

NEUBURG SILICEOUS EARTH IN DIAPHRAGMS FOR EXPANSION VESSELS BASED ON SBR DIN EN 13831

STATUS QUO

DIN EN 13831

Closed expansion vessels with built-in diaphragms for installation in water

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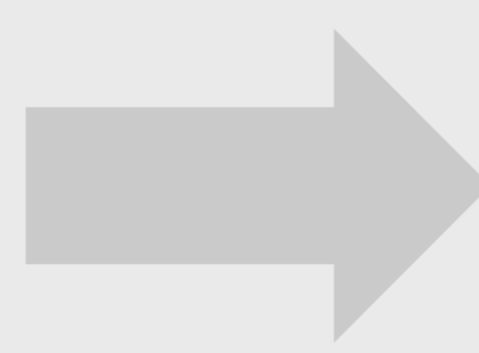
application of elastic diaphragms for taking up additional water volumes (e.g. after heating)

possible use of different polymers: IIR, NBR, NR, EPDM or SBR

typically used filler: Carbon Black N550

ISSUE

N550

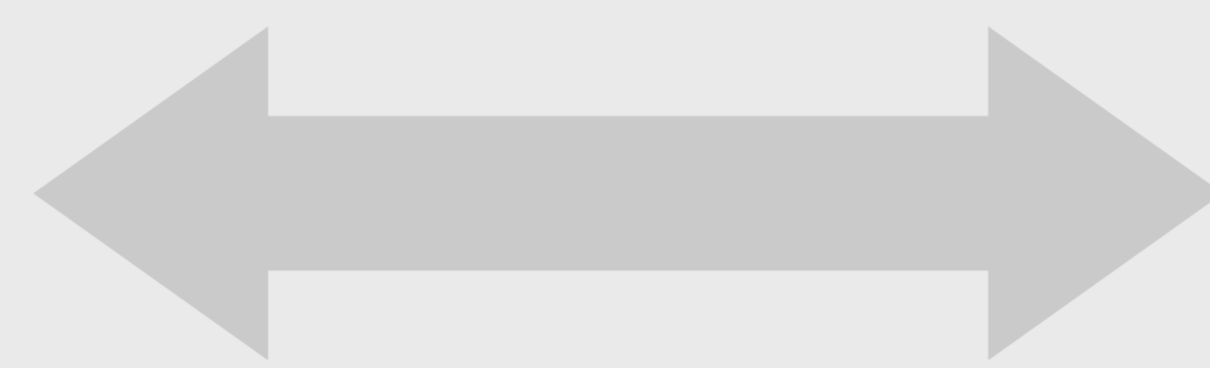


obtained elongation at break does not meet the specification of DIN EN 13831

OBJECTIVE

Performance of Neuburg Siliceous Earth in SBR

N550



Blend N550 with Sillitin Z 86

FORMULATION

Base formulation		phr	Formulation Variations in phr				
			N550	- N550, + Sillitin Z 86			
Buna SB 1502		100					
N550		90					
Nytex 4700		45					
Dispergator FL		1.4					
Lipoxol 4000		0.86					
Antioxidants		0.8					
Zinkoxyd aktiv		3					
Stearic acid		2					
Sulfur		1.9					
Rhenogran TMTD-70		1.5					
Rhenogran MBTS-80		1.5					
Total		247.96					
			TMTD / MBTS	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5 - PEG	2 / 1 - PEG
			N550	90	60	60	60
			Sillitin Z 86	-	60	60	60
			Lipoxol 4000	0.86	0.86	-	-
			Rhenogran TMTD-70	1.5	1.5	1.5	2
			Rhenogran MBTS-80	1.5	1.5	1.5	1
			Total	247.96	277.96	277.10	277.10

SUMMARY

Partial replacement of N550 by **Sillitin Z 86** results in

- ✓ increased elongation at break
- ✓ higher tear resistance
- ✓ reduced viscosity
- ✓ extended scorch time
- ✓ higher filler loading
- ✓ reduction of compound costs

→ requirements of DIN EN 13831 are met

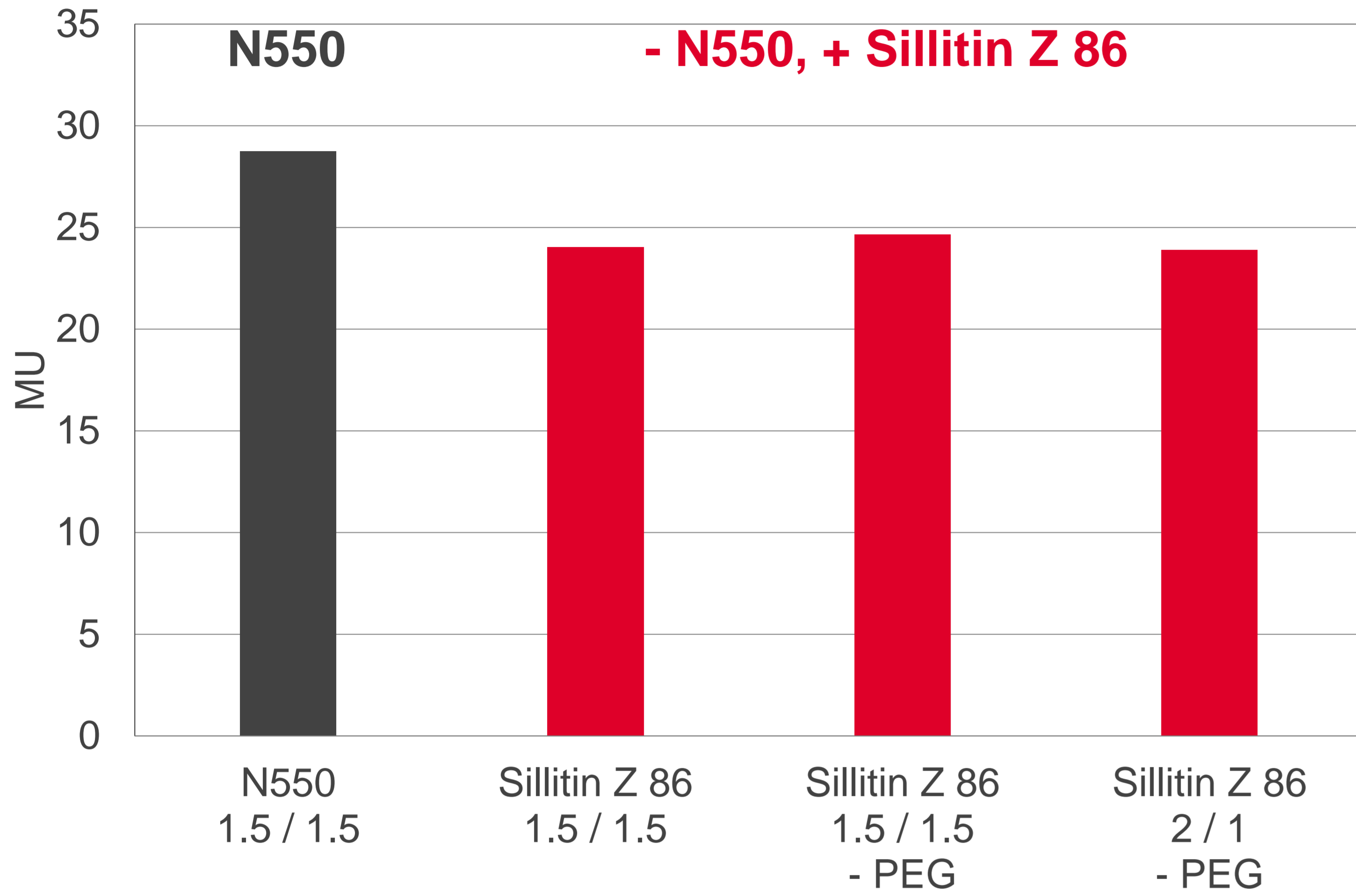
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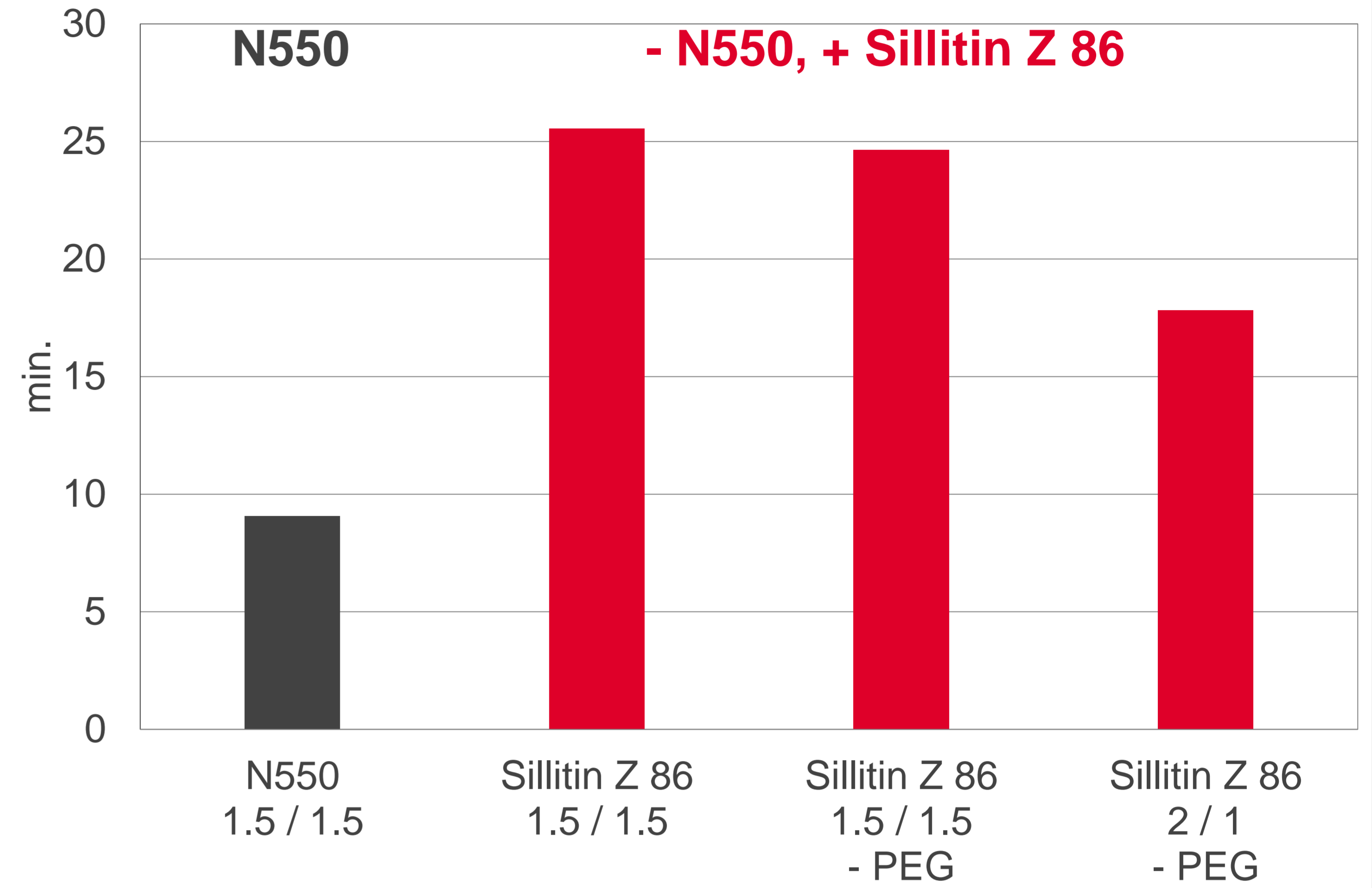
DIN EN 13831

RESULTS

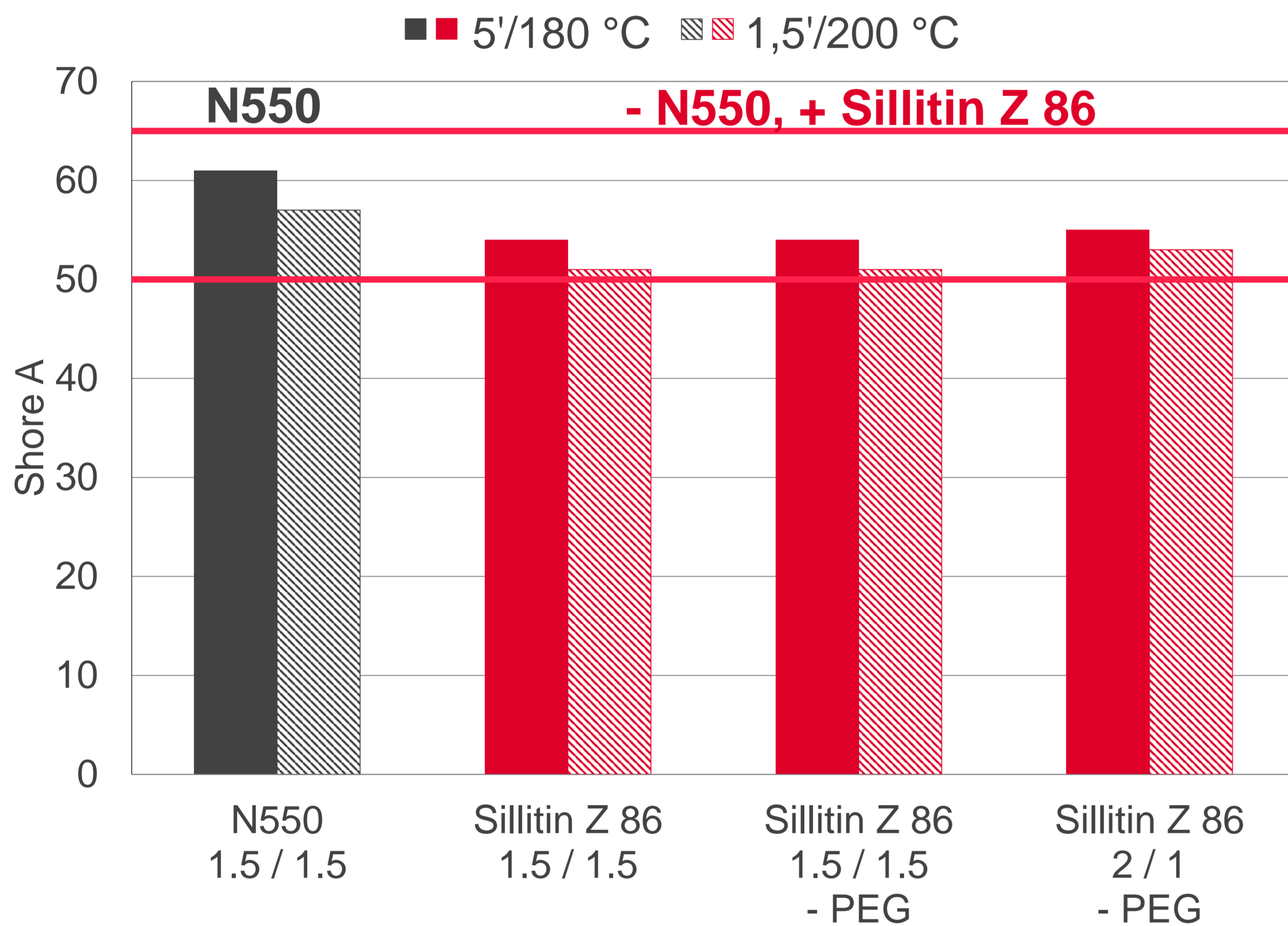
Mooney Viscosity, ML 1+4, 120 °C



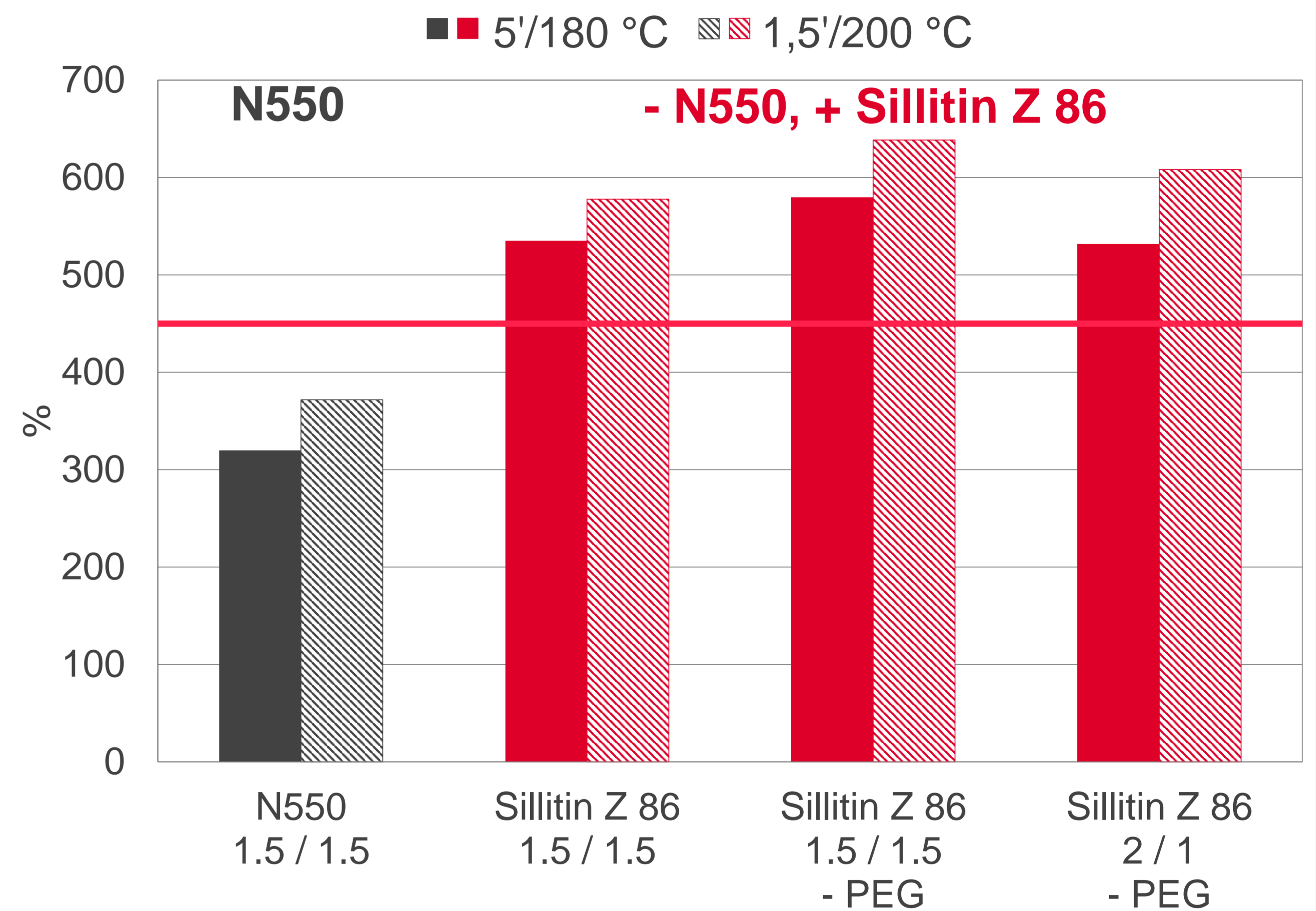
Mooney Scorch, ML +5, 120 °C



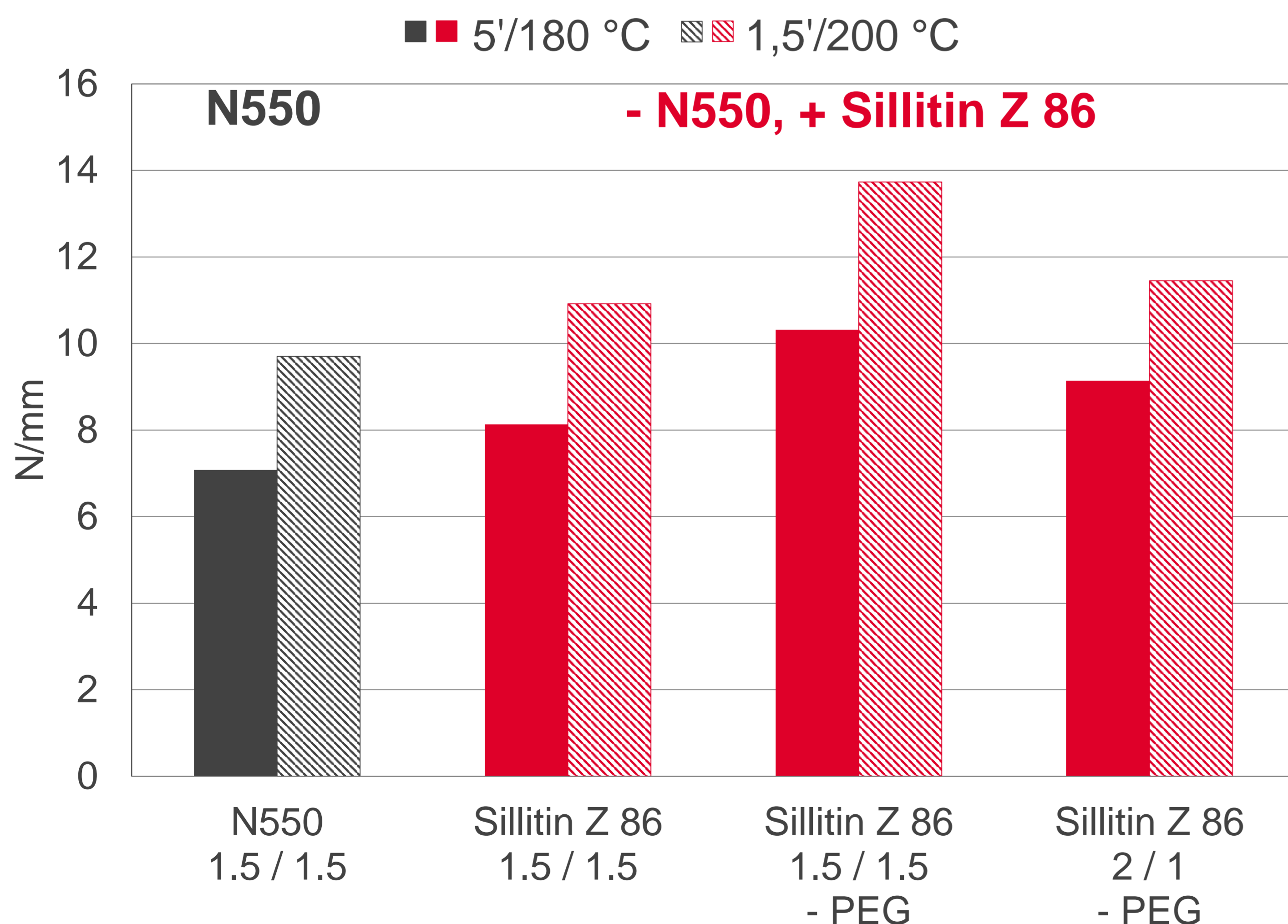
Hardness



Elongation at Break



Tear Resistance



Compound Costs – vs N550 (Germany, 2015)

