Frenos Sauleda s.a.
science friction

Barri del migdia S/N - E 08396
Sant Cebrià de Vallalta (Barcelona - Spain)
sauleda@frenossauleda.com
Tel. (+34) 93 763 11 20 Fax (+34) 93 763 10 61

ID Material	45
Responsable	R. Antich
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NR

NR is friction material suitable for medium duty, wet and dry industrial applications.The material consists phenol resins. NR is fully cured and suitable for bonding and riveting. It success may be attributed to its hardness with gives it good wear and tensile strength while still achieving average and stable friction levels.NR is a material special for hydraulic applications because this material doesn't contain metallic particles.

Material data

Friction properties

Static Friction Coefficient (@15bar, from the box)	0.48±0.05 μ
Static Friction Coefficient (@15bar, 100ºC)	0.53±0.05 μ
Dynamic Friction Coefficient (10bar, 10m/s)	0.40±0.05
Wear Rate (@10bar, 15m/s)	50 (at 150 ºC)
Tº Fading (@10bar, 10m/s)	>350 °C

Physical properties

Hardness (DIN53505)	85±5 Shore-D
Specific Gravity (ASTM D792)	1.83±0.05 gr/cm3
Shear resistance (ISO 6312:2001)	22±2 N/mm²

Mechanical properties

Tensile Strength (ASTM D638)	13±5 N/mm²
Compressive Strength (ISO 844:2014)	150±5 N/mm²
Shear Modulus (ASTM D2344-00)	1534±100 N/mm²
Poison coefficient (ASTM D638)	0.27±0.03
Young Modulus (ASTM D638)	3896±100 N/mm²

Recommended Working Values

Tº Max. Continuous Operation	250 °C
Tº Max. Intermittent Operation	350 °C

Material type

Rigid

Appearance / Formats



Applications

Callipers for industrial applications · Cones segments for machinery · Friction pads for hydroelectric applications · Friction washers · Gear discs for industrial devices · Rings segments for machinery

Price Level

€ € €

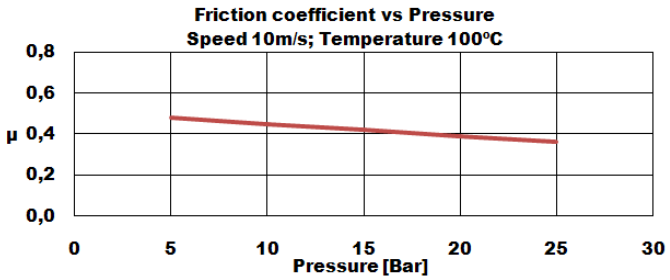
Reach (EC)1907/2023 - RoHS 2015/863/EU

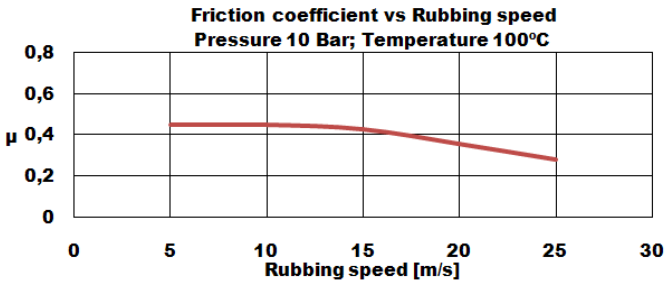
Compliance

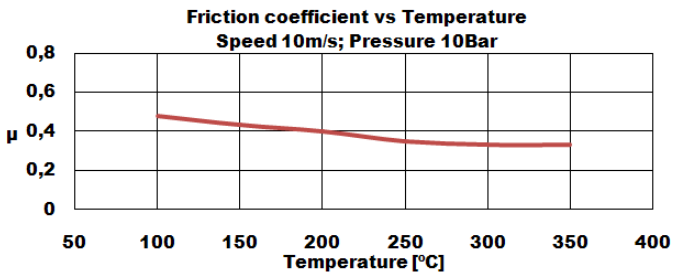
Others

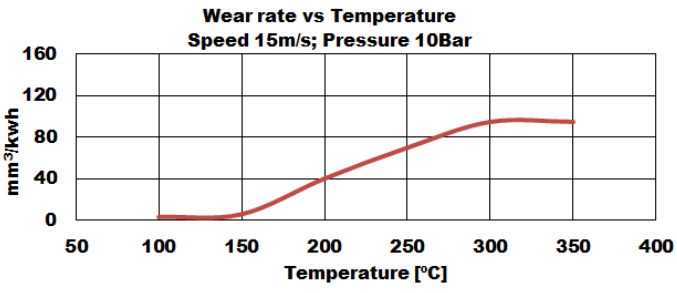
Recommended Mating Surface	Perlitic cast iron, hardness HB150-200
Recommended Adhesives	Thermosetting adhesive
Oil Resistant	Yes

Charts









Rubbing speed, temperature and pressure are related. Changing any values will change other. The values shown represent typical conditions, but are not ultimate limits of the material.