

LLDPE

Linear Low Density Polyethylene



InnoPlus Linear Low Density Polyethylene (LLDPE) under the brand of InnoPlus, produced by PTT Global Chemical Public Company Limited (GC). The total capacity for 2 production lines of LLDPE/mLLDPE is 800,000 MTA.

InnoPlus LLDPE is produced by low pressure polymerization, using Gas Phase of Unipol process under the license of Univation Technology. This technology can provide the wide range of LLDPE products. The variety of catalysts and comonomers could be used in order to produce products for the various applications covering film, injection, masterbatch carrier, wire & cable and rotational molding.

| Properties | Test Method (ASTM) | Unit | C4-LLDPE Film | | | | | | | | C6-LLDPE Film | | | |
|--------------------------------|--------------------|-------------------|----------------------------------------------------------------------------------|------------------------|-------------------------|-------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------|------------------------|-------------------------|------------------------|----------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------|
| | | | LL7410A ⁽¹⁾ | LL7410D ⁽¹⁾ | LL7410D1 ⁽¹⁾ | LL7410G1 ⁽¹⁾ | LL7410D2 ⁽¹⁾ | LL7420A ⁽¹⁾ | LL7420D ⁽¹⁾ | LL7420D1 ⁽¹⁾ | LL7428A ⁽¹⁾ | LL7610A ⁽¹⁾ | LL7610D1 ⁽¹⁾ | LL7625A ⁽¹⁾ |
| MFR (190 °C, 2.16 kg) | D1238 | g/10 min | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2.8 | 1 | 1 | 2.5 |
| Density | D792 | g/cm ³ | 0.918 | 0.921 | 0.920 | 0.920 | 0.921 | 0.918 | 0.921 | 0.920 | 0.918 | 0.918 | 0.920 | 0.918 |
| Film Properties | | | | | | | | | | | | | | |
| Tensile Strength at Break (MD) | D882 | MPa | 34 | 34 | 34 | 34 | 34 | 31 | 31 | 31 | 30 | 40 | 40 | 30 |
| Tensile Strength at Break (TD) | D882 | MPa | 26 | 26 | 26 | 26 | 26 | 23 | 23 | 23 | 23 | 30 | 30 | 30 |
| Elongation at Break (MD) | D882 | % | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 650 | 650 | 750 |
| Elongation at Break (TD) | D882 | % | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 750 | 750 | 800 |
| 1% Secant Modulus (MD) | D882 | MPa | 190 | 190 | 190 | 190 | 190 | 195 | 195 | 195 | 200 | 250 | 250 | 250 |
| 1% Secant Modulus (TD) | D882 | MPa | 230 | 230 | 230 | 230 | 230 | 220 | 230 | 250 | 200 | 300 | 300 | 300 |
| Dart Impact Strength | D1709 | g | 100 | 100 | 90 | 90 | 90 | 85 | 85 | 85 | 90 | 180 | 180 | 120 |
| Tear Strength (MD) | D1922 | g | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 350 | 350 | 250 |
| Tear Strength (TD) | D1922 | g | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 500 | 500 | 500 |
| Vicat Softening Point | D1525 | °C | 100 | 100 | 101 | 101 | 100 | 97 | 97 | 97 | 95 | 100 | 100 | 99 |
| Gloss (45°) | D2457 | - | 55 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 45 | 35 | 30 | 20 |
| Haze | D1003 | % | 10 | 17 | 13 | 11 | 20 | 10 | 20 | 16 | 15 | 13 | 13 | 19 |
| Special Feature | | | - | High Slip & Antiblock | Low Slip & Antiblock | Low Slip & Antiblock | Very High Slip & Antiblock | - | High Slip & Antiblock | Low Slip & Antiblock | - | - | Low Slip & Antiblock | - |
| Application | | | General purpose films, Liners, Food packaging, Heavy duty and Agricultural films | | | | | Stretch films, Liners, Industrial bags, General purpose films, Food packaging, Refuse sacks and Garbage bags | | | | General purpose films, Liners, Food packaging, Heavy duty and Agricultural films | | Stretch films, Cast films. Food packaging and Multi-layer packaging films |

Note: (1) Film properties obtained from 25 microns film which was blown film extruded at blow up ratio 2.0.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use.

This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose. All above values are typical values, not to be construed as specification.



| Properties | Test Method (ASTM) | Unit | Rotational Molding | | | | | Injection | Wire and Cable | |
|------------------------------------|--------------------|-------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|----------|
| | | | LL9630U/LL9630UP | LL9630U2/LL9630U2P | LL9640U/LL9640UP | LL9641U/LL9641UP | LL9450U/LL9450UP | LL9470U/LL9470UP | LL8420A | LL6420A |
| MFR (190 °C, 2.16 kg) | D1238 | g/10 min | 3.2 | 3.2 | 4 | 4 | 5 | 7 | 20 | 2 |
| Density | D792 | g/cm ³ | 0.938 | 0.938 | 0.932 | 0.938 | 0.936 | 0.934 | 0.924 | 0.918 |
| Molded Plaque Properties | | | | | | | | | | |
| Tensile Strength at Yield | D638 | MPa | 20 | 20 | 15 | 20 | 17 | 18 | 15 | 10 |
| Tensile Strength at Break | D638 | MPa | 30 | 30 | 25 | 25 | 24 | 16 | 10 | 25 |
| Elongation at Break | D638 | % | 1000 | 1000 | 1000 | 950 | 1000 | 700 | 700 | 900 |
| Secant Modulus | D638 | MPa | - | - | - | - | - | - | 310 | 200 |
| Brittleness Temperature | D746 | °C | <-70 | <-70 | <-70 | <-70 | <-70 | <-70 | - | - |
| Vicat Softening Point | D1525 | °C | 118 | 118 | 110 | 118 | 114 | 111 | 94 | 97 |
| Flexural Modulus | D790 | MPa | 750 | 750 | 550 | 750 | 600 | 600 | - | - |
| Durometer Hardness | D2240 | Shore D | 60 | 60 | 56 | 57 | 56 | 56 | 53 | 47 |
| ESCR, 100% Igepal, F ₅₀ | D1693 | Hours | >1000 | >1000 | >1000 | >500 | - | - | - | - |
| Volume Resistivity (500V) | D257 | ohm.cm | - | - | - | - | - | - | - | 8.00E+16 |
| Dielectric Strength (500V/sec) | D149 | kV/mm | - | - | - | - | - | - | - | >50 |
| Dielectric Constant (60 Hz) | D150 | - | - | - | - | - | - | - | - | 2.2 |
| Dissipation Factor (60 Hz) | D150 | - | - | - | - | - | - | - | - | 0.001 |
| Special Feature | | | UV8 Resistance | UV20 Resistance | UV8 Resistance | UV8 Resistance | UV8 Resistance | UV8 Resistance | - | - |
| Application | | | Chemical storage tanks, Water storage tanks, Automotive parts, Freezer | Chemical storage tanks, Water storage tanks, Automotive parts, Freezer under extreme UV radiation | Cooler boxes, Durable industrial containers | Water tank playground, Furniture, Industrial containers, Marine equipment | Lamps, Toys, Household containers, Gardening equipment | General purpose applications; Lids, Housewares, Trash bins, Masterbatch carrier | Low voltage power cable insulation for silane crosslink process, Telecommunication and Low voltage cable jacketing | |

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