

**Safe and sealed:
Neuburg Siliceous Earth in potable water gaskets
DIN EN 681-1**

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Drinking water

irreplaceable and most important food

high requirements regarding purity

high requirements on materials in contact with drinking water



regulation of used raw materials

- TrinkwV
- Positive Lists 1 + 2 (UBA*)
- BfR Part 1A LII

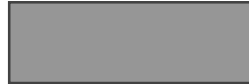
regulation of physical properties
of e.g. elastomeric seals

- DIN EN 681-1

*UBA: Umweltbundesamt (German Federal Environment Agency)



Fillers for potable water gaskets

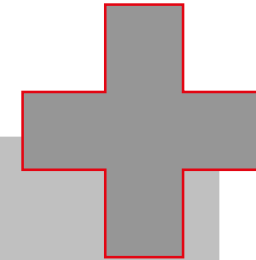


Carbon black

- based on crude oil
- contains PAH*
- high price fluctuations
- long-term rising cost level
- temporary supply bottlenecks

Neuburg Siliceous Earth

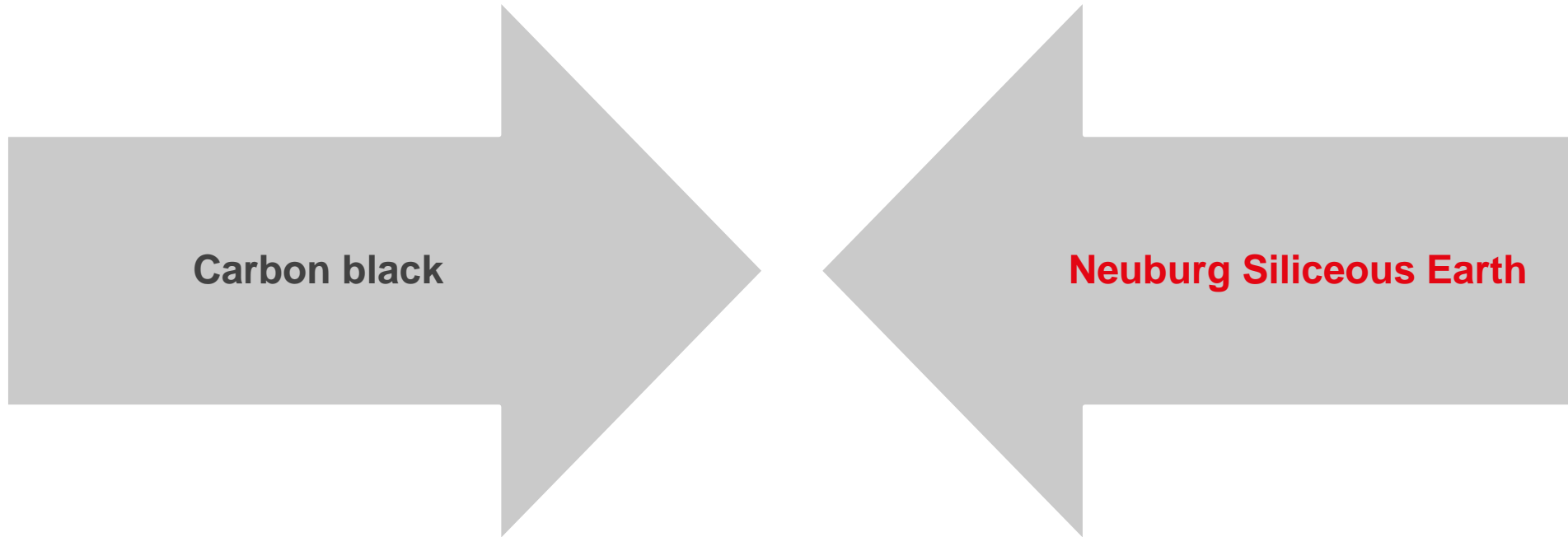
- natural mineral filler
- contains no PAH* at all
- meets purity requirements of BfR
- slight long-term price increase
- reliable delivery times



*PAH: polycyclic aromatic hydrocarbons



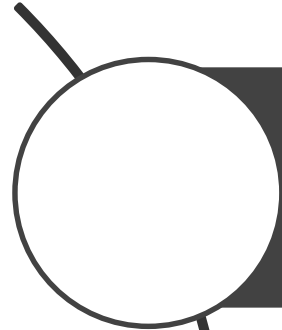
Partial replacement of carbon black with NSE



- cost reduction
- specification of DIN EN 681-1

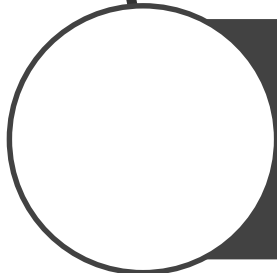


DIN EN 681-1



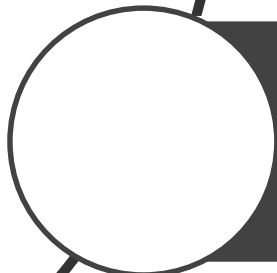
Hardness category

- 70 ± 5 IRHD



Type WB

- continuously hot drinking water supply, $T \leq 110$ °C

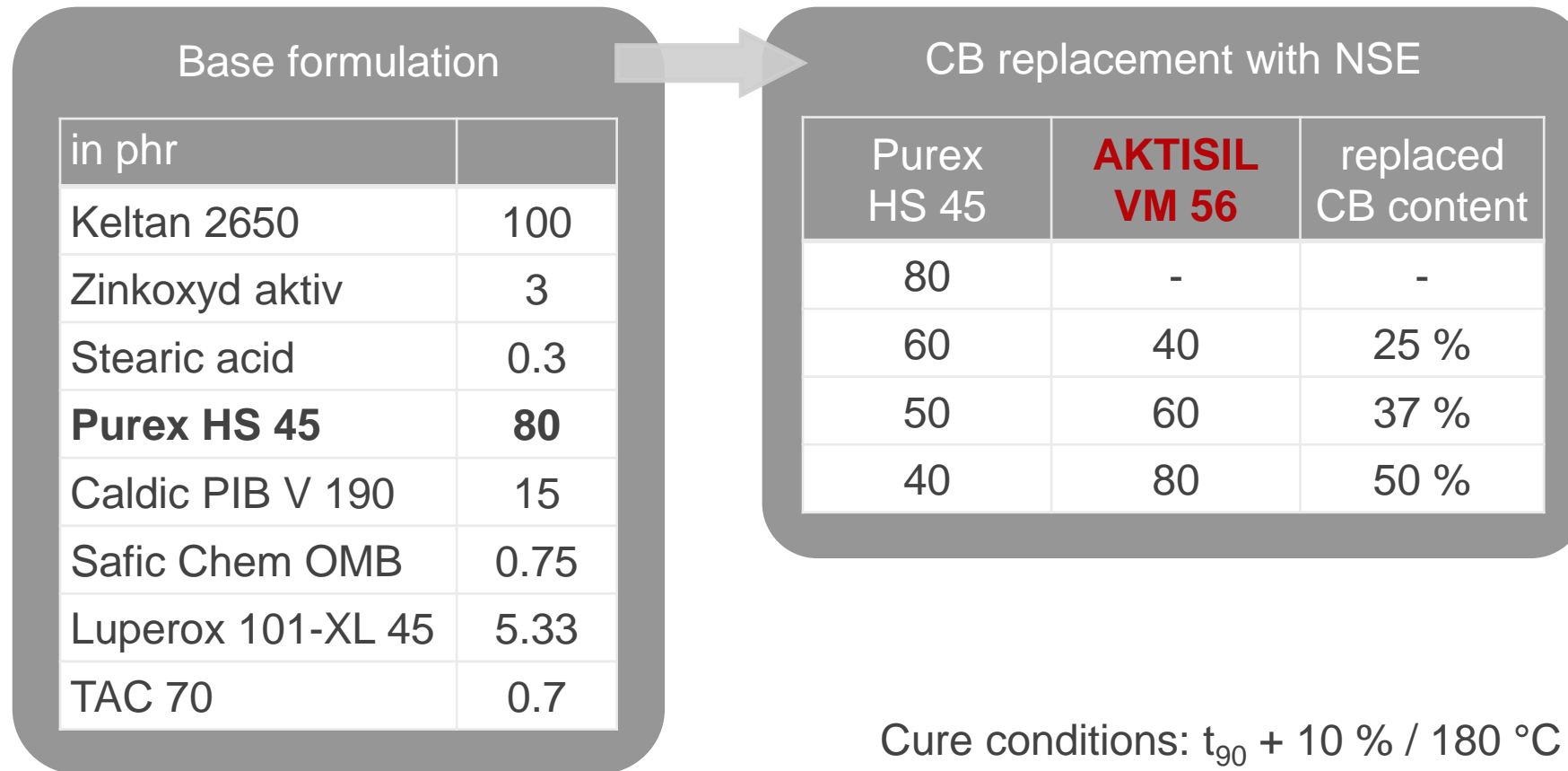


Type WD

- continuously hot non drinking water supply, $T \leq 110$ °C

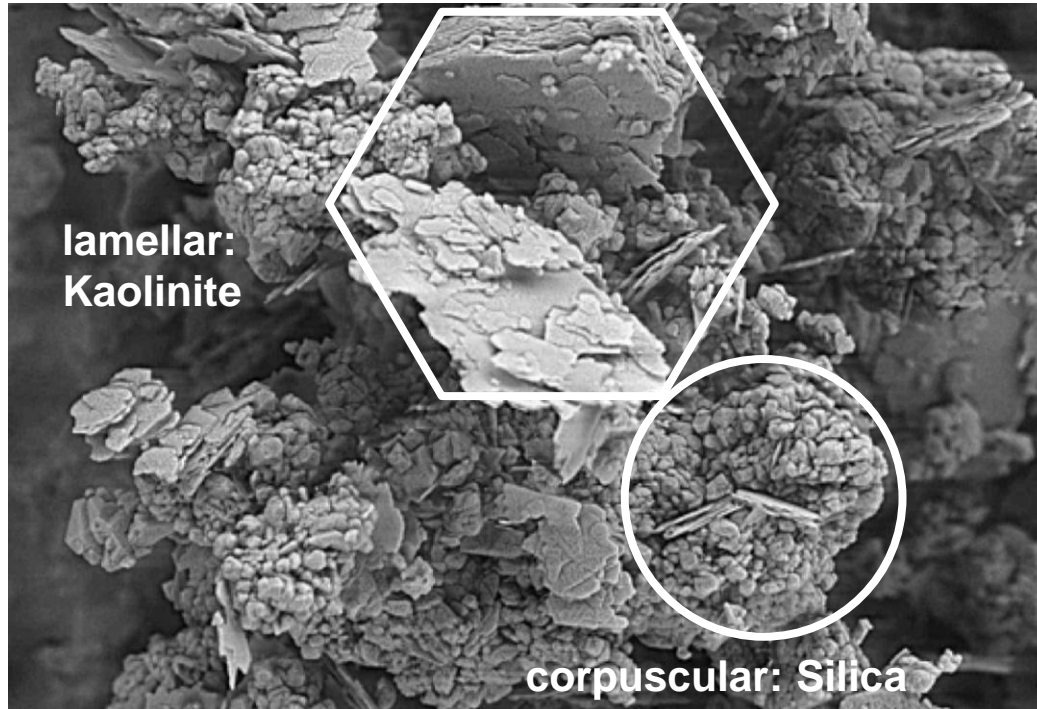


Formulation and variations





Neuburg Siliceous Earth



+ vinyl functionalization →

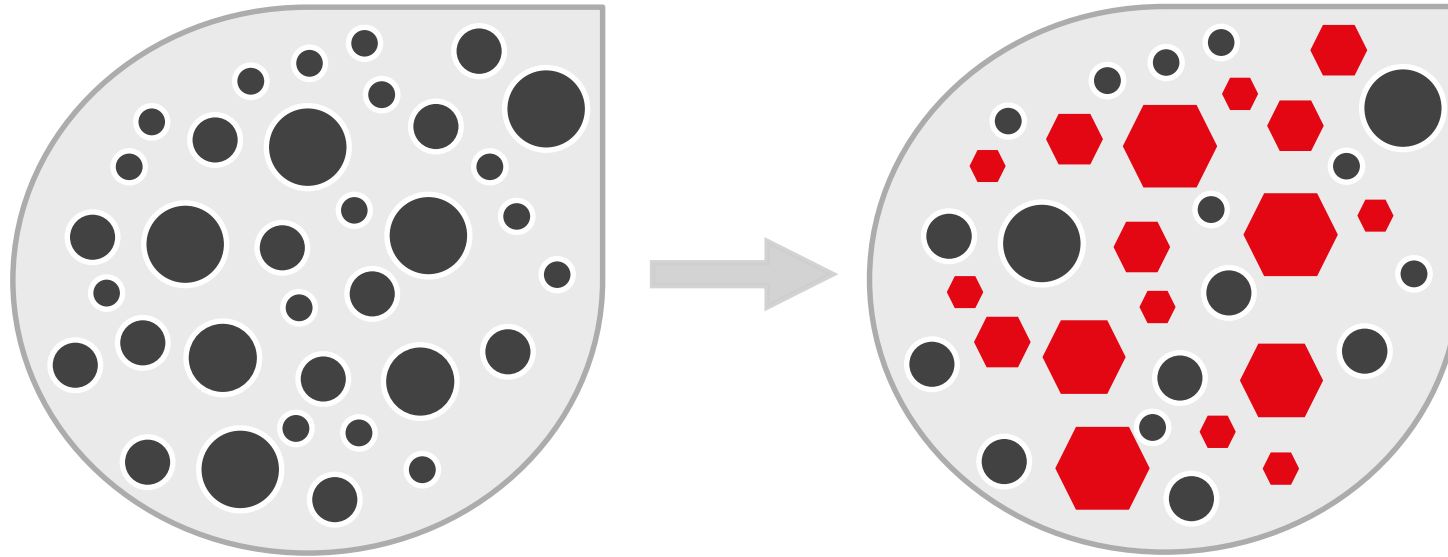


AKTISIL VM 56



Ecological effects of replacing CB with NSE

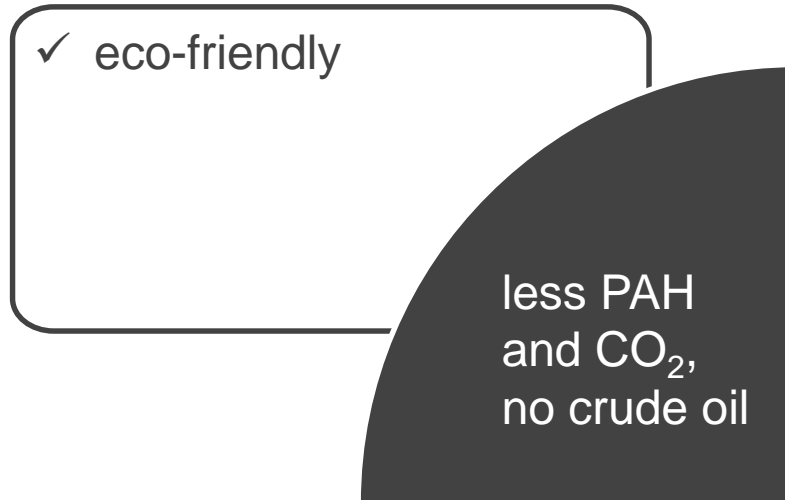
 compound  carbon black  Neuburg Siliceous Earth



- reduction of PAH-content
- less consumption of crude oil
- improved CO₂ footprint



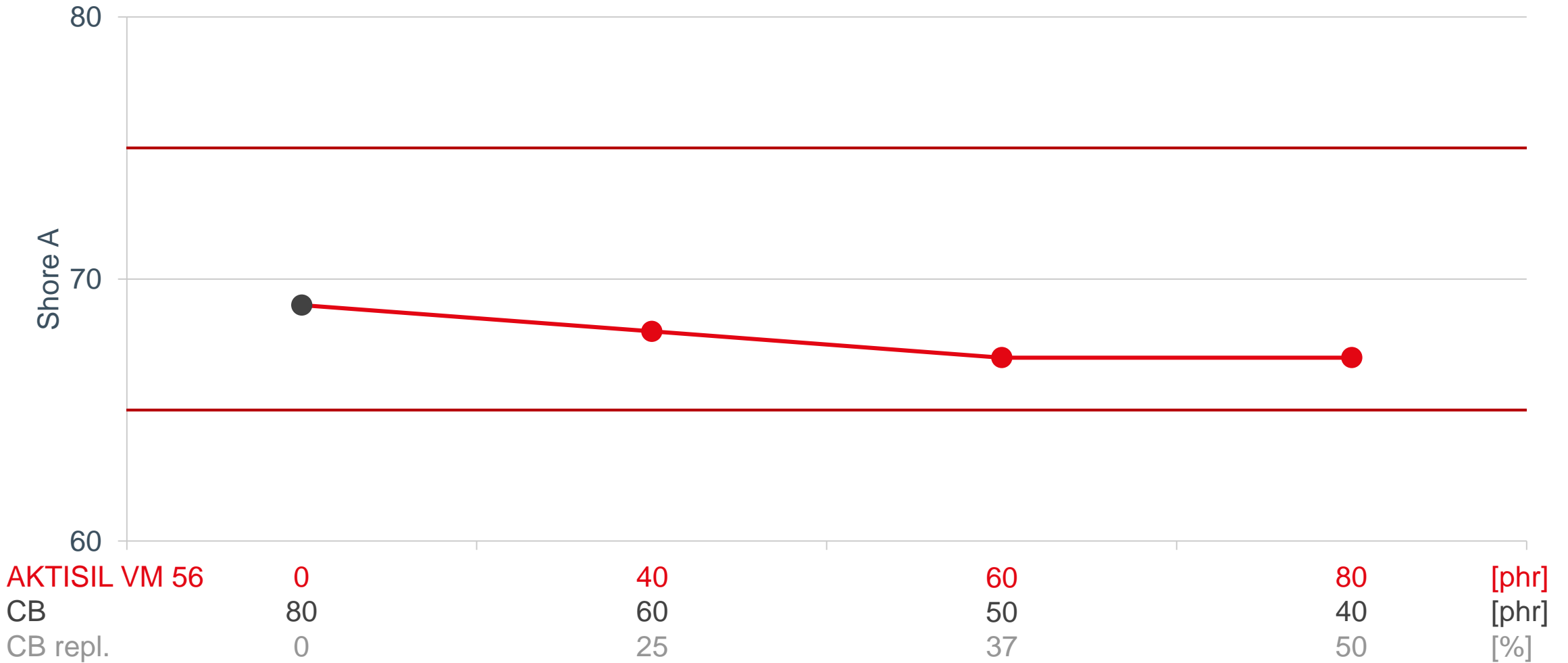
So far...





Hardness

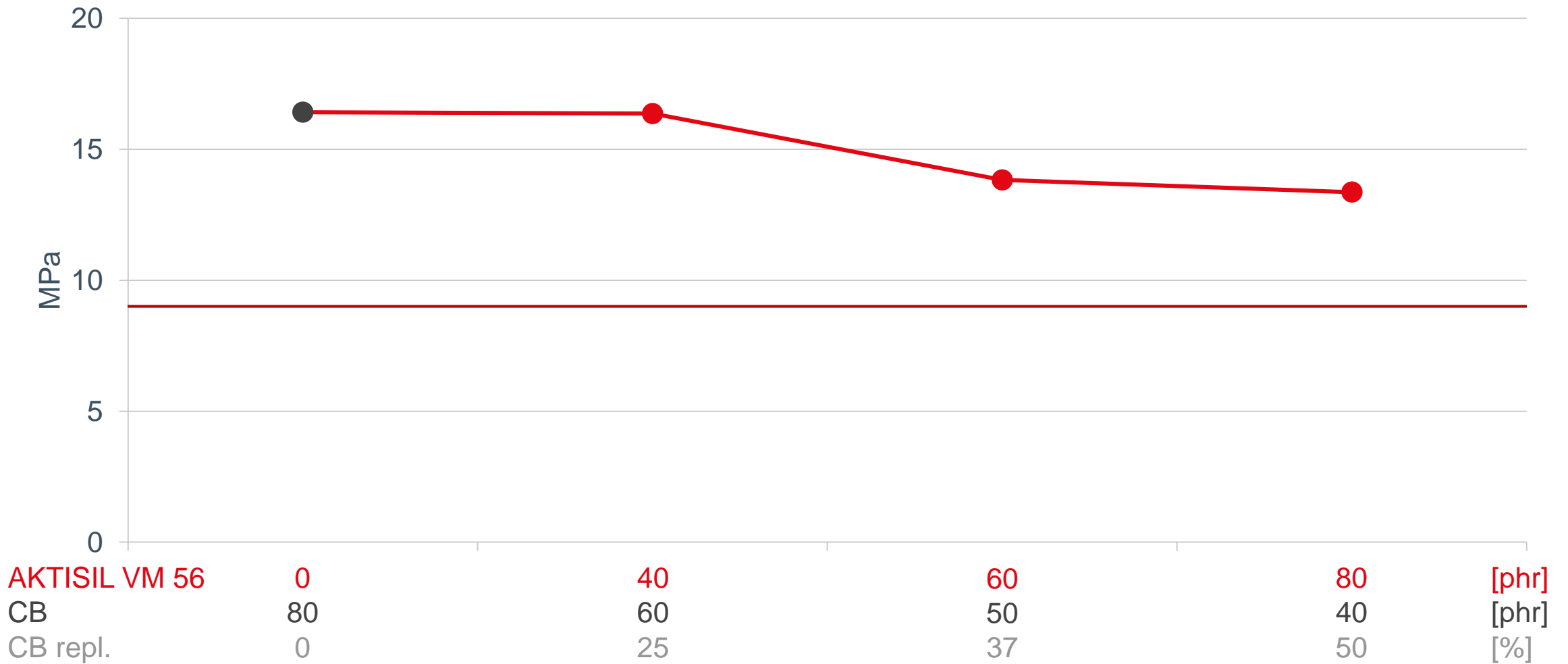
DIN ISO 7619-1





Tensile strength

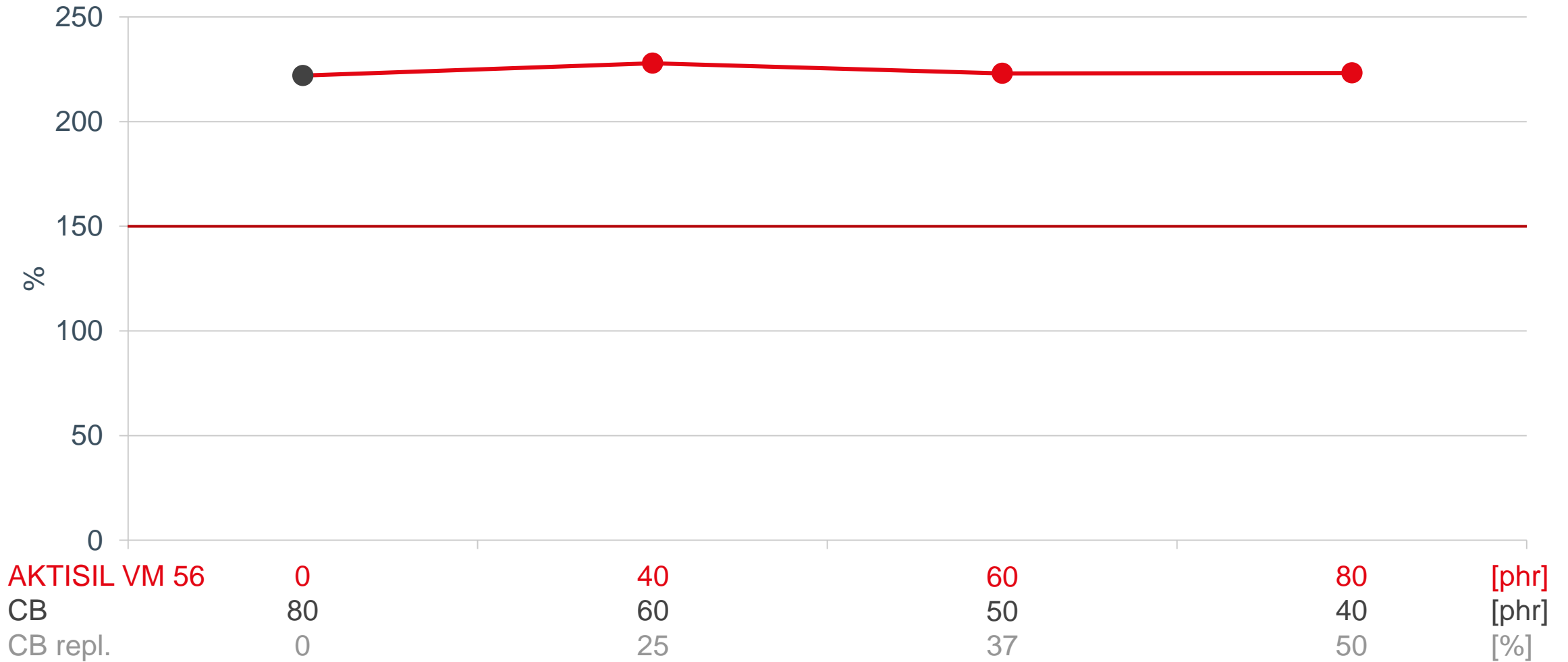
DIN 53504, S2





Elongation at break

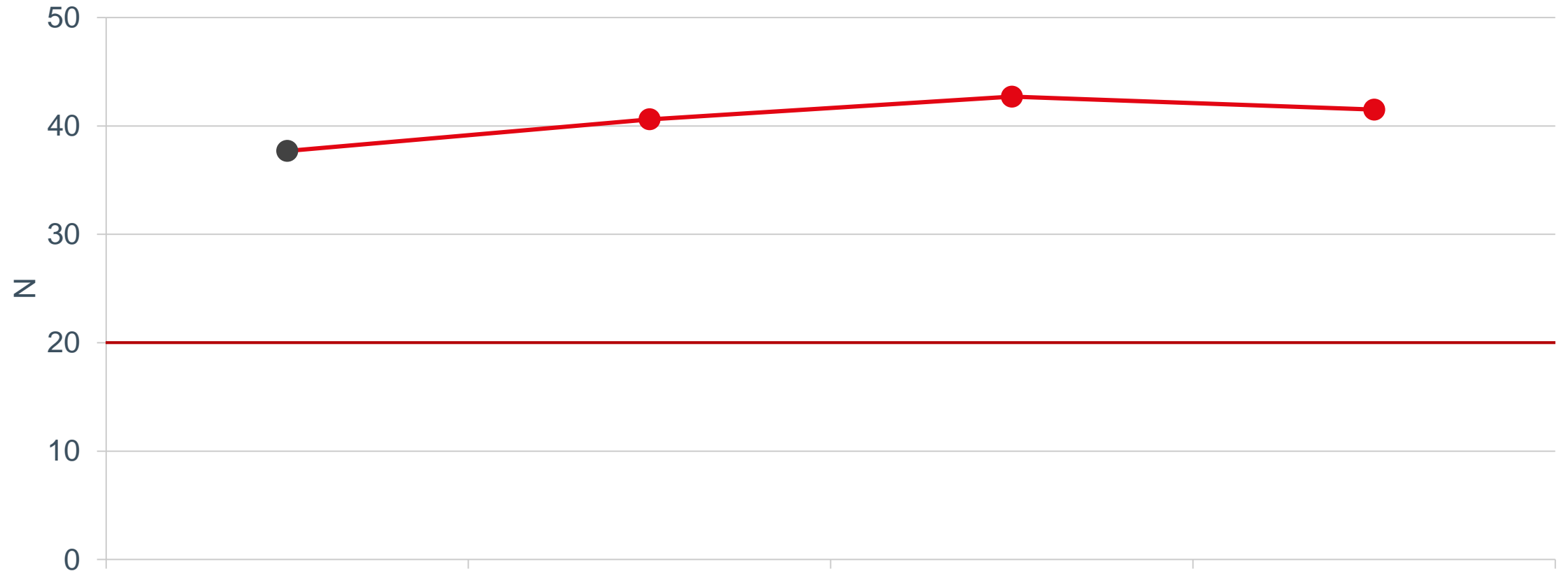
DIN 53504, S2





Tear resistance

DIN ISO 34-2, A (delft)



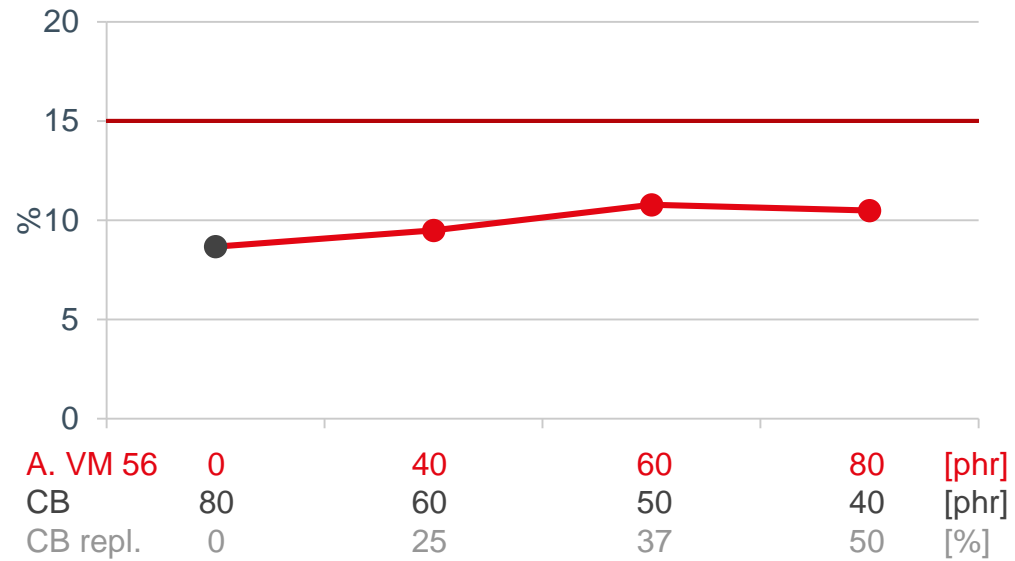
AKTISIL VM 56	0	40	60	80	[phr]
CB	80	60	50	40	[phr]
CB repl.	0	25	37	50	[%]



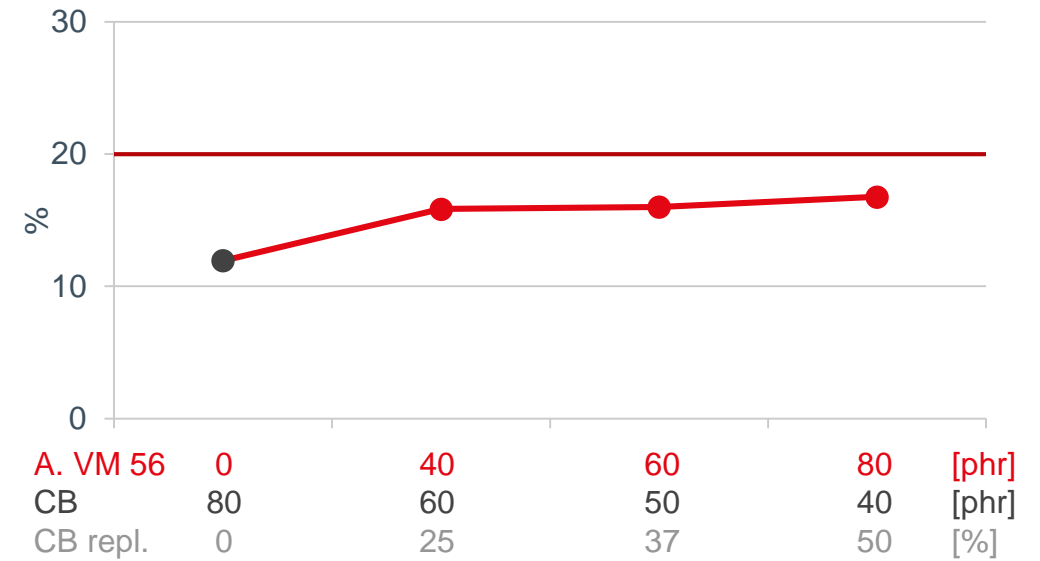
Compression set

DIN ISO 815-1, B

72 h / 23 °C / 25 % def.

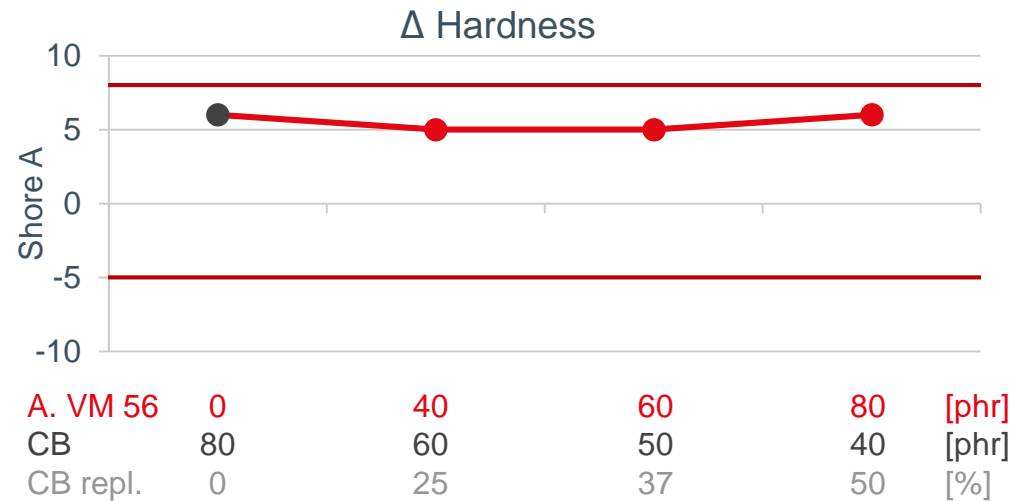
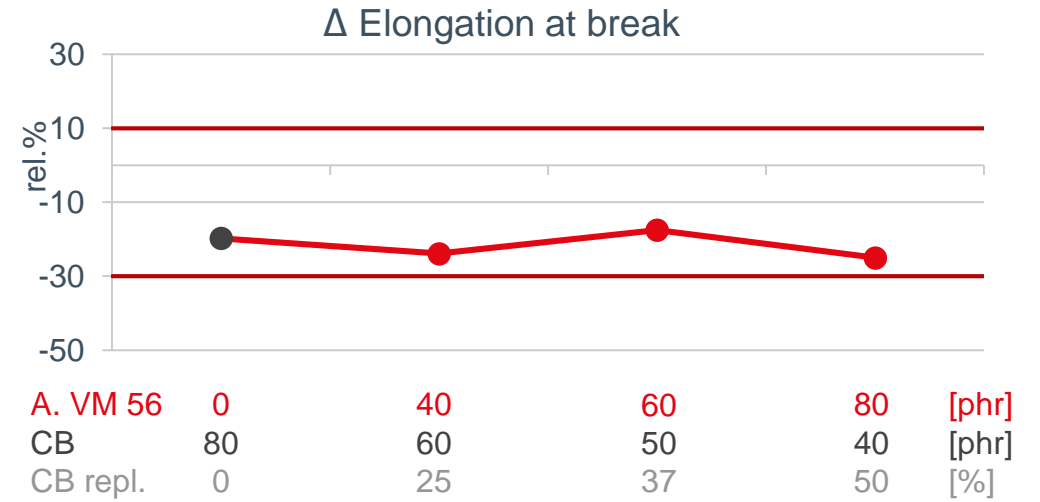
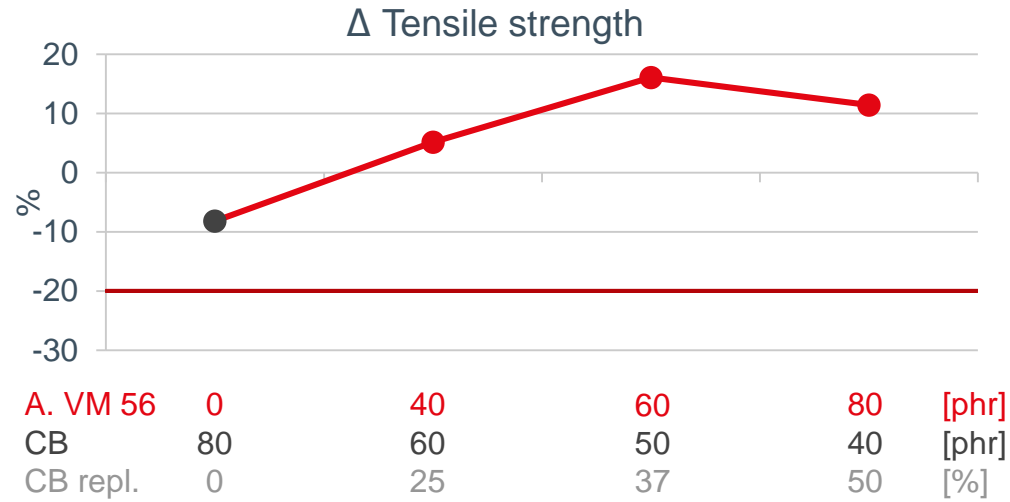


24 h / 125 °C / 25 % def.

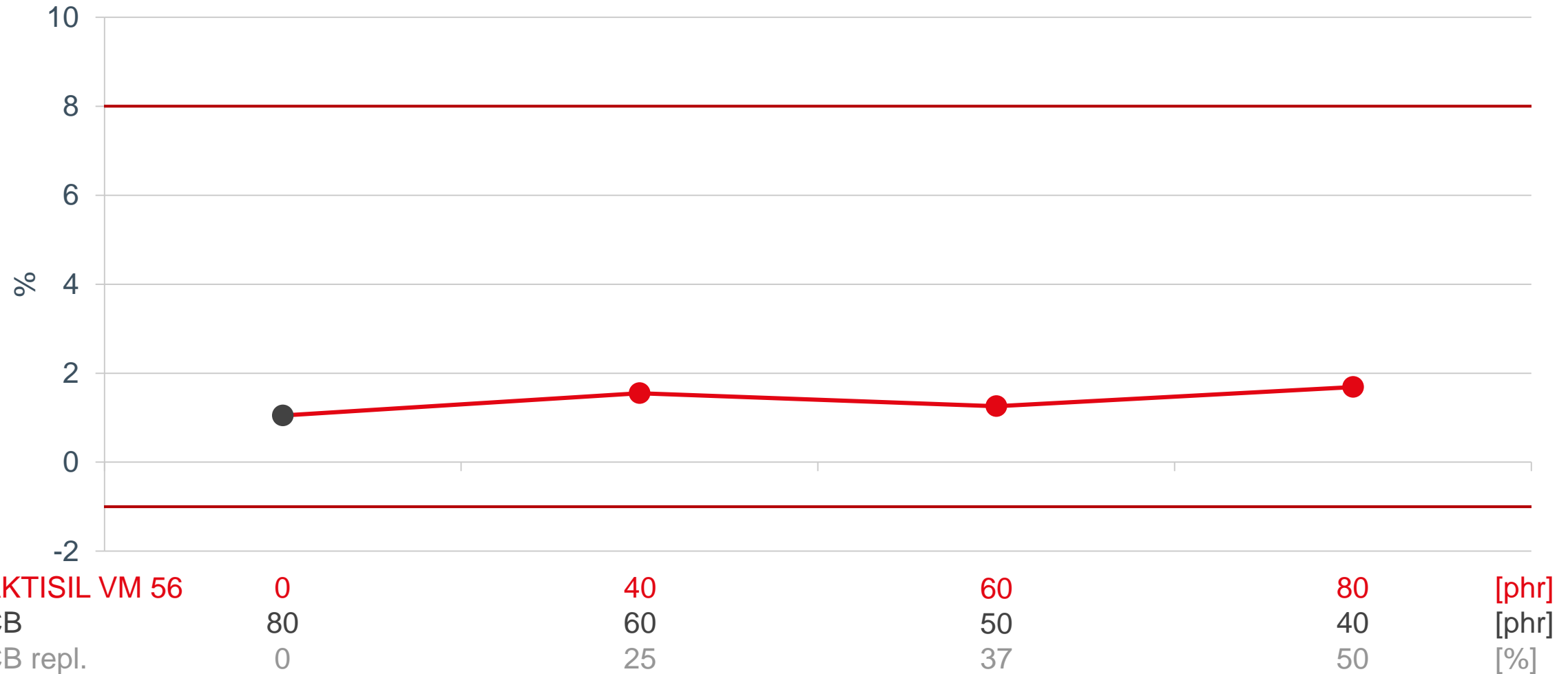




Hot air aging, 168 h / 125 °C

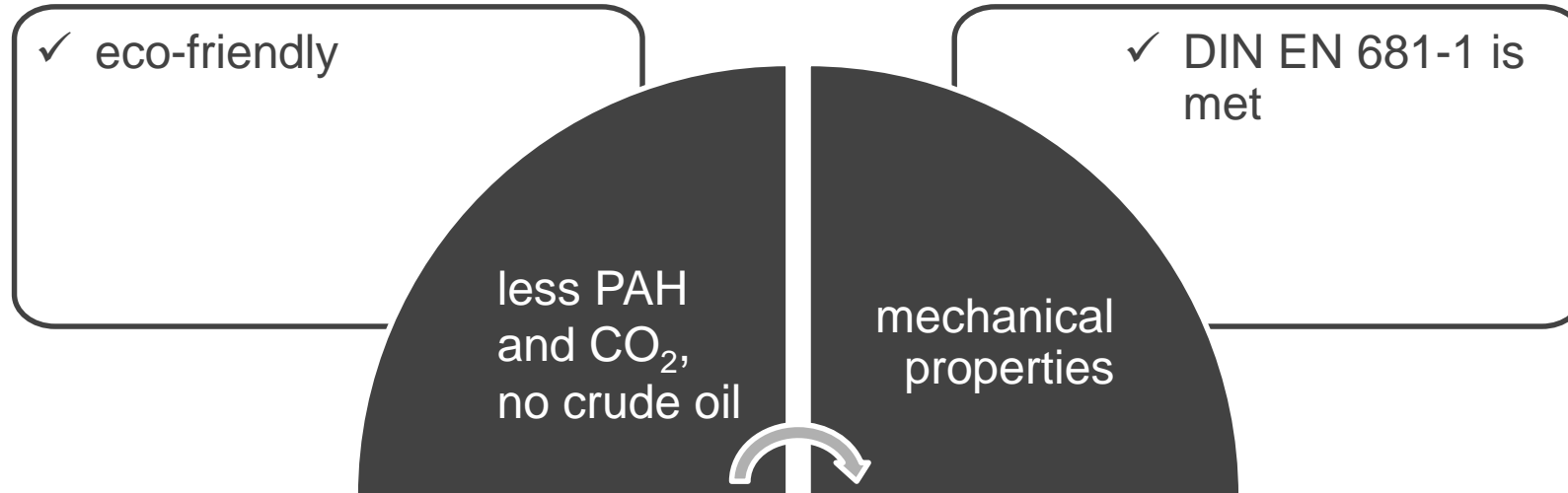


Immersion in dist. water, 168 h / 95 °C

 Δ Volume



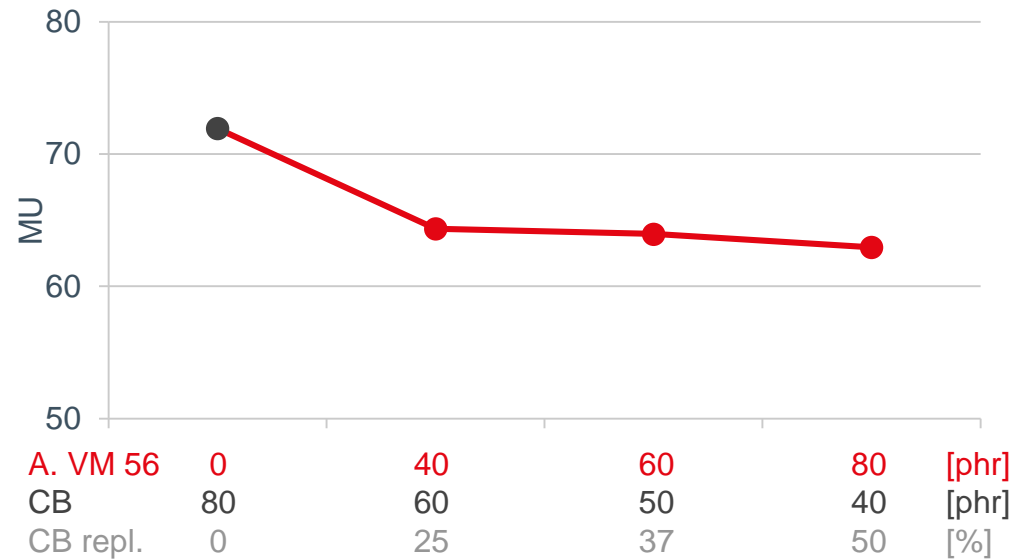
So far...





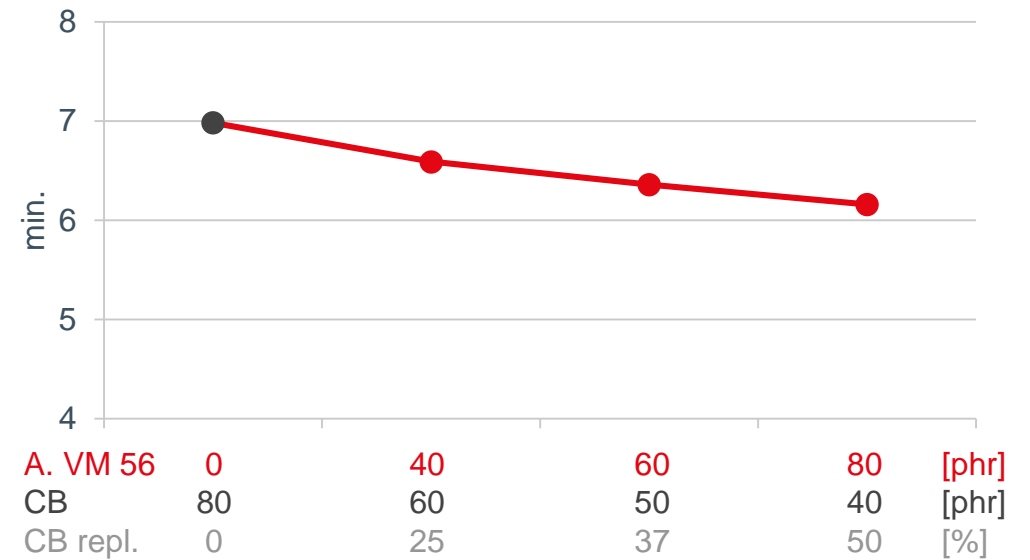
Additional benefits

Mooney Viscosity - ML 1+4, 100 °C



DIN ISO 289-1

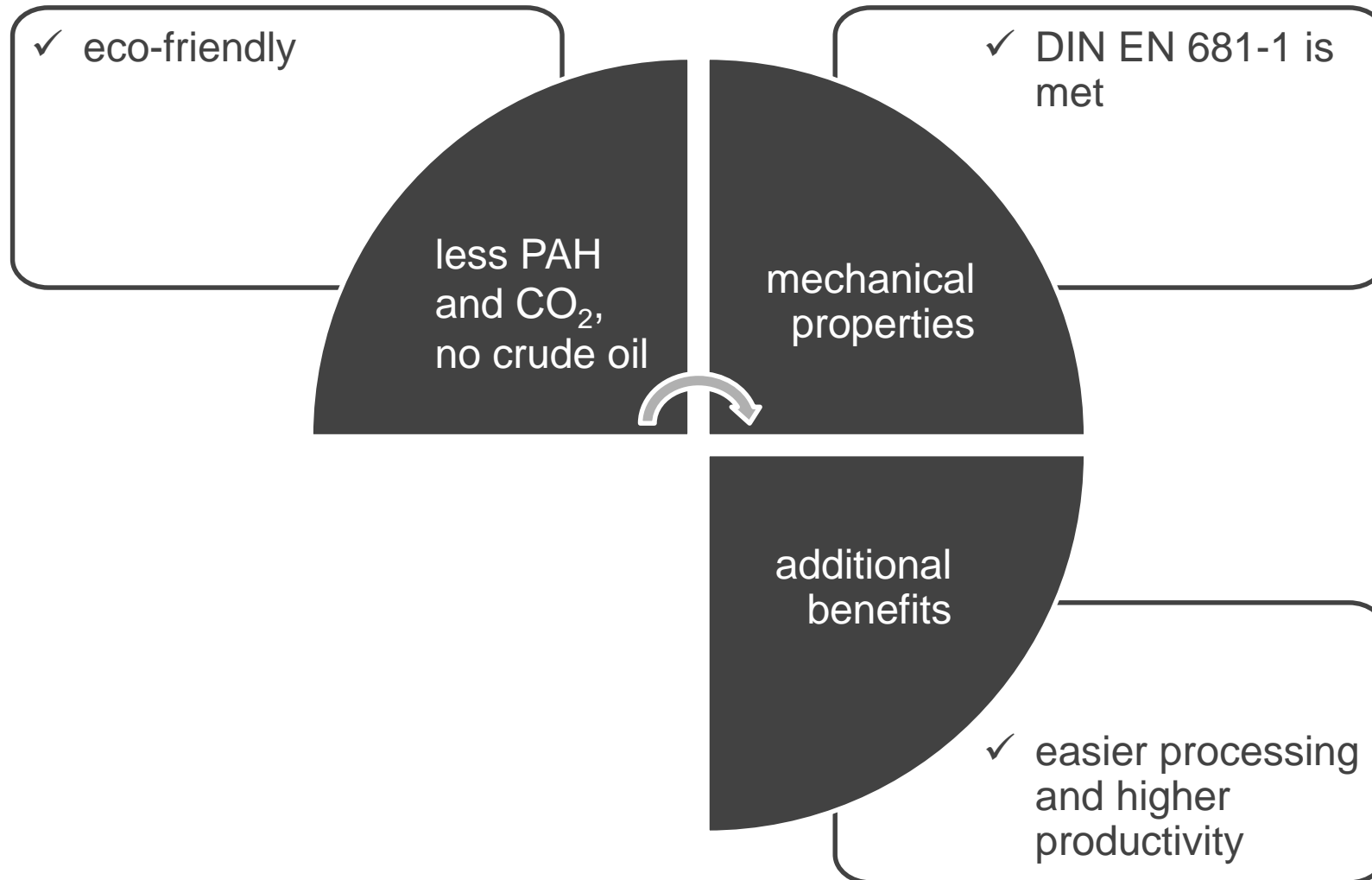
Conversion Time t_{90} , 180 °C, 0.2 ° def.



DIN 53529-A3



So far...





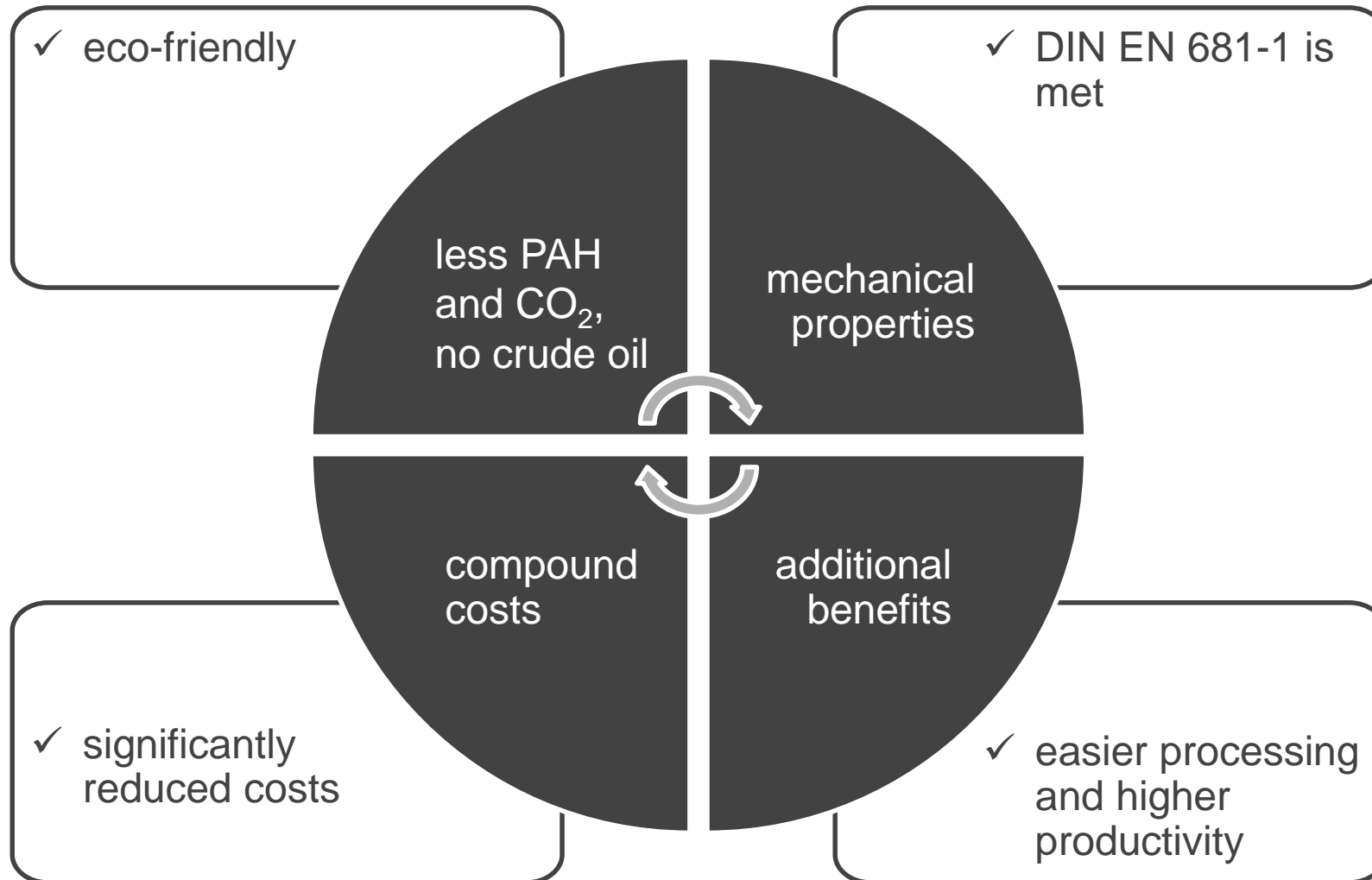
Compound costs after replacing CB with AKTISIL VM 56

based on prices for Germany, September 2021



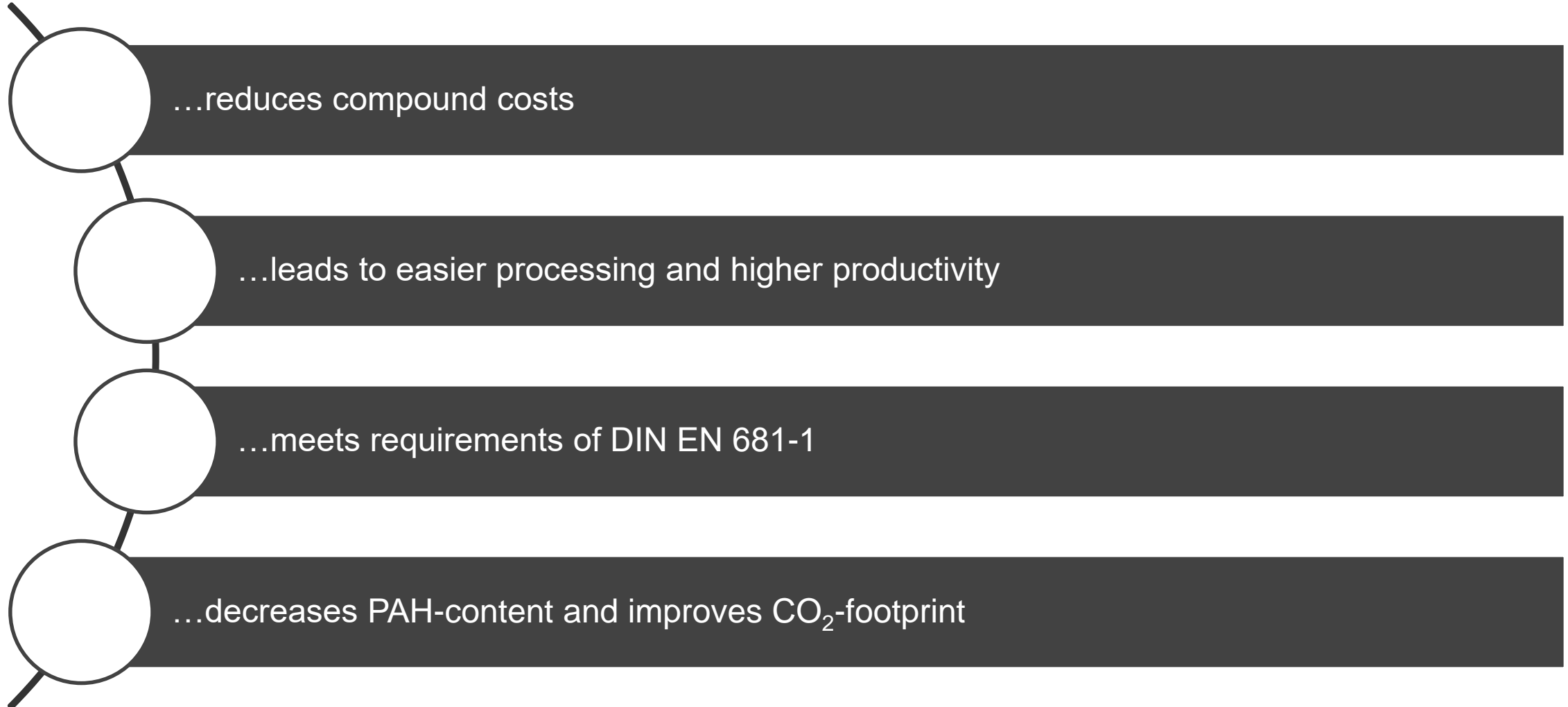


So far...





Partially replacing carbon black with AKTISIL VM 56...





We supply materials for good ideas!

Meet us at hall 9, booth 530

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