponds to Kuraray's knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The information provided falls within the normal range of product properties and relates only to the specific material designated; this data may not be valid for such material used in combination with any other materials or additives or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of a specific material for your particular purposes. Final determination of suitability of any material or process and whether there is any infringement of patents is the sole responsibility of the user. Since Kuraray cannot anticipate all variations in actual end-use conditions, Kuraray makes no warranties and assumes no liability in connection with any use of this information.

**kuraray** **Septon™**