## **Mechanical tensile test results**

The Figures below display the results of the mechanical tensile tests conducted on various elastomer materials according to the ASTM D412-16 standard at three different strain rates. The elastomer materials included in this test group, in order, are Natural Rubber 60±5 shore A (NR60), Ethylene Propylene Diene Monomer rubber 60±5 shore A (EPDM60), Neoprene Rubber 60±5 shore A (NEO60), Cold Castable Polyether 60±5 shore A (CCP60), and Cold Castable Polyether 80±5 shore A (CCP80).

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| **Figure 1:** Engineering stress-strain curve of the Natural Rubber 60±5 shore A (NR60) at standard strain rate.  ***Note:*** The standard strain rate indicates that the NR60 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 2:** Engineering stress-strain curve of the Natural Rubber 60±5 shore A (NR60) at standard strain rate.  ***Note:*** The standard strain rate indicates that the NR60 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 3:** Engineering stress-strain curve of the Natural Rubber 60±5 shore A (NR60) at standard strain rate.  ***Note:*** The standard strain rate indicates that the NR60 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 4:** Engineering stress-strain curve of the Natural Rubber 60±5 shore A (NR60) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the NR60 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |

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| **Figure 5:** Engineering stress-strain curve of the Natural Rubber 60±5 shore A (NR60) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the NR60 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |

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| **Figure 6:** Engineering stress-strain curve of the Natural Rubber 60±5 shore A (NR60) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the NR60 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |

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| **Figure 7:** Engineering stress-strain curves of the Natural Rubber 60±5 shore A (NR60) at standard and moderate strain rates.  ***Note:*** The standard and moderate strain rates indicate that the NR60 samples are tensioned at a velocity of 8mm/s and 16mm/s, respectively. These two strain rates (0.32 and 0.64) were achieved by setting the crosshead velocity of the tensile testing machine to the 8mm/s and 16mm/s, respectively. |

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| **Figure 8:** Engineering stress-strain curve of the Ethylene Propylene Diene Monomer rubber 60±5 shore A (EPDM60) at standard strain rate.  ***Note:*** The standard strain rate indicates that the EPDM60 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 9:** Engineering stress-strain curve of the Ethylene Propylene Diene Monomer rubber 60±5 shore A (EPDM60) at standard strain rate.  ***Note:*** The standard strain rate indicates that the EPDM60 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 10:** Engineering stress-strain curve of the Ethylene Propylene Diene Monomer rubber 60±5 shore A (EPDM60) at standard strain rate.  ***Note:*** The standard strain rate indicates that the EPDM60 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 11:** Engineering stress-strain curve of the Ethylene Propylene Diene Monomer rubber 60±5 shore A (EPDM60) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the EPDM60 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |

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| **Figure 12:** Engineering stress-strain curve of the Ethylene Propylene Diene Monomer rubber 60±5 shore A (EPDM60) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the EPDM60 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |

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| **Figure 13:** Engineering stress-strain curve of the Ethylene Propylene Diene Monomer rubber 60±5 shore A (EPDM60) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the EPDM60 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |

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| **Figure 14:** Engineering stress-strain curves of the Ethylene Propylene Diene Monomer rubber 60±5 shore A (EPDM60) at standard and moderate strain rates.  ***Note:*** The standard and moderate strain rates indicate that the EPDM60 samples are tensioned at a velocity of 8mm/s and 16mm/s, respectively. These two strain rates (0.32 and 0.64) were achieved by setting the crosshead velocity of the tensile testing machine to the 8mm/s and 16mm/s, respectively. |

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| **Figure 15:** Engineering stress-strain curve of the Neoprene Rubber 60±5 shore A (NEO60) at standard strain rate.  ***Note:*** The standard strain rate indicates that the NEO60 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 16:** Engineering stress-strain curve of the Neoprene Rubber 60±5 shore A (NEO60) at standard strain rate.  ***Note:*** The standard strain rate indicates that the NEO60 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 17:** Engineering stress-strain curve of the Neoprene Rubber 60±5 shore A (NEO60) at standard strain rate.  ***Note:*** The standard strain rate indicates that the NEO60 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 18:** Engineering stress-strain curve of the Neoprene Rubber 60±5 shore A (NEO60) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the NEO60 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |

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| **Figure 19:** Engineering stress-strain curve of the Neoprene Rubber 60±5 shore A (NEO60) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the NEO60 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |

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| **Figure 20:** Engineering stress-strain curve of the Neoprene Rubber 60±5 shore A (NEO60) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the NEO60 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |

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| **Figure 21:** Engineering stress-strain curves of the Neoprene Rubber 60±5 shore A (NEO60) at standard and moderate strain rates.  ***Note:*** The standard and moderate strain rates indicate that the NEO60 samples are tensioned at a velocity of 8mm/s and 16mm/s, respectively. These two strain rates (0.32 and 0.64) were achieved by setting the crosshead velocity of the tensile testing machine to the 8mm/s and 16mm/s, respectively. |

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| **Figure 22:** Engineering stress-strain curve of the Cold Castable Polyether 60±5 shore A (CCP60) at standard strain rate.  ***Note:*** The standard strain rate indicates that the CCP60 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 23:** Engineering stress-strain curve of the Cold Castable Polyether 60±5 shore A (CCP60) at standard strain rate.  ***Note:*** The standard strain rate indicates that the CCP60 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 24:** Engineering stress-strain curve of the Cold Castable Polyether 60±5 shore A (CCP60) at standard strain rate.  ***Note:*** The standard strain rate indicates that the CCP60 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 25:** Engineering stress-strain curve of the Cold Castable Polyether 60±5 shore A (CCP60) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the CCP60 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |

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| **Figure 26:** Engineering stress-strain curve of the Cold Castable Polyether 60±5 shore A (CCP60) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the CCP60 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |

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| **Figure 27:** Engineering stress-strain curve of the Cold Castable Polyether 60±5 shore A (CCP60) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the CCP60 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |

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| **Figure 28:** Engineering stress-strain curves of the Cold Castable Polyether 60±5 shore A (CCP60) at standard and moderate strain rates.  ***Note:*** The standard and moderate strain rates indicate that the CCP60 samples are tensioned at a velocity of 8mm/s and 16mm/s, respectively. These two strain rates (0.32 and 0.64) were achieved by setting the crosshead velocity of the tensile testing machine to the 8mm/s and 16mm/s, respectively. |

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| **Figure 29:** Engineering stress-strain curves of the Cold Castable Polyether 80±5 shore A (CCP80) at standard strain rate.  ***Note:*** The standard strain rate indicates that the CCP80 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 30:** Engineering stress-strain curves of the Cold Castable Polyether 80±5 shore A (CCP80) at standard strain rate.  ***Note:*** The standard strain rate indicates that the CCP80 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 31:** Engineering stress-strain curves of the Cold Castable Polyether 80±5 shore A (CCP80) at standard strain rate.  ***Note:*** The standard strain rate indicates that the CCP80 sample is tensioned at a velocity of 8mm/s. This strain rate (0.32) was achieved by setting the crosshead velocity of the tensile testing machine to 8mm/s. |

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| **Figure 32:** Engineering stress-strain curves of the Cold Castable Polyether 80±5 shore A (CCP80) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the CCP80 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |

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| **Figure 33:** Engineering stress-strain curves of the Cold Castable Polyether 80±5 shore A (CCP80) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the CCP80 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |

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| **Figure 34:** Engineering stress-strain curves of the Cold Castable Polyether 80±5 shore A (CCP80) at moderate strain rate.  ***Note:*** The moderate strain rate indicates that the CCP80 sample is tensioned at a velocity of 16mm/s. This strain rate (0.64) was achieved by setting the crosshead velocity of the tensile testing machine to 16mm/s. |
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| **Figure 35:** Engineering stress-strain curves of the Cold Castable Polyether 80±5 shore A (CCP80) at standard and moderate strain rates.  ***Note:*** The standard and moderate strain rates indicate that the CCP80 samples are tensioned at a velocity of 8mm/s and 16mm/s, respectively. These two strain rates (0.32 and 0.64) were achieved by setting the crosshead velocity of the tensile testing machine to the 8mm/s and 16mm/s, respectively. |

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| **Figure 36:** Average of the engineering stress-strain curve at standard and moderate strain rates and raw engineering stress-strain curve at high strain rate related to the Natural Rubber 60±5 shore A (NR60) within the 0-100% range of strain.  **Note:** The high strain rate indicates that the NR60 sample is tensioned at a velocity of 100mm/s. This strain rate (4) was achieved by setting the crosshead velocity of the tensile testing machine to 100mm/s.Unwanted harmonic material response (or fluctuated response) of the stress-strain curve at high strain rate resulted from the slack of tensile clamp fixture. |

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| **Figure 37:** Average of the engineering stress-strain curve at standard and moderate strain rates and raw engineering stress-strain curve at high strain rate related to the Ethylene Propylene Diene Monomer rubber 60±5 shore A (EPDM60) within the 0-100% range of strain.  **Note:** The high strain rate indicates that the EPDM60 sample is tensioned at a velocity of 100mm/s. This strain rate (4) was achieved by setting the crosshead velocity of the tensile testing machine to 100mm/s.Unwanted harmonic material response (or fluctuated response) of the stress-strain curve at high strain rate resulted from the slack of tensile clamp fixture. |

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| **Figure 38:** Average of the engineering stress-strain curve at standard and moderate strain rates and raw engineering stress-strain curve at high strain rate related to the Neoprene Rubber 60±5 shore A (NEO60) within the 0-100% range of strain.  **Note:** The high strain rate indicates that the NEO60 sample is tensioned at a velocity of 100mm/s. This strain rate (4) was achieved by setting the crosshead velocity of the tensile testing machine to 100mm/s.Unwanted harmonic material response (or fluctuated response) of the stress-strain curve at high strain rate resulted from the slack of tensile clamp fixture. |

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| **Figure 39:** Average of the engineering stress-strain curve at standard and moderate strain rates and raw engineering stress-strain curve at high strain rate related to the Cold Castable Polyether 60±5 shore A (CCP60) within the 0-100% range of strain.  **Note:** The high strain rate indicates that the CCP60 sample is tensioned at a velocity of 100mm/s. This strain rate (4) was achieved by setting the crosshead velocity of the tensile testing machine to 100mm/s.Unwanted harmonic material response (or fluctuated response) of the stress-strain curve at high strain rate resulted from the slack of tensile clamp fixture. |

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| **Figure 40:** Average of the engineering stress-strain curve at standard and moderate strain rates and raw engineering stress-strain curve at high strain rate related to the Cold Castable Polyether 80±5 shore A (CCP80) within the 0-100% range of strain.  **Note:** The high strain rate indicates that the CCP80 sample is tensioned at a velocity of 100mm/s. This strain rate (4) was achieved by setting the crosshead velocity of the tensile testing machine to 100mm/s.Unwanted harmonic material response (or fluctuated response) of the stress-strain curve at high strain rate resulted from the slack of tensile clamp fixture. |