HOFFMANN MINERAL
Unternehmensgruppe Hoffmann

Non-black fillers in CR

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Non-black Fillers in CR

Test Compound

CR, mercaptan type, medium tendency to crystallize, ML (1+4) 100 °C 48[1]	**100**
Stearic acid	**1**
Filler	**100/50/35**
Diethylene glycol (DEG), see below	**2**
Adipate plasticizer[2]	**10**
Magnesium oxide[3]	**4**
Zinc oxide[4]	**5**
Ethylene thiourea, 80 %	**1.2**

Regarding precipitated silica and the different types of precipitated silicate additional compounds with 2 phr DEG were examined.

Curing was carried out in a press at 180 °C. The curing time was t_{90} + 10 %.

Please mind! The following figures show trend analysis, which only can be the basis for specific problem solvings.

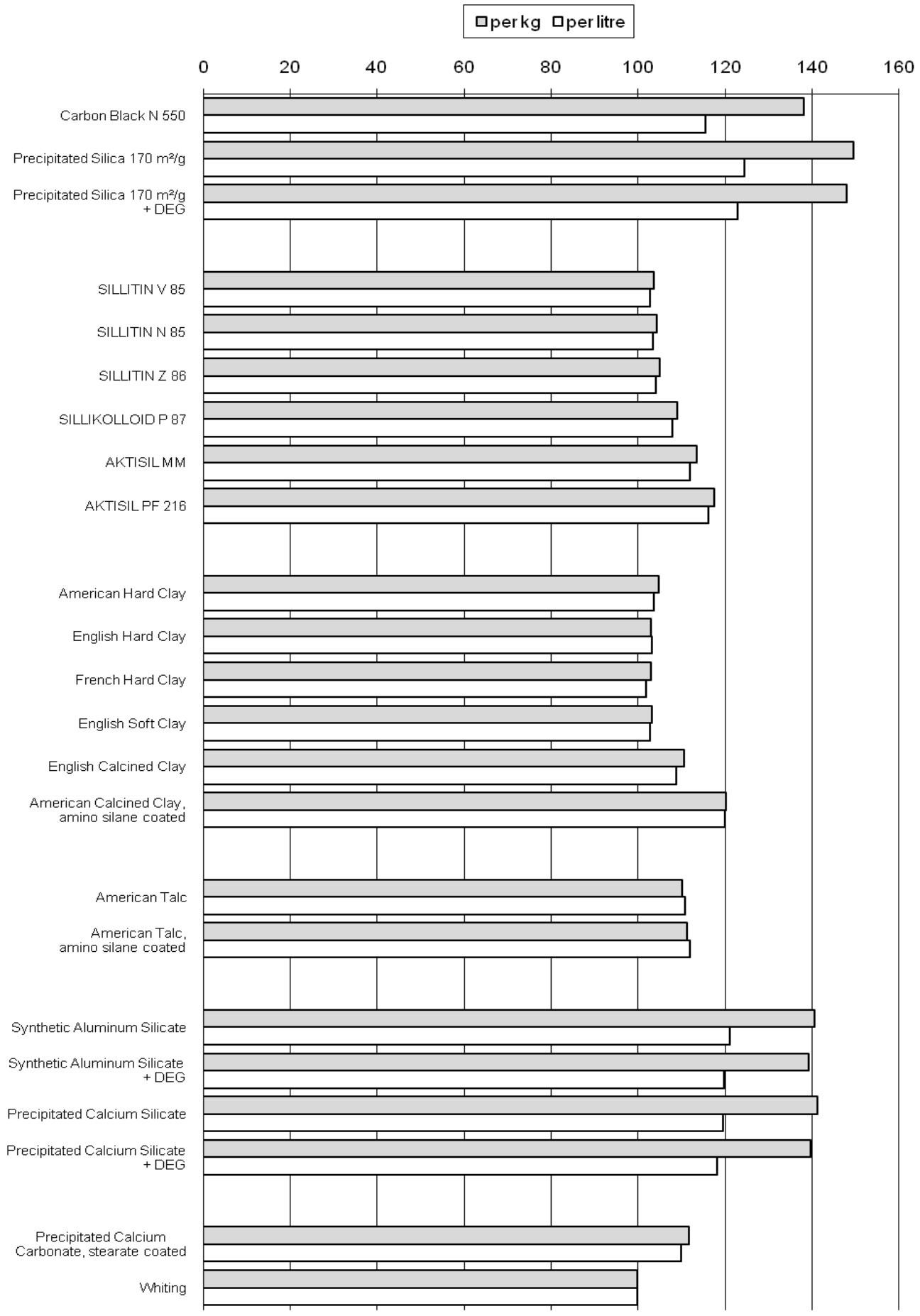
Filler:	Loading:
Precipitated Silica	35 phr
Precipitated Silicates	50 phr
Carbon Black	50 phr
All others	100 phr
Open mill	150 x 300 mm
Batch	400 cm³
Temperature	50 °C
Time of mixing	20 to 25 min
Extruder	d = 30 mm
	L/D = 15
Temperature of barrel	70 °C
Temperature of head	110 °C

Applied in this test compound:

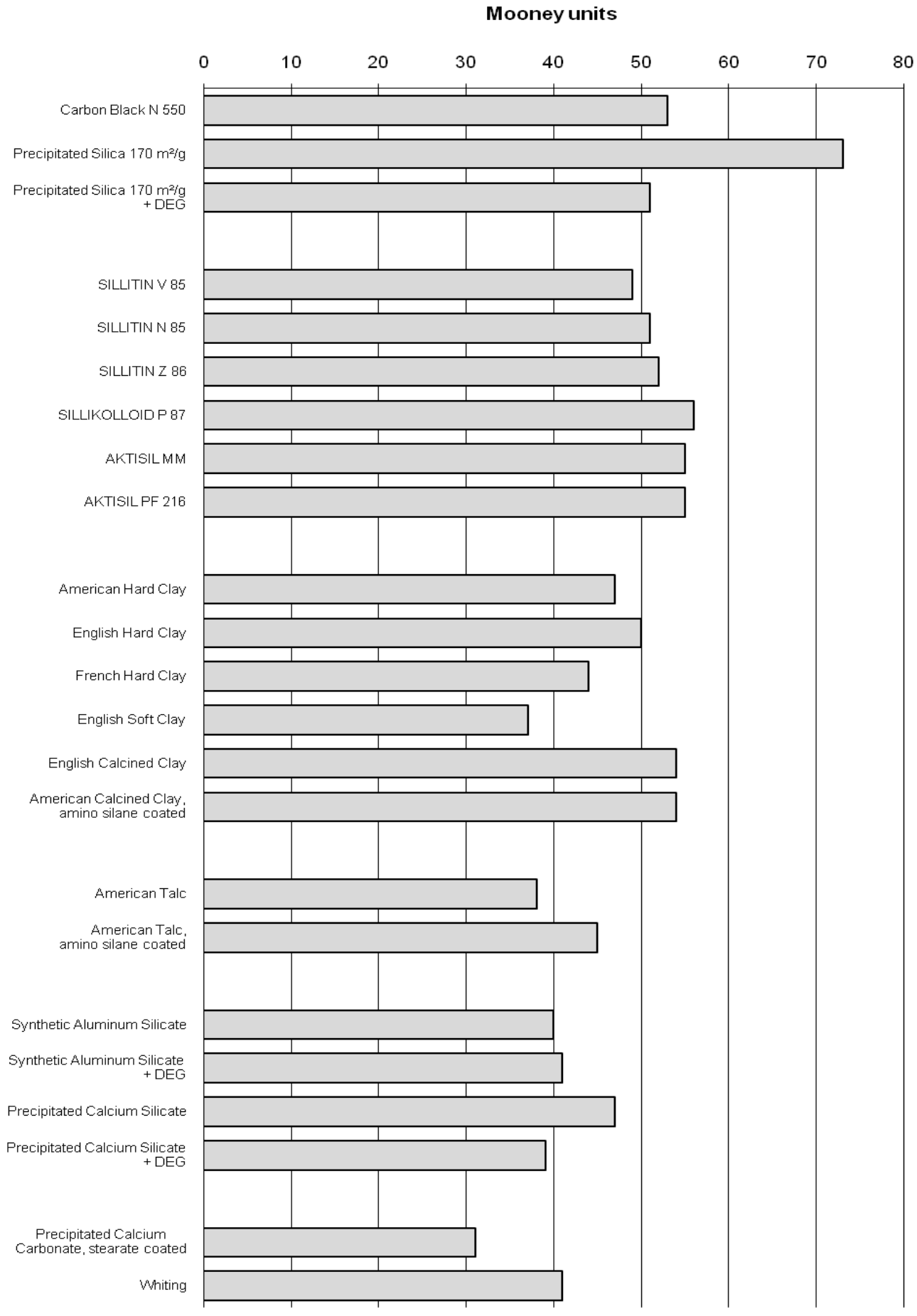
(1) Baypren 210®, Bayer
(2) Mediaplast NB-4, Kettlitz
(3) Maglite DE®, Marine Magnesium Company/C.P. Hall Company
(4) Zinkoxyd aktiv®, Bayer

Contents

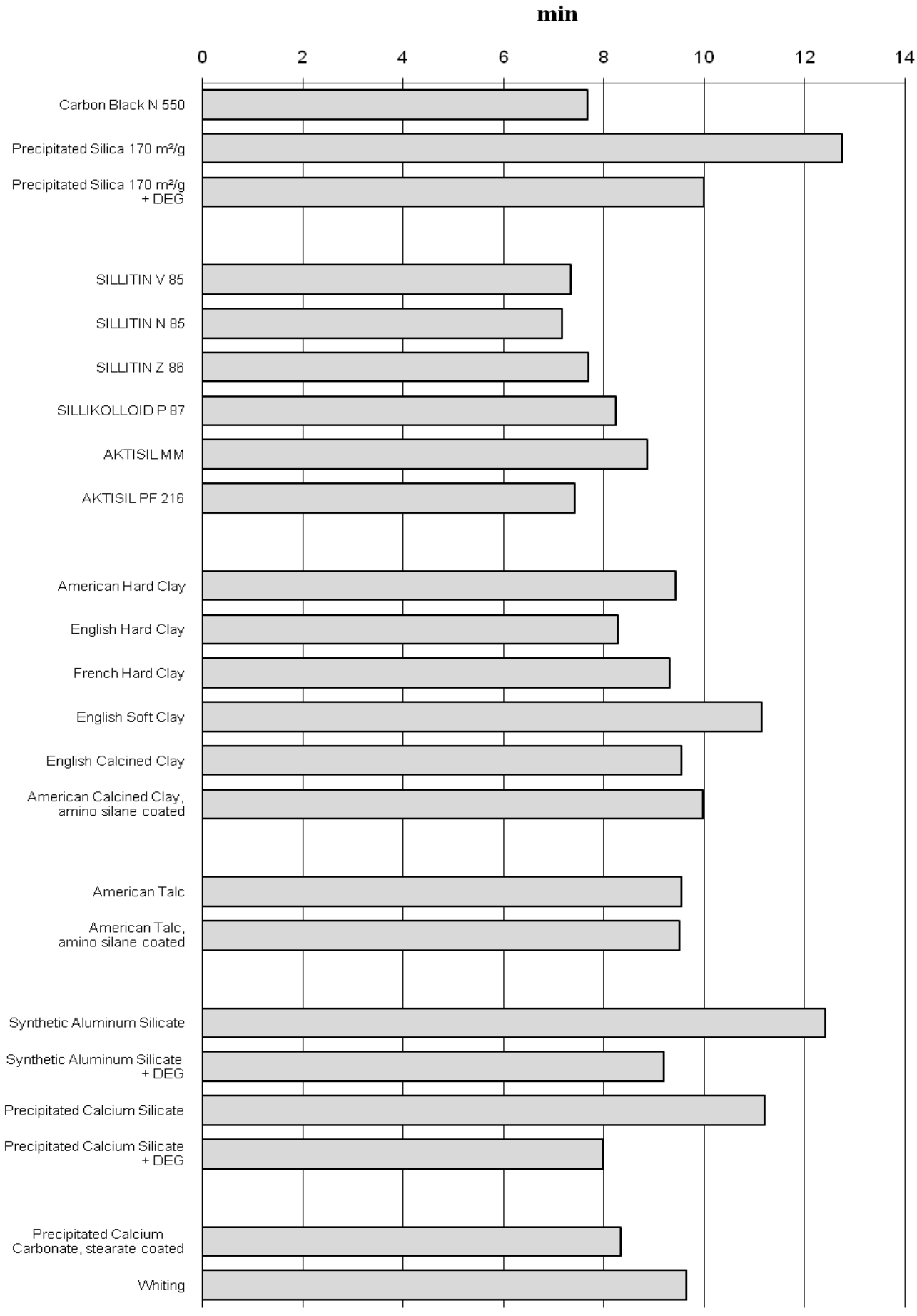
INDEX OF COMPOUND COSTS
Base: Whiting = 100 (Germany, 1993)



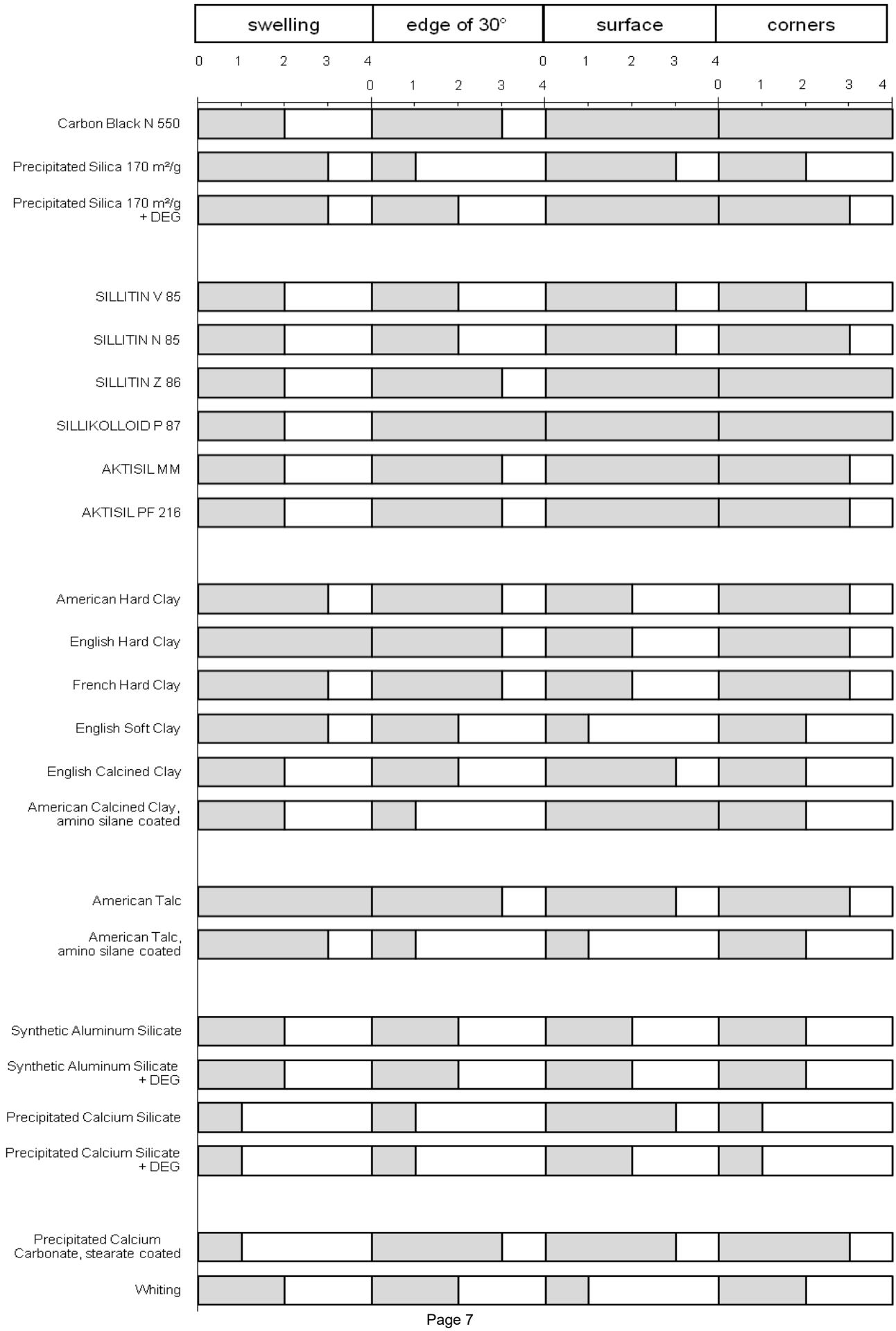
MOONEY VISCOSITY ML (1+4) at 120 °C, DIN 53 523, Part 3



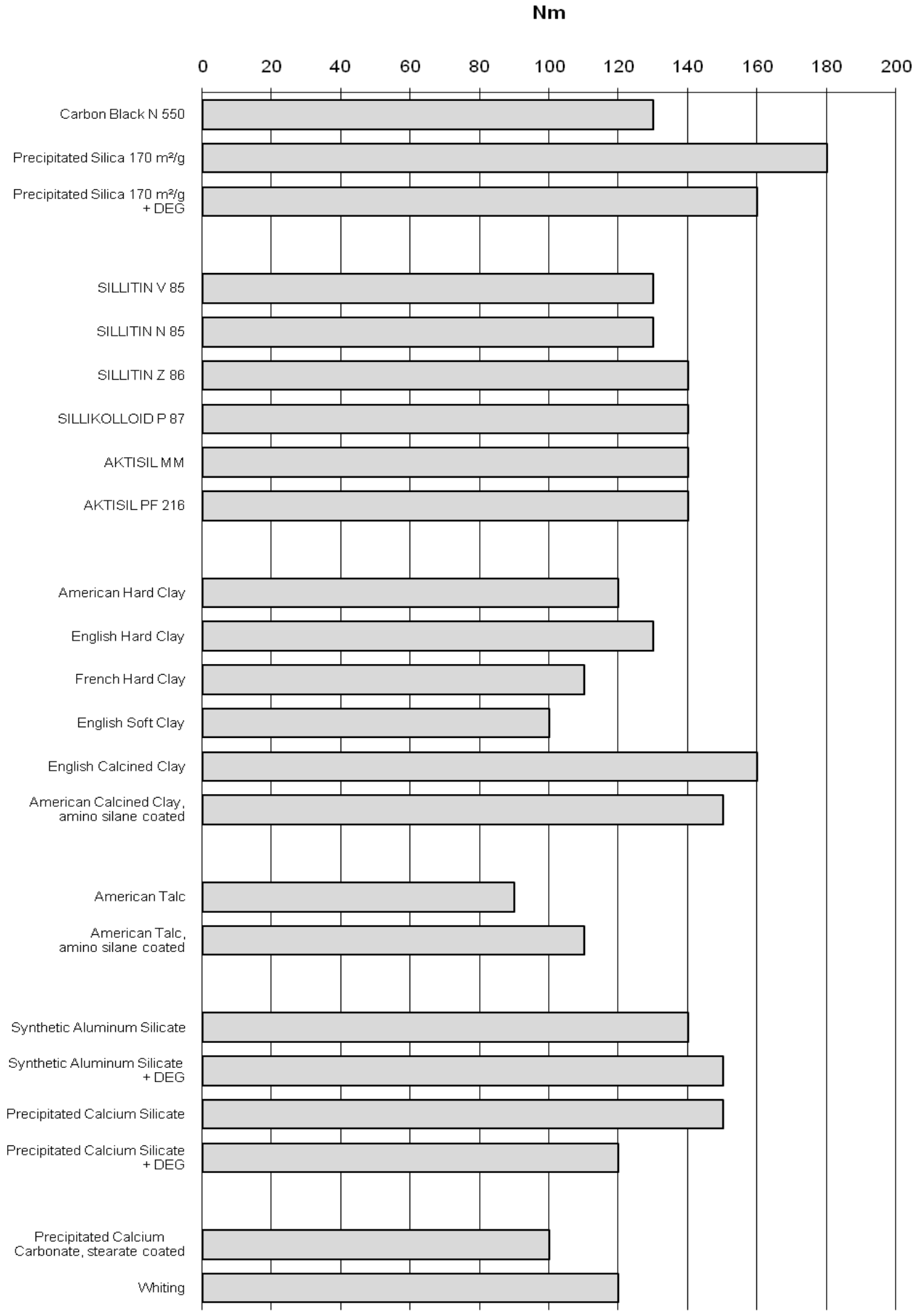
MOONEY SCORCH t_5 (ML) at 120 °C, DIN 53 523 Part 4



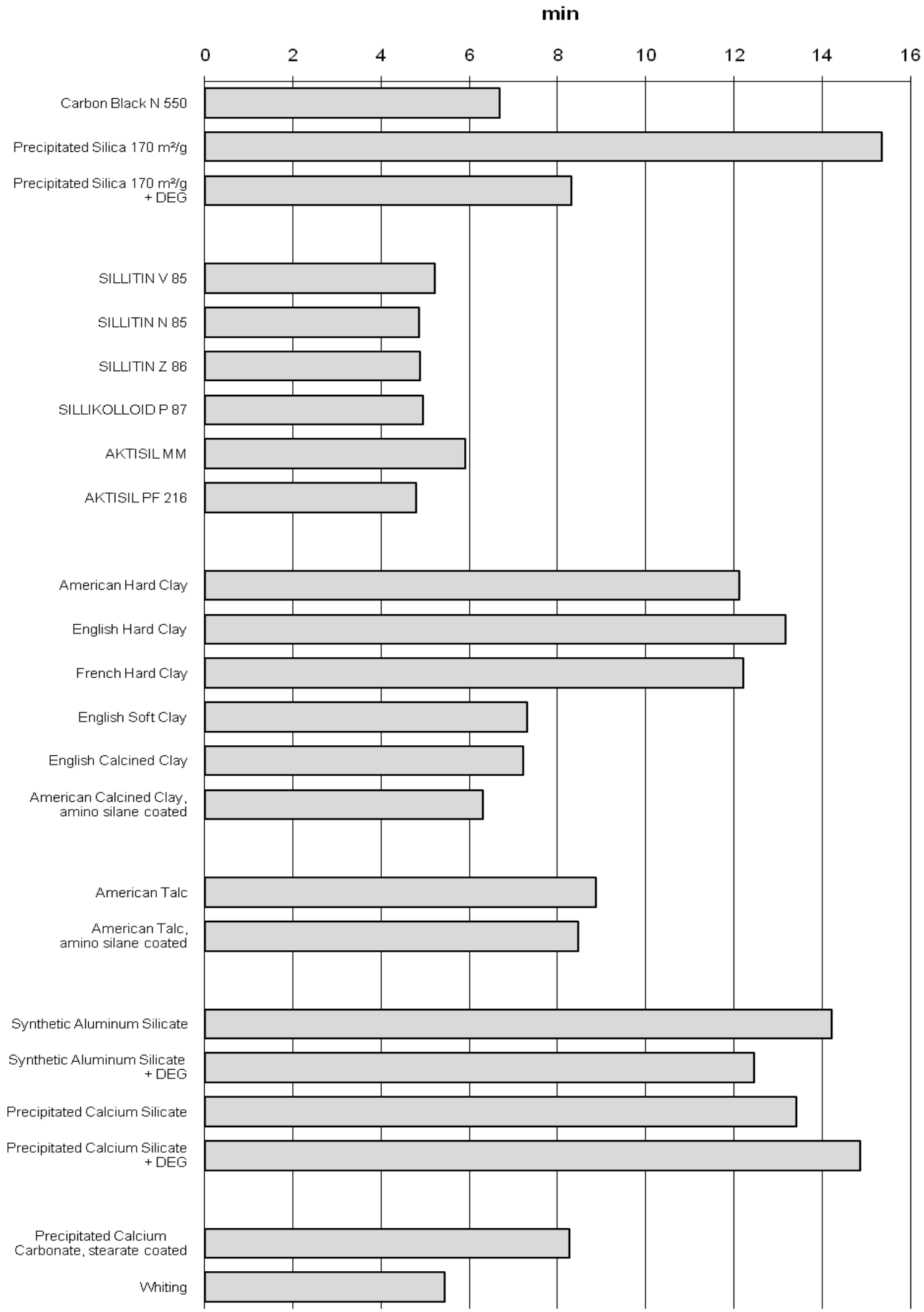
EXTRUDABILITY
based on ASTM D 2230-90
Method A, Evaluation of Garvey-Profile
at 1 m/min Speed



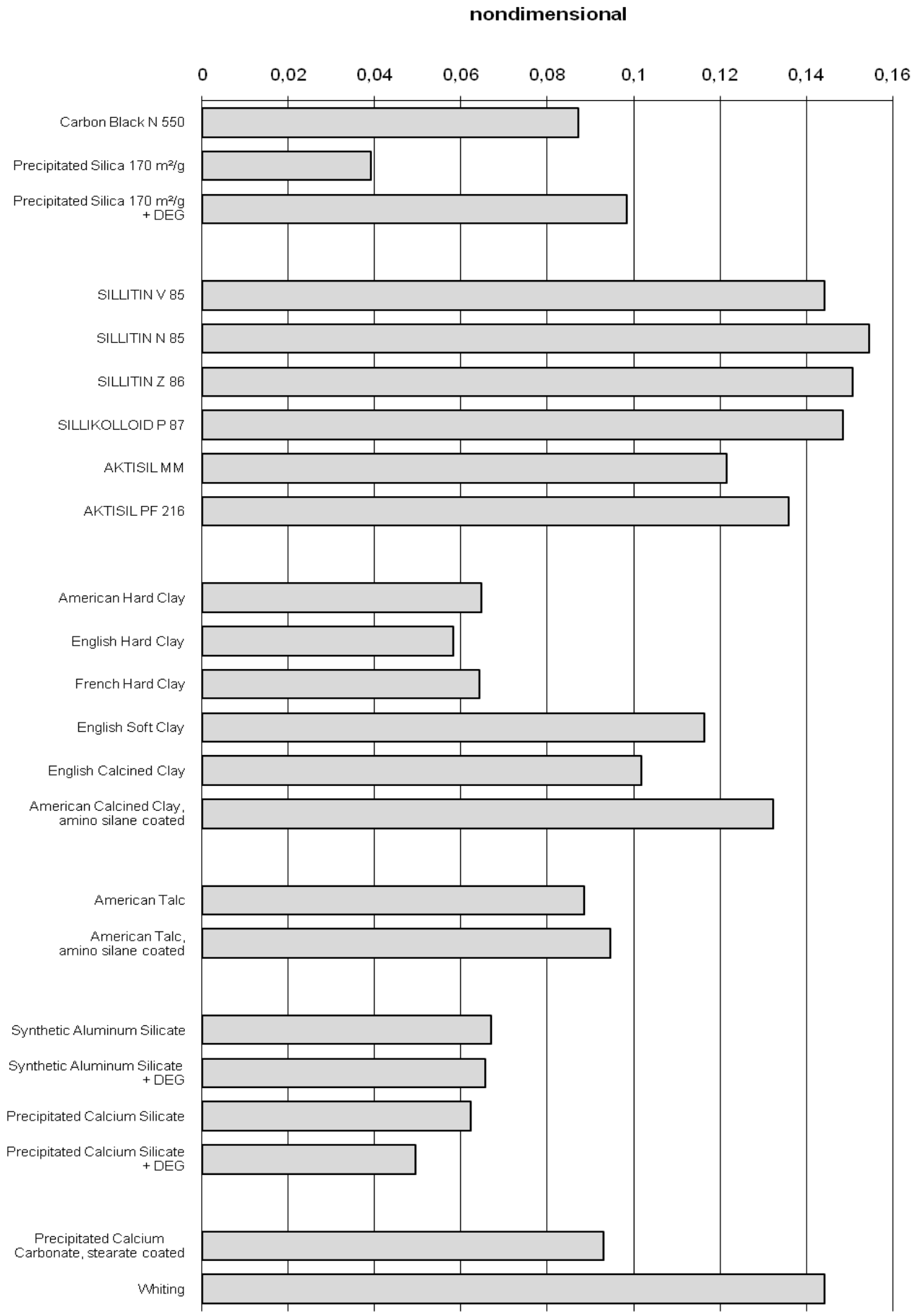
TORQUE OF EXTRUDER
1m/min Speed



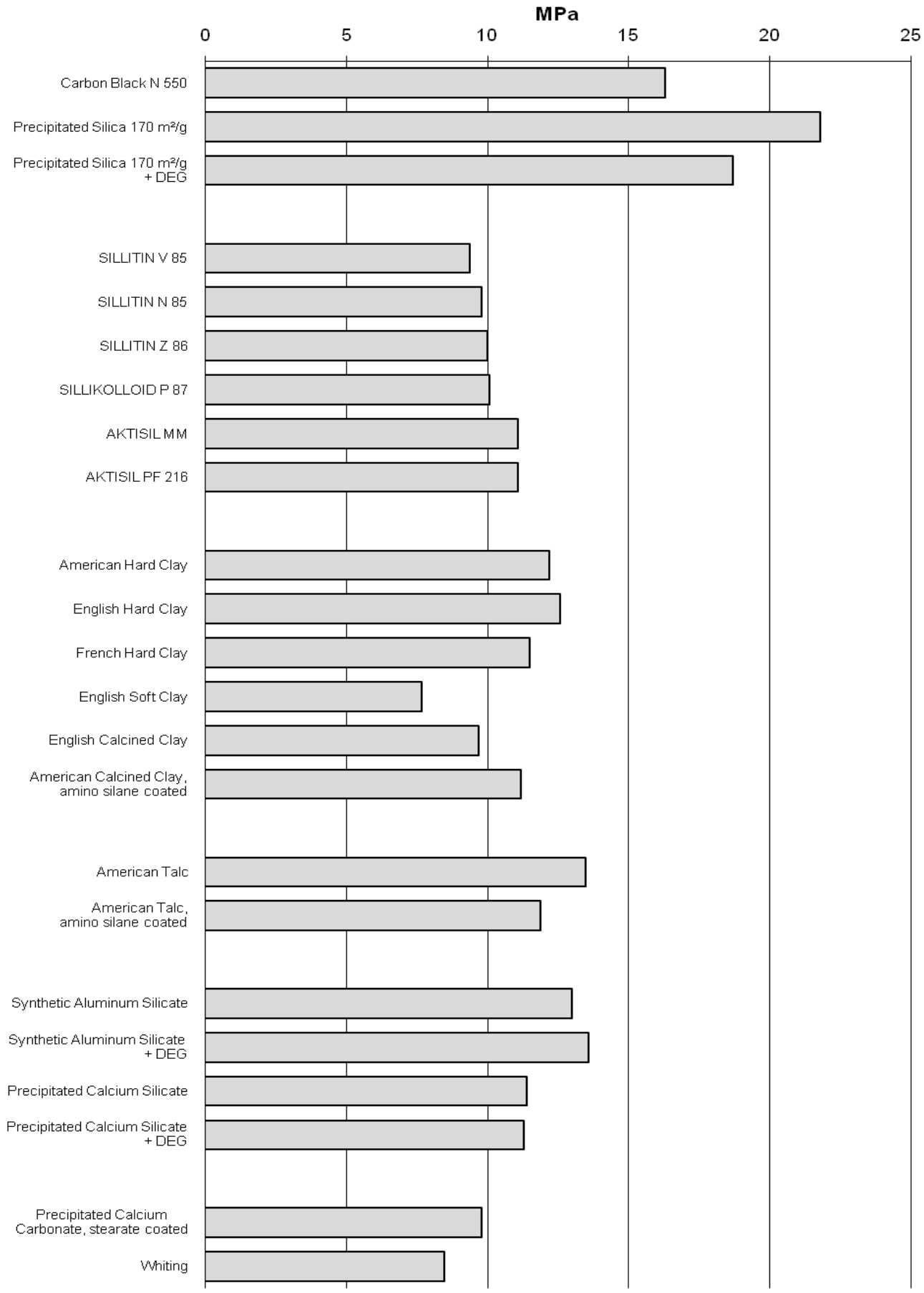
Rotorless Cure Meter, Göttfert Elastograph
t_{90} at 180 °C
DIN 53 529-A3



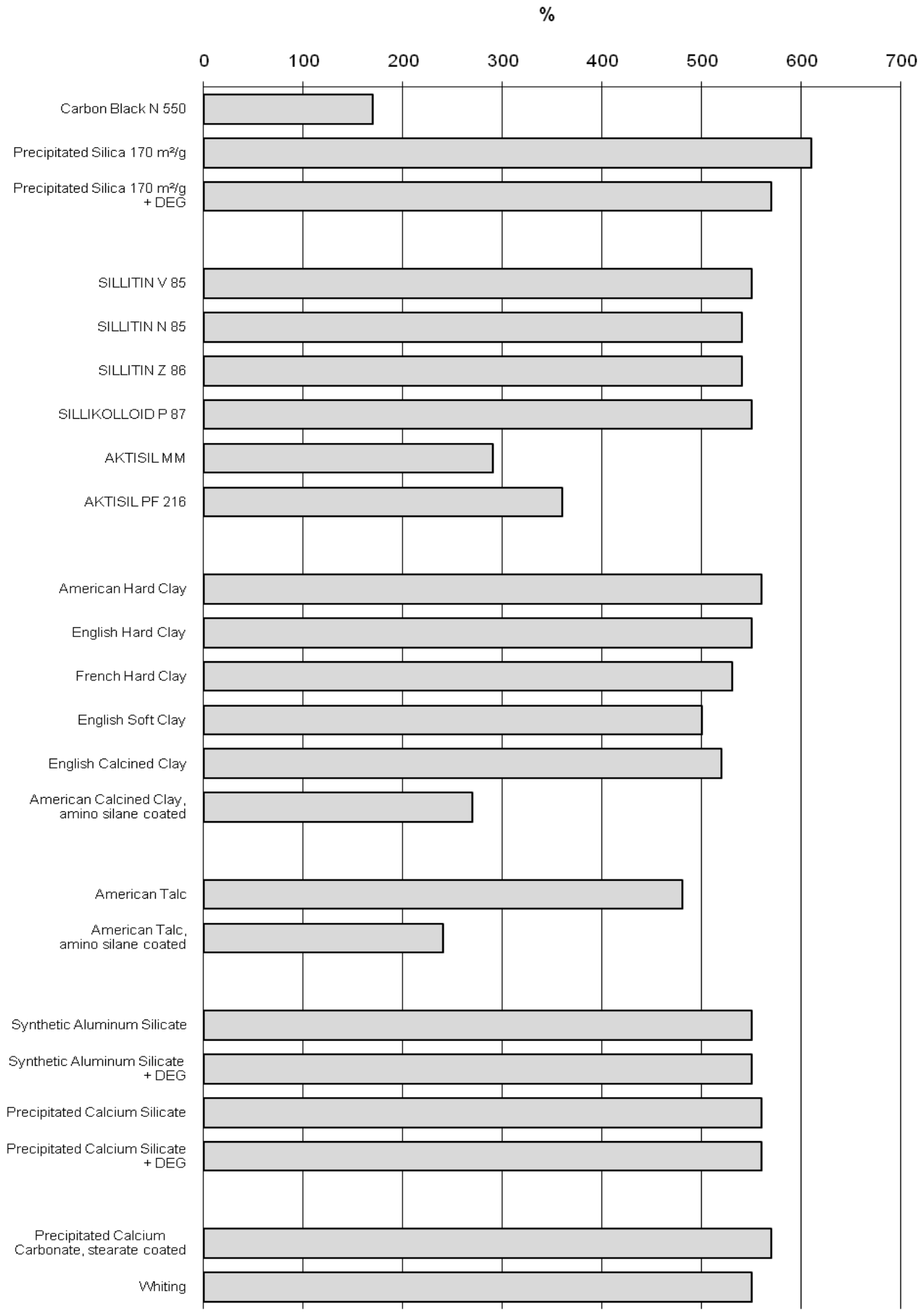
Rotorless Cure Meter, Göttfert Elastograph
ratio t_5/t_{90}



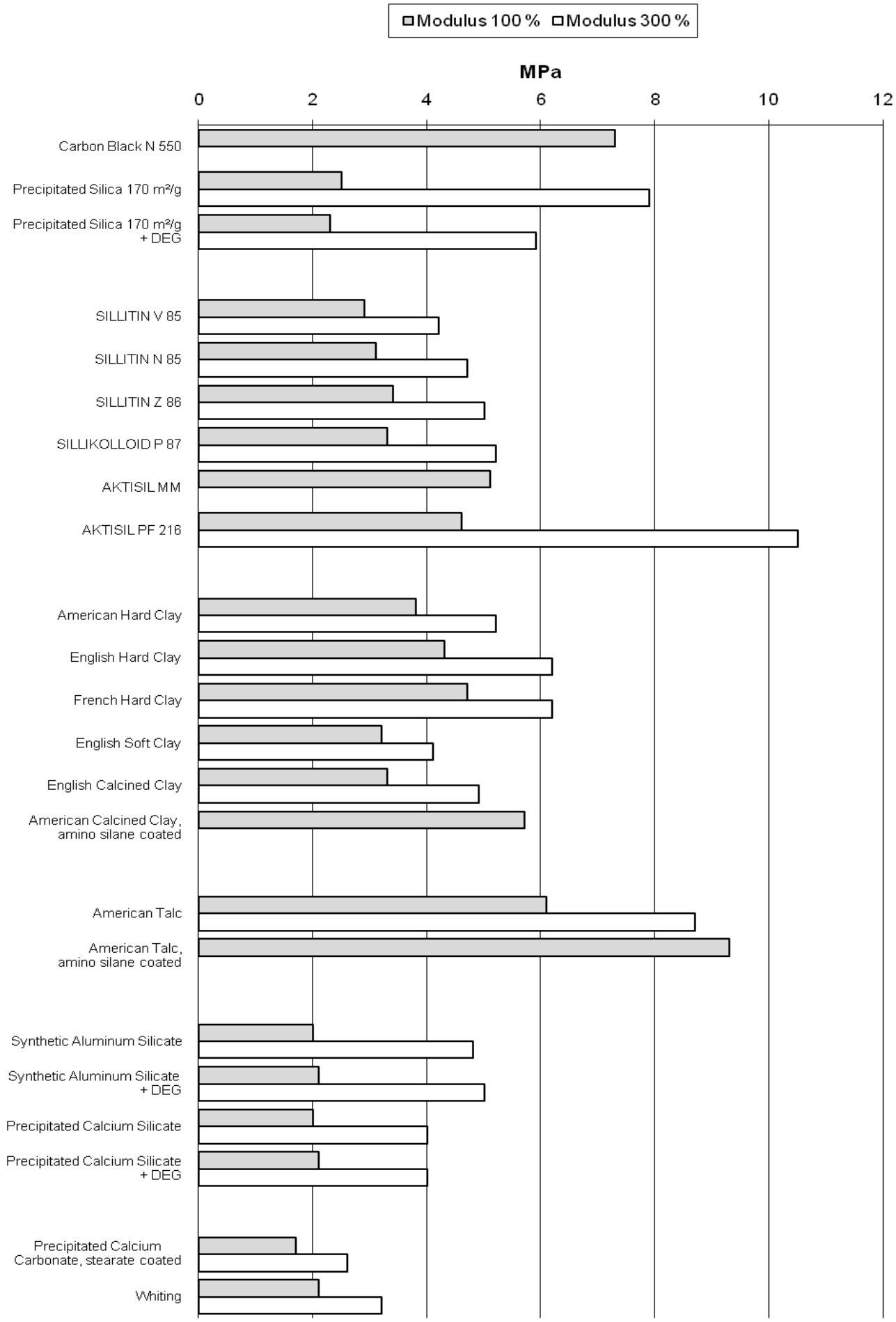
TENSILE STRENGTH
DIN 53 504-S2



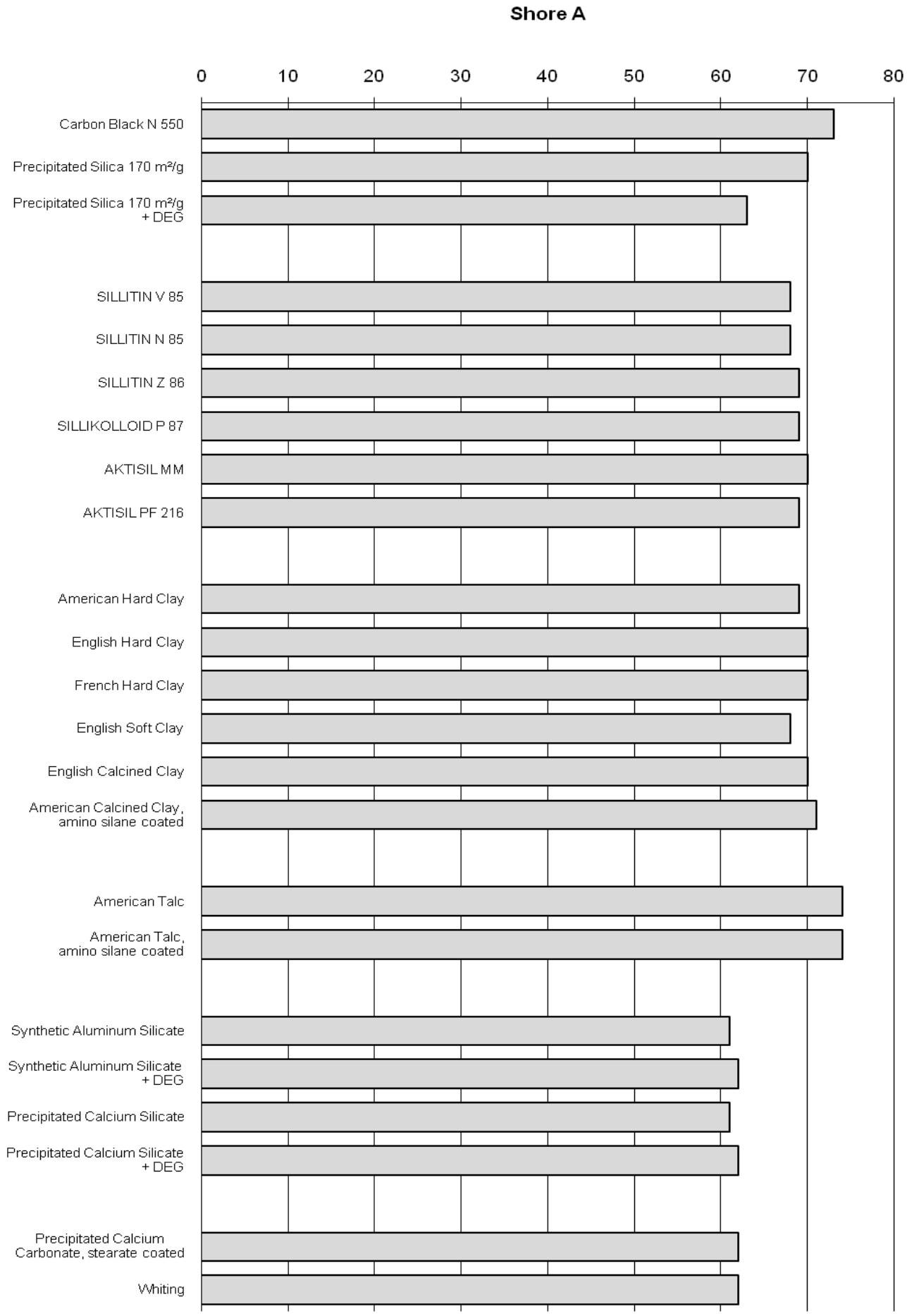
ELONGATION AT BREAK
DIN 53 504-S2



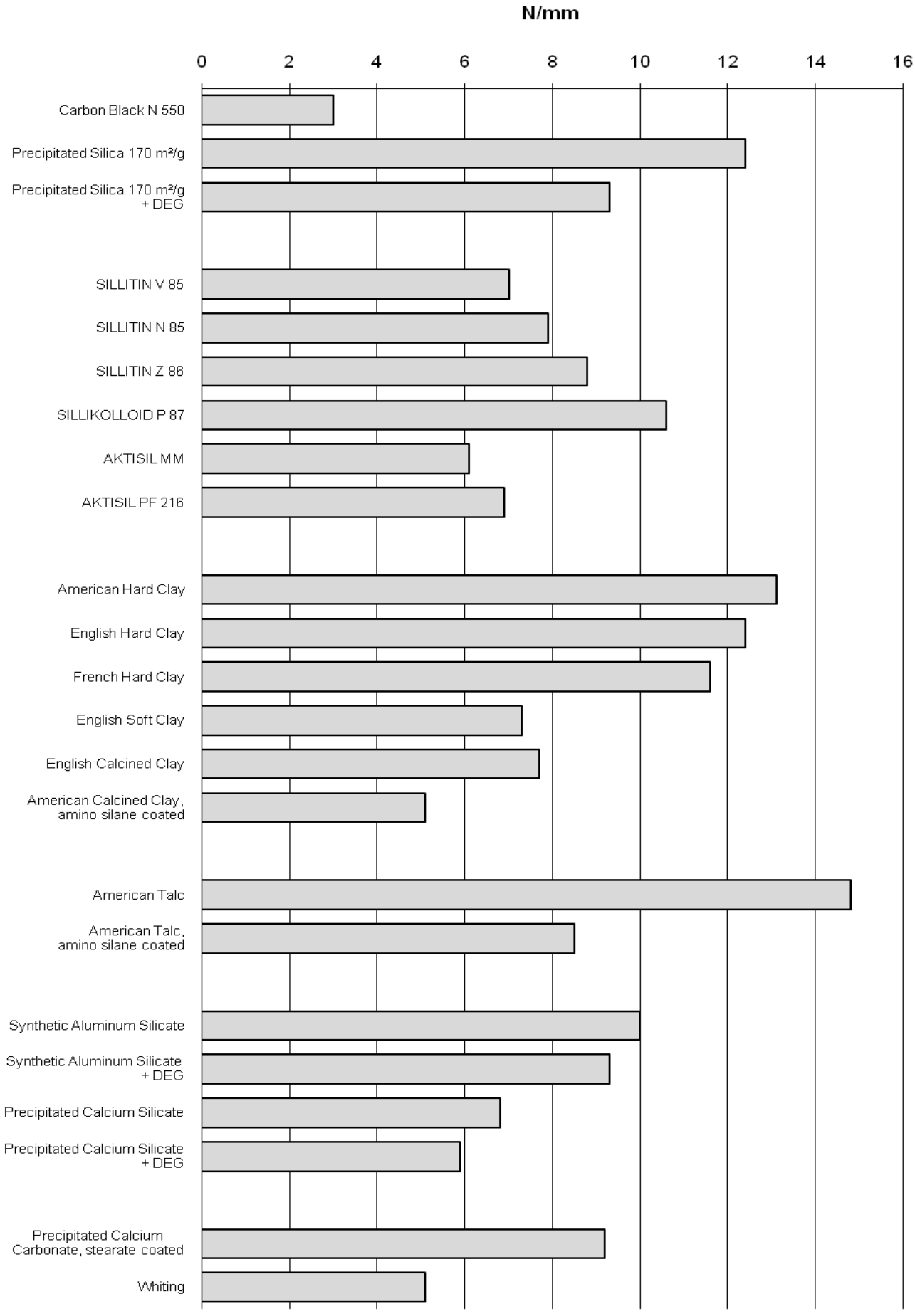
MODULUS
DIN 53 504-S2



HARDNESS
DIN 53 505-A



TEAR RESISTANCE
DIN 53 507-A, 500 mm/min



REBOUND ELASTICITY
DIN 53 512

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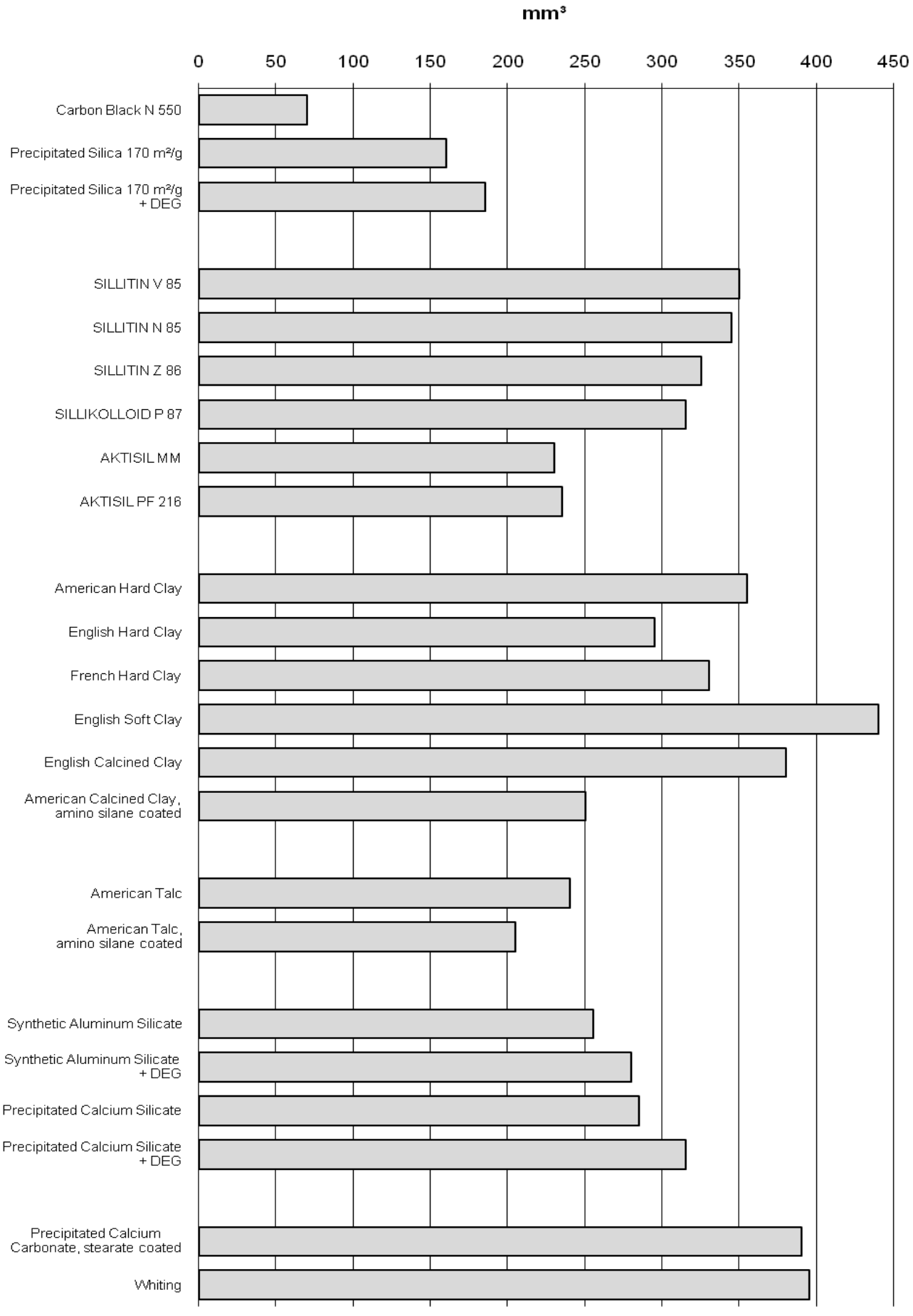
DIN 53 516



COMPRESSION SET
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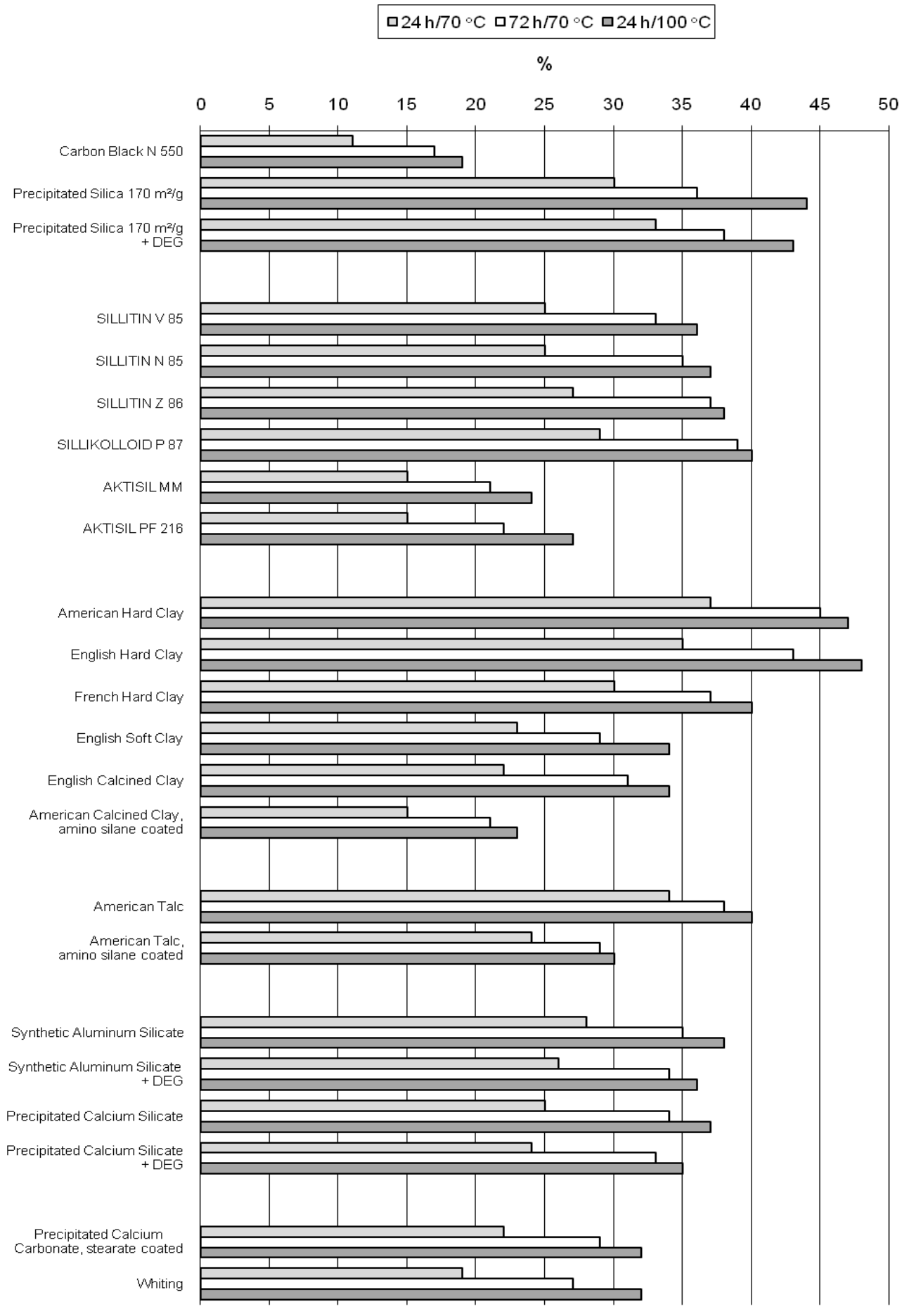
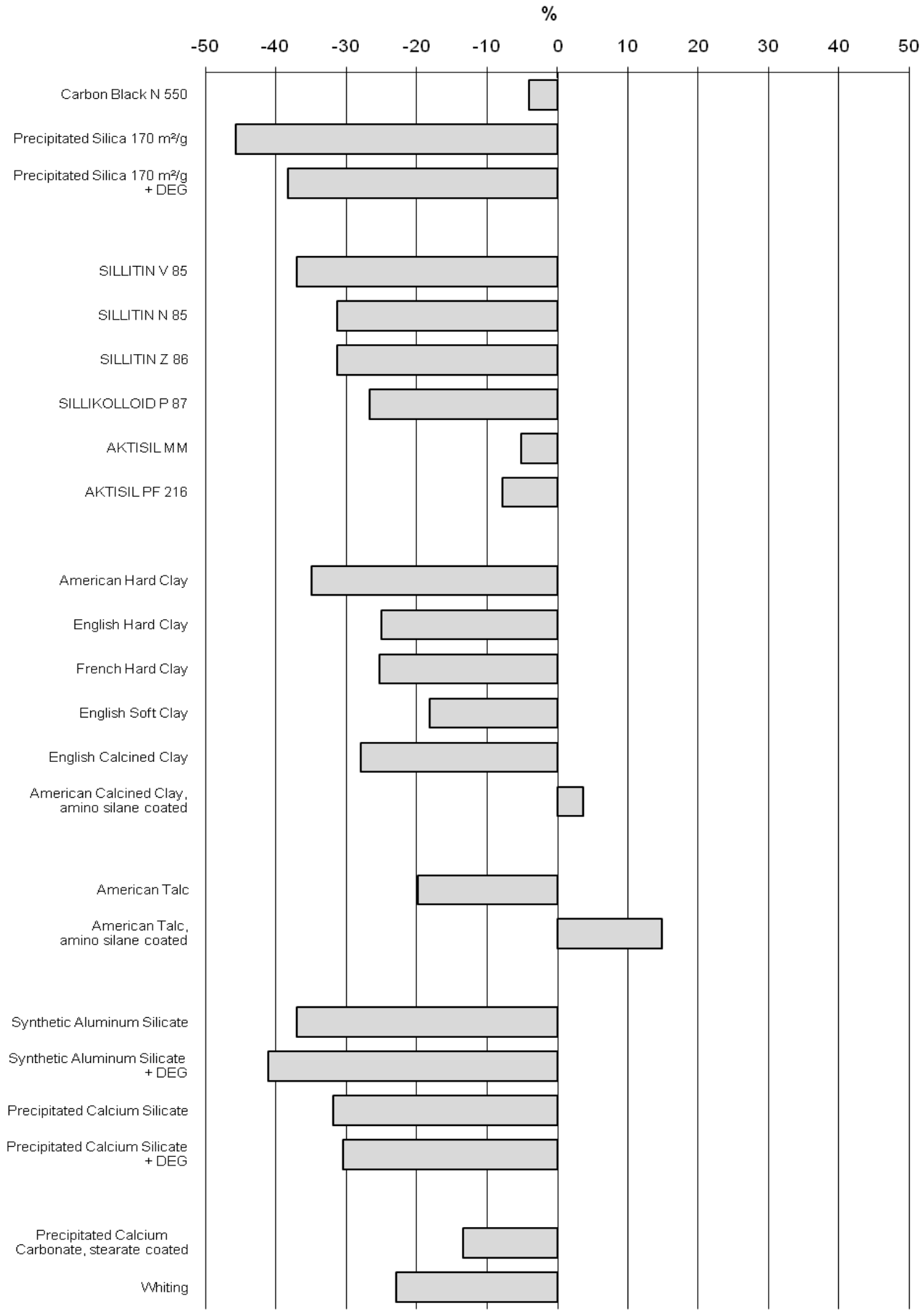
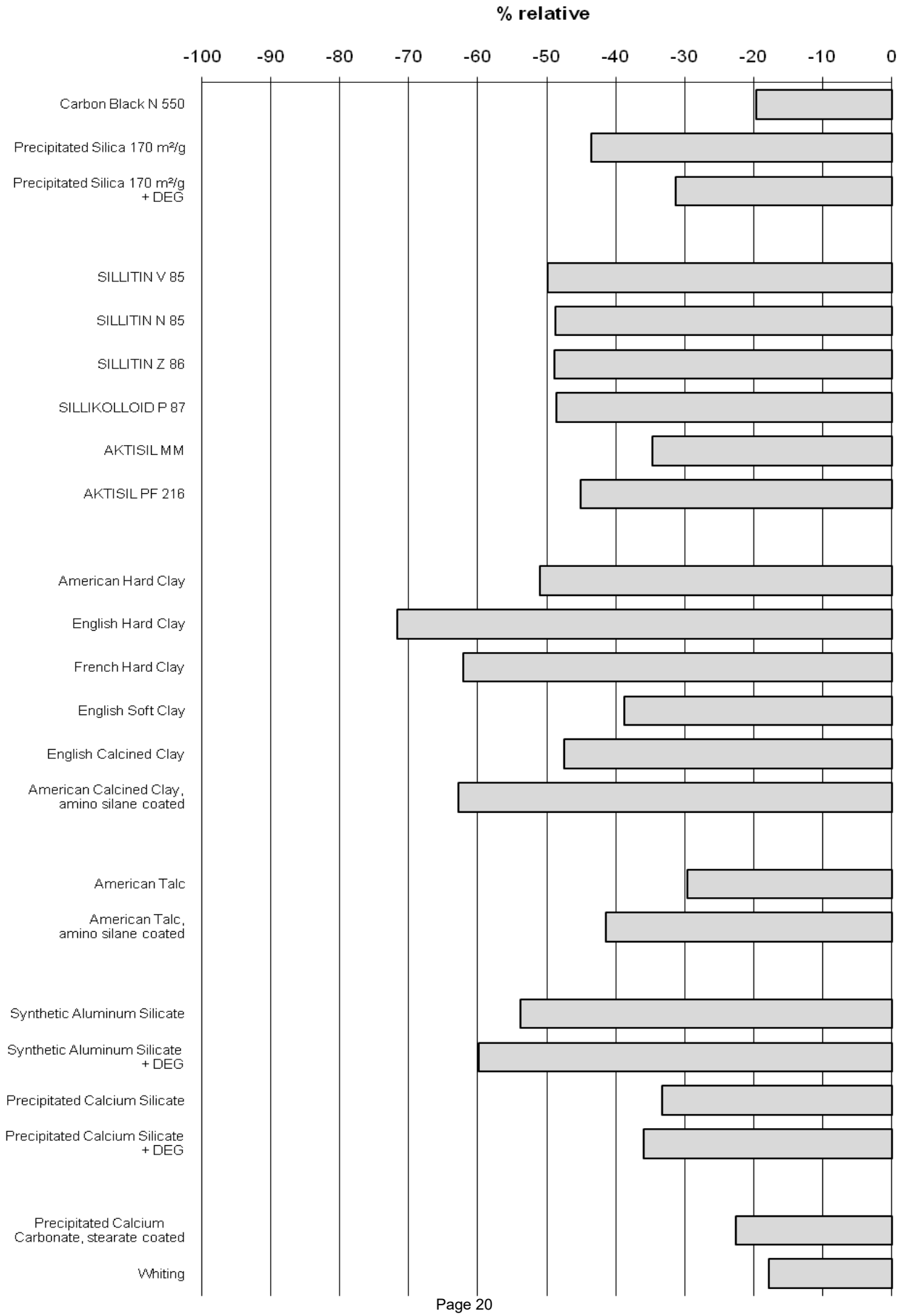


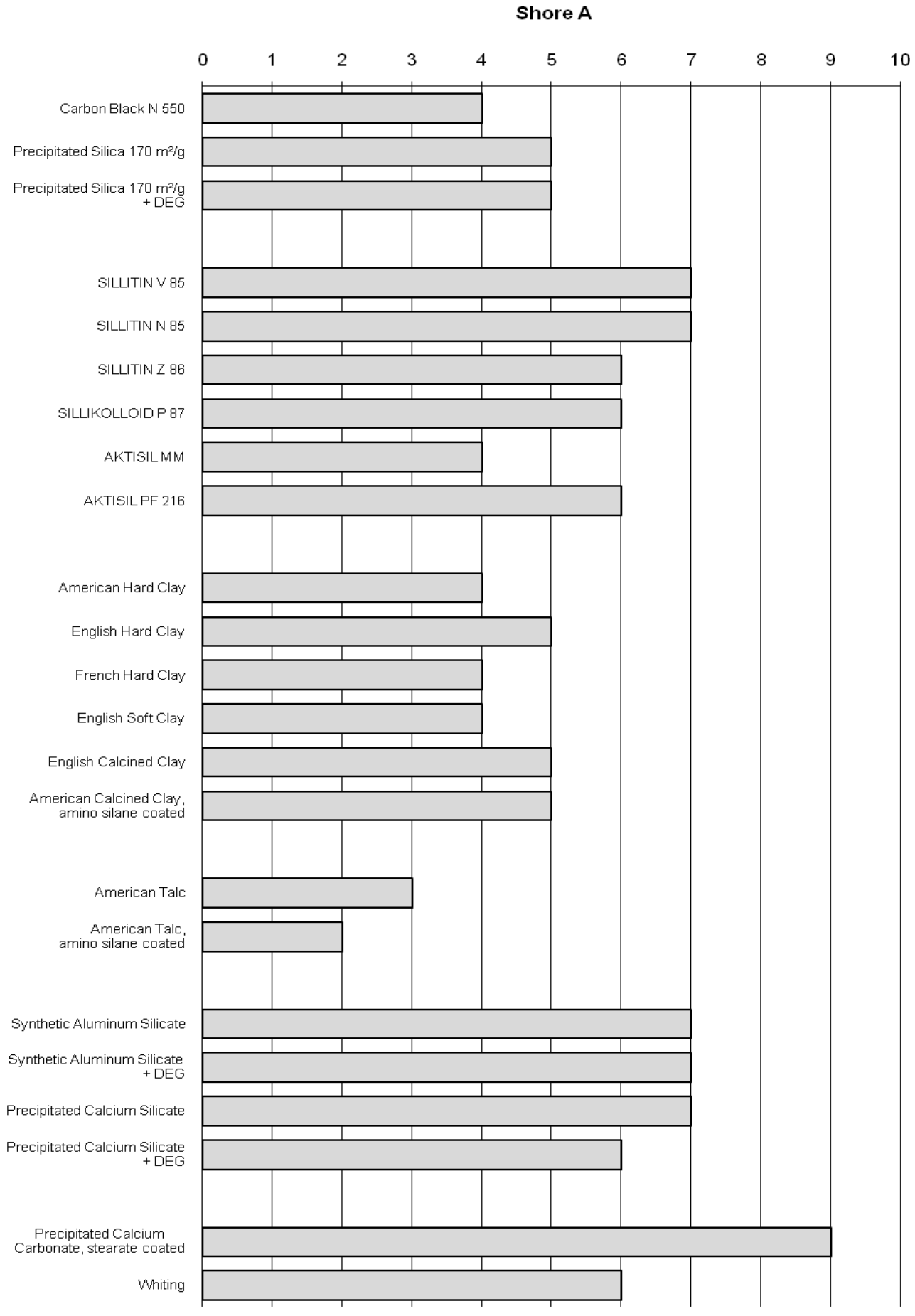
AIR AGEING, 7 d/100 °C
DIN 53 508, 5.3
Change of Tensile Strength



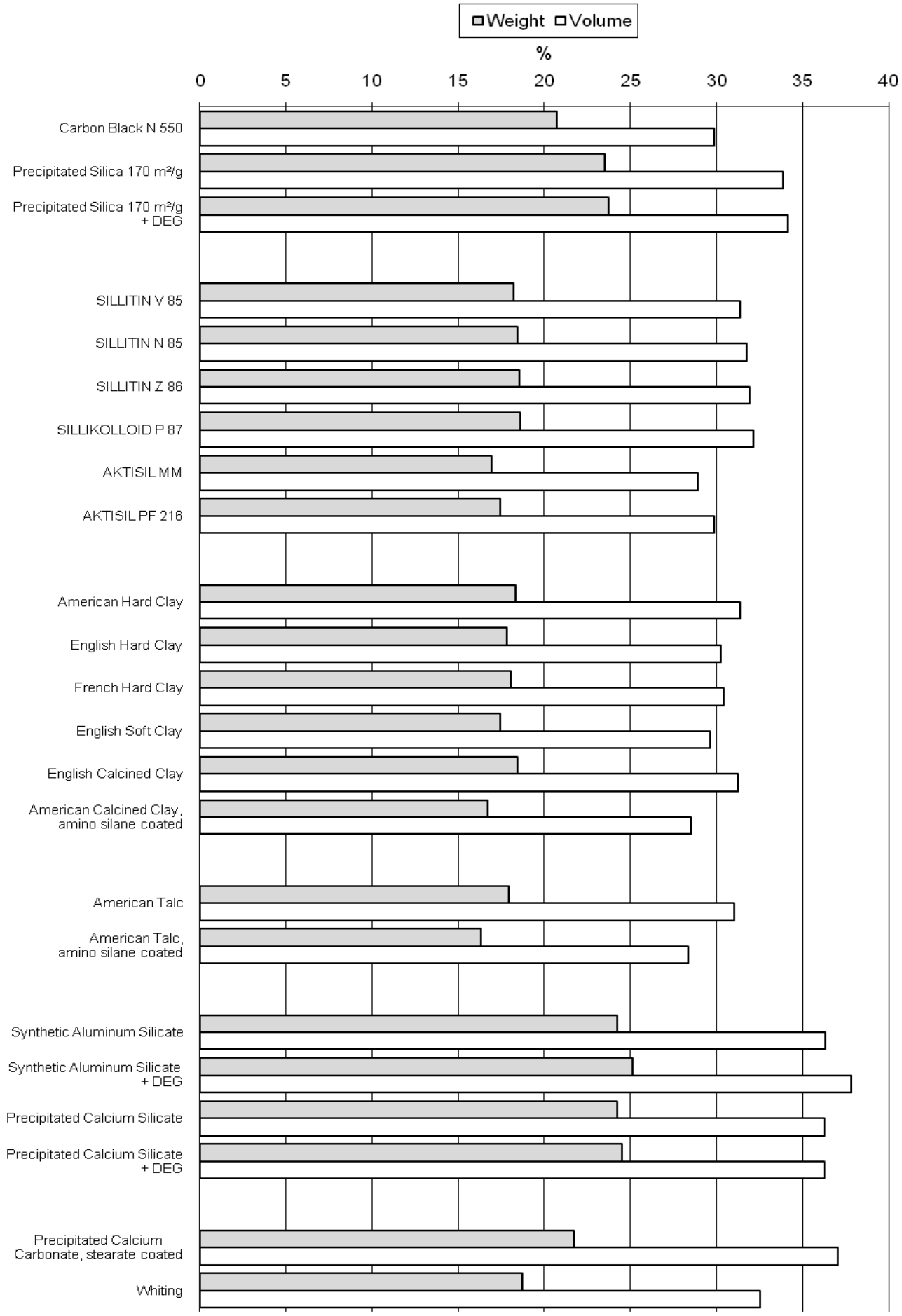
AIR AGEING, 7 d/100 °C
DIN 53 508, 5.3
Change of Elongation at Break



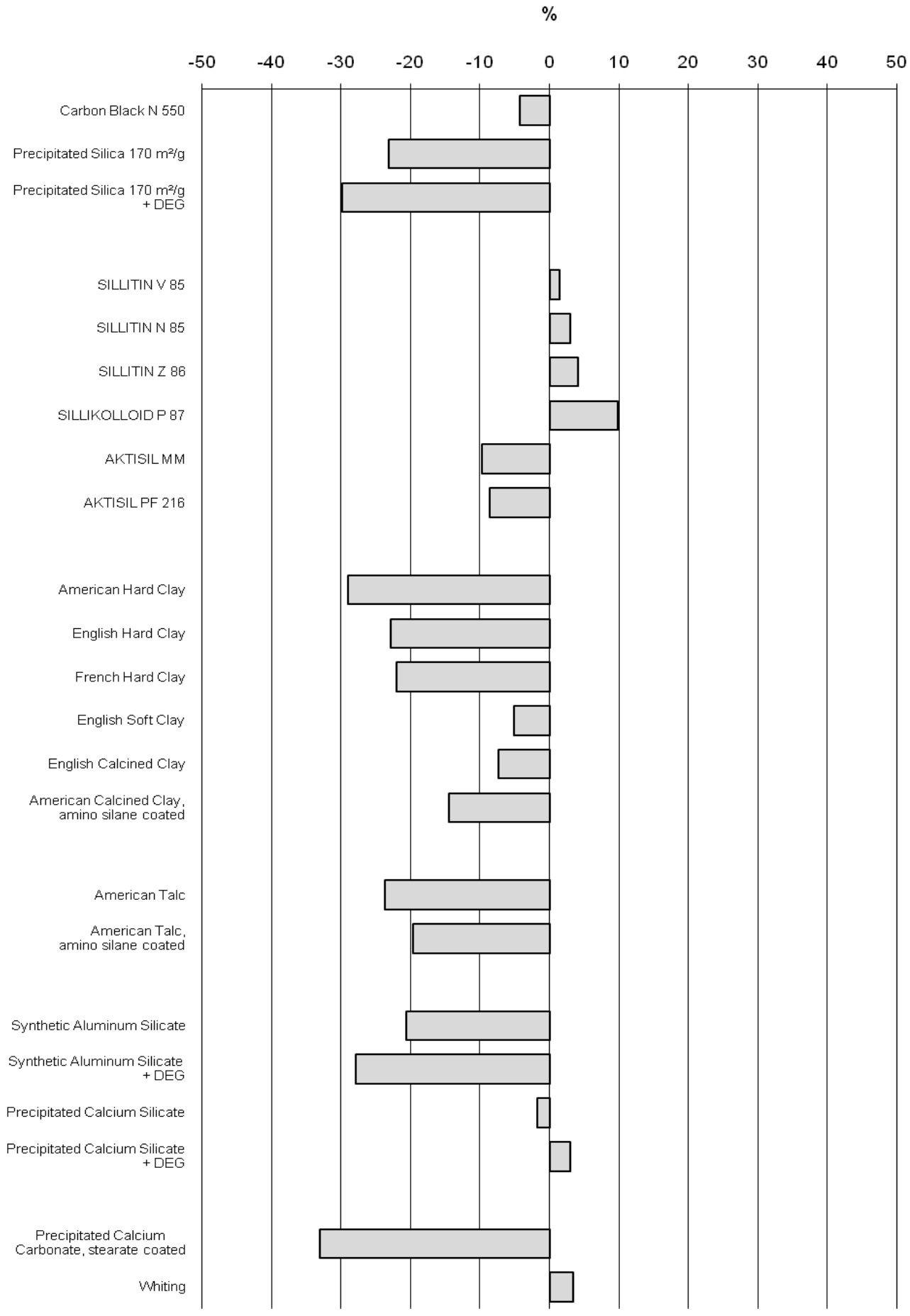
AIR AGEING, 7 d/100 °C
DIN 53 508, 5.3
Change of Hardness



RESISTANCE TO ASTM OIL 2, 7 d/100 °C
DIN 53 521-A, S2
Change of Weight and Volume



RESISTANCE TO ASTM OIL 2, 7 d/100 °C
DIN 53 521-A, S2
Change of Tensile Strength



RESISTANCE TO ASTM OIL 2, 7 d/100 °C
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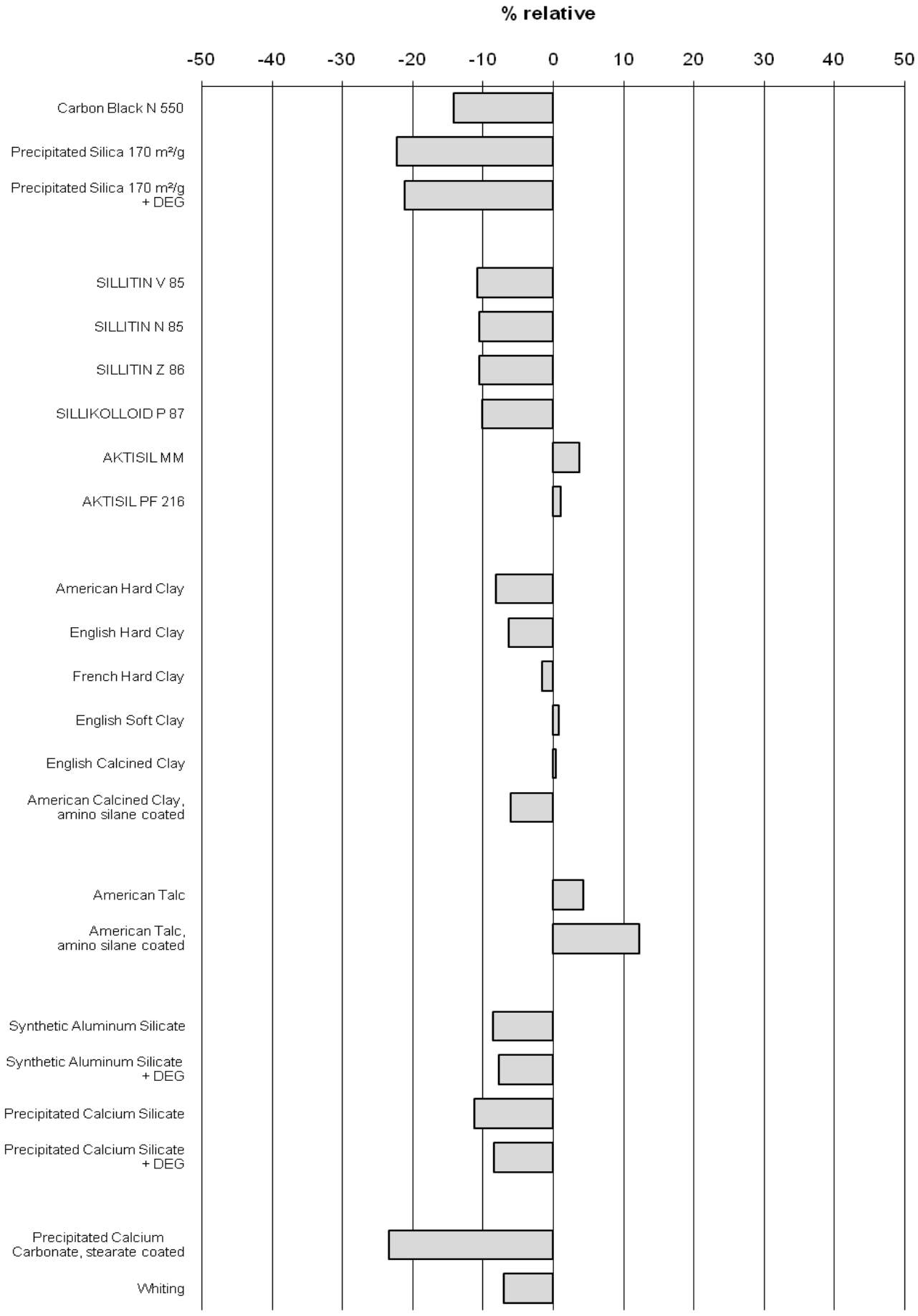

RESISTANCE TO ASTM OIL 2, 7 d/100 °C
DIN 53 521-A, S2
Change of Hardness