

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 48¹	100
Stearic acid	1
Filler	100/50/35
Diethylene glycol (DEG), see below	2
Adipate plasticizer²	10
Magnesium oxide³	4
Zinc oxide⁴	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: Precipitated Silica Precipitated Silicates Carbon Black All others	Loading: 35 phr 50 phr 50 phr 100 phr
Open mill Batch Temperature Time of mixing	150 x 300 mm 400 cm ³ 50 °C 20 to 25 min
Extruder Temperature of barrel Temperature of head	d = 30 mm L/D = 15 70 °C 110 °C

Applied in this test compound:

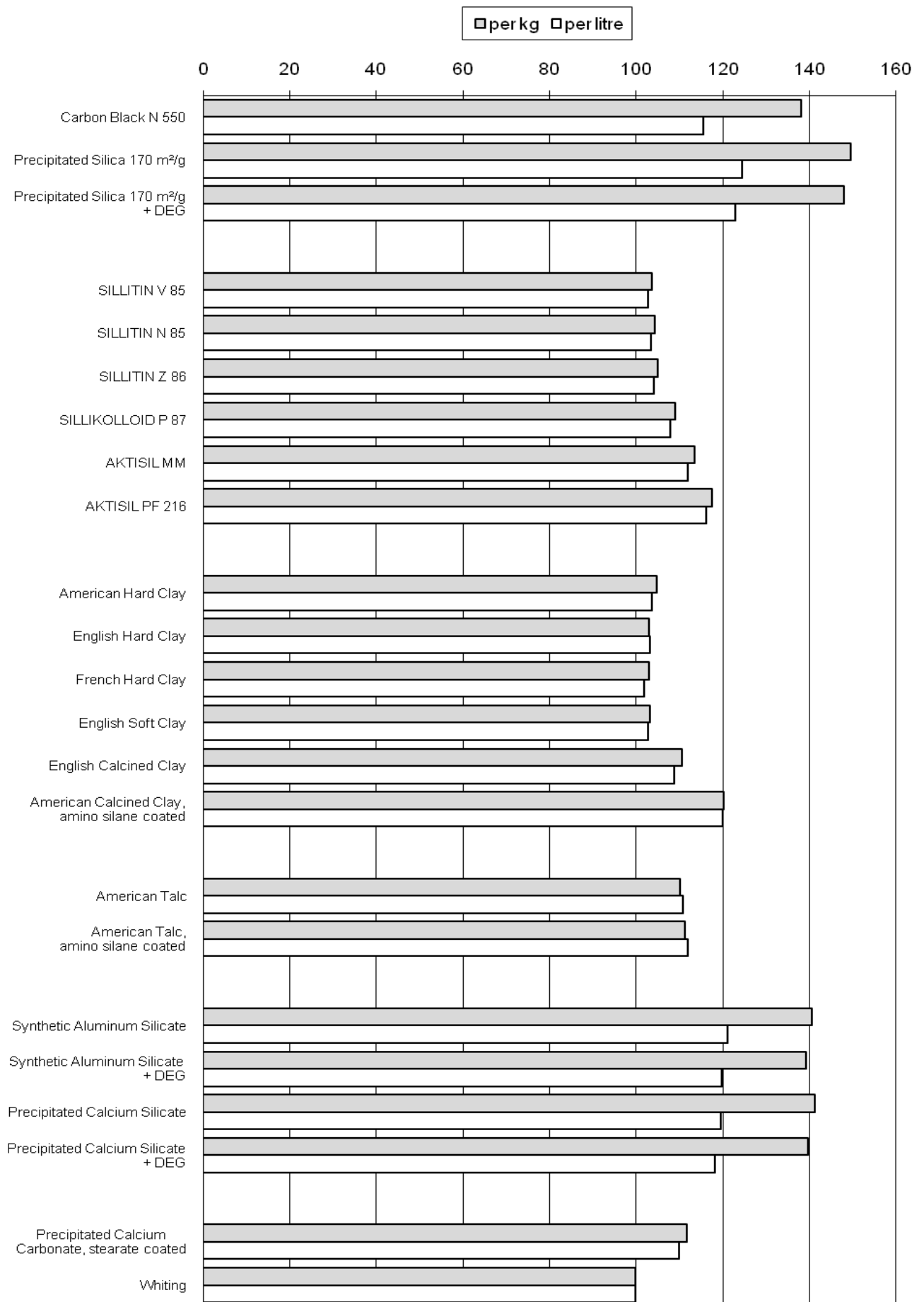
- (1) Baypren 210®, Bayer
- (2) Medioplast NB-4, Kettlitz
- (3) Maglite DE®, Marine Magnesium Company/C.P. Hall Company
- (4) Zinkoxyd aktiv®, Bayer

Contents

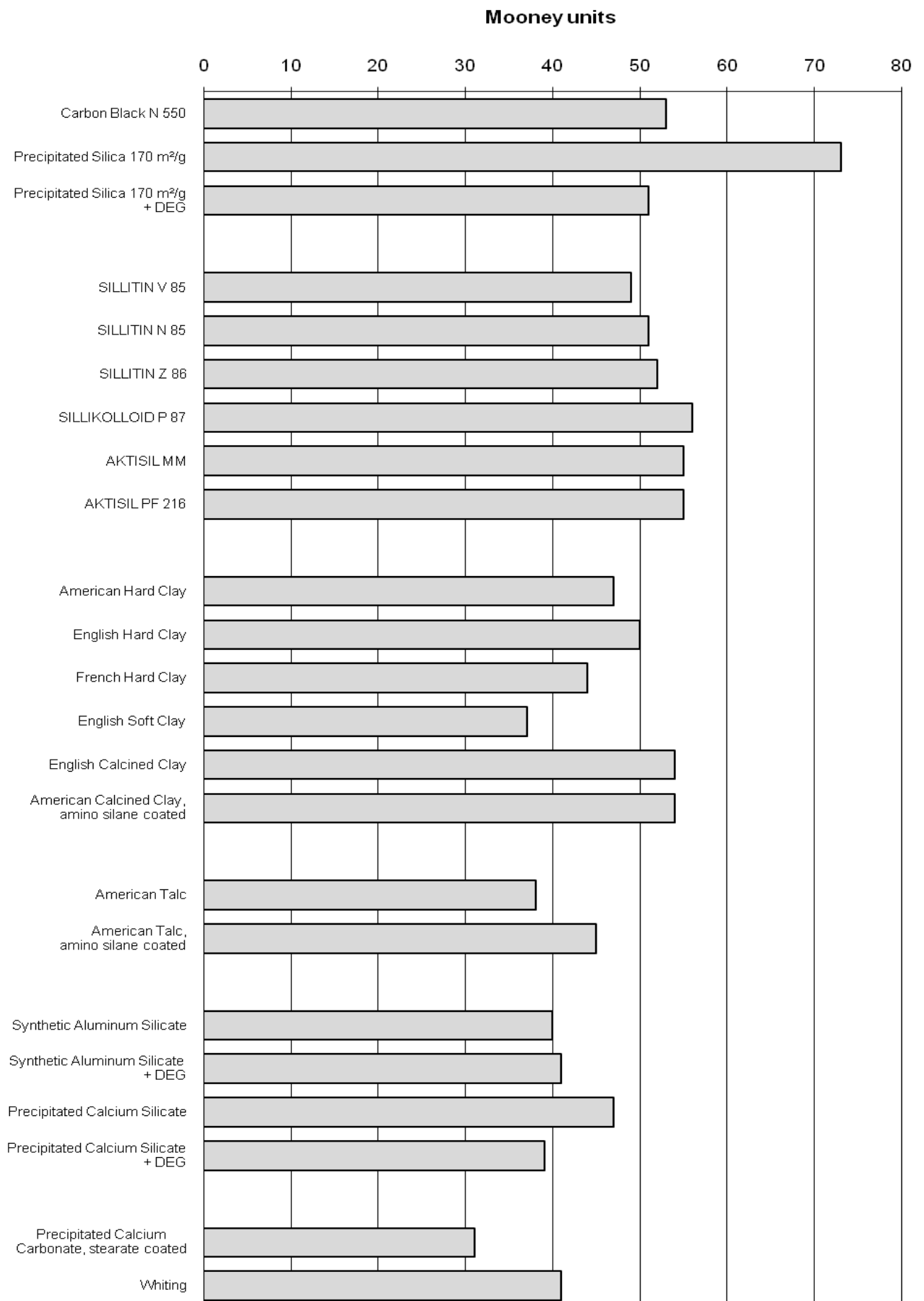
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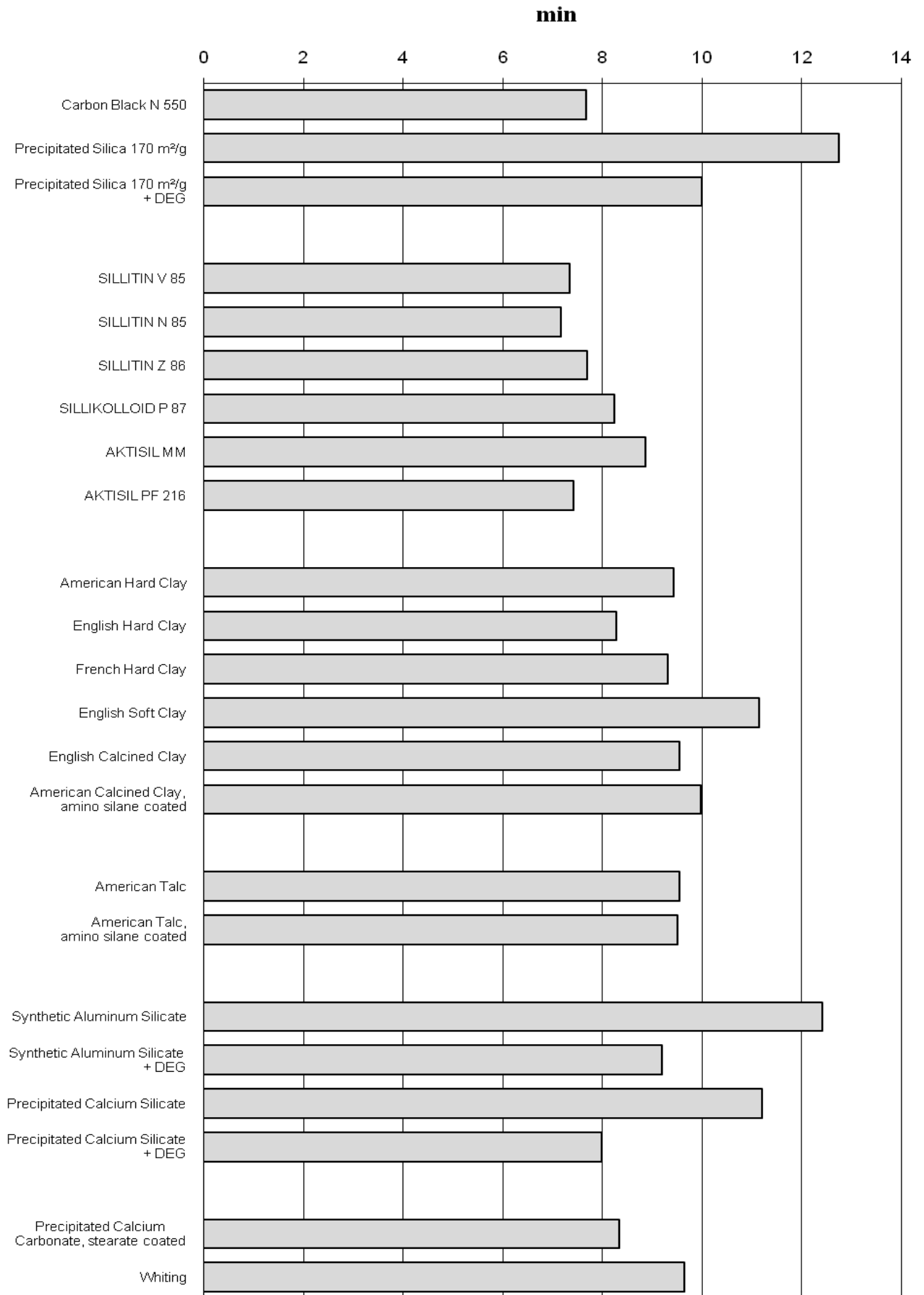
INDEX OF COMPOUND COSTS **Base: Whiting = 100 (Germany, 1993)**



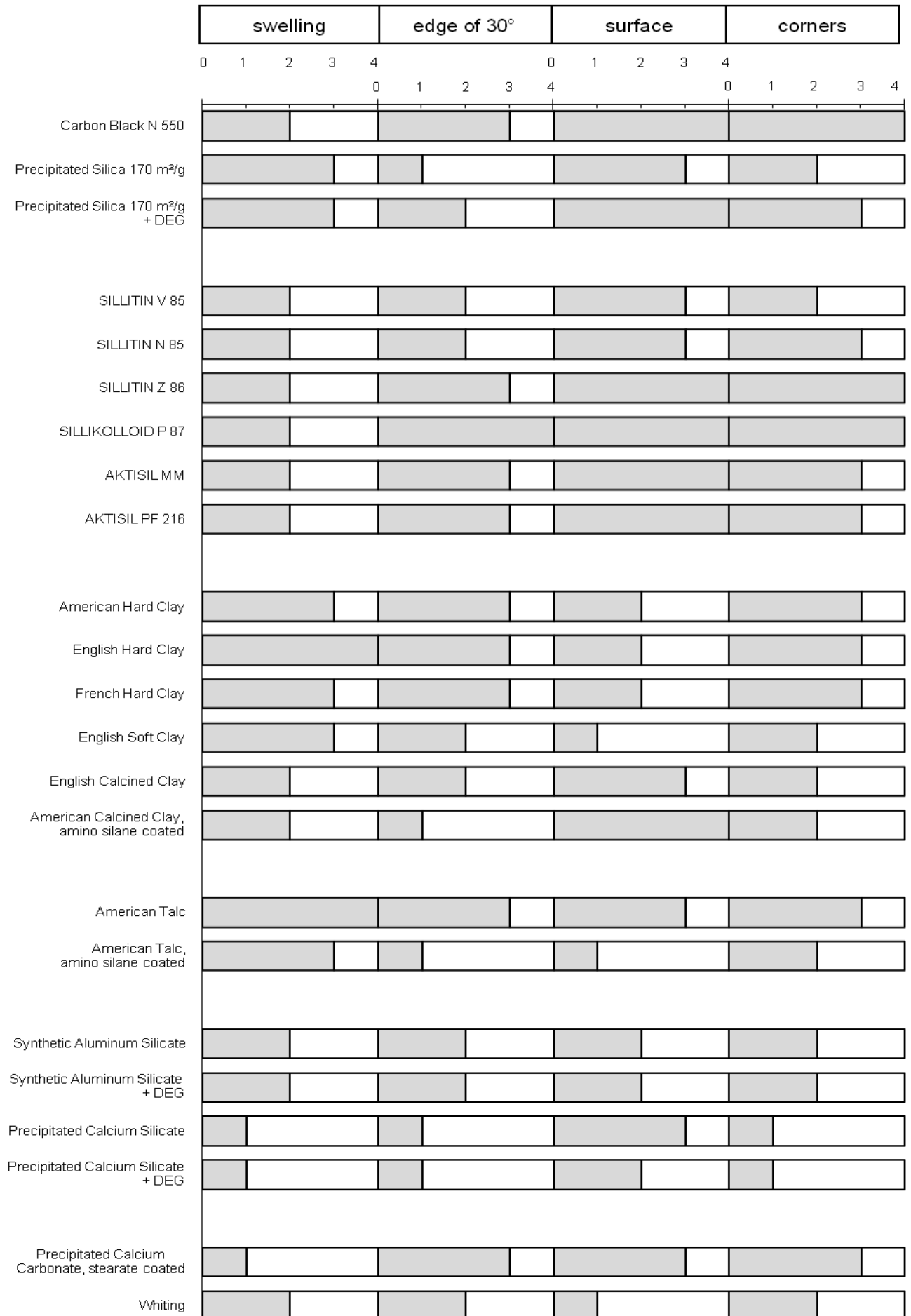
MOONEY VISCOSITY ML (1+4) at 120 °C, DIN 53 523, Part 3



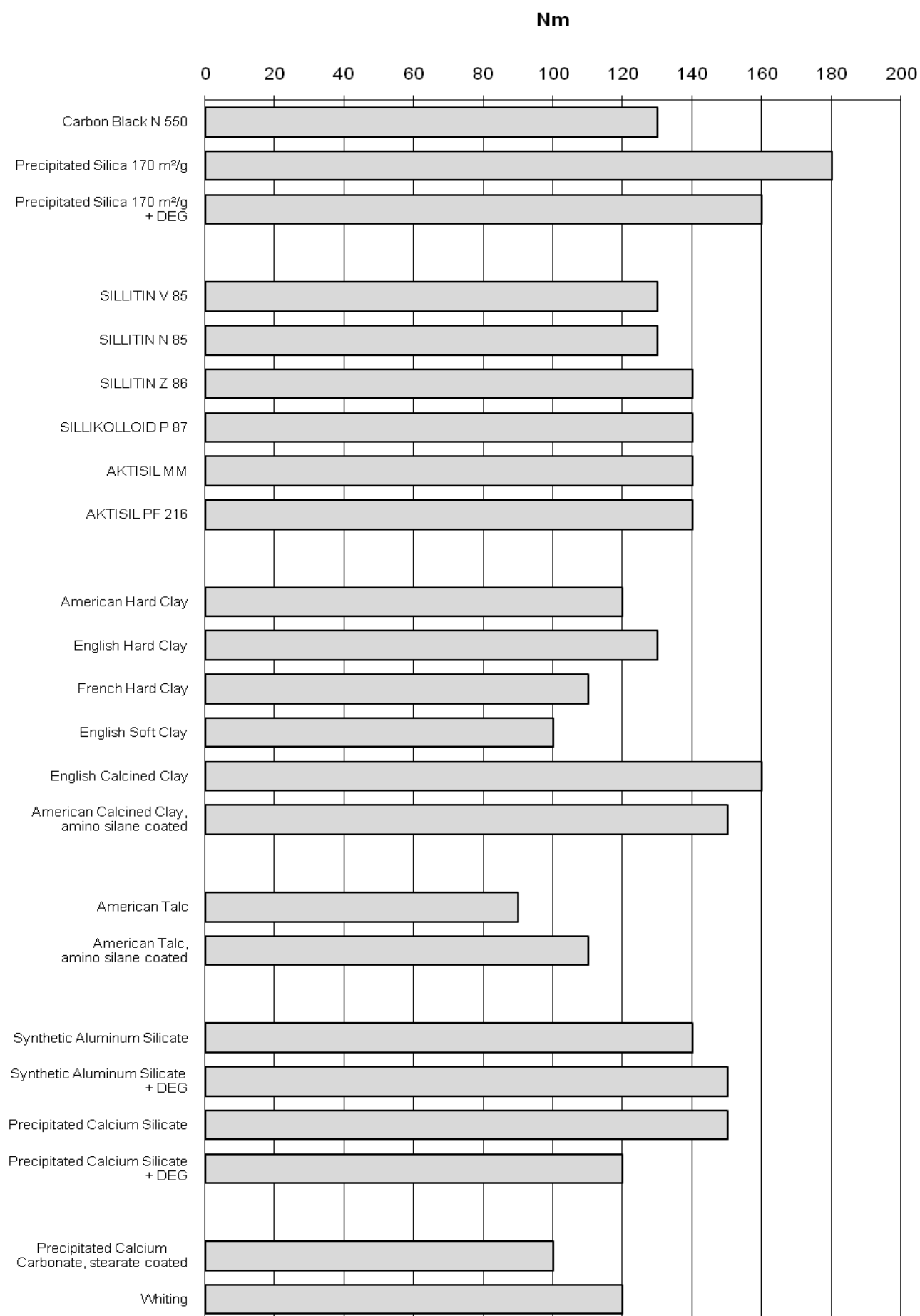
MOONEY SCORCH t_5 (ML) at 120 °C, DIN 53 523 Part 4



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

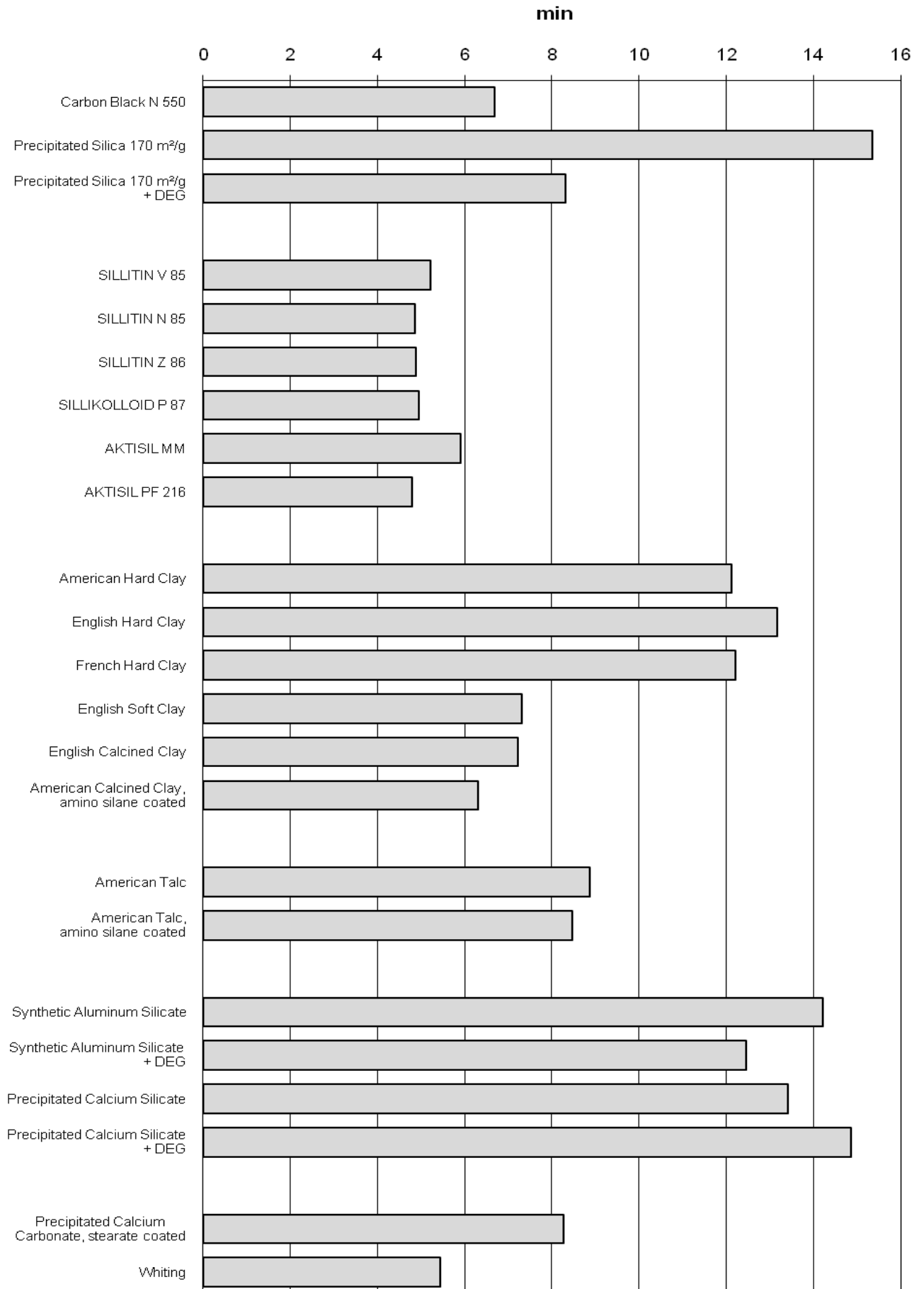


TORQUE OF EXTRUDER 1m/min Speed

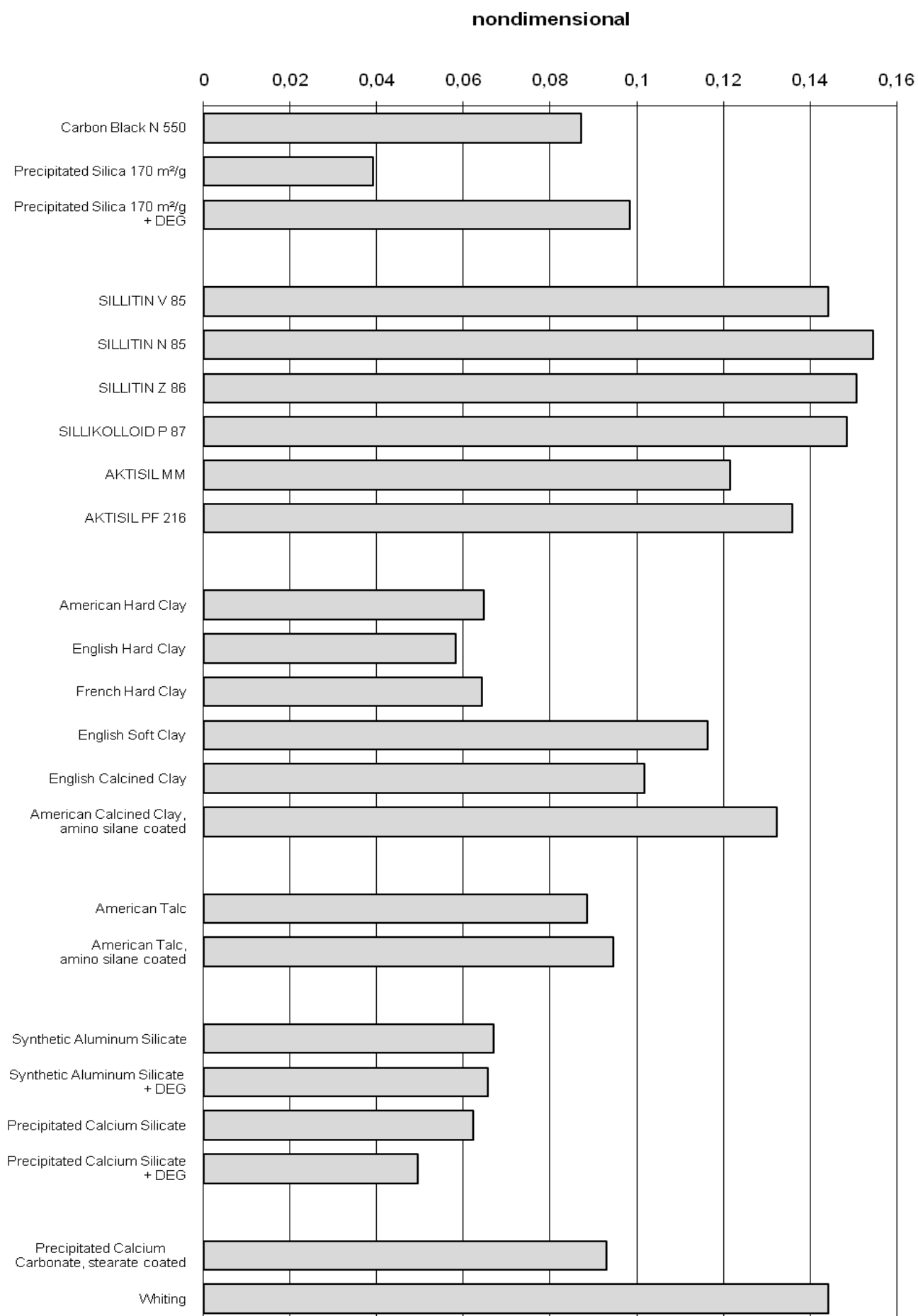


Rotorless Cure Meter, Göttfert Elastograph

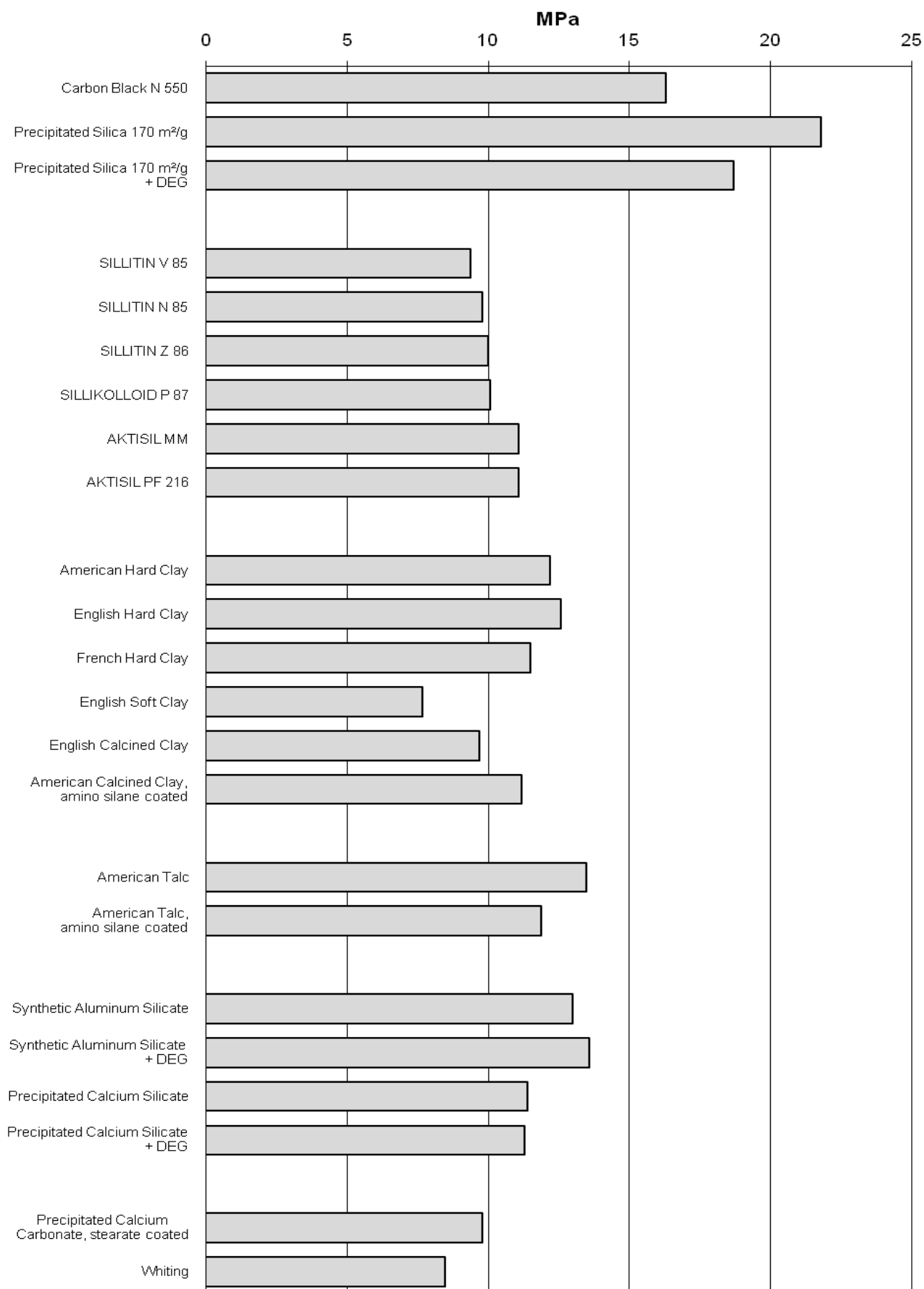
**t₉₀ at 180 °C
DIN 53 529-A3**



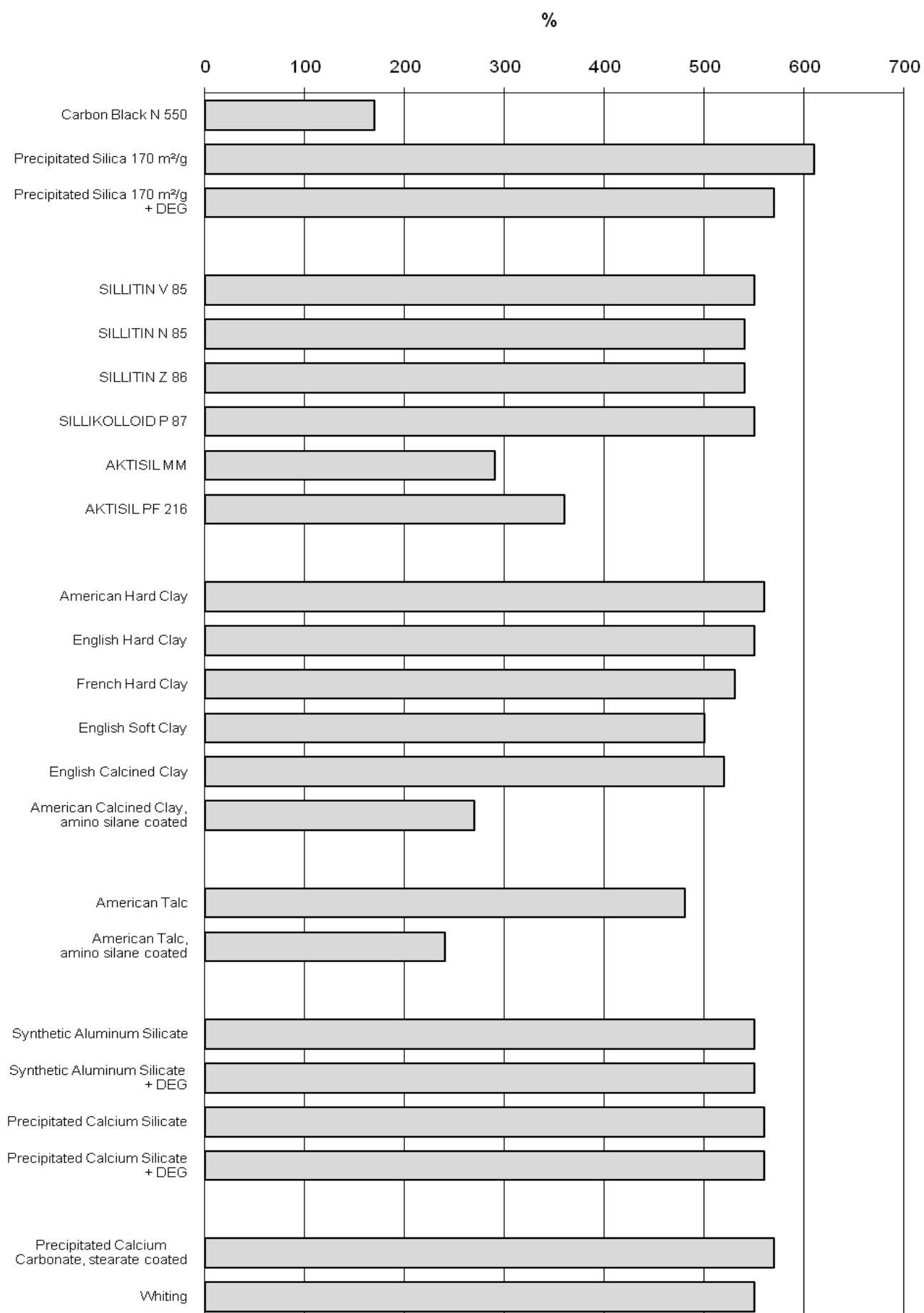
Rotorless Cure Meter, Göttfert Elastograph **ratio t_5/t_{90}**



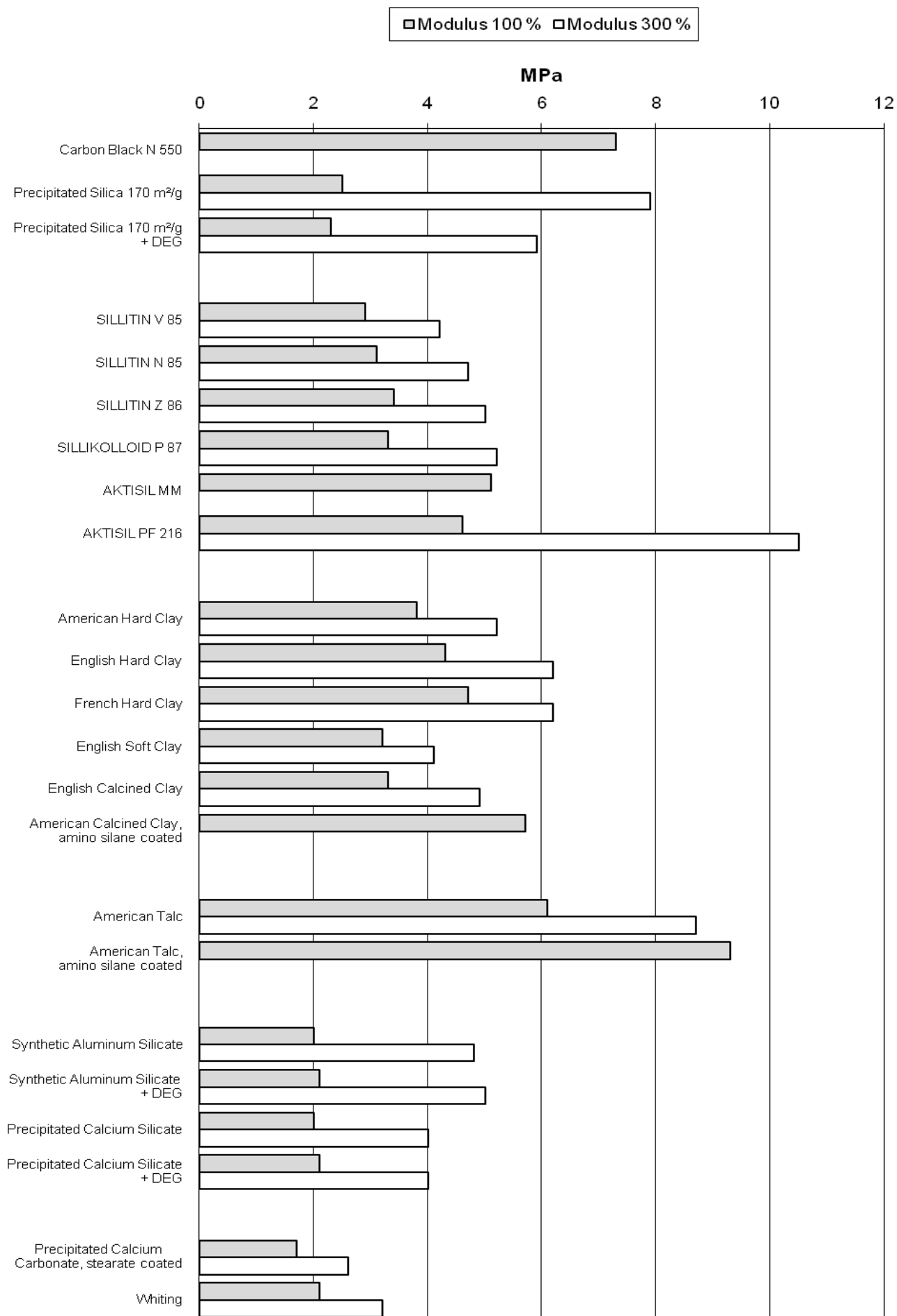
TENSILE STRENGTH DIN 53 504-S2



ELONGATION AT BREAK DIN 53 504-S2

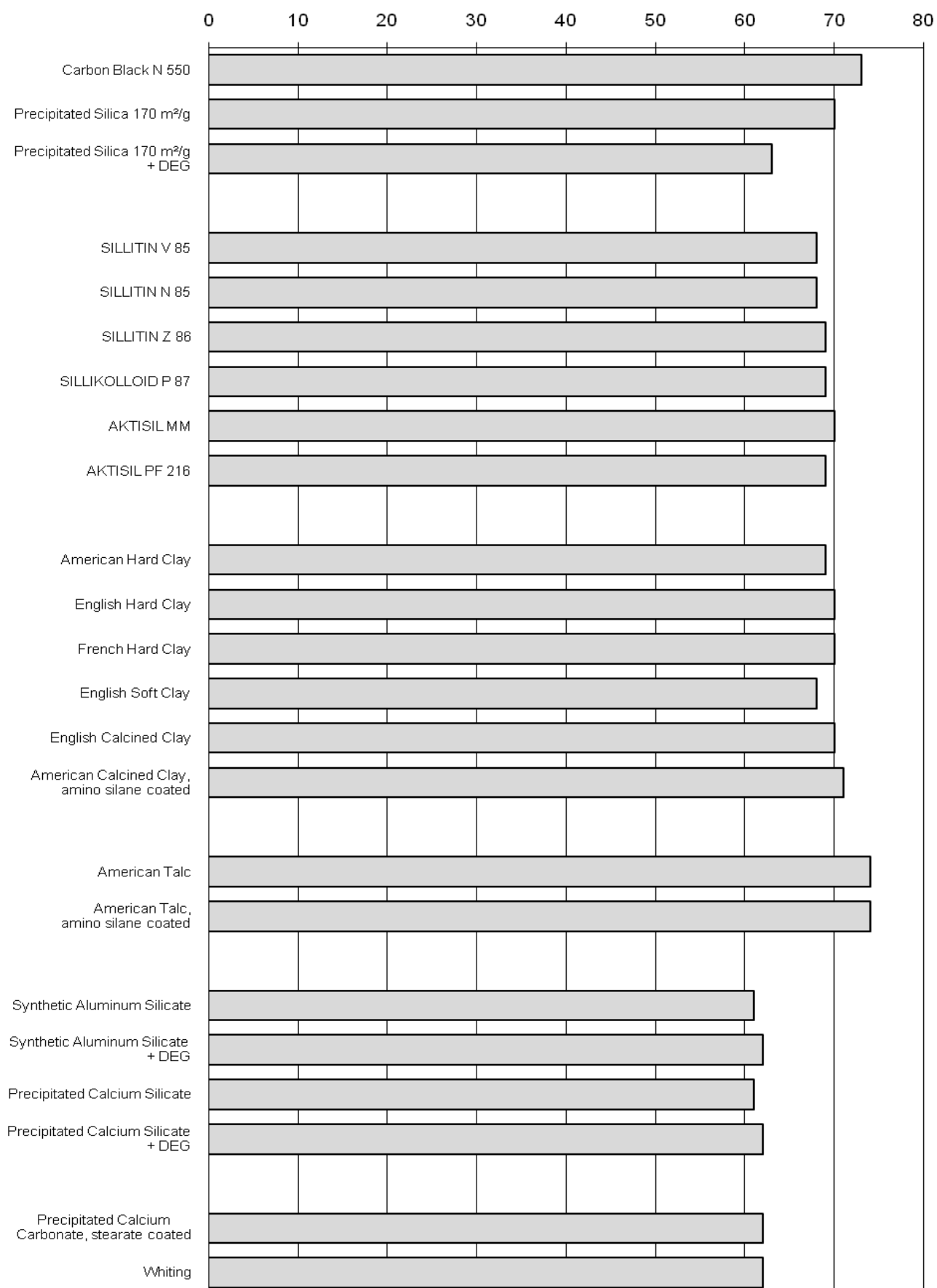


MODULUS DIN 53 504-S2

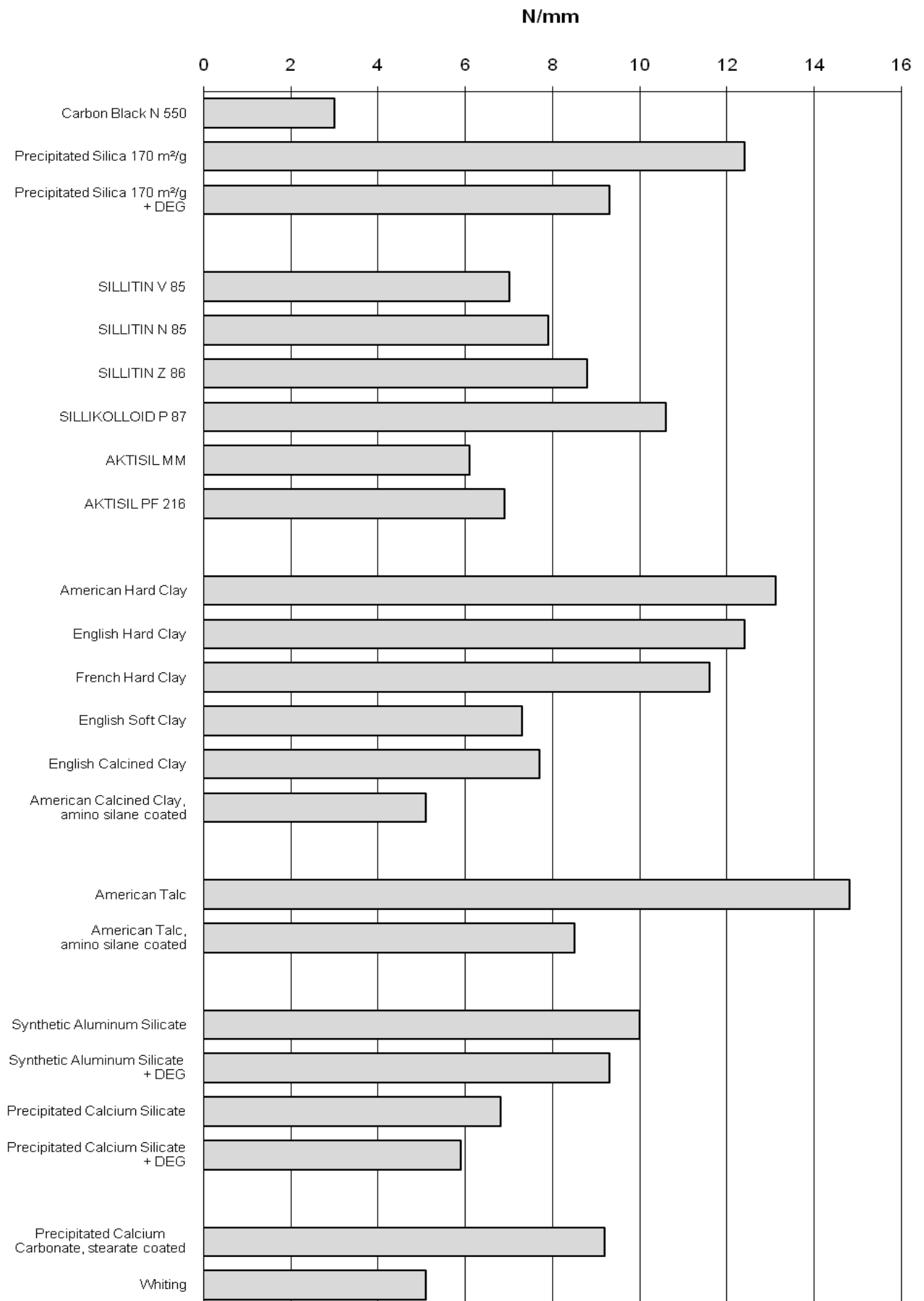


HARDNESS DIN 53 505-A

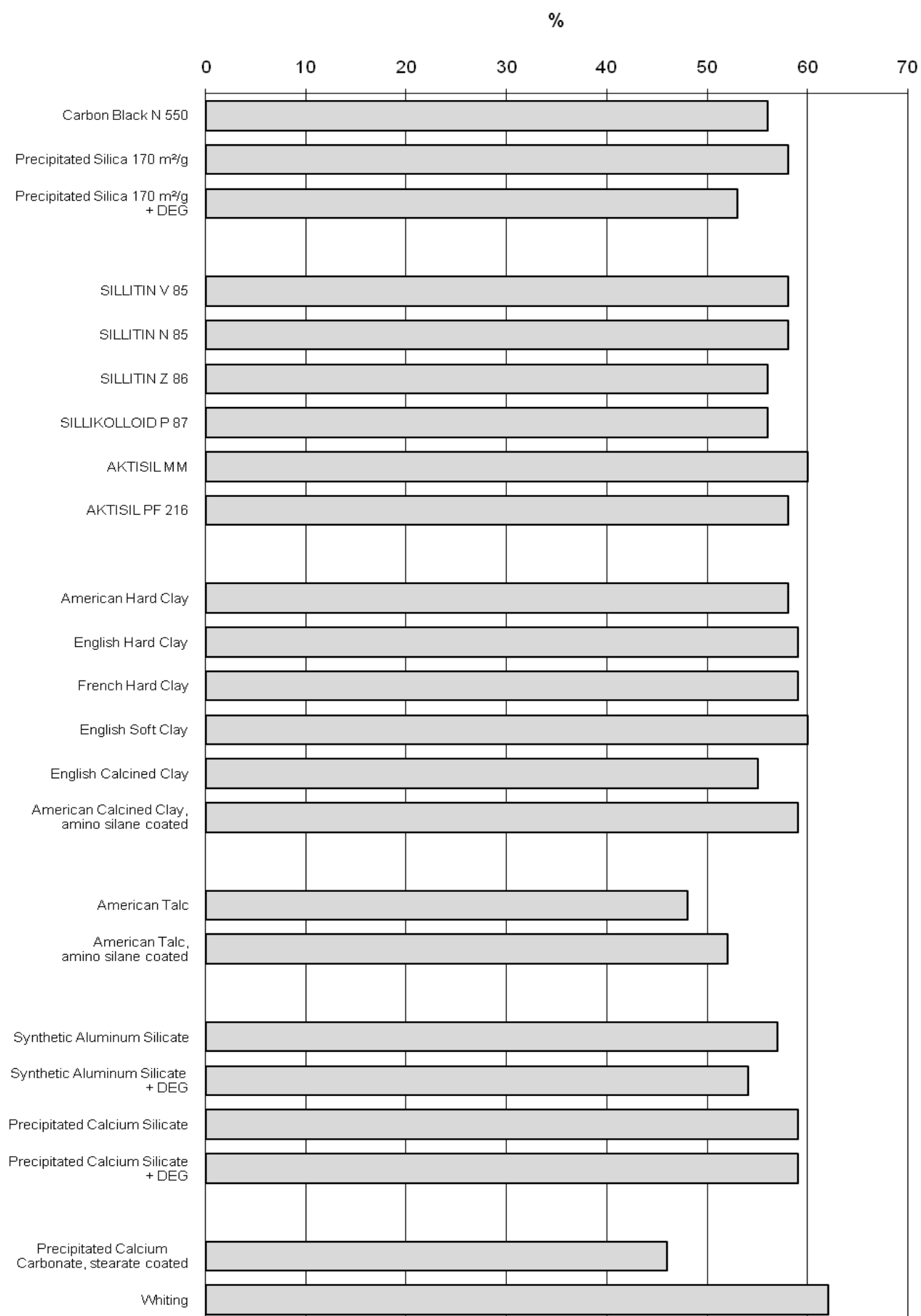
Shore A



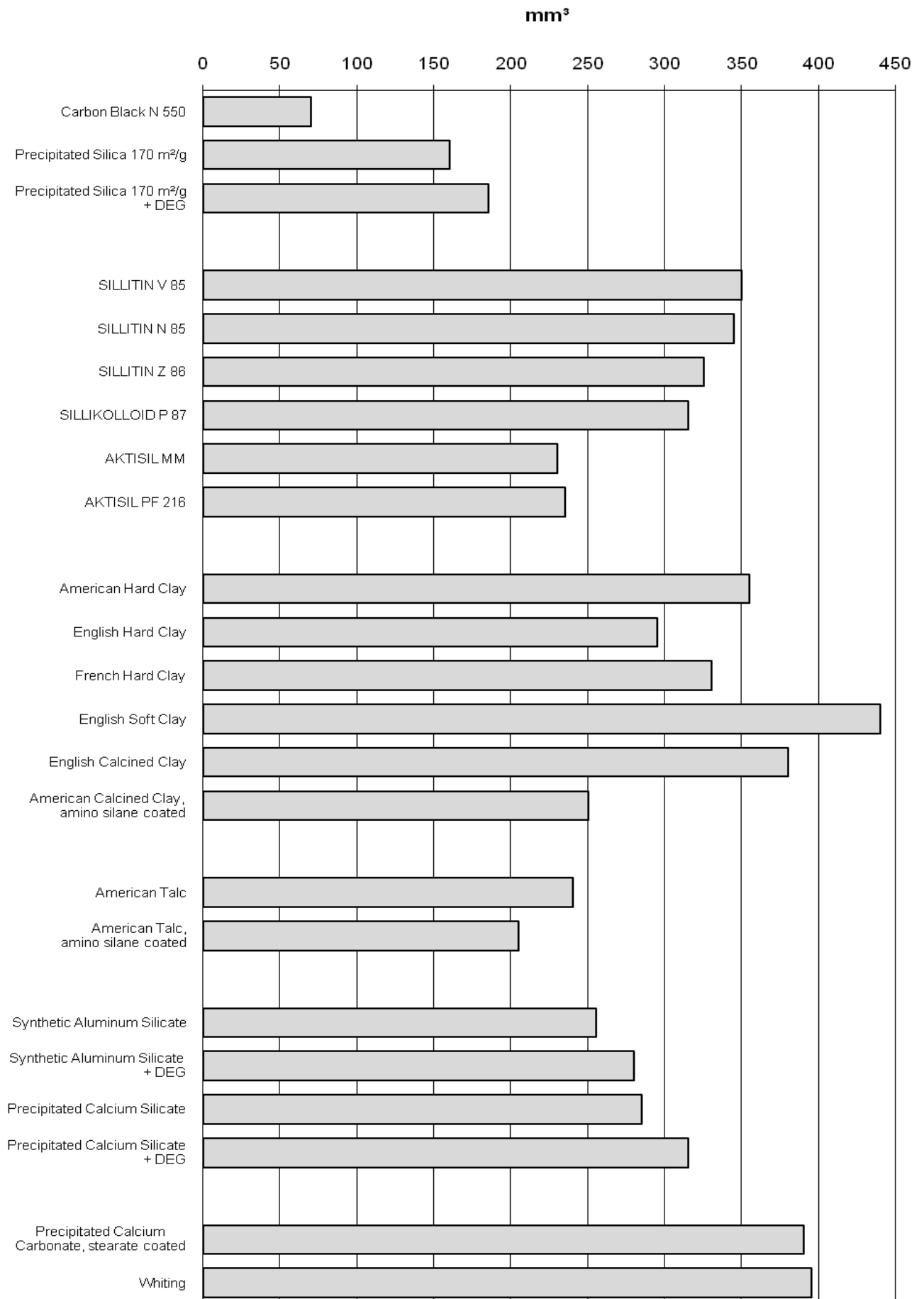
TEAR RESISTANCE DIN 53 507-A, 500 mm/min



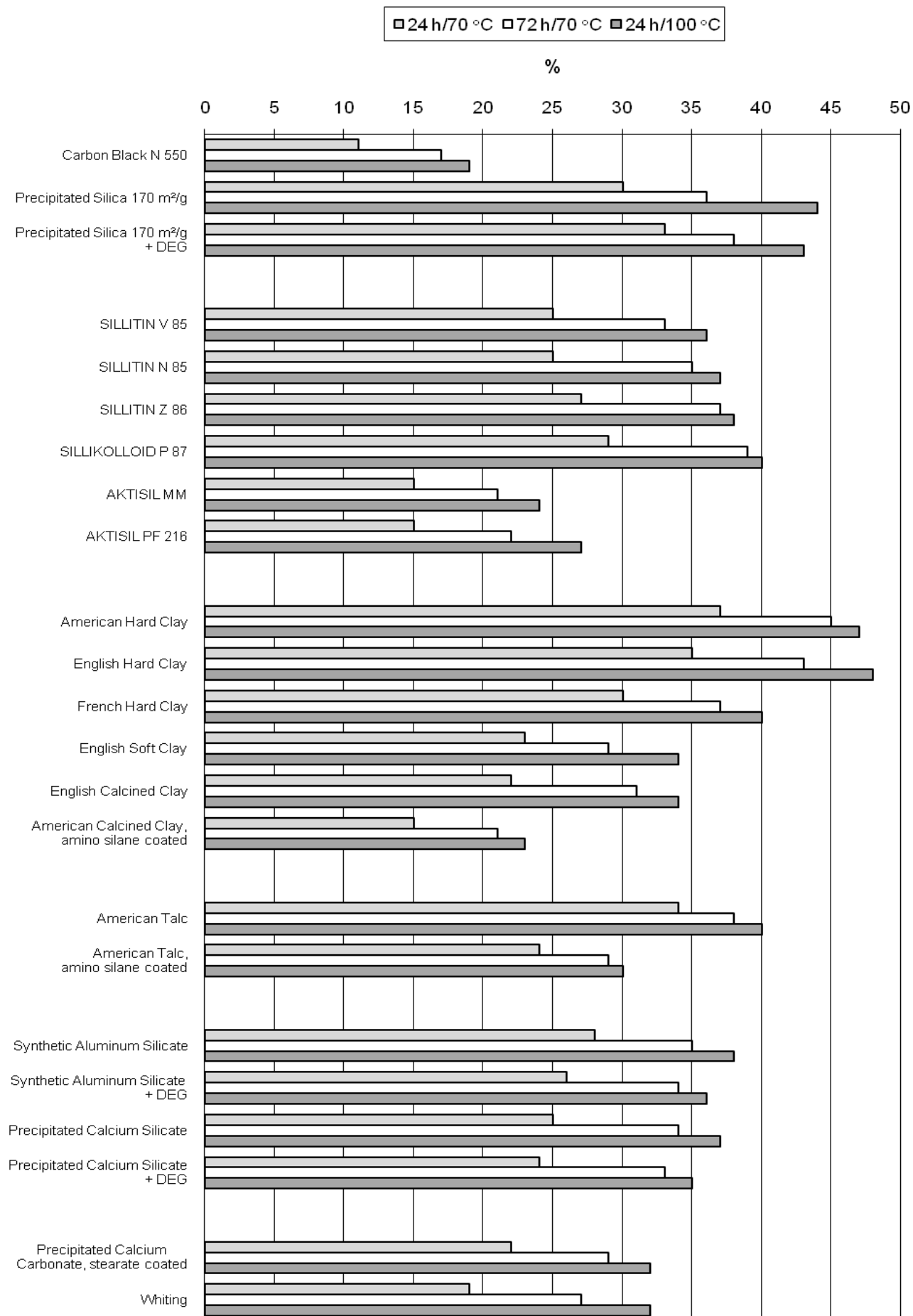
REBOUND ELASTICITY DIN 53 512



ABRASION DIN 53 516



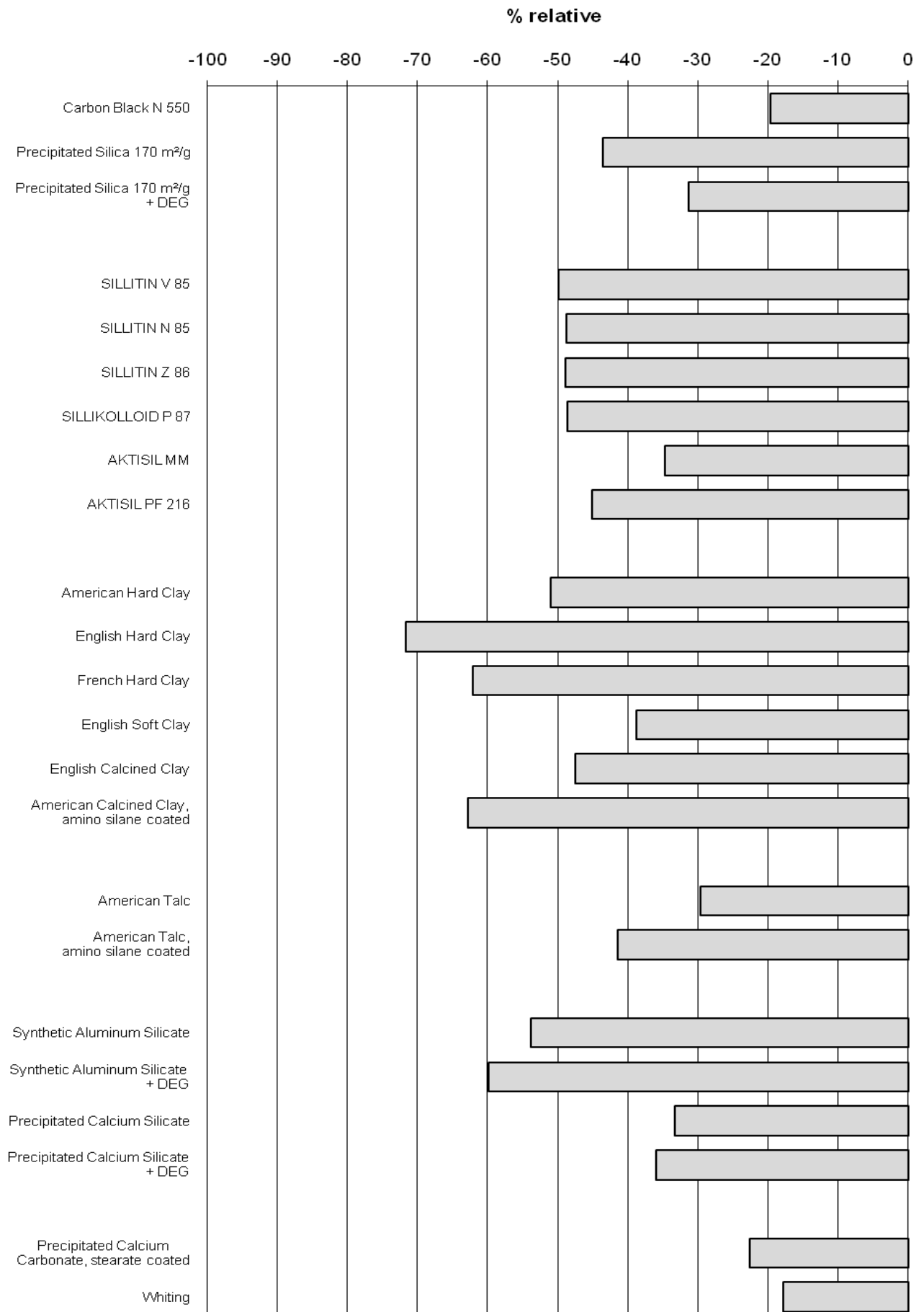
COMPRESSION SET DIN 53 517-I



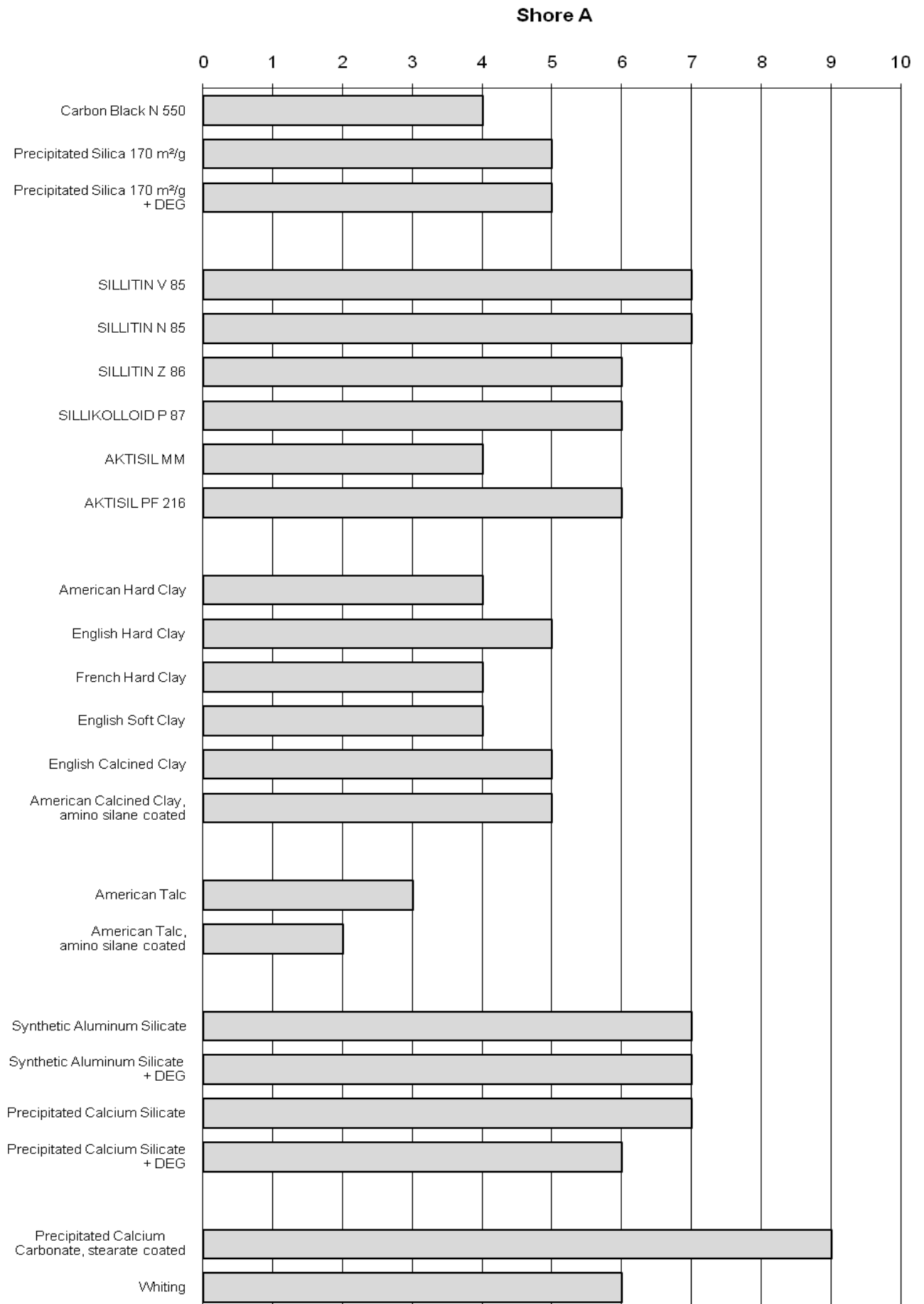
AIR AGEING, 7 d/100 °C
DIN 53 508, 5.3
Change of Tensile Strength



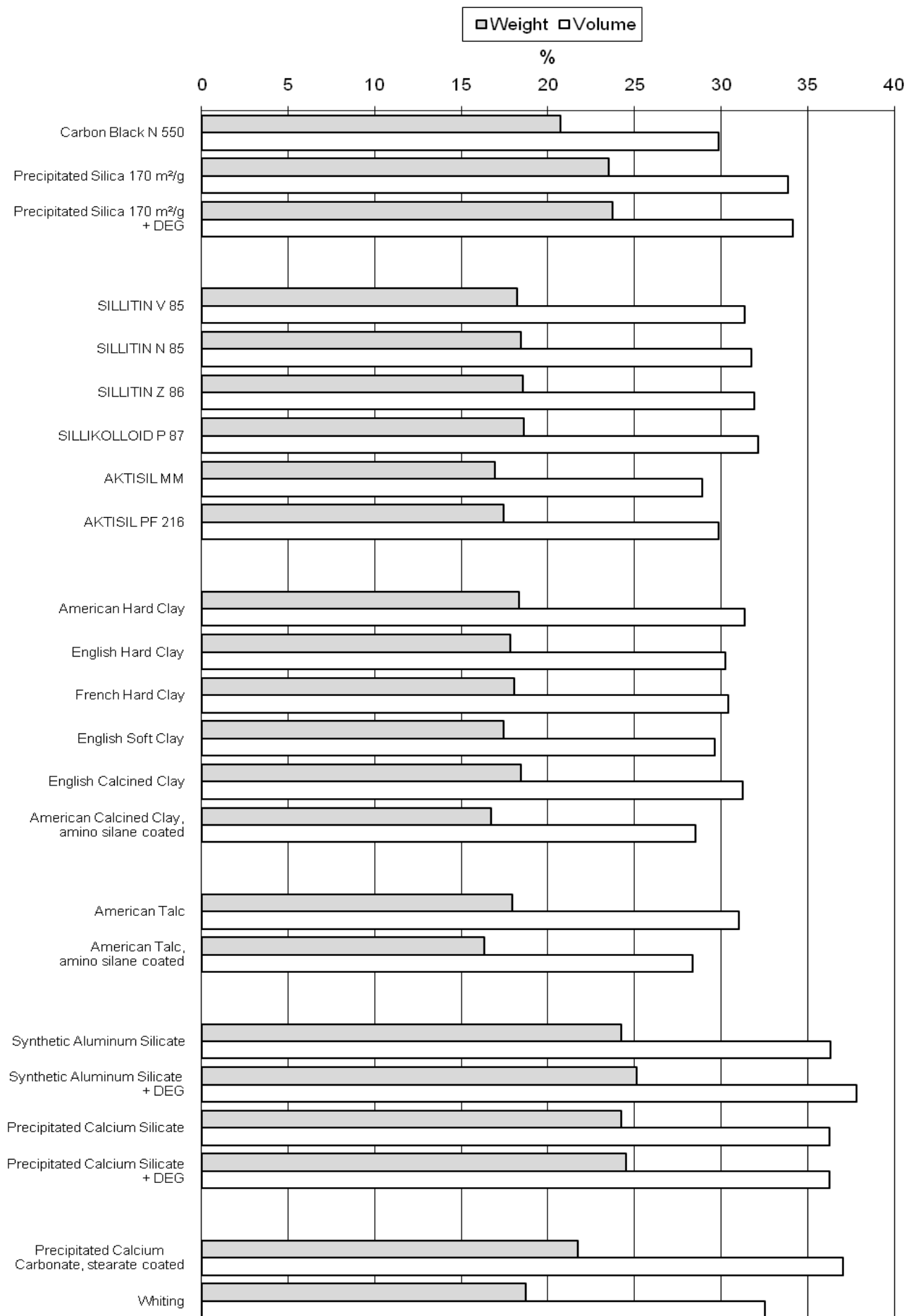
AIR AGEING, 7 d/100 °C
DIN 53 508, 5.3
Change of Elongation at Break



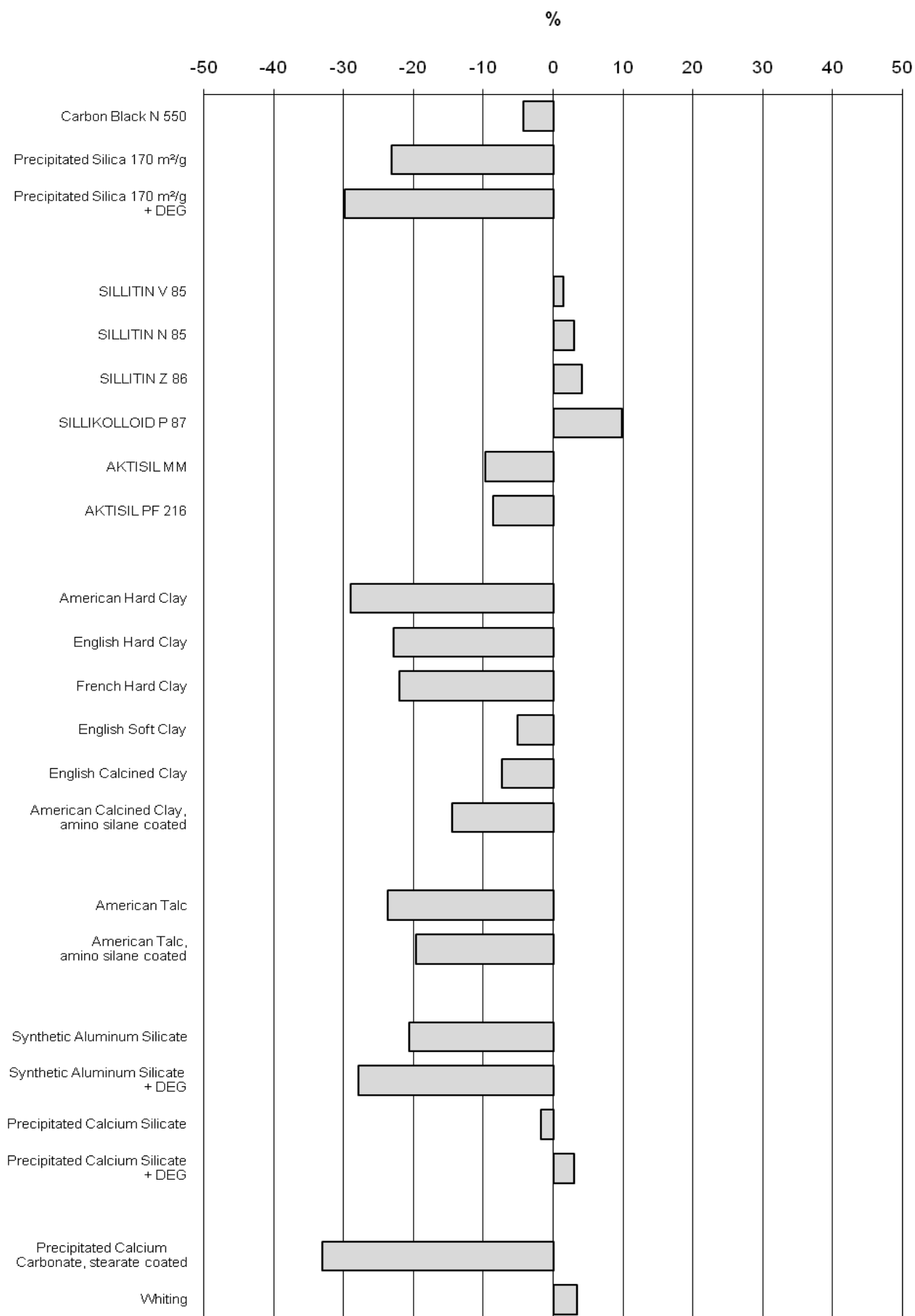
AIR AGEING, 7 d/100 °C
DIN 53 508, 5.3
Change of Hardness



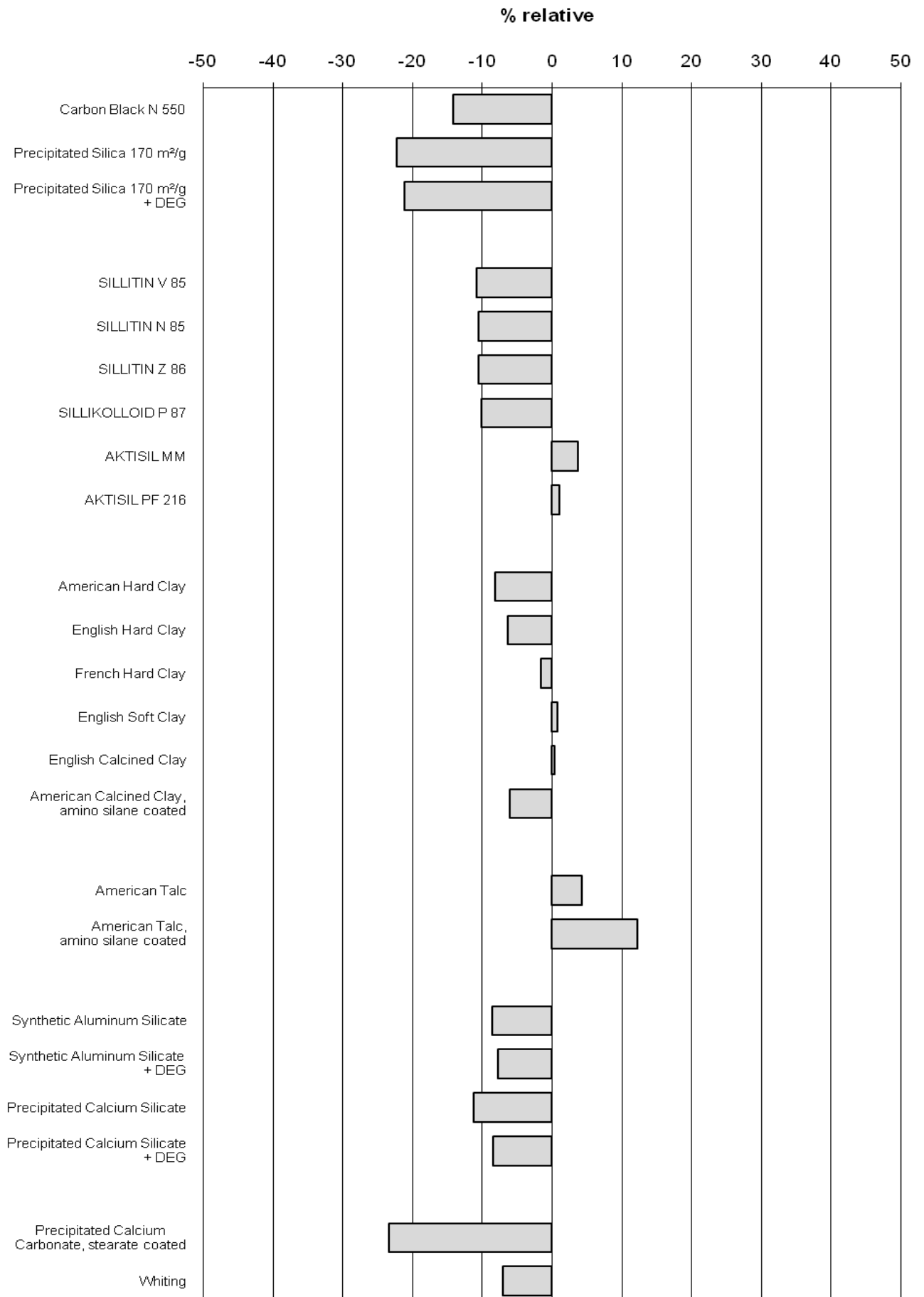
RESISTANCE TO ASTM OIL 2, 7 d/100 °C DIN 53 521-A, S2 Change of Weight and Volume



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
DIN 53 521-A, S2
Change of Elongation at Break**



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

