



**Engineered Plastics Solutions Group, Inc.**

**DuraFlex®**



**Low Temperature Rise, High Abrasion Resistance Rubber**

## Compound DF3050 NR/BR

### Description:

DuraFlex® is a line of rubber compounds that exhibit low temperature rise when flexed. The material was invented by EPSG Inc. (Engineered Plastics Solutions Group) in 2010 to be a high fatigue life, high abrasion resistance, low temperature rise rubber for use in tire applications.

### Properties:

DuraFlex® is unique from other rubber materials in that it builds up very little internal heat while being flexed. Other rubber materials exhibit higher heat rise when flexed which leads to a shorter life. DuraFlex® accomplishes this with its proprietary ingredients. Notable properties include:

- Achieves a **2.2°C (4°F)** temperature rise on the Goodrich Flexometer Test
- High Abrasion Resistance
- Can be Compression Molded, Transfer Molded, or Injection Molded
- Available in different pre-forms

## DF3050 Specification, page 1 of 2

### Original Physical Properties, ASTM D 412-98a(02)<sup>E1</sup>, D2240-05

Die C dumbbells tested at 50.8 cm/min (20 in/min) at 40.6°C (73°F)

Shore A Durometer, Points	50 +/- 5	Tensile Strength	21.46 MPa (3113 psi)
Ultimate Elongation	709%		
50% Modulus	0.72 MPa (104 psi)		
100% Modulus	1.17 MPa (169 psi)		
200% Modulus	2.25 MPa (326 psi)		
300% Modulus	3.65 MPa (530 psi)		

### Rheometer Data @ 150°C

Scorch Time	1.47 min	Maximum Torque	72.60 Nm (53.55 ft lbs)
Time to 50% Cure, tc50	2.57 min	Minimum Torque	10.78 Nm (7.95 ft lbs)
Cure Time, tc90	3.97 min		



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**DF3050 Specification page 2**

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**Cure Time @ 150°C (302°F)**

Slabs	6 min	DIN Abrasion	9 min
Buttons	20 min	Goodrich Flexometer	9 min

**Heat-Aged Properties, ASTM D 573-04**

Specimen aged 70 hours at 70°C (158°F) in a forced air oven.

Shore A Durometer, Points	+2	Tensile Strength	+0.0124 MPa (+ 1.8 psi)
Ultimate Elongation	-1.2%		

**Compression Set, ASTM D 395-03, Method B**

Specimen aged 22 hours at 100°C (212°F), 25% deflection, 1/2 hour recovery 17.3%

**Ozone Resistance, ASTM D 1171, Method B**

20% elongation, specimen exposed 70 hours at 50 pphm at 50°C No Cracks

**Din Abrasion**

Range	125-160	Median	144
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**Goodrich Flexometer, ASTM D 623-07, Method A**

Stroke 4.44 mm (0.175 in), Speed 1800cpm, Load 0.986 MPa (146 psi)

Shore A Durometer, Points	47	<b><u>Temperature Rise</u></b>	<b><u>2.2°C (4°F)</u></b>
Static Deflection	27.2%		
Dynamic Deflection	16.6%		
Set	3.6%		