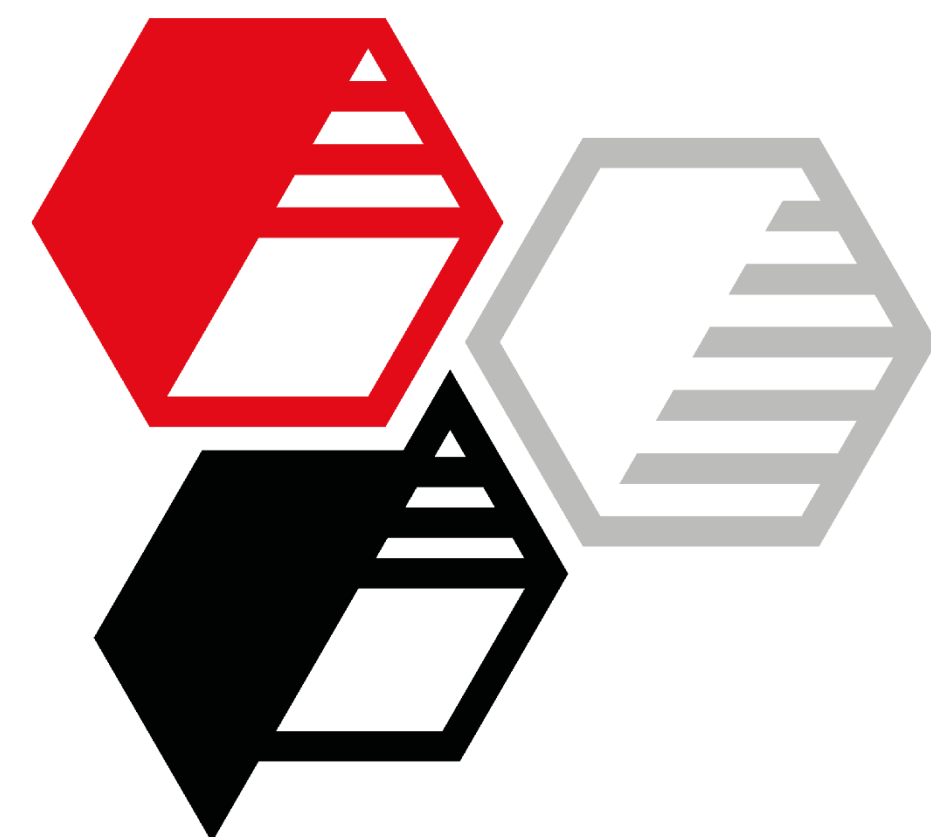


Urea-resistant EPDM gaskets and hoses – VW TL 52686

Replacement of carbon black N990 with Aktisil VM 56

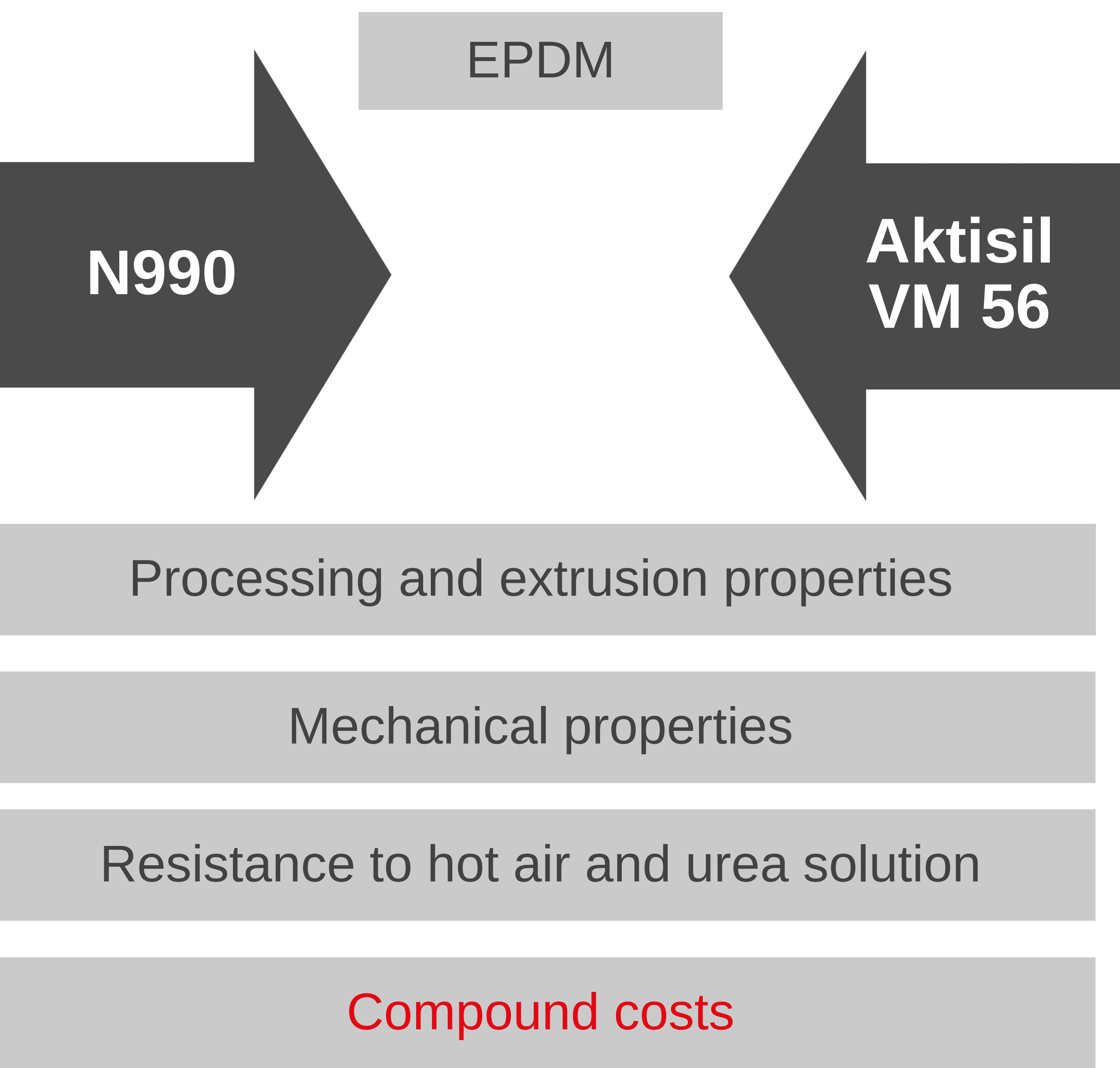


Status quo

Volkswagen VW TL 52686
Elastomer materials resistant to
AdBlue® (urea solution) used for exhaust gas
treatment (SCR)

- Use of elastomers for gaskets, such as O-rings (TL 52686-A) and molded hoses (TL 52686-B)
- Possible use of different polymers: EPDM, HNBR, TPE-V
- Typically used filler: carbon black N990

Objective



Formulation

Material	Description	phr	phr
Keltan 4450S	Ethylene propylene diene rubber, amorphous, ML 1+4 (125 °C): 42 MU	100	100
Carbon black N990	Carbon black MT	120	
Aktisil VM 56	NSE, surface treated		120
Process Oil P460	Paraffinic mineral oil, plasticizer	20	20
Vulkanox HS/LG	Antioxidant, TMQ	1	1
TAC GR 70	Triallylcyanurate, 70 %, coagent	1	1
Perkadox 14-40B-pd-s	Di(tert-butylperoxyisopropyl)benzene, 40 %, peroxide	5	5
Total		247	247

Summary

The replacement of carbon black N990 by Aktisil VM 56 leads to a number of advantages:

High surface
quality of
extrusions

No blooming

Higher modulus

Reduction of
compound costs up
to 20 % volume
based

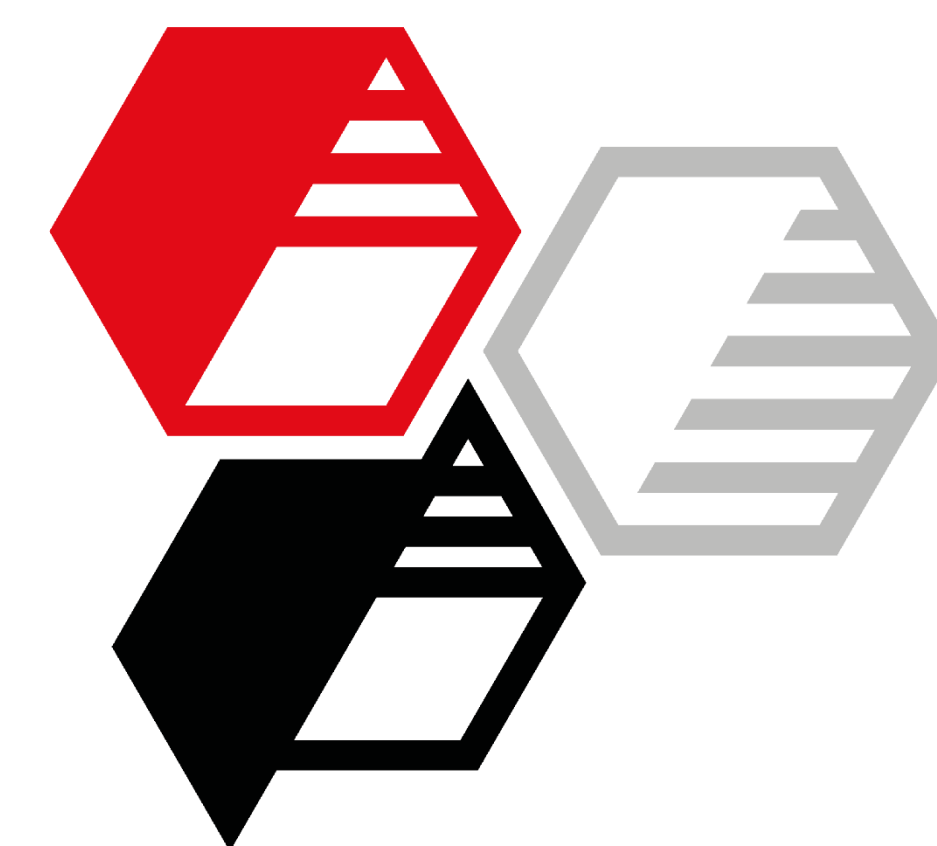
Tintable
products

Shorter curing
time

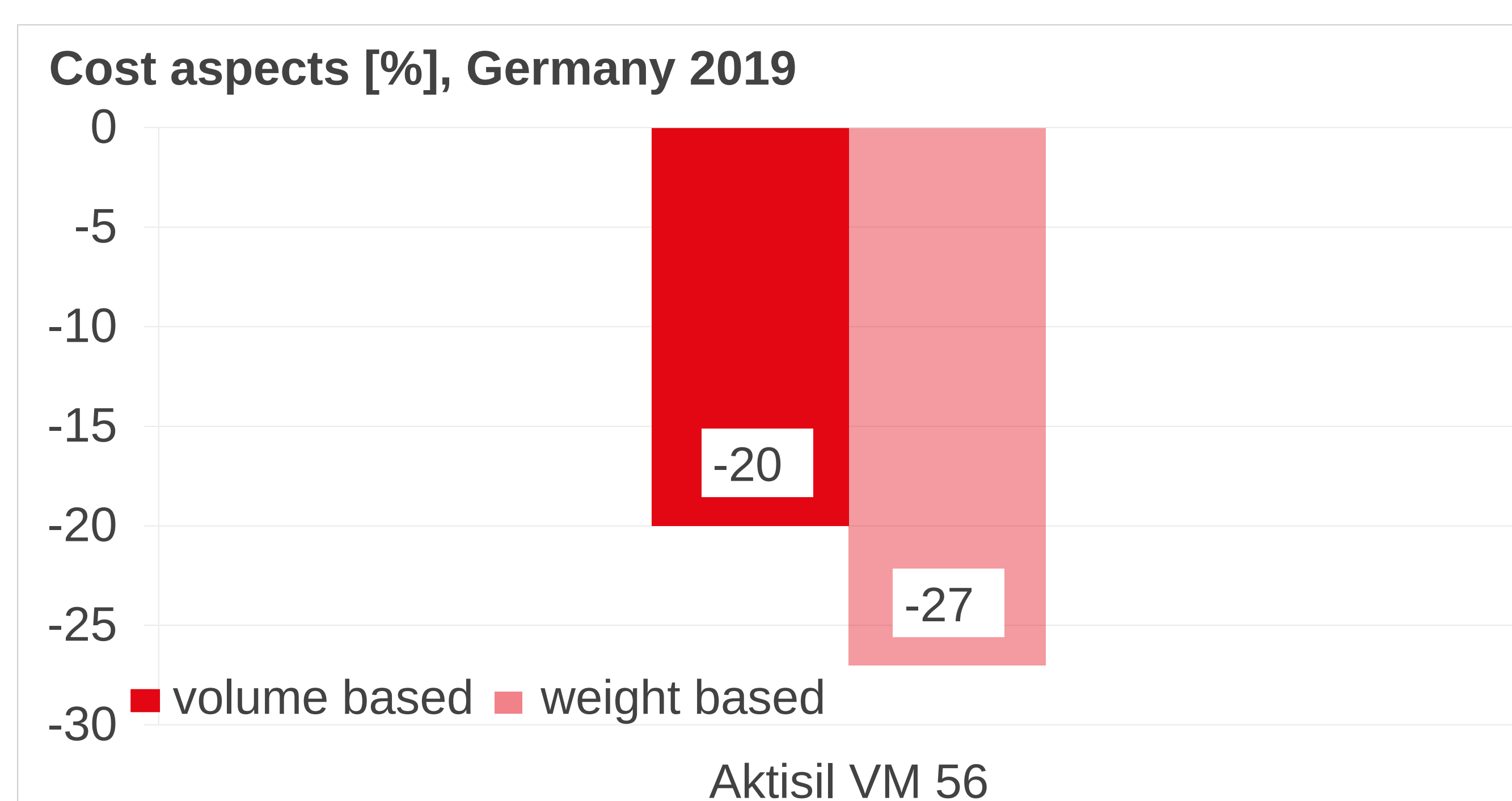
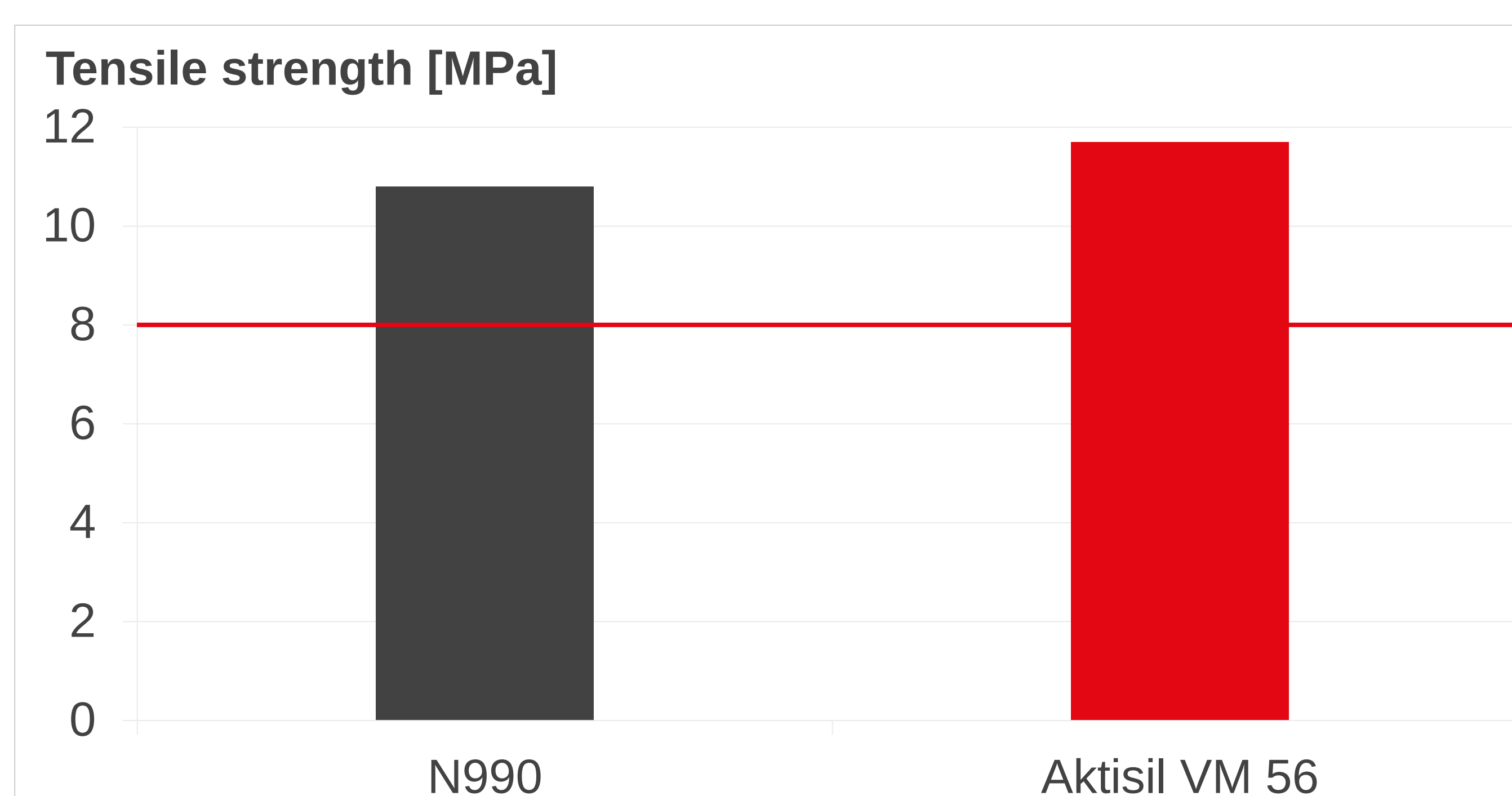
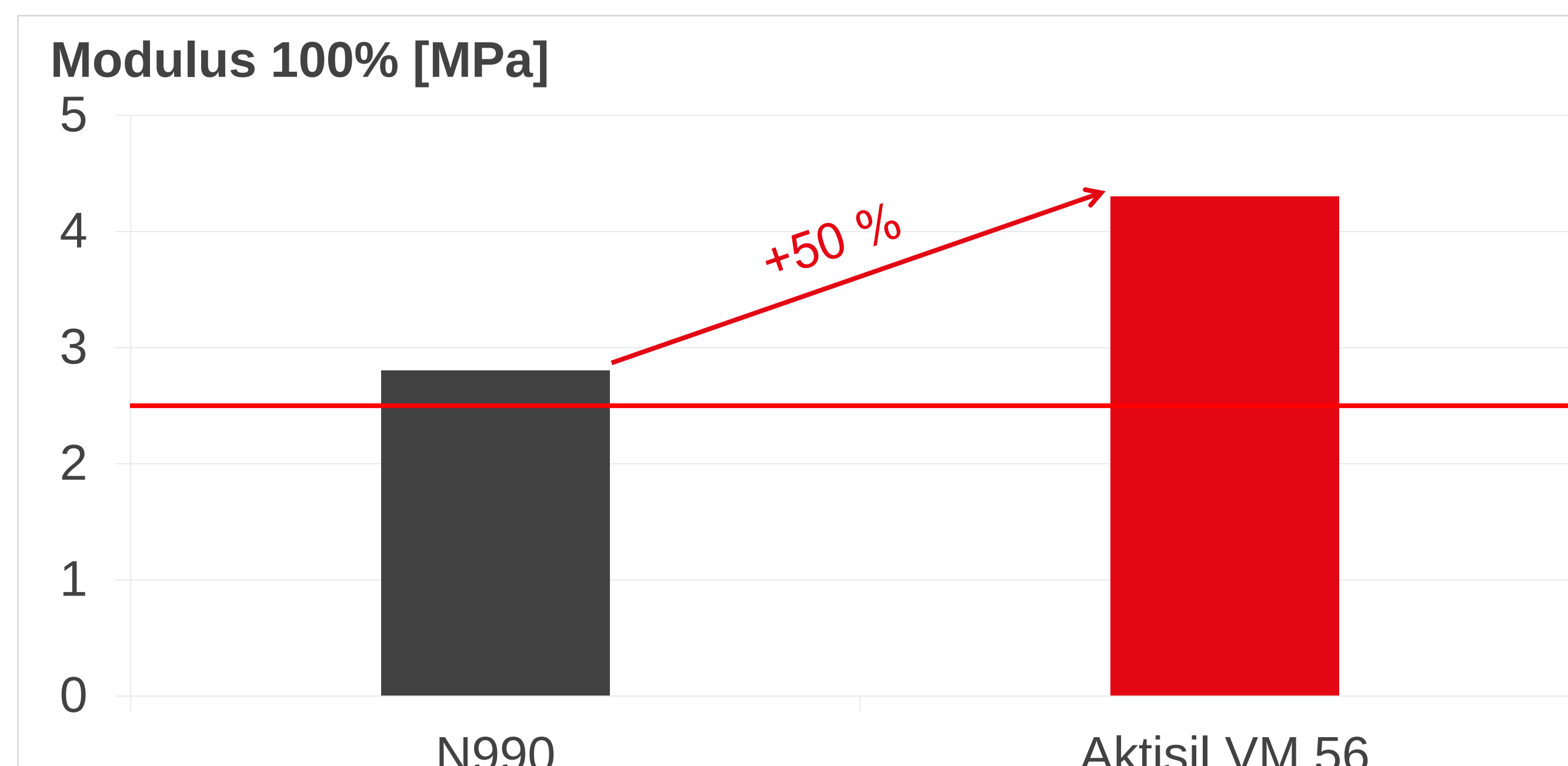
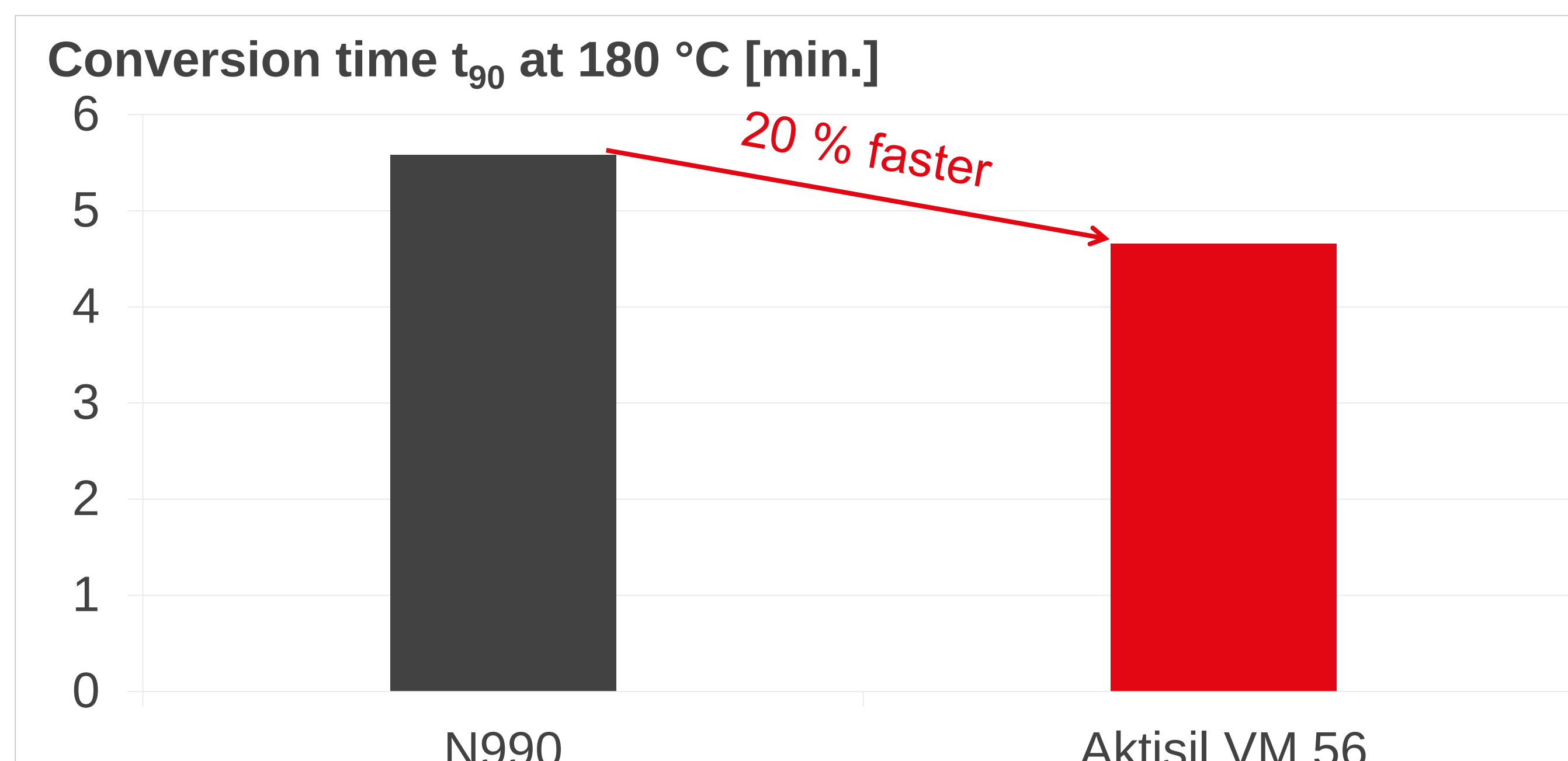
Similar
resistance vs.
urea and hot air

Urea-resistant EPDM gaskets and hoses – VW TL 52686

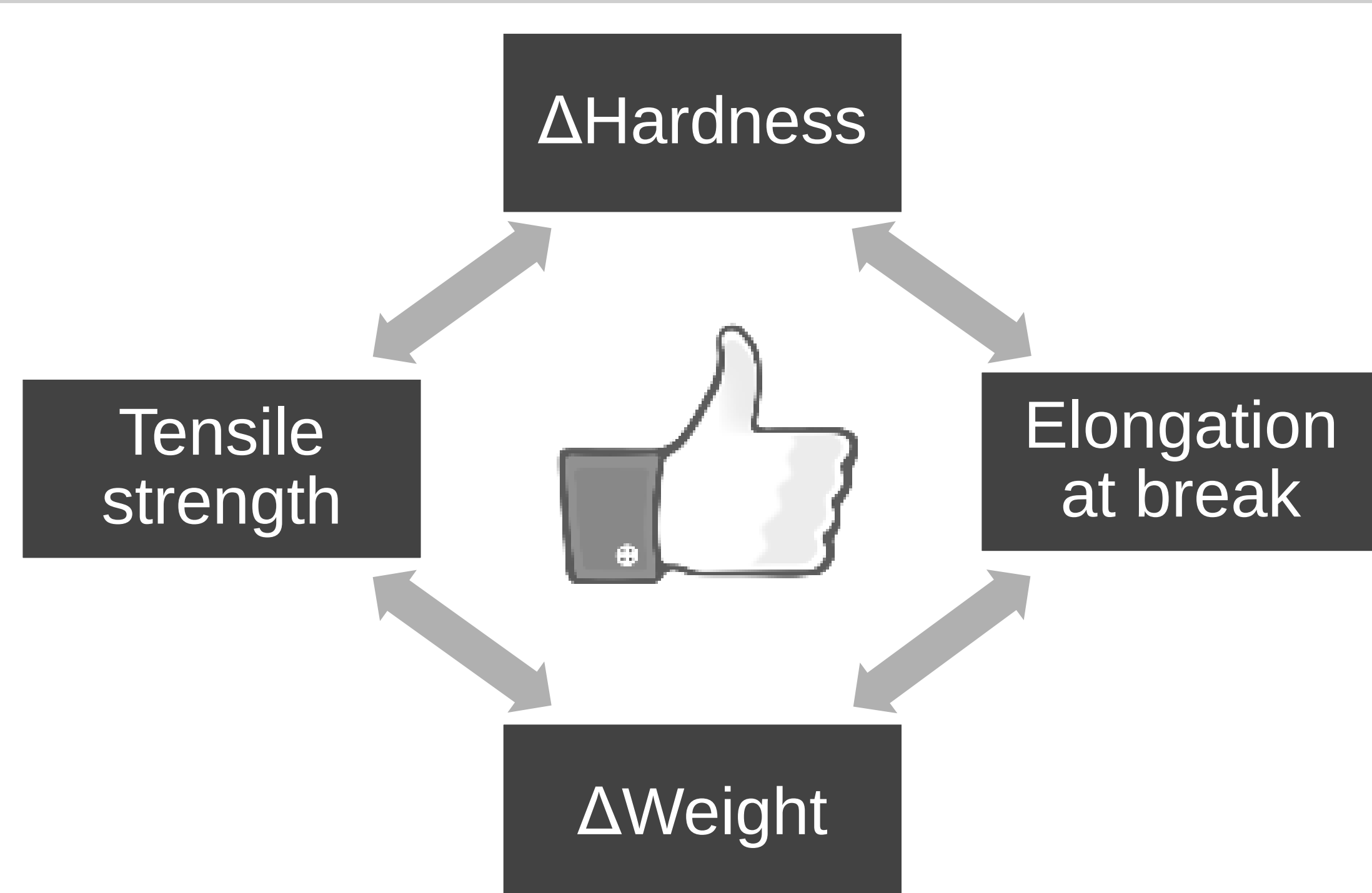
Replacement of carbon black N990 with Aktisil VM 56



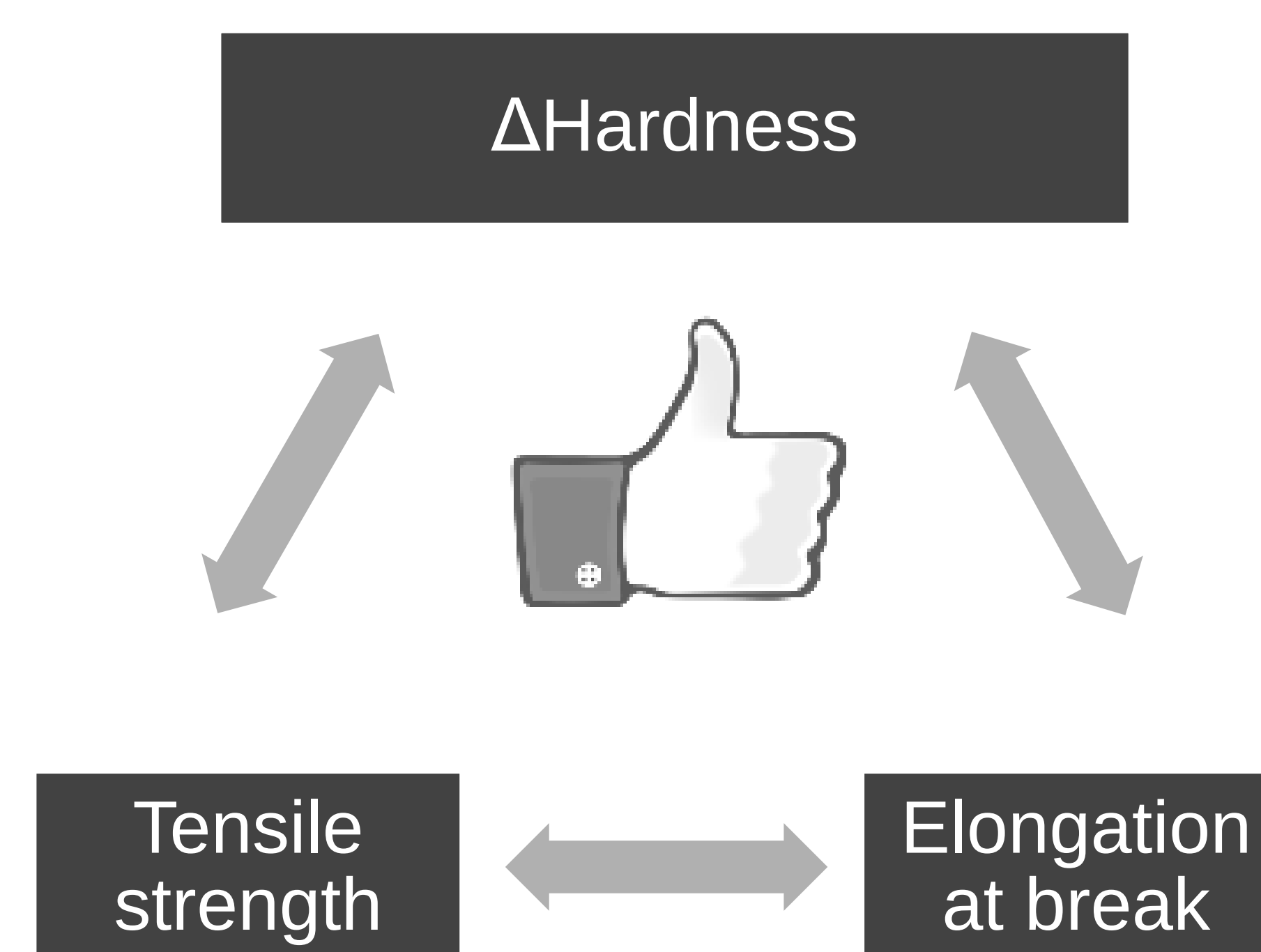
Results



Urea resistance



Hot air resistance



Blooming



N990

Aktisil VM 56

Hose extrusion

Surface quality



N990

Aktisil VM 56

Collapse resistance



N990

Aktisil VM 56