

Lip Materials

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Blue Diamond Technologies supplies the **NAK** brand which uses the highest quality raw materials to achieve high product performance, reliability and durability in each application. To achieve this a wide number of materials are now available to suit most applications demanded of NAK sealing products. In addition to these we would be happy to locate or develop a suitable compound for your specific needs. Most sealing applications can be satisfied using four major compounds.

Compound	Nitrile	Polyacrylic	Silicone	VITON®
Temperature Range °C	-40 to 120	-30 to 150	-50 to 250	-26 to 205
Abrasion Resistance	2	3	4	2
Compression Set	2	3	2	2
Cracking Resistance	3	3	1	2
Cut Growth Resistance	2	2	4	4
Flex Cracking Resistance	3	3	2	2
Impact Strength	2	4	3	3
Oxidation Resistance	2	1	1	1
Sunlight Resistance	3	1	1	1
Tear Resistance	2	4	4	3
Weathering Resistance	2	1	1	1

Key for above table: 1 = Excellent, 2 = Good, 3 = Fair, 4 = Poor

Viton® is a registered trademark of DuPont Performance Elastomers

Material	Advantages	Disadvantages	Operating Range & Appearance
Carboxylated Nitrile — XNBR	Similar properties to standard NBR, Tough,	Reduced cold temperature flexibility.	
EPDM	Excellent resistance to heat: water, steam,	Inadvisable for petroleum service.	Temperature range is -50°C to +150°C.

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Fluoroelastomer	<p>Good compression set at elevated temperatures,</p> <p>Excellent ozone, weather and aging resistance,</p> <p>High heat resistance,</p> <p>Suitable for wide range of oils and solvents, such as aliphatic, aromatic and halogenated hydrocarbons, and vegetable oils,</p>		<p>Temperature range is -26°C to 205°C,</p> <p>Generally black or brown</p>
Nitrile	<p>Versatile,</p> <p>Oil and abrasion resistant,</p> <p>Good low swell characteristics,</p> <p>Good processing,</p> <p>Relative low cost.</p>	<p>Limited high temperature capability,</p> <p>Limited high speed,</p> <p>Not suitable for synthetic oils such as phosphate ester.</p>	<p>Temperature range is -40°C to 120°C,</p> <p>Other formulations can cope with higher and lower temperatures,</p> <p>Generally black but red is also common as Silicone substitute.</p>
Polyacrylate — ACM	<p>High temperature 150°C,</p> <p>Good resistance to oils,</p> <p>Good ageing,</p>	<p>Lower resistance to water,</p> <p>Poor processing,</p> <p>Low temperature range.</p>	<p>Temperature range is -30°C to 150°C,</p> <p>Black with similar appearance to Nitrile.</p>
Silicone	<p>Wide temperature range -50°C to +250°C,</p> <p>Flexibility,</p> <p>High absorbance of lubricant minimises friction.</p>	<p>Low tear strength,</p> <p>Poor abrasion,</p> <p>Poor resistance to oxidised oils or to EP additives.</p>	<p>Temperature range is -50°C to 250°C,</p> <p>Generally red, feels softer and more flexible than other Materials.</p>