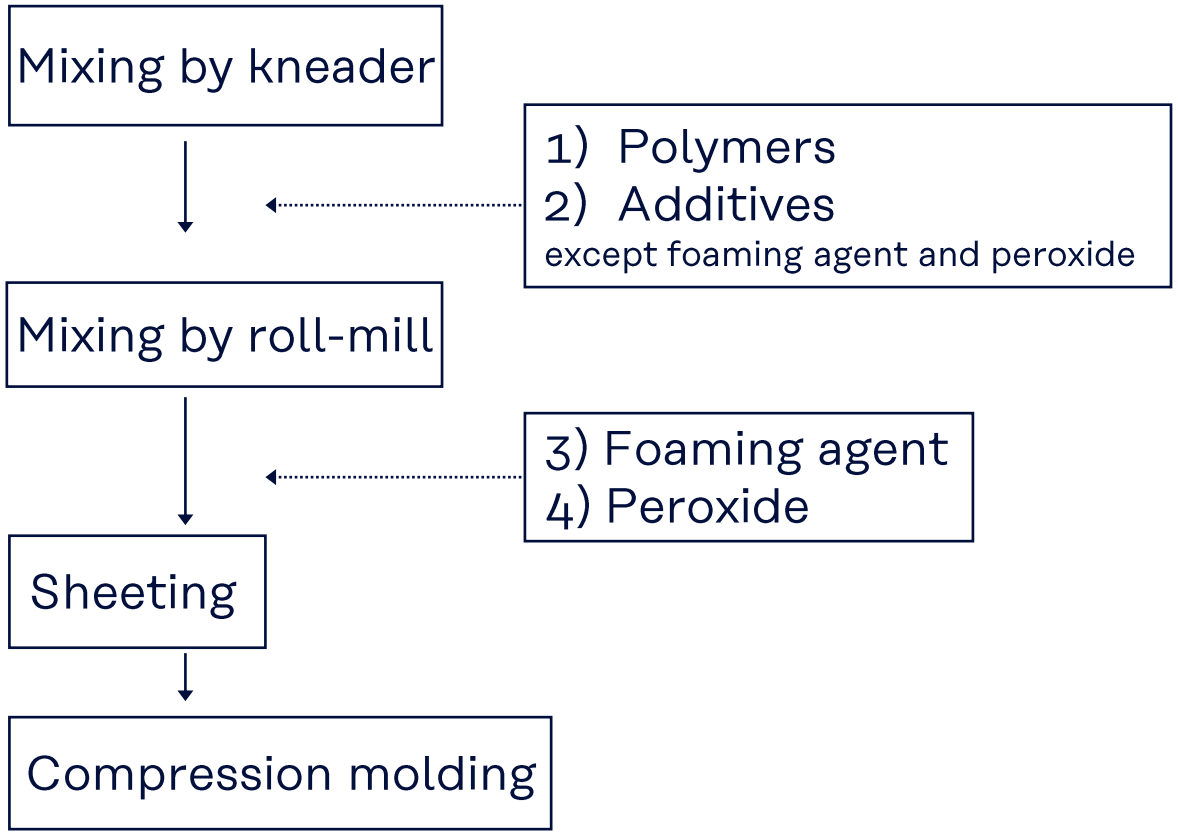
RRC04-004-E1

Foams using SEPTON™ & SEPTON™ BIO-series

Elastomer R&D Dept.
Elastomer Division

kuraray Septon™

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

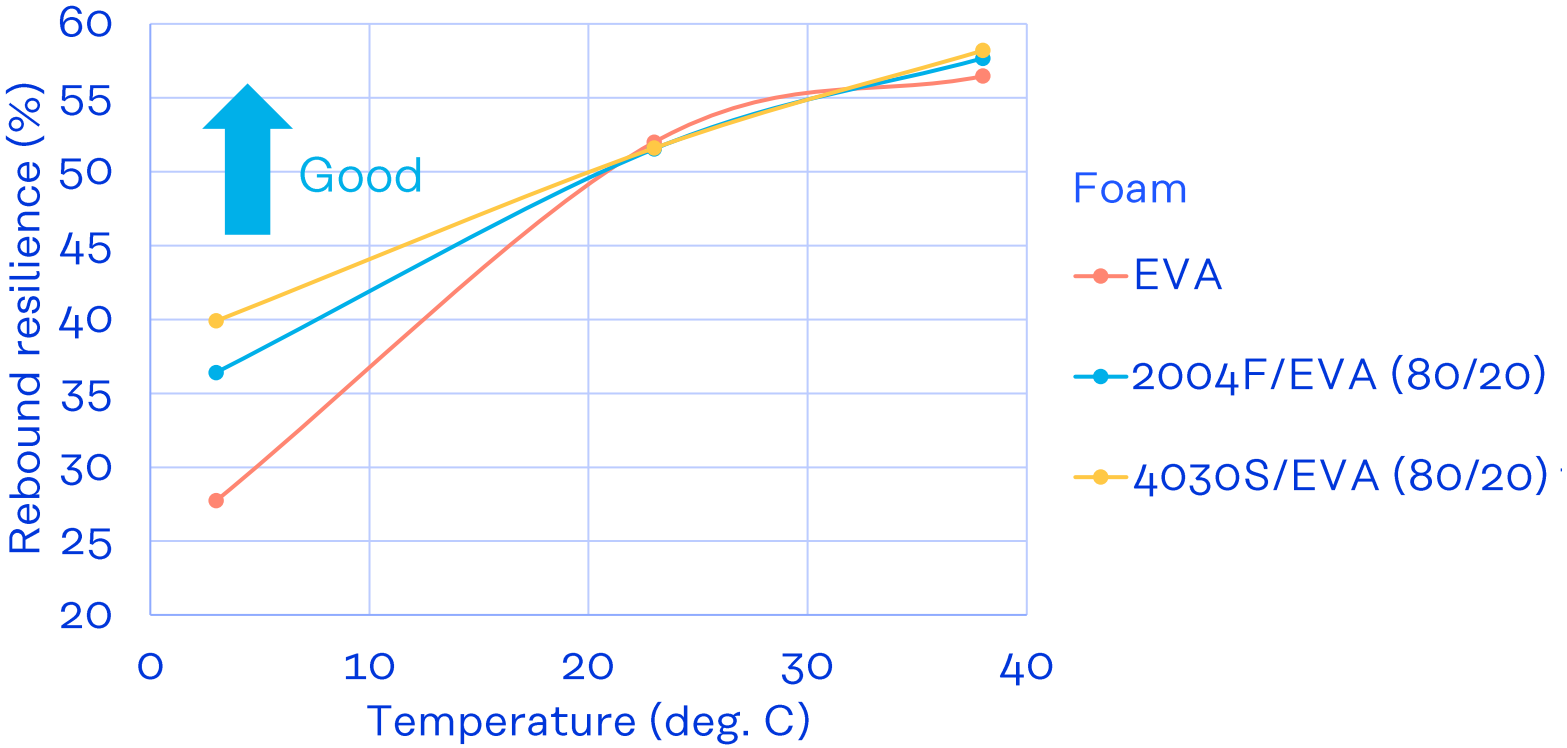
Foams using SEPTON™

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	
SEPOTN™	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/$CaCO_3$/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™

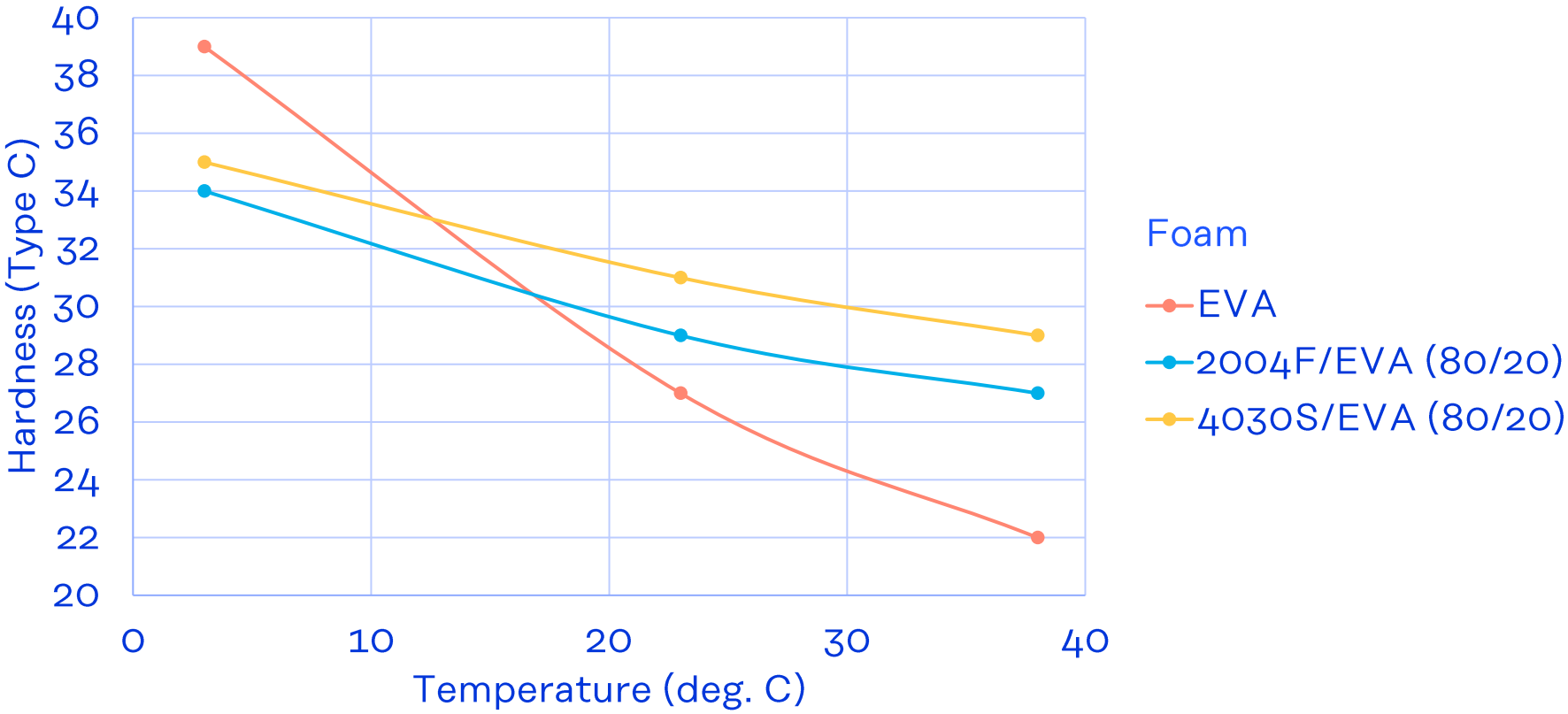


SEPTON™ 2004F
SEPS
Styrene content = 18 wt%

SEPTON™ 4030S
SEEPS
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™.

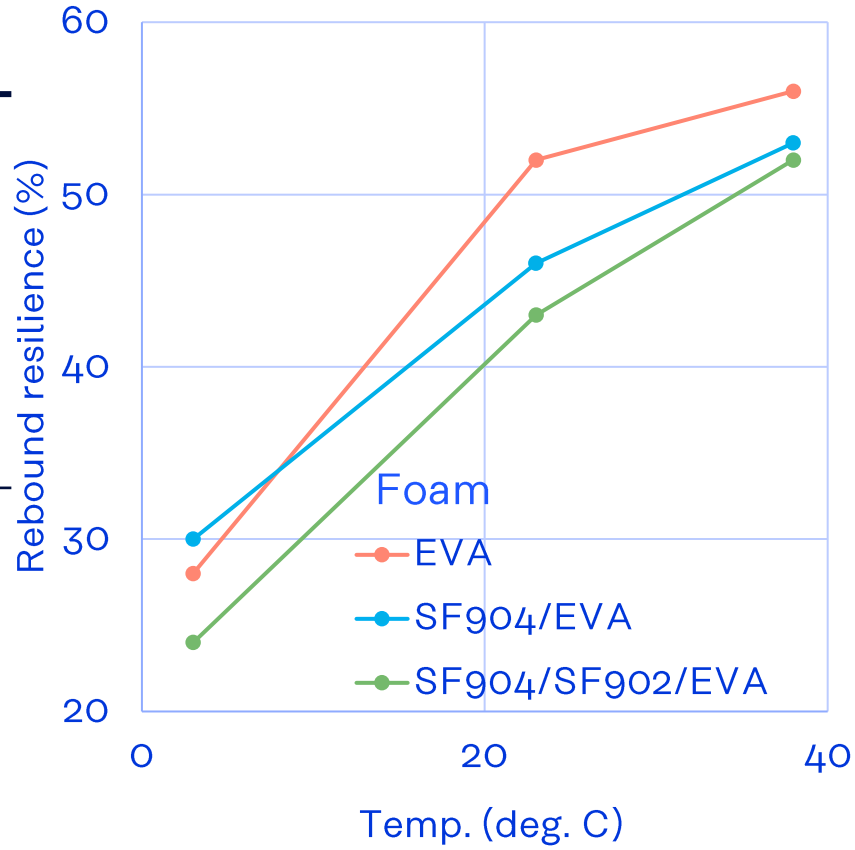
Temperature Dependence of Hardness



✓ 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/$CaCO_3$/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.

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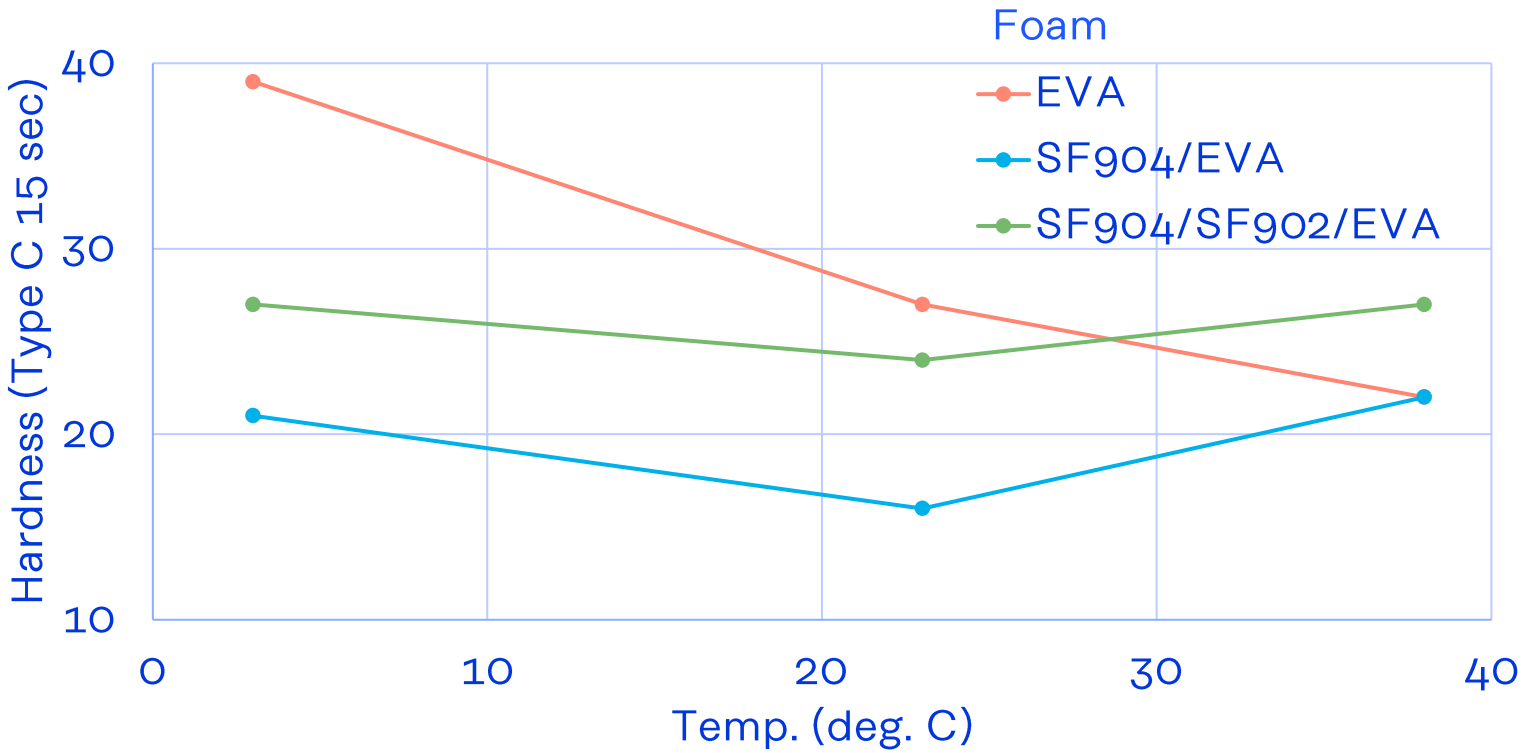
Temperature Dependence of Hardness



- ✓ 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
EVAFLEX™	EV40LX (VA=41wt%)	80	20	20	20	20
EVAFLEX™	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/$CaCO_3$/ADCA (1/1/2/2/2 by wt)

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

Shoe sole

Grip

and so on...

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