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**MINERAL FILLERS
 -TREATED CLAYS-
 WATER-WASHED & CALCINED**

NUCAP[®] / NULOK[®] / NYLOK[®] / POLYFIL[®] WC & WC-426

PRODUCT DESCRIPTION:

Nucap and Nulok are high quality, very clean, water-washed kaolin clays surface-modified with a coupling agent. The coupling agent modification produces a filler which chemically bonds to the elastomer enhancing many physical and processing properties. Typical coupling agents utilized are of the mercapto, polysulfide, amino and vinyl types. Some clays benefited by the water-washed process undergo an additional calcination (heat treating) process. Calcined clays can also be chemically modified with coupling agents to enhance their performance in elastomers. The treated calcined grades available are Polyfil WC, Polyfil WC-426 and Nylok 171.

All of these chemically treated clays are hard clays with very controlled physical properties such as: pH, particle size, brightness and 325 mesh sieve residue. This closely monitored process provides more consistency and allows for smoother extrudates, less sticking to hot metal surfaces, higher tensile and tear resistance and other benefits. Also, this process virtually eliminates all crystalline silica producing environmentally superior clays compared to air-floated varieties with less health hazards related to airborne dust. All grades have a 325 mesh sieve residue of < 0.005%. Water-washed clays have a specific gravity of 2.60 with calcined grade products having a slightly higher specific gravity of 2.63.

TYPICAL PROPERTIES:

Grades:	Nucap 100G	Nucap 190/W	Nucap 290/W	Nulok 390¹	Polyfil WC²	Polyfil WC-426²	Nylok 171^{1,2}
Brightness (% reflectance)	88	91	91	91	92	93	91
pH (28 % solids)	7.0	5.8	5.8	8.7	5.5	5.5	8 – 9
Moisture Content, % (max)	1.5	1.5	1.5	1.5	0.7	0.7	0.7
Med. Particle Size (µ)	0.2	0.2	0.2	0.2	1.4	0.7	1.4
Surface Area (m ² /g)	22	22	22	22	8	15	8

¹amino functional silane treated, all others sulfur-functional silane treated except Polyfil WC & WC-426 which are vinyl silane treated

² calcined clays

APPLICATIONS:

Clays are used as low cost non-black reinforcing, stiffening or extending fillers in natural and synthetic rubbers. Typical loadings are from 20 phr to 200 phr. Chemically modified clays are utilized to increase physical properties including modulus, compression set, abrasion and tear resistance while reducing die swell and heat buildup (hysteresis). Different chemical treatments of coupling agents are available. Mercapto and polysulfide modified clays are recommended for sulfur cure compounds. Vinyl and amino modified fillers are recommended for peroxides cure systems. Calcined and chemically treated grades, Polyfil WC and Nylok 171, are especially useful in high voltage electrical applications for wire and cable, specialty polymer systems and thermoplastic applications. Treated clays are used as essential cost reduction fillers partly or totally replacing silica, carbon black or titanium dioxide in numerous rubber articles and tires.

Nucap, Nulok, Nylok and Polyfil are registered trade names of KaMin LLC

wol – 3/10, t-Nucap, Nulok, Polyfil

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