

## High Density Polyethylene

## Large Blow Moulding

### Product Description:

**HDPE 002DB52** is a natural high density bimodal polyethylene grade produced by LyondellBasell's Hostalen Slurry process with excellent processability and mechanical properties. This grade exhibits a good balance of stiffness and impact properties.

**BIS Designation Code** for HDPE 002DB52 as per IS 7328:2020 is: **IS 7328-3B-BBQ-FXTA**.

### Recommended Applications:

**HDPE 002DB52** is recommended for large-volume blow moulding applications such as:

- Large containers >100L
- L-ring Drums
- Large Containers for Chemicals, Pesticides, Lube Oils, Water etc.

### Typical Properties:

| Tested Properties                        | Test Method | UOM               | Values*   |
|--|-------------|-------------------|-----------|
| <b>Resin Properties</b>                  |             |                   |           |
| Melt Flow Index (190°C & 5.0Kg)          | ASTM D1238  | g/10min           | 0.20      |
| Melt Flow Index (190°C & 21.6Kg)         | ASTM D1238  | g/10min           | 5.00      |
| Density @ 23°C                           | ASTM D1505  | g/cm <sup>3</sup> | 0.9530    |
| <b>Mechanical Properties</b>             |             |                   |           |
| Tensile Strength @ Yield (Type-IV)       | ASTM D638   | MPa               | 28        |
| Elongation @ Yield (Type-IV)             | ASTM D638   | %                 | 10        |
| Elongation @ Break (Type-IV)             | ASTM D638   | %                 | >700      |
| Flexural Modulus                         | ASTM D790   | MPa               | 1200      |
| Notched Izod Impact Strength @ 23°C      | ASTM D256   | J/m               | >500 (NB) |
| Hardness                                 | ASTM D2240  | Shore D           | 63        |
| <b>Thermal Properties</b>                |             |                   |           |
| Heat Deflection Temperature (@ 0.455MPa) | ASTM D648   | °C                | 75        |
| Vicat Softening Point (@ 10N)            | ASTM D1525  | °C                | 126       |
| <b>Environmental Properties</b>          |             |                   |           |
| ESCR (10% Igepal), F <sub>50</sub>       | ASTM D1693B | Hrs               | >500      |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on specimens punched from Compression Moulded Sheets.

**Recommended Processing Temperature: 180 – 220°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 002DB52 meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Molecular Weight High Density Polyethylene

## HM Film

### Product Description:

**HDPE 002DF50** is a high molecular weight high density bimodal grade produced by LyondellBasell's Hostalen Slurry process. The grade exhibits good processability, excellent dart impact strength & sealing properties and excellent optical properties.

**BIS Designation Code** for HDPE 002DF50 as per IS 7328:2020 is: **IS 7328-3B-FBQ-EXTA.**

### Recommended Applications:

HDPE 002DF50 is recommended for film applications such as:

- Counter Bags
- Carrier Bags
- Liners
- Wrapping Applications

### Typical Properties:

| Tested Properties                   | Test Method | UOM               | Values* |
|-------------------------------------|-------------|-------------------|---------|
| <b>Resin Properties</b>             |             |                   |         |
| Melt Flow Index (190°C & 5.0Kg)     | ASTM D1238  | g/10min           | 0.4     |
| Density @ 23°C                      | ASTM D1505  | g/cm <sup>3</sup> | 0.9500  |
| <b>Mechanical Properties</b>        |             |                   |         |
| Tensile Strength @ Yield (Type-IV)  | ASTM D638   | MPa               | 29      |
| Elongation @ Break (Type-IV)        | ASTM D638   | %                 | >800    |
| Flexural Modulus                    | ASTM D790   | MPa               | 1000    |
| Notched Izod Impact Strength @ 23°C | ASTM D256   | J/m               | 200     |
| Dart Impact Strength**              | ASTM D1709  | g                 | 150     |
| Hardness                            | ASTM D2240  | ShoreD            | 60      |
| <b>Thermal Properties</b>           |             |                   |         |
| Vicat Softening Point               | ASTM D1525  | °C                | 125     |
| <b>Environmental Properties</b>     |             |                   |         |
| ESCR (10% Igepal), F <sub>50</sub>  | ASTM D1693B | Hrs               | >500    |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Compression Moulded test specimens.

\*\* Tested on 20µ Blown film extruded on 75 mm die diameter, 0.75mm die gap & 4 BUR.

### Recommended Processing Temperature: 180 – 240°C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 002DF50 meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## Pressure Pipe

### Product Description:

**HDPE 002DP48** is a high molecular weight high density bimodal Polyethylene grade produced by Lyondell Basell's Hostalen Slurry Process with Excellent Processability & Mechanical Properties. This Grade meets the MFI, Density & hydrostatic pressure test requirement of PE 100 grade as per IS 4984:2016. **BIS Designation Code** for HDPE 002DP48 as per IS 7328:2020 is: **IS 7328-3B-PBQ-EXTA**.

### Recommended Applications:

**HDPE 002DP48** is recommended for PE100 pressure pipe applications such as

- Pipes for Water transportation
- Sewage industrial Piping etc

002DP48 has a **Minimum required strength (MRS)** classification of **10 MPa** according to **ISO 9080** and is designated **PE100 grade according to ISO 12162**.

| Properties   | Test Method | UOM | Remark |
|--|-------------|-----|--------|
| MRS  | ISO 9080    | MPa | >10.0  |
| RCP – S4 test (Critical pressure for Crack propagation at 0°C) | ISO 13477   | Bar | ≥10    |
| SCG (Notch Pipe testing) (@ 80°C, 9.2 Bar)                     | ISO 13479   | Hrs | >1000  |

### Typical Properties:

| Tested Properties                   | Test Method  | UOM               | Values*  |
|-------------------------------------|--------------|-------------------|----------|
| <b>Resin Properties</b>             |              |                   |          |
| Melt Flow Index (190°C & 5 Kg)      | ASTM D1238   | g/10min           | 0.25     |
| Density @ 23°C                      | ASTM D1505   | g/cm <sup>3</sup> | 0.9500   |
| Density @ 27°C                      | IS 4984:2016 | g/cm <sup>3</sup> | 0.9480   |
| <b>Mechanical Properties</b>        |              |                   |          |
| Tensile Strength @ Yield (Type-IV)  | ASTM D638    | MPa               | 28       |
| Elongation @ Break (Type-IV)        | ASTM D638    | %                 | >750     |
| Notched Izod Impact Strength @ 23°C | ASTM D256    | J/m               | No Break |
| Flexural Modulus                    | ASTM D790    | MPa               | 1000     |
| Hardness                            | ASTM D2240   | Shore D           | 64       |
| <b>Thermal Properties</b>           |              |                   |          |
| Vicat Softening Point (10N)         | ASTM D1525   | °C                | 125      |
| Oxidative Induction Time @ 200°C    | ASTM D3895   | Min               | >30      |
| <b>Environmental Properties</b>     |              |                   |          |
| ESCR (10% Igepal), F <sub>50</sub>  | ASTM D1693   | Hrs               | >1000    |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Compression Moulded test specimens

**Recommended Processing Temperature: 180 – 220°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.



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**Storage & Handling:**

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

**Regulatory Information:**

HDPE 002DP48 meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## Medium Blow Moulding

### Product Description:

**HDPE 003DB52** is a natural high density bimodal polyethylene grade produced by LyondellBasell's Hostalen Slurry process with excellent processability and mechanical properties. This grade exhibits a good balance of Stiffness, Impact strength and ESCR properties.

**BIS Designation Code** for HDPE 003DB52 as per IS 7328:2020 is: **IS 7328-3B-BBQ-FXTA**.

### Recommended Applications:

**HDPE 003DB52** is a medium capacity blow moulding grade recommended for:

- Containers/ bottles upto 100L capacity mainly for Chemicals, Detergents & Lube Oils
- Blow moulded water tanks
- Solar Panel Floaters

### Typical Properties:

| Tested Properties                        | Test Method | UOM               | Values* |
|--|-------------|-------------------|---------|
| <b>Resin Properties</b>                  |             |                   |         |
| Melt Flow Index (190°C & 5.0Kg)          | ASTM D1238  | g/10min           | 0.40    |
| Melt Flow Index (190°C & 21.6Kg)         | ASTM D1238  | g/10min           | 9.20    |
| Density @ 23°C                           | ASTM D1505  | g/cm <sup>3</sup> | 0.9520  |
| <b>Mechanical Properties</b>             |             |                   |         |
| Tensile Strength @ Yield (Type-IV)       | ASTM D638   | MPa               | 29      |
| Elongation @ Yield (Type-IV)             | ASTM D638   | %                 | 10      |
| Flexural Modulus                         | ASTM D790   | MPa               | 1250    |
| Notched Izod Impact Strength @ 23°C      | ASTM D256   | J/m               | 400     |
| Hardness                                 | ASTM D2240  | Shore D           | 62      |
| <b>Thermal Properties</b>                |             |                   |         |
| Heat Deflection Temperature (@ 0.455MPa) | ASTM D648   | °C                | 75      |
| Vicat Softening Point                    | ASTM D1525  | °C                | 127     |
| <b>Environmental Properties</b>          |             |                   |         |
| ESCR (10% Igepal), F <sub>50</sub>       | ASTM D1693B | Hrs               | >500    |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Compression Moulded test specimens.

**Recommended Processing Temperature: 180 – 220°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 003DB52 meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## Pressure Pipe

### Product Description:

**HDPE 004DP44** is a natural high density bimodal Polyethylene grade produced by LyondellBasell's Hostalen Slurry Process with Excellent Processability & Mechanical Properties. This grade meets the MFI, Density & hydrostatic pressure test requirement of PE80 Grade as per IS 4984:2016.

**BIS Designation Code** for HDPE 004DP44 as per IS 7328:2020 is: **IS 7328-3B-PBQ-EXTA.**

### Recommended Applications:

**HDPE 004DP44** is recommended for PE80 pressure pipe applications such as:

- Pipes for Water transportation
- Sewage Industrial Piping
- Sprinkler Pipes

### Typical Properties:

| Tested Properties                   | Test Method  | UOM               | Values* |
|-------------------------------------|--------------|-------------------|---------|
| <b>Resin Properties</b>             |              |                   |         |
| Melt Flow Index (190°C & 5.0Kg)     | ASTM D1238   | g/10min           | 0.45    |
| Density @ 23°C                      | ASTM D1505   | g/cm <sup>3</sup> | 0.9500  |
| Density @ 27°C                      | IS 4984:2016 | g/cm <sup>3</sup> | 0.9480  |
| <b>Mechanical Properties</b>        |              |                   |         |
| Tensile Strength @ Yield (Type-IV)  | ASTM D638    | MPa               | 27      |
| Elongation @ Break (Type-IV)        | ASTM D638    | %                 | >600    |
| Notched Izod Impact Strength @ 23°C | ASTM D256    | J/m               | 350     |
| Flexural Modulus                    | ASTM D790    | MPa               | 1050    |
| Hardness                            | ASTM D2240   | ShoreD            | 64      |
| <b>Thermal Properties</b>           |              |                   |         |
| Vicat Softening Point               | ASTM D1525   | °C                | 126     |
| Oxidation Induction Time @ 200°C    | ASTM D3895   | min               | >30     |
| <b>Environmental Properties</b>     |              |                   |         |
| ESCR (10% Igepal), F <sub>50</sub>  | ASTM D1693B  | Hrs               | >1000   |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Compression Moulded test specimens.

**Recommended Processing Temperature: 180 – 220°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warrant loss of material due to poor material handling practices.

### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 004DP44 meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## High ESCR GPBM

### Product Description:

**HDPE 010DB50** is a natural high density polyethylene grade produced with LyondellBasell's Hostalen Slurry process. This grade exhibits superior ESCR property along with excellent processability and a good balance of Stiffness & Impact strength.

**BIS Designation Code** for HDPE 010DB50 as per IS 7328:2020 is: **IS 7328-3B-BBQ-EXTA.**

### Recommended Applications:

**HDPE 010DB50** is recommended for:

- Containers/ bottles upto 5L capacity
- Blow moulded Containers for packing of Pesticides, Surfactants & Corrosive Chemicals
- Cable Sheathing & Jacketing Compound

### Typical Properties:

| Tested Properties                        | Test Method | UOM               | Values* |
|--|-------------|-------------------|---------|
| <b>Resin Properties</b>                  |             |                   |         |
| Melt Flow Index (190°C & 5.0Kg)          | ASTM D1238  | g/10min           | 1.3     |
| Density @ 23°C                           | ASTM D1505  | g/cm <sup>3</sup> | 0.9500  |
| <b>Mechanical Properties</b>             |             |                   |         |
| Tensile Strength @ Yield (Type-IV)       | ASTM D638   | MPa               | 25      |
| Elongation @ Break (Type-IV)             | ASTM D638   | %                 | >850    |
| Flexural Modulus                         | ASTM D790   | MPa               | 1050    |
| Notched Izod Impact Strength @ 23°C      | ASTM D256   | J/m               | 150     |
| <b>Thermal Properties</b>                |             |                   |         |
| Vicat Softening Point                    | ASTM D1525  | °C                | 125     |
| Heat Deflection Temperature (@ 0.455MPa) | ASTM D648   | °C                | 70      |
| <b>Environmental Properties</b>          |             |                   |         |
| ESCR (10% Igepal), F <sub>50</sub>       | ASTM D1693B | Hrs               | >600    |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Compression Moulded test specimens.

### Recommended Processing Temperature: 160 – 190°C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 010DB50 meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## Pipe Extrusion

### Product Description:

**HDPE 010DP45** is a natural high density bimodal Polyethylene grade produced by LyondellBasell's Hostalen Slurry Process with Excellent Processability & Mechanical Properties. This grade meets the MFI, Density & hydrostatic pressure test requirement of PE63 Grade as per IS 4984:2016.

**BIS Designation Code** for HDPE 010DP45 as per IS 7328:2020 is: **IS 7328-3B-PBQ-EXTA**.

### Recommended Applications:

**HDPE 010DP45** is recommended for:

- Pipes for Drip Irrigation and Sprinkler application
- Pipes for drinking water
- Pipes for industrial effluent etc.

### Typical Properties:

| Tested Properties                        | Test Method  | UOM               | Values* |
|--|--------------|-------------------|---------|
| <b>Resin Properties</b>                  |              |                   |         |
| Melt Flow Index (190°C & 5.0Kg)          | ASTM D1238   | g/10min           | 0.90    |
| Density @ 23°C                           | ASTM D1505   | g/cm <sup>3</sup> | 0.9500  |
| Density @ 27°C                           | IS 4984:2016 | g/cm <sup>3</sup> | 0.9480  |
| <b>Mechanical Properties</b>             |              |                   |         |
| Tensile Strength @ Yield (Type-IV)       | ASTM D638    | MPa               | 28      |
| Elongation @ Break (Type-IV)             | ASTM D638    | %                 | >800    |
| Notched Izod Impact Strength @ 23°C      | ASTM D256    | J/m               | 200     |
| Flexural Modulus                         | ASTM D790    | MPa               | 1050    |
| Hardness                                 | ASTM D2240   | ShoreD            | 64      |
| <b>Thermal Properties</b>                |              |                   |         |
| Vicat Softening Point (@ 10N)            | ASTM D1525   | °C                | 126     |
| Heat Deflection Temperature (@ 0.455MPa) | ASTM D648    | °C                | 68      |
| Oxidation Induction Time @ 200°C         | ASTM D3895   | min               | >30     |
| <b>Environmental Properties</b>          |              |                   |         |
| ESCR (10% Igepal), F <sub>50</sub>       | ASTM D1693B  | Hrs               | >1000   |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Compression Moulded test specimens.

**Recommended Processing Temperature: 160 – 200°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 010DP45 meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## Telecom Ducts

### Product Description:

**HDPE 010DP45U** is a natural high density bimodal UV-stabilized Polyethylene grade produced by LyondellBasell's Hostalen Slurry Process. The grade conforms to latest TEC Generic Requirement No.TEC/GR/FA/CDS-008/04/AUG-19; & TEC/GR/FA/DWC-034/02/AUG-19; of CACT, BSNL.

**BIS Designation Code** for HDPE 010DP45U as per IS 7328:2020 is: **IS 7328-3B-PDQ-EXTA.**

### Recommended Applications:

**HDPE 010DP45U** is recommended for:

- Ducts for Optical Fibre Cables
- General Purpose PE-63 Non-Pressure Pipe Applications

### Typical Properties:

| Tested Properties                        | Test Method  | UOM               | Values* |
|--|--------------|-------------------|---------|
| <b>Resin Properties</b>                  |              |                   |         |
| Melt Flow Index (190°C & 5.0Kg)          | ASTM D1238   | g/10min           | 0.90    |
| Density @ 23°C                           | ASTM D1505   | g/cm <sup>3</sup> | 0.9500  |
| Density @ 27°C                           | IS 4984:2016 | g/cm <sup>3</sup> | 0.9480  |
| <b>Mechanical Properties</b>             |              |                   |         |
| Tensile Strength @ Yield (Type-IV)       | ASTM D638    | MPa               | 28      |
| Elongation @ Yield (Type-IV)             | ASTM D638    | %                 | 8.5     |
| Elongation @ Break (Type-IV)             | ASTM D638    | %                 | >800    |
| Notched Izod Impact Strength @ 23°C      | ASTM D256    | J/m               | 200     |
| Flexural Modulus                         | ASTM D790    | MPa               | 1050    |
| Hardness                                 | ASTM D2240   | ShoreD            | 64      |
| <b>Thermal Properties</b>                |              |                   |         |
| Vicat Softening Point (@ 10N)            | ASTM D1525   | °C                | 126     |
| Heat Deflection Temperature (@ 0.455MPa) | ASTM D648    | °C                | 68      |
| Oxidation Induction Time @ 200°C         | ASTM D3895   | min               | >30     |
| <b>Environmental Properties</b>          |              |                   |         |
| ESCR (10% Igepal), F <sub>50</sub>       | ASTM D1693B  | Hrs               | >1000   |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Compression Moulded test specimens.

**Recommended Processing Temperature: 160 – 210°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed 50°C. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 010DP45U meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## Oriented Tape & Monofilament

### Product Description:

**HDPE 010E52** is a High Density Polyethylene manufactured using Nova Chemicals' Sclairtech Solution Polymerization Technology. 010E52 exhibits excellent orientation characteristics, low water carry-over and superior mechanical properties.

**BIS Designation Code** for HDPE 010E52 as per IS 7328:2020 is: **IS 7328-3B-TBQ-FDA.**

### Recommended Applications:

**HDPE 010E52** is recommended for the following applications:

- Raffia for Woven Sacks
- Wrapping fabric
- Tarpaulin
- Rachel Bags

### Typical Properties:

| Tested Properties                  | Test Method | UOM               | Values*   |
|------------------------------------|-------------|-------------------|-----------|
| <b>Resin Properties</b>            |             |                   |           |
| Melt Flow Index (190°C & 2.16Kg)   | ASTM D1238  | g/10min           | 0.90      |
| Density @ 23°C                     | ASTM D792   | g/cm <sup>3</sup> | 0.952     |
| <b>Mechanical Properties*</b>      |             |                   |           |
| Tensile Strength @ Yield (Type-IV) | ASTM D638   | MPa               | 25        |
| Tensile Strength @ Break (Type-IV) | ASTM D638   | MPa               | 37        |
| Elongation @ Break (Type-IV)       | ASTM D638   | %                 | >800      |
| Flexural Modulus                   | ASTM D790   | MPa               | 1050      |
| Tensile Strength @ Yield (MD/TD)** | ASTM D882   | MPa               | 21.5/26.0 |
| Elongation @ Break (MD/TD)**       | ASTM D882   | %                 | 1100/1250 |
| Dart Impact Strength**             | ASTM D1709  | g/μ               | 1.5       |
| <b>Thermal Properties</b>          |             |                   |           |
| Vicat Softening Point              | ASTM D1525  | °C                | 124       |

#Typical values not to be construed as specification limits. Values may change without any prior notice.

\*Mechanical Properties (except for film properties) tested on Compression Moulded test specimens.

\*\* Film properties tested on 40μ film made with 0.75mm die gap & 2.75BUR.

**Recommended Processing Temperature: 180 – 250°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 010E52 meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## Linear Low Density Polyethylene

## Blown Film

### Product Description:

**LLDPE 010F18A** is a linear low density polyethylene manufactured using Nova Chemicals' Sclairtech Solution Polymerization Technology. 010F18A exhibits good processability and good mechanical properties. This grade does not contain slip and antiblock.

**BIS Designation Code** for LLDPE 010F18A as per IS 7328:2020 is: **IS 7328-2B-FBE-BDA.**

### Recommended Applications:

**LLDPE 010F18A** is recommended for the following applications:

- Lamination films
- Co-extrusion films
- Stretch Cling films
- Mulch films
- Drip Laterals

### Typical Properties:

| Tested Properties                 | Test Method | UOM               | Values*   |
|-----------------------------------|-------------|-------------------|-----------|
| <b>Resin Properties</b>           |             |                   |           |
| Melt Flow Index (190°C & 2.16Kg)  | ASTM D1238  | g/10min           | 0.90      |
| Density @ 23°C                    | ASTM D792   | g/cm <sup>3</sup> | 0.918     |
| <b>Mechanical Properties</b>      |             |                   |           |
| Tensile Strength @ Yield (MD/TD)  | ASTM D882   | MPa               | 13.0/12.0 |
| Ultimate Tensile Strength (MD/TD) | ASTM D882   | MPa               | 39.0/30.0 |
| Elongation @ Break (MD/TD)        | ASTM D882   | %                 | 700/850   |
| Dart Impact Strength              | ASTM D1709  | g/μ               | 3.5       |
| Tear Strength                     | ASTM D1922  | g/μ               | 3.3/10.2  |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on 40μ Monolayer film made with 1.8mm die gap and 2.25 BUR.

**Recommended Processing Temperature: 170 – 210°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent LLDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process LLDPE material within 06 months of delivery.

### Regulatory Information:

LLDPE 010F18A meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## Linear Low Density Polyethylene

## Blown Film

### Product Description:

**LLDPE 010F18S** is a linear low density polyethylene manufactured using Nova Chemicals' Sclairtech Solution Polymerization Technology. 010F18S exhibits good processability and good mechanical properties. This grade contains slip and antiblock.

**BIS Designation Code** for LLDPE 010F18S as per IS 7328:2020 is: **IS 7328-2B-FBH-BDA.**

### Recommended Applications:

**LLDPE 010F18S** is recommended for the following applications:

- Liquid Packaging films
- Heavy Duty films
- Multilayer films
- Carrier Bags

### Typical Properties:

| Tested Properties                         | Test Method | UOM               | Values*   |
|---|-------------|-------------------|-----------|
| <b>Resin Properties</b>                   |             |                   |           |
| Melt Flow Index (190°C & 2.16Kg)          | ASTM D1238  | g/10min           | 0.90      |
| Density @ 23°C                            | ASTM D792   | g/cm <sup>3</sup> | 0.918     |
| <b>Mechanical Properties</b>              |             |                   |           |
| Tensile Strength @ Yield (MD/TD)          | ASTM D882   | MPa               | 13.0/12.0 |
| Ultimate Tensile Strength (MD/TD)         | ASTM D882   | MPa               | 39.0/30.0 |
| Elongation @ Break (MD/TD)                | ASTM D882   | %                 | 700/850   |
| Dart Impact Strength                      | ASTM D1709  | g/μ               | 3.5       |
| Tear Strength                             | ASTM D1922  | g/μ               | 3.3/10.2  |
| Coefficient of Friction (Static/ Dynamic) | ASTM D1894  | -                 | 0.20/0.18 |
| Gloss @ 60°                               | ASTM D523   | G.U.              | 80        |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on 40μ Monolayer film made with 1.8mm die gap and 2.25 BUR.

**Recommended Processing Temperature: 170 – 210°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent LLDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process LLDPE material within 06 months of delivery.

### Regulatory Information:

LLDPE 010F18S meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## Linear Low Density Polyethylene

## Drip Lateral Pipe

### Product Description:

**010L22S** is a butene comonomer based linear low density polyethylene manufactured using Nova Chemicals' Sclairtech Solution Polymerization Technology. This grade combines excellent processability with good strength. It exhibits a controlled morphology and low gel content.

**BIS Designation Code** for LLDPE 010L22S as per IS 7328:2020 is: **IS 7328-2B-NBF-BDA**

This Grade meets the requirements of material as per IS 12786:1989 on "Irrigation equipment - Polyethylene Pipes for irrigation laterals – specification". When incorporated with adequate quantity of carbon black as specified in clause 4.1 of IS 12786:1989, the pipe made from the grade is similar to PE-25 for its hydrostatic characteristics (creep rupture stress requirement).

### Recommended Applications:

**LLDPE 010L22S** is recommended mainly for following agricultural drip irrigation application:

- Drip lateral pipes for high speed extruders.

### Typical Properties:

| Tested Properties                   | Test Method | UOM                | Values* |
|-------------------------------------|-------------|--------------------|---------|
| <b>Resin Properties</b>             |             |                    |         |
| Melt Flow Index (190°C & 2.16Kg)    | ASTM D1238  | gm/10 min          | 1.1     |
| Density @ 23°C                      | ASTM D792   | gm/cm <sup>3</sup> | 0.922   |
| <b>Mechanical Properties</b>        |             |                    |         |
| Tensile Strength @ Yield (Type-IV)  | ASTM D638   | MPa                | 13      |
| Tensile Strength @ Break (Type-IV)  | ASTM D638   | MPa                | 20      |
| Elongation @ Break (Type-IV)        | ASTM D638   | %                  | >600    |
| Notched Izod Impact Strength @ 23°C | ASTM D256   | J/m                | 500     |
| <b>Environmental Properties</b>     |             |                    |         |
| ESCR (10% Igepal), F <sub>50</sub>  | ASTM D1693B | Hrs                | >1000   |

\*Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Compression Moulded test specimens.

**Recommended Processing Temperature: 180 – 230°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent LLDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process LLDPE material within 06 months of delivery.

### Regulatory Information:

LLDPE 010L22S meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## General Purpose Blow Moulding

### Product Description:

**HDPE 012DB54** is a high density bimodal resin grade produced with LyondellBasell's Hostalen Slurry process. This grade exhibits good processability along with a good balance of Stiffness & Impact strength. It has a moderate ESCR which is suitable for packing of mild chemicals.

**BIS Designation Code** for HDPE 012DB54 as per IS 7328:2020 is: **IS 7328-3B-BBQ-FXTA**.

### Recommended Applications:

**HDPE 012DB54** is a General Purpose Blow Moulding (GPBM) grade recommended for:

- Containers/ bottles upto 5L capacity for packaging of Lube oil, Edible oil, FMCG products and foodstuffs
- Containers for packing of Detergents and mild Chemicals.

### Typical Properties:

| Tested Properties                        | Test Method | UOM               | Values* |
|--|-------------|-------------------|---------|
| <b>Resin Properties</b>                  |             |                   |         |
| Melt Flow Index (190°C & 5.0Kg)          | ASTM D1238  | g/10min           | 1.3     |
| Density @ 23°C                           | ASTM D1505  | g/cm <sup>3</sup> | 0.9520  |
| <b>Mechanical Properties</b>             |             |                   |         |
| Tensile Strength @ Yield (Type-IV)       | ASTM D638   | MPa               | 30      |
| Elongation @ Yield (Type-IV)             | ASTM D638   | %                 | 10      |
| Elongation @ Break (Type-IV)             | ASTM D638   | %                 | >850    |
| Flexural Modulus                         | ASTM D790   | MPa               | 1200    |
| Notched Izod Impact Strength @ 23°C      | ASTM D256   | J/m               | 150     |
| Hardness                                 | ASTM D2240  | ShoreD            | 61      |
| <b>Thermal Properties</b>                |             |                   |         |
| Vicat Softening Point                    | ASTM D1525  | °C                | 124     |
| Heat Deflection Temperature (@ 0.455MPa) | ASTM D648   | °C                | 70      |
| <b>Environmental Properties</b>          |             |                   |         |
| ESCR (10% Igepal), F <sub>50</sub>       | ASTM D1693B | Hrs               | >200    |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Compression Moulded test specimens.

**Recommended Processing Temperature: 160 – 200°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 012DB54 meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## High Density GPBM Grade

### PRODUCT DESCRIPTION:

**HDPE 012DB60** is a natural high density polyethylene grade produced with LyondellBasell's Hostalen Slurry process. The grade exhibits excellent processability, high rigidity, superior mechanical properties and impact resistance.

### RECOMMENDED APPLICATIONS:

**HDPE 012DB60** is recommended for the following blow-molding applications:

- Containers/ Bottles upto 20L Capacity
- Containers for packing of Lubricants and Edible Oils

### Typical Properties:

| Tested Properties <sup>#</sup>           | Test Method | UOM               | Values* |
|--|-------------|-------------------|---------|
| <b>Resin Properties</b>                  |             |                   |         |
| Melt Flow Index (190°C & 5 Kg)           | ASTM D1238  | g/10min           | 1.3     |
| Density @ 23°C                           | ASTM D1505  | g/cm <sup>3</sup> | 0.960   |
| <b>Mechanical Properties</b>             |             |                   |         |
| Tensile Strength @ Yield (Type-IV)       | ASTM D638   | MPa               | 32      |
| Elongation @ Break (Type-IV)             | ASTM D638   | %                 | >850    |
| Notched Izod Impact Strength @ 23°C      | ASTM D256   | J/m               | 300     |
| Flexural Modulus                         | ASTM D790   | MPa               | 1300    |
| Hardness                                 | ASTM D2240  | Shore D           | 65      |
| <b>Thermal Properties</b>                |             |                   |         |
| Vicat Softening Point (@ 10N)            | ASTM D1525  | °C                | 125     |
| Heat Deflection Temperature (@ 0.455MPa) | ASTM D648   | °C                | 75      |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

<sup>#</sup> Specimens punched from Compression Moulded Sheets for properties to be tested on molded specimens, as per relevant standard(s).

**Recommended Processing Temperature:** 160 – 190°C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conform to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed 50°C. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 012DB60 meets the "Specification for Polyethylene for its safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## Oriented Tape & Monofilament

### Product Description:

**HDPE 012E50** is a High Density Polyethylene manufactured using Nova Chemicals' Sclairtech Solution Polymerization Technology. 012E50 exhibits excellent processability, low water carry-over and superior mechanical properties.

**BIS Designation Code** for HDPE 012E50 as per IS 7328:2020 is: **IS 7328-3B-TBQ-FDA.**

### Recommended Applications:

**HDPE 012E50** is recommended for the following applications:

- Tarpaulin
- Woven Sacks
- Monofilaments for mosquito nets, fishing nets & filter cloth, etc.

### Typical Properties:

| Tested Properties                   | Test Method | UOM               | Values* |
|-------------------------------------|-------------|-------------------|---------|
| <b>Resin Properties</b>             |             |                   |         |
| Melt Flow Index (190°C & 2.16Kg)    | ASTM D1238  | g/10min           | 1.2     |
| Density @ 23°C                      | ASTM D792   | g/cm <sup>3</sup> | 0.950   |
| <b>Mechanical Properties*</b>       |             |                   |         |
| Tensile Strength @ Yield (Type-IV)  | ASTM D638   | MPa               | 26      |
| Tensile Strength @ Break (Type-IV)  | ASTM D638   | MPa               | 38      |
| Elongation @ Break (Type-IV)        | ASTM D638   | %                 | >1000   |
| Flexural Modulus                    | ASTM D790   | MPa               | 1100    |
| Notched Izod Impact Strength @ 23°C | ASTM D256   | J/m               | 400     |
| Hardness                            | ASTM D2240  | ShoreD            | 65      |
| <b>Thermal Properties</b>           |             |                   |         |
| Vicat Softening Point               | ASTM D1525  | °C                | 126     |

#Typical values not to be construed as specification limits. Values may change without any prior notice.

\*Mechanical Properties tested on Compression Moulded test specimens.

**Recommended Processing Temperature: 180 – 250°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 012E50 meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## Linear Low Density Polyethylene

## Extrusion Coating

### Product Description:

**LLDPE 065E24A** is a linear low density polyethylene manufactured using Nova Chemicals' Sclairtech Solution Polymerization Technology. 065E24A exhibits good processability, low neck-in, excellent adhesion and low gel content.

**BIS Designation Code** for LLDPE 065E24A as per IS 7328:2020 is: **IS 7328-2B-HBQ-BDD**.

### Recommended Applications:

**LLDPE 065E24A** is recommended for the following applications:

- Extrusion Coating on HDPE Raffia
- Heat & Press Lamination

### Typical Properties:

| Tested Properties                         | Test Method | UOM               | Values*   |
|---|-------------|-------------------|-----------|
| <b>Resin Properties</b>                   |             |                   |           |
| Melt Flow Index (190°C & 2.16Kg)          | ASTM D1238  | g/10min           | 6.5       |
| Density @ 23°C                            | ASTM D792   | g/cm <sup>3</sup> | 0.9240    |
| <b>Mechanical Properties</b>              |             |                   |           |
| Tensile Strength @ Yield (Type-IV)        | ASTM D638   | MPa               | 14.0      |
| Ultimate Tensile Strength (Type-IV)       | ASTM D638   | MPa               | 21        |
| Elongation @ Break (Type-IV)              | ASTM D638   | %                 | >950      |
| Flexural Modulus                          | ASTM D790   | MPa               | 300       |
| Notched Izod Impact Strength @ 23°C       | ASTM D256   | J/m               | 500       |
| Coefficient of Friction (Static/ Dynamic) | ASTM D1894  | -                 | 0.77/0.68 |
| <b>Thermal Properties</b>                 |             |                   |           |
| Vicat Softening Point                     | ASTM D1525  | °C                | 105       |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Injection Moulded test specimens. Only Tensile Strength & Elongation properties tested on Compression Moulded Specimens.

**Recommended Processing Temperature: 180 – 250°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent LLDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process LLDPE material within 06 months of delivery.

### Regulatory Information:

LLDPE 065E24A meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## Injection Moulding

### Product Description:

**HDPE 080M55** is a high density polyethylene manufactured using Nova Chemicals' Sclairtech Solution Polymerization Technology. It is a natural coloured polymer with good processability, very good mechanical properties and good dimensional stability.

**BIS Designation Code** for HDPE 080M55 as per IS 7328:2020 is: **IS 7328-3B-MBQ-FDD**.

### Recommended Applications:

**HDPE 080M55** is recommended for manufacturing injection moulded components like:

- Caps & Closures
- Industrial Products

### Typical Properties:

| Tested Properties                   | Test Method | UOM               | Values* |
|-------------------------------------|-------------|-------------------|---------|
| <b>Resin Properties</b>             |             |                   |         |
| Melt Flow Index (190°C & 2.16Kg)    | ASTM D1238  | g/10min           | 8.0     |
| Density @ 23°C                      | ASTM D792   | g/cm <sup>3</sup> | 0.955   |
| <b>Mechanical Properties</b>        |             |                   |         |
| Tensile Strength @ Yield (Type-IV)  | ASTM D638   | MPa               | 25      |
| Elongation @ Yield (Type-IV)        | ASTM D638   | %                 | 11      |
| Elongation @ Break (Type-IV)        | ASTM D638   | %                 | >800    |
| Flexural Modulus                    | ASTM D790   | MPa               | 850     |
| Notched Izod Impact Strength @ 23°C | ASTM D256   | J/m               | 80      |
| Hardness                            | ASTM D2240  | ShoreD            | 60      |
| <b>Thermal Properties</b>           |             |                   |         |
| Vicat Softening Point               | ASTM D1525  | °C                | 125     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Injection Moulded test specimens.

**Recommended Processing Temperature: 180 – 215°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 080M55 meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## Injection Moulding

### Product Description:

**HDPE 080M60** is a High Density Polyethylene manufactured using Nova Chemicals' Sclairtech Solution Polymerization Technology. 080M60 is a natural coloured polymer with good processability, very good mechanical properties and good dimensional stability.

**BIS Designation Code** for HDPE 080M60 as per IS 7328:2020 is: **IS 7328-3B-MBQ-GDD**.

### Recommended Applications:

**HDPE 080M60** is recommended for manufacturing injection moulded components like:

- Industrial crates for material handling
- Pallets & Luggage Shells

### Typical Properties:

| Tested Properties                   | Test Method | UOM               | Values* |
|-------------------------------------|-------------|-------------------|---------|
| <b>Resin Properties</b>             |             |                   |         |
| Melt Flow Index (190°C & 2.16Kg)    | ASTM D1238  | g/10min           | 8.0     |
| Density @ 23°C                      | ASTM D792   | g/cm <sup>3</sup> | 0.960   |
| <b>Mechanical Properties</b>        |             |                   |         |
| Tensile Strength @ Yield (Type-IV)  | ASTM D638   | MPa               | 28      |
| Elongation @ Yield (Type-IV)        | ASTM D638   | %                 | 11      |
| Elongation @ Break (Type-IV)        | ASTM D638   | %                 | >800    |
| Flexural Modulus                    | ASTM D790   | MPa               | 900     |
| Notched Izod Impact Strength @ 23°C | ASTM D256   | J/m               | 80      |
| Hardness                            | ASTM D2240  | ShoreD            | 60      |
| <b>Thermal Properties</b>           |             |                   |         |
| Vicat Softening Point               | ASTM D1525  | °C                | 126     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Injection Moulded test specimens.

**Recommended Processing Temperature: 180 – 215°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 080M60 meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## Injection Moulding

### Product Description:

**HDPE 080M60U** is a High density polyethylene manufactured using Nova Chemicals' Sclairtech Solution Polymerization Technology. It is a UV Stabilized natural coloured polymer with good processability, very good mechanical properties and good dimensional stability.

**BIS Designation Code** for HDPE 080M60U as per IS 7328:2020 is: **IS 7328-3B-MDQ-GDD**.

### Recommended Applications:

**HDPE 080M60U** is recommended for manufacturing injection moulded components like:

- Industrial crates
- Paint pails for Outdoor Applications

### Typical Properties:

| Tested Properties                   | Test Method | UOM               | Values* |
|-------------------------------------|-------------|-------------------|---------|
| <b>Resin Properties</b>             |             |                   |         |
| Melt Flow Index (190°C & 2.16Kg)    | ASTM D1238  | g/10min           | 8.0     |
| Density @ 23°C                      | ASTM D792   | g/cm <sup>3</sup> | 0.960   |
| <b>Mechanical Properties</b>        |             |                   |         |
| Tensile Strength @ Yield (Type-IV)  | ASTM D638   | MPa               | 28      |
| Elongation @ Yield (Type-IV)        | ASTM D638   | %                 | 11      |
| Elongation @ Break (Type-IV)        | ASTM D638   | %                 | >800    |
| Flexural Modulus                    | ASTM D790   | MPa               | 900     |
| Notched Izod Impact Strength @ 23°C | ASTM D256   | J/m               | 80      |
| Hardness                            | ASTM D2240  | ShoreD            | 60      |
| <b>Thermal Properties</b>           |             |                   |         |
| Vicat Softening Point               | ASTM D1525  | °C                | 126     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Injection Moulded test specimens.

**Recommended Processing Temperature: 180 – 215°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 080M60U meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## Injection Moulding

### Product Description:

**HDPE 180M50** is a high density polyethylene manufactured using Nova Chemicals' Sclairtech Solution Polymerization Technology. It is a natural coloured polymer with excellent flow properties, very good processability and excellent gloss.

**BIS Designation Code** for HDPE 180M50 as per IS 7328:2020 is: **IS 7328-3B-MBQ-EDE**.

### Recommended Applications:

**HDPE 180M50** is recommended for manufacturing injection moulded components like:

- Injection moulded Housewares
- Thin Walled moulded products

### Typical Properties:

| Tested Properties                   | Test Method | UOM               | Values* |
|-------------------------------------|-------------|-------------------|---------|
| <b>Resin Properties</b>             |             |                   |         |
| Melt Flow Index (190°C & 2.16Kg)    | ASTM D1238  | g/10min           | 22.0    |
| Density @ 23°C                      | ASTM D792   | g/cm <sup>3</sup> | 0.950   |
| <b>Mechanical Properties</b>        |             |                   |         |
| Tensile Strength @ Yield (Type-IV)  | ASTM D638   | MPa               | 22      |
| Elongation @ Yield (Type-IV)        | ASTM D638   | %                 | 12      |
| Flexural Modulus                    | ASTM D790   | MPa               | 750     |
| Notched Izod Impact Strength @ 23°C | ASTM D256   | J/m               | 35      |
| Hardness                            | ASTM D2240  | ShoreD            | 55      |
| <b>Thermal Properties</b>           |             |                   |         |
| Vicat Softening Point               | ASTM D1525  | °C                | 121     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Injection Moulded test specimens.

**Recommended Processing Temperature: 180 – 210°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.

### Regulatory Information:

HDPE 180M50 meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## Linear Low Density Polyethylene

## Injection Moulding

### Product Description:

**LLDPE 500M24A** is a Butene co-monomer based linear low density polyethylene manufactured using Nova Chemicals' Sclairtech Solution Polymerization Technology. 500M24A is a natural coloured polymer with narrow molecular weight distribution, excellent processability and flow properties.

**BIS Designation Code** for LLDPE 500M24A as per IS 7328:2020 is: **IS 7328-2B-ABQ-BDG.**

### Recommended Applications:

**LLDPE 500M24A** is recommended for the following applications:

- Base Resin for Masterbatches
- Moulding of flat and large warpage-free products/ lids

### Typical Properties:

| Tested Properties                  | Test Method | UOM               | Values* |
|------------------------------------|-------------|-------------------|---------|
| <b>Resin Properties</b>            |             |                   |         |
| Melt Flow Index (190°C & 2.16Kg)   | ASTM D1238  | g/10min           | 50      |
| Density @ 23°C                     | ASTM D792   | g/cm <sup>3</sup> | 0.9240  |
| <b>Mechanical Properties</b>       |             |                   |         |
| Tensile Strength @ Yield (Type-IV) | ASTM D638   | MPa               | 11      |
| Elongation @ Break (Type-IV)       | ASTM D638   | %                 | >500    |
| Flexural Modulus                   | ASTM D790   | MPa               | 300     |
| <b>Thermal Properties</b>          |             |                   |         |
| Vicat Softening Point              | ASTM D1525  | °C                | 98      |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Injection Moulded test specimens.

**Recommended Processing Temperature: 180 – 215°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warrant loss of material due to poor material handling practices.

### Storage & Handling:

Prevent LLDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed **50°C**. Non-compliance to these precautionary measures can lead to degradation of the product causing colour changes, odor and inadequate product performance. It is advised to process LLDPE material within 06 months of delivery.

### Regulatory Information:

LLDPE 500M24A meets the "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 16738-2018. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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## High Density Polyethylene

## Compression Molded Caps

### Product Description:

020M52 is a High Density Polyethylene manufactured using Nova Chemical's Sclairtech Solution Polymerization Technology with following features:

- Superior Processability
- Superior mechanical properties

### Typical Properties:

### Recommended Applications:

HDPE 020M52 is recommended for following applications

- Compression Molded Caps and Closures
- Injection Molded Products

| Tested Properties                              | Test Method | UOM                | Values* |
|--|-------------|--------------------|---------|
| <b>Resin Properties</b>                        |             |                    |         |
| Melt Flow Index (190 <sup>o</sup> C & 2.16 Kg) | ASTM D 1238 | gm/10 min          | 2.7     |
| Density @ 23 <sup>o</sup> C                    | ASTM D 1505 | gm/cm <sup>3</sup> | 0.952   |
| <b>Mechanical Properties</b>                   |             |                    |         |
| Tensile Strength @ Yield                       | ASTM D 638  | MPa                | 25      |
| Elongation at Break                            | ASTM D 638  | %                  | >600    |
| Notched Izod Impact Strength                   | ASTM D 256  | J/m                | 180     |
| Flexural Modulus                               | ASTM D790   | Mpa                | 800     |
| <b>Thermal Properties</b>                      |             |                    |         |
| Vicat Softening Point (10N)                    | ASTM D1525  | °C                 | 125     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Injection Molded test specimens.

**Recommended Processing Temperature:** 160 – 190 °C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

HDPE 020M52 shall meet "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also confirms to the positive list of constituents as per IS: 10141-1982. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

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### Storage & Handling:

Prevent HDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should no exceed 50°C. Non - compliance to these precautionary measures can lead to degradation of the product causing color changes, odor and inadequate product performance. It is advised to process HDPE material within 06 months of delivery.



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## Linear Low Density Polyethylene

## Blown Film

### Product Description:

020F18A is a Linear Low Density Polyethylene manufactured using Nova Chemical's Sclairtech Solution Polymerisation Technology with following features:

- Easy processability
- Low gels
- No slip & antiblock

### Recommended Applications:

LLDPE 020F18A is recommended for following applications

- Lamination films
- Cast film
- Stretch cling films
- Air bubble film

### Typical Properties:

| Tested Properties                            | Test Method | UOM                | Values*   |
|--|-------------|--------------------|-----------|
| <b>Resin Properties</b>                      |             |                    |           |
| Melt Flow Index (190°C & 2.16 Kg)            | ASTM D 1238 | gm/10 min          | 2.0       |
| Density @ 23°C                               | ASTM D 1505 | gm/cm <sup>3</sup> | 0.918     |
| <b>Mechanical Properties</b>                 |             |                    |           |
| Tensile Strength @ Yield (50 mm/min) MD/TD   | ASTM D 882  | MPa                | 12.5/12.0 |
| Ultimate Tensile Strength (50 mm/min) MD/TD  | ASTM D 882  | MPa                | 33/28     |
| Elongation at Break(50 mm/min) MD/TD         | ASTM D 882  | %                  | 700/800   |
| Dart Impact Strength (38mm dart,66cm height) | ASTM D 1709 | g/μ                | 2.5       |
| Tear Strength                                | ASTM D 1922 | g/μ                | 3/8       |
| Haze   | ASTM D 1003 | %                  | 9         |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on 40μ monolayer film made with 1.8 mm die gap & 2.25 BUR.

**Recommended Processing Temperature: 170– 210 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

LLDPE 020F18A shall meet "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also conforms to the positive list of constituents as per IS: 10141-1982. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

### Storage & Handling:

Prevent LLDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should not exceed 50°C. Non - compliance to these precautionary measures can lead to degradation

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## Linear Low Density Polyethylene

## Rotational Molding

### Product Description:

LLDPE 040R40A is a medium density polyethylene made with state of the art Nova Chemical's Sclairtech solution polymerization technology. It is a natural colored polymer with very good Impact Stiffness balance and Hardness.

### Typical Properties:

### Recommended Applications:

LLDPE 040R40A is recommended for following applications:

- Medium and Large Tanks
- Manholes and Chambers
- Septic tanks

| Tested Properties                              | Test Method | UOM                | Values* |
|--|-------------|--------------------|---------|
| <b>Resin Properties</b>                        |             |                    |         |
| Melt Flow Index (190 <sup>0</sup> C & 2.16 Kg) | ASTM D 1238 | gm/10 min          | 3.6     |
| Density @ 23 <sup>0</sup> C                    | ASTM D 1505 | gm/cm <sup>3</sup> | 0.940   |
| <b>Mechanical Properties</b>                   |             |                    |         |
| Tensile Strength @ Yield                       | ASTM D 638  | MPa                | 21      |
| Elongation at Break                            | ASTM D 638  | %                  | >600    |
| Notched Izod Impact Strength                   | ASTM D 256  | J/m                | 220     |
| Flexural Modulus                               | ASTM D790   | Mpa                | 900     |
| Hardness                                       | ASTM D 2240 | Shore D            | 58      |
| <b>Thermal Properties</b>                      |             |                    |         |
| Vicat Softening Point (10N)                    | ASTM D1525  | °C                 | 118     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical Properties tested on Injection Molded test specimens.

**Recommended Processing Temperature: 170 – 215 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

LLDPE 040R40A shall meet "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also confirms to the positive list of constituents as per IS: 10141-1982. The grade and Additives incorporated shall meet with FDA: CFR Title21, 177.1520, Olefin Polymers.

### Storage & Handling:

Prevent LLDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the storage temperature should no exceed 50°C. Non - compliance to these precautionary measures can lead to degradation of the product causing color changes, odor and inadequate product performance. It is advised to process LLDPE material within 06 months of delivery.

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## Linear Low Density Polyethylene

## Rotational Molding

### Product Description:

042R35A is a medium density polyethylene manufactured using Nova Chemical's Sclairtech Solution Polymerization Technology. 042R35A is a natural colored polymer with very good Processability and good mechanical properties.

### Recommended Applications:

LLDPE 042R35A is designed to make:

- Overhead water tanks & Loft tanks
- Septic & Chemical storage tanks
- Toys and Furniture

### Typical Properties:

| Tested Properties                                | Test Method | UOM                | Values* |
|--|-------------|--------------------|---------|
| <b>Resin Properties</b>                          |             |                    |         |
| Melt Flow Index (190 <sup>o</sup> C & 2.16 Kg)   | ASTM D 1238 | gm/10 min          | 4.8     |
| Density @ 23 <sup>o</sup> C                      | ASTM D 1505 | gm/cm <sup>3</sup> | 0.935   |
| <b>Mechanical Properties</b>                     |             |                    |         |
| Tensile Yield Strength                           | ASTM D 638  | MPa                | 15      |
| Ultimate Tensile Strength                        | ASTM D 638  | MPa                | 20      |
| Elongation at Break                              | ASTM D 638  | %                  | >600    |
| Flexural Yield Strength                          | ASTM D 790  | MPa                | 13      |
| Flexural Modulus                                 | ASTM D 790  | MPa                | 450     |
| Notched Izod Impact Strength @ 23 <sup>o</sup> C | ASTM D 256  | J/m                | >500    |
| Hardness   | ASTM D 2240 | Shore D            | 55      |
| <b>Thermal Properties</b>                        |             |                    |         |
| Vicat Softening Point (10 N)                     | ASTM D 1525 | °C                 | 117     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on injection molded specimen.

**Recommended Processing Temperature: 170 – 215 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

LLDPE 042R35A shall meet "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also confirms to the positive list of constituents as per IS: 10141-1982. The grade and Additives incorporated shall meet with FDA: CFR Title 21, 177.1520, Olefin Polymers.

### Storage & Handling:

Prevent LLDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process LLDPE material within 06 months after delivery.

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## Linear Low Density Polyethylene

## Rotational Molding

### Product Description:

042R35U is a medium density polyethylene manufactured using Nova Chemical's Sclairtech Solution Polymerization Technology.

042R35U is a natural colored polymer, adequately stabilized with UV stabilizer to give a long service with continuous outdoor exposure with or without blending of any carbon black.

### Recommended Applications:

LLDPE 042R35U is designed to make rotomolded container for outdoor exposure like:

- Overhead water tanks
- Toys and Furniture's

### Typical Properties:

| Tested Properties                                | Test Method | UOM                | Values* |
|--|-------------|--------------------|---------|
| <b>Resin Properties</b>                          |             |                    |         |
| Melt Flow Index (190 <sup>o</sup> C & 2.16 Kg)   | ASTM D 1238 | gm/10 min          | 4.8     |
| Density @ 23 <sup>o</sup> C                      | ASTM D 1505 | gm/cm <sup>3</sup> | 0.935   |
| <b>Mechanical Properties</b>                     |             |                    |         |
| Tensile Yield Strength                           | ASTM D 638  | MPa                | 15      |
| Ultimate Tensile Strength                        | ASTM D 638  | MPa                | 20      |
| Elongation at Break                              | ASTM D 638  | %                  | >600    |
| Flexural Yield Strength                          | ASTM D 790  | MPa                | 13      |
| Flexural Modulus                                 | ASTM D 790  | MPa                | 450     |
| Notched Izod Impact Strength @ 23 <sup>o</sup> C | ASTM D 256  | J/m                | >500    |
| Hardness   | ASTM D 2240 | Shore D            | 55      |
| <b>Thermal Properties</b>                        |             |                    |         |
| Vicat Softening Point (10 N)                     | ASTM D 1525 | °C                 | 117     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on injection molded specimen.

**Recommended Processing Temperature: 170 – 215 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

LLDPE 042R35U shall meet "Specification for Polyethylene for safe use in contact with Foodstuff, Pharmaceuticals and Drinking water" as per IS: 10146-1982. It also confirms to the positive list of constituents as per IS: 10141-1982. The grade and Additives incorporated shall meet with FDA: CFR Title 21, 177.1520, Olefin Polymers.

### Storage & Handling:

Prevent LLDPE Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process LLDPE material within 06 months after delivery.

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## Polypropylene Impact Copolymer

## Injection Molding

### Product Description:

PP Copolymer 3550MN is a heterophasic natural colored very high flow, medium impact resistance and nucleated grade produced by the latest Spheripol II Technology with following features:

- Excellent processability.
- Good balance of stiffness & Impact properties

### Recommended Applications:

PP Impact Copolymer 3550MN is recommended for Injection Molding & compounding applications like

- Appliances parts
- Thin wall & large products
- Automotive Compounds

### Typical Properties:

| Tested Properties                                    | Test Method | UOM                | Values* |
|--|-------------|--------------------|---------|
| <b>Resin Properties</b>                              |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                    | ASTM D 1238 | gm/10 min          | 55.0    |
| Density @ 23°C                                       | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                         |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                 | ASTM D 638  | MPa                | 24      |
| Elongation @ Yield (50 mm/min)                       | ASTM D 638  | %                  | 5.0     |
| Flexural Modulus (1.3 mm/min)                        | ASTM D 790  | MPa                | 1200    |
| Notched Izod Impact Strength @ 23°C                  | ASTM D 256  | J/m                | 65      |
| <b>Thermal Properties</b>                            |             |                    |         |
| Heat Deflection Temperature (0.46 N/m <sup>2</sup> ) | ASTM D 648  | °C                 | 105     |
| Vicat Softening Point (10 N)                         | ASTM D 1525 | °C                 | 145     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 170 – 230 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Copolymer 3550MN shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Injection Molding

### Product Description:

PP Homopolymer 1200MG is a natural colored grade produced by the latest Spheripol II Technology. The Grade is having a high stiffness & gloss, good flow properties and suitable for processing by injection moulding.

### Recommended Applications:

PP Homopolymer 1200MG is recommended for General Purpose Injection Molding applications like

- Household articles
- Thin Wall molding
- Food Packaging Container

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 20      |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 34      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 11      |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 1600    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | 25      |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 95      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 155     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature:** 170 - 230 °C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer 1200MG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## BOPP Film

### Product Description:

PP Homopolymer 1030FG is a natural colored grade produced by the latest Spheripol II Technology with following features:

- Excellent Processability on high speed BOPP lines
- Low water carry over
- Excellent clarity & gloss
- Good mechanical strength & Puncture resistance

### Recommended Applications:

PP Homopolymer 1030FG is recommended for General Purpose, Co-extruded Biaxially Oriented Polypropylene (BOPP) film and Metallisable BOPP films used in packaging applications such as

- Textile Packaging
- Adhesive tapes
- Food & Biscuit packaging
- Cigarette Overwraps

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230 <sup>o</sup> C & 2.16 Kg)        | ASTM D 1238 | gm/10 min | 3.0     |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa       | 36.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 11.0    |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1400    |
| Notched Izod Impact Strength @ 23 <sup>o</sup> C      | ASTM D 256  | J/m       | 32      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 93      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 155     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 220 – 280 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer 1030FG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Injection Molding

### Product Description:

PP Homopolymer 1030MG is a natural colored grade produced by the latest Spheripol II Technology. This Grade offers very high strength & easy Processability and suitable for injection & Extrusion applications.

### Recommended Applications:

PP Homopolymer 1030MG is recommended for General Purpose Injection & Extrusion applications like

- Household articles
- Rigid Packaging
- Sheet & Tapes

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 3.0     |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 35      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 12      |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 1350    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | 35      |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 94      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 156     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature:** 170 – 230 °C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer 1030MG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Woven Sacks

### Product Description:

PP Homopolymer 1030RG is a natural colored grade produced by the latest Spheripol II Technology with following features:

- Exceptional processability
- Low water carry over
- Good balance of tenacity & elongation

### Recommended Applications:

PP Homopolymer 1030RG is recommended for stretched tapes of Woven sacks like

- Fabrics for general packaging
- Cement, Polymers & Fertilizers packaging
- Food grains packaging
- FIBC for bulk industrial packaging
- Carpet backing

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 3.3     |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 35      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 12      |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 1550    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | 50      |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 95      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 156     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature:** 170 – 230 °C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer 1030RG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Injection Molding & Extrusion

### Product Description:

PP Homopolymer 1060MG is a natural colored grade produced by the latest Spheripol II Technology. The Grade is having a high stiffness and suitable for processing by extrusion and injection moulding.

### Recommended Applications:

PP Homopolymer 1060MG is recommended for General Purpose Injection Molding & Extrusion applications like

- Household articles
- Rigid Packaging
- Thermoforming

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 6.0     |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 35      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 12      |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 1500    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | 40      |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 94      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 154     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 170 – 230 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer 1060MG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Cast Film Application

### Product Description:

PP Homopolymer P1070FG is a natural colored grade produced by the latest Spheripol II Technology. The Grade is having following properties:

- Excellent processability
- Excellent clarity and gloss
- Good mechanical properties

### Recommended Applications:

PP Homopolymer P1070FG is recommended for cast film applications. The grade can be used for manufacturing of general purpose as well as metallized films used in packaging applications such as

- Lamination film
- Textile Packaging
- Food Packaging
- Stationary items

### Typical Properties:

| Tested Properties                                    | Test Method | UOM                | Values* |
|--|-------------|--------------------|---------|
| <b>Resin Properties</b>                              |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                    | ASTM D 1238 | gm/10 min          | 8.0     |
| Density @ 23°C                                       | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                         |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                 | ASTM D 638  | MPa                | 37.0    |
| Elongation @ Yield (50 mm/min)                       | ASTM D 638  | %                  | 9.0     |
| Flexural Modulus (1.0 % Secant & at 1.3 mm/min)      | ASTM D 790  | MPa                | 1400    |
| Notched Izod Impact Strength @ 23°C                  | ASTM D 256  | J/m                | 40      |
| <b>Thermal Properties</b>                            |             |                    |         |
| Heat Deflection Temperature (0.46 N/m <sup>2</sup> ) | ASTM D 648  | °C                 | 93      |
| Vicat Softening Point (10 N)                         | ASTM D 1525 | °C                 | 155     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 210– 250 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer 1070FG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## TQPP Film

### Product Description:

PP Homopolymer 1100FS is a natural colored grade produced by the latest Spheripol II Technology with following features:

- Excellent Processability,
- Excellent clarity & gloss.
- Contains Slip & Antiblock additives.

### Recommended Applications:

PP Homopolymer 1100FS is recommended for Production of Tubular Water Quenched Polypropylene blown film (TQPP films) for packaging of

- Textile Over wraps
- Snack & bakery foods
- Garment bags

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230 <sup>o</sup> C & 2.16 Kg)        | ASTM D 1238 | gm/10 min | 11.0    |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa       | 35.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 10.0    |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1500    |
| Notched Izod Impact Strength @ 23 <sup>o</sup> C      | ASTM D 256  | J/m       | 21      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 100     |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 151     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature:** 170 – 220 °C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer 1100FS shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Injection Molding

### Product Description:

PP Homopolymer 1110MAS is a natural colored grade produced by the latest Spheripol II Technology. The Grade is having a High flow & high stiffness and excellent gloss. This grade contains antistatic agent that reduces static charge build up in products. This grade is designed to offer faster molding cycles and the ability to achieve cycle time reduction of up to 18% (Depending on product & equipment). This grade is ideal for products requiring very good dimensional stability (low warpage).

### Recommended Applications:

PP Homopolymer 1110MAS is recommended for Injection Molded applications like

- Furniture
- Household articles
- Automotive component (where high stiffness is required)

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230 <sup>o</sup> C & 2.16 Kg)        | ASTM D 1238 | gm/10 min          | 11.0    |
| Density @ 23 <sup>o</sup> C                           | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 42      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 8       |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 1800    |
| Notched Izod Impact Strength @ 23 <sup>o</sup> C      | ASTM D 256  | J/m                | 30      |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 120     |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 154     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 170 – 230 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warrant loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer 1110MAS shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Injection Molding

### Product Description:

PP Homopolymer 1110MG is a natural colored grade produced by the latest Spheripol II Technology. The Grade is having a High flow, high rigidity and excellent gloss

### Recommended Applications:

PP Homopolymer 1110MG is recommended for Injection Molded applications like

- Rigid Packaging,
- Household articles
- Furniture

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 11.0    |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 40      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 8       |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 1550    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | 21      |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 100     |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 154     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature:** 170 – 230 °C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer 1110MG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Fibre & Filaments

### Product Description:

PP Homopolymer 1200YG is a natural colored grade produced by the latest Spheripol II Technology with following features:

- Optimum process stabilizer package suitable for stable extrusion of multifilament yarn at very high spinning speeds
- Excellent Processability

### Recommended Applications:

PP Homopolymer 1200YG is recommended for Production of

- Multifilament Yarn
- Staple fibers
- Nonwovens and other filament products.

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230 <sup>o</sup> C & 2.16 Kg)        | ASTM D 1238 | gm/10 min | 20.0    |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa       | 34.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 11.0    |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1400    |
| Notched Izod Impact Strength @ 23 <sup>o</sup> C      | ASTM D 256  | J/m       | 25      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 95      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 155     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer 1200YG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Extrusion Coating / Lamination

### Product Description:

PP Homopolymer 1350EG is a natural colored grade produced by the latest Spheripol II Technology with following features:

- Excellent flow characteristics
- Low neck-in & good processability
- Good surface finish & excellent adhesion to substrate

### Recommended Applications:

PP Homopolymer 1350EG is recommended for use in

- Extrusion coating on PP Raffia fabrics
- Lamination process

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min | 35.0    |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa       | 35      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 9       |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1500    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m       | 22      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 95      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 150     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 180 – 250 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer 1350EG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Fibre & Filaments / Nonwoven

### Product Description:

PP Homopolymer 1350YG is a natural colored grade produced by the latest Spheripol II Technology with following features:

- High melt flow and specified for high speed production of fine denier fibre / Nonwoven.
- Excellent Processability

### Recommended Applications:

PP Homopolymer 1350YG is recommended for Production of

- Spun bonded nonwoven fabrics
- Fine denier Multifilament yarns.

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230 <sup>o</sup> C & 2.16 Kg)        | ASTM D 1238 | gm/10 min | 35.0    |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa       | 36.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 11.0    |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1200    |
| Notched Izod Impact Strength @ 23 <sup>o</sup> C      | ASTM D 256  | J/m       | 20      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 85      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 150     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature:** 170 – 230 °C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer 1350YG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Fibre & Filaments / Nonwoven

### Product Description:

PP Homopolymer 1350YH is a natural colored grade produced by the latest Spheripol II Technology with following features:

- Produced with a catalyst system which does not use any intentionally – added phthalate compounds.
- High melt flow and specified for high speed production of fine denier fibre / Nonwoven.
- Excellent Processability & suited for applications requiring anti gas fading & lower discoloration of end product

### Recommended Applications:

PP Homopolymer 1350YH is recommended for Production of:

- Spun bonded nonwoven fabrics for Hygiene & Medical Disposables especially with low GSM.
- Fine denier Multifilament yarns.

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230 <sup>o</sup> C & 2.16 Kg)        | ASTM D 1238 | gm/10 min | 36.0    |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa       | 36.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 9.0     |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1000    |
| Notched Izod Impact Strength @ 23 <sup>o</sup> C      | ASTM D 256  | J/m       | 20      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 85      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 150     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 170 – 230 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer 1350YH shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Random Copolymer

## Blow Molding & Extrusion

### Product Description:

PP Random Copolymer 2020EC is a natural colored grade produced by the latest Spheripol II Technology. The Grade exhibits very good clarity, gloss & balance of stiffness-impact properties.

### Recommended Applications:

PP Random Copolymer 2020EC is recommended for Blow Molding & Extrusion process for manufacturing of:

- Blow Molded Articles
- Sheets/Thermoformed products
- IBM products

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 1.9     |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 30      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 12      |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 900     |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | >100    |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 75      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 130     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 180 – 230 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Random Copolymer 2020EC shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Random Copolymer

## Injection Molding & ISBM

### Product Description:

PP Random Copolymer 2120MC is a natural colored grade produced by the latest Spheripol II Technology. The Grade has exceptionally good transparency, gloss and balance of stiffness-impact properties. This grade can be processed with lower processing temperatures (lower specific energy consumption) and has the ability to achieve cycle time reduction up to 15% (depending on product & equipment).

### Recommended Applications:

PP Random Copolymer 2120MC is recommended for Injection Molding & Injection Stretch Blow Molding process for manufacturing of:

- Rigid Containers
- Housewares
- ISBM products

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 12.0    |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 34      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 12      |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 1100    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | 60      |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 80      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 130     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 180 – 230 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Random Copolymer 2120MC shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and The Additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Impact Copolymer

## Injection Molding

### Product Description:

PP Impact Block Copolymer 3030MG is a heterophasic natural colored high impact resistance grade produced by the latest Spheripol II Technology with following features:

- Medium flow for easy processing.
- High Impact Strength.
- High Stiffness

### Recommended Applications:

PP Impact Copolymer 3030MG is recommended for Injection Molded applications like

- Automotive components
- Appliances
- Industrial components
- Caps & Closures

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 3.5     |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 27.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 9.0     |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 1100    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | 170     |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 88      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 150     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 170 – 230 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Copolymer 3030MG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Impact Copolymer

## Injection Molding

### Product Description:

PP Impact Copolymer 3120MA is a heterophasic natural colored high impact resistance & antistatic agent containing grade produced by the latest Spheripol- II Technology with following features:

- Good processability.
- Good balance of Impact & Stiffness properties
- Reduced static charge build – up in product

### Recommended Applications:

PP Impact Copolymer 3120MA is recommended for Injection Molding & Compounding applications like

- Industrial & Automotive components
- Appliances & Housewares
- Furniture
- Compounding

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 12.0    |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 27.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 8.0     |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 1100    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | 80      |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 105     |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 150     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature:** 170 – 230 °C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Copolymer 3120MA shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Impact Copolymer

## Injection Molding & Extrusion

### Product Description:

PP Copolymer 3250MG is a heterophasic natural colored high flow and medium impact resistance grade produced by the latest Spheripol II Technology with following features:

- Good processability.
- Good gloss & surface finish
- Good substrate bonding

### Recommended Applications:

PP Impact Copolymer 3250MG is recommended for injection molding & extrusion applications like

- Extrusion coating & Lamination
- Appliances parts
- Housewares
- Compounding

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 25.0    |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 26.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 6.0     |
| Flexural Modulus (1.0 % Secant & at 1.3 mm/min)       | ASTM D 790  | MPa                | 1200    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | 75      |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 100     |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 145     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 170 – 230 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Copolymer 3250MG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Impact Copolymer

## Injection Molding & Extrusion

### Product Description:

PP Copolymer 3250MN is a heterophasic natural colored high flow and medium impact resistance grade produced by the latest Spheripol II Technology with following features:

- Good processability.
- Good surface finish & Gloss
- Optimized balance of stiffness and toughness

### Recommended Applications:

PP Impact Copolymer 3250MN is recommended for injection molding applications like

- Electrical appliance parts
- Housewares
- Automotive components
- Rigid Packaging

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 25.0    |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 26.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 8.0     |
| Flexural Modulus (1.0 % Secant & at 1.3 mm/min)       | ASTM D 790  | MPa                | 1200    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | 80      |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 110     |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 150     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 170 – 230 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Copolymer 3250MN shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Impact Copolymer

## Injection Molding

### Product Description:

PP Copolymer 3400MN is a heterophasic natural colored high flow, medium impact resistance and nucleated grade produced by the latest Spheripol II

Technology with following features:

- Excellent processability.
- Good balance of Impact & Stiffness properties

### Recommended Applications:

PP Impact Copolymer 3400MN is recommended for Injection Molding & Compounding applications like

- Industrial & Automotive components
- Appliances
- Thin Walled products
- Compounding

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230 <sup>o</sup> C & 2.16 Kg)        | ASTM D 1238 | gm/10 min          | 40.0    |
| Density @ 23 <sup>o</sup> C                           | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 26.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 6.0     |
| Flexural Modulus (1.0 % Secant & at 1.3 mm/min)       | ASTM D 790  | MPa                | 1200    |
| Notched Izod Impact Strength @ 23 <sup>o</sup> C      | ASTM D 256  | J/m                | 60      |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | <sup>o</sup> C     | 105     |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | <sup>o</sup> C     | 147     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 170 – 230 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Copolymer 3400MN shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and Additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Impact Copolymer

## Injection Molding

### Product Description:

PP Copolymer 3650MN is a heterophasic natural colored high flow, medium impact resistance and nucleated grade produced by the latest Spheripol II Technology with following features:

- Good processability.
- Good balance of Stiffness & Impact properties

### Recommended Applications:

PP Impact Copolymer 3650MN is recommended for Injection Molding & Compounding applications like

- Industrial & Automotive components
- Appliances parts
- Thin Wall & large products
- Automotive Compounds

### Typical Properties:

| Tested Properties                                      | Test Method | UOM                | Values* |
|--|-------------|--------------------|---------|
| <b>Resin Properties</b>                                |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                      | ASTM D 1238 | gm/10 min          | 65.0    |
| Density @ 23°C   | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                           |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                   | ASTM D 638  | MPa                | 29.0    |
| Elongation @ Yield (50 mm/min)                         | ASTM D 638  | %                  | 5.0     |
| Flexural Modulus (1.0 % Secant & at 1.3 mm/min)        | ASTM D 790  | MPa                | 1300    |
| Notched Izod Impact Strength @ 23°C                    | ASTM D 256  | J/m                | 70      |
| <b>Thermal Properties</b>                              |             |                    |         |
| Heat Deflection Temperature (0.455 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 112     |
| Vicat Softening Point (10 N)                           | ASTM D 1525 | °C                 | 145     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 180 – 230 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conform to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Copolymer 3650MN shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Impact Copolymer

## Extrusion & Blow Molding

### Product Description:

PP Impact Block Copolymer 4015EG is a heterophasic natural colored high impact resistance grade produced by the latest Spheripol II Technology with following features:

- Medium flow for easy processing.
- High Impact Strength.
- High Stiffness

### Recommended Applications:

PP Impact Copolymer 4015EG is recommended for Blow Molding & Sheet Extrusion applications like

- Automotive components
- Blow Molded bottles
- Sheets
- Thermoforming

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 1.6     |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 28      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 10      |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 1150    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | 200     |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 95      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 150     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 170 – 230 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Copolymer 4015EG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Impact Copolymer

## Injection Molding

### Product Description:

PP Impact Block Copolymer 4100MH is a natural colored Long Term Heat Stabilized grade produced by the latest Spheripol II Technology with following features:

- Medium flow for easy processing.
- High impact strength with balanced stiffness.
- Good heat Sealability

### Recommended Applications:

PP Impact Copolymer 4100MH is recommended for Injection Molded applications like

- Automotive Battery Containers & Lids
- Inverter Battery Containers & Lids
- Industrial components
- Under the hood parts.

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 11.0    |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | > 23.0  |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 6.0     |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 1200    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | 100     |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | > 95    |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 140     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature:** 170 – 230 °C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Copolymer 4100MH shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Impact Copolymer

## Injection Molding

### Product Description:

PP Impact Copolymer 5200MG is a heterophasic natural colored super impact resistance grade produced by the latest Spheripol II Technology with following features:

- Very good processability.
- Very high Impact Strength.
- High Stiffness

### Recommended Applications:

PP Impact Copolymer 5200MG is recommended for Injection Molding & Compounding applications like

- Automotive components
- Appliances
- Industrial components
- Luggage Shells
- Base resin for automotive compounds

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 20      |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 21.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 7.0     |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 900     |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | > 500   |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 85      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 134     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 170 – 210 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP-ICP 5200MG is not recommended for Food contact & Medical Applications.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Impact Copolymer

## Injection Molding & Compounding

### Product Description:

**PP-ICP 5300MN** is a heterophasic natural coloured high flow and super impact resistance grade. The grade exhibits:

- Excellent processability.
- Very high Impact Strength.
- High Stiffness

### Recommended Applications:

**PP-ICP 5300MN** is recommended for Injection Moulding & Compounding applications like:

- Automotive Components
- Appliances Components.
- Industrial Applications.
- Base resin for Compounding

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230 <sup>o</sup> C & 2.16 Kg)        | ASTM D 1238 | gm/10 min | 30      |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa       | 20.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 8       |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 900     |
| Notched Izod Impact Strength @ 23 <sup>o</sup> C      | ASTM D 256  | J/m       | 500     |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 88      |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature:** 180 – 230 °C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP-ICP 5300MN is not recommended for Food contact & Medical Applications.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed **50 °C**. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months Provisional after delivery

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## Polypropylene Random Copolymer

## Injection Molding & ISBM

### Product Description:

PP Random Copolymer 2300MX is a natural colored; Ultra High clarity reactor grade produced by the latest Spheripol II Technology. The Grade has excellent transparency, gloss, balance of stiffness-impact properties and excellent organoleptic properties.

The grade contains clarifier & antistatic agent.

### Recommended Applications:

PP Random Copolymer 2300MX is recommended for Injection Molding & Injection Stretch Blow Molding process for manufacturing of:

- Thin wall Injection Molding
- Ultra-high clear Rigid Containers
- Housewares
- ISBM products

### Typical Properties:

| Tested Properties                                    | Test Method | UOM       | Values* |
|--|-------------|-----------|---------|
| <b>Resin Properties</b>                              |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)                    | ASTM D 1238 | gm/10 min | 30.0    |
| <b>Mechanical Properties</b>                         |             |           |         |
| Tensile Strength @ Yield (50 mm/min)                 | ASTM D 638  | MPa       | 32      |
| Elongation @ Yield (50 mm/min)                       | ASTM D 638  | %         | 14      |
| Flexural Modulus (1.3 mm/min)                        | ASTM D 790  | MPa       | 1100    |
| Notched Izod Impact Strength @ 23°C                  | ASTM D 256  | J/m       | 60      |
| <b>Thermal Properties</b>                            |             |           |         |
| Heat Deflection Temperature (0.46 N/m <sup>2</sup> ) | ASTM D 648  | °C        | 80      |
| Vicat Softening Point (10 N)                         | ASTM D 1525 | °C        | 126     |
| <b>Optical Properties</b>                            |             |           |         |
| Haze (2mm)   | ASTM D 1003 | %         | 15      |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 180 – 210 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Random Copolymer 2300MX shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Impact Copolymer

## Injection Molding

### Product Description:

PP Impact Block Copolymer 4080MA is a natural colored grade produced by the latest Spheripol II Technology with following features:

- Medium flow for easy processing.
- Good impact strength with balanced stiffness.
- Good Antistatic properties.

### Recommended Applications:

PP Impact Copolymer 4080MA is recommended for Injection Molded applications like

- Furniture
- Industrial components
- Paint Pails

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 8.0     |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 25.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 7.0     |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 1100    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | 170     |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 95      |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 170 – 230 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Copolymer 4080MA shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Impact Copolymer

## Injection Molding

### Product Description:

PP Impact Copolymer 5120MG is a heterophasic natural colored super impact resistance grade produced by the latest Spheripol II Technology with following features:

- Very good processability.
- Very high Impact Strength.
- High Stiffness

### Recommended Applications:

PP Impact Copolymer 5120MG is recommended for Injection Molding & Compounding applications like

- Automotive components
- Appliances
- Industrial components
- Luggage Shells
- Base resin for automotive compounds

### Typical Properties:

| Tested Properties                                     | Test Method | UOM                | Values* |
|---|-------------|--------------------|---------|
| <b>Resin Properties</b>                               |             |                    |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min          | 12      |
| Density @ 23°C  | ASTM D 1505 | gm/cm <sup>3</sup> | 0.90    |
| <b>Mechanical Properties</b>                          |             |                    |         |
| Tensile Strength @ Yield (50 mm/min)                  | ASTM D 638  | MPa                | 22.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %                  | 8.0     |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa                | 900     |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m                | > 500   |
| <b>Thermal Properties</b>                             |             |                    |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C                 | 85      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C                 | 135     |

\* Typical values not to be construed as specification limits. Values may change without any prior notice.

\* Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618.

**Recommended Processing Temperature: 170 – 210 °C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Copolymer 5120MG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust free and the Storage temperature should not exceed 50 °C. Non - compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## BOPP Film

### Product Description:

PP Homopolymer P1030FG is a natural colored grade produced by latest Spheripol II Technology with following features:

- Excellent Processability on high speed BOPP lines
- Low water carry over
- Excellent clarity and gloss
- Good mechanical strength and puncture resistance

### Recommended Application:

PP Homopolymer P1030FG is recommended for General Purpose, Co-extruded Biaxially Oriented Polypropylene (BOPP) film and Metallisable BOPP films used in packaging applications such as

- Textile Packaging
- Adhesive Tapes
- Food and Biscuit Packaging
- Cigarette Overwraps

### Typical Properties:

| Tested Properties                        | Test Method | UOM       | Values* |
|--|-------------|-----------|---------|
| <b>Resin Properties</b>                  |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)        | ASTM D 1238 | gm/10 min | 3.0     |
| <b>Mechanical Properties</b>             |             |           |         |
| Tensile Strength @Yield (50mm/min)       | ASTM D 638  | MPa       | 36.0    |
| Elongation @ Yield (50 mm/min)           | ASTM D 638  | %         | 11      |
| Flexural Modulus (1.3 mm/min)            | ASTM D 790  | MPa       | 1400    |
| Notched Izod Impact Strength @ 23°C      | ASTM D 256  | J/m       | 32      |
| <b>Thermal Properties</b>                |             |           |         |
| Heat Deflection Temperature (0.46 N/mm2) | ASTM D 648  | °C        | 93      |
| Vicat Softening Point (10 N)             | ASTM D 1525 | °C        | 155     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice

\*Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618

**Recommended Processing Temperature: 220 – 280°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer P1030FG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust, dust free and the Storage temperature should not exceed 50°C. Non – compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Injection Molding

### Product Description:

PP Homopolymer P1030MG is a natural colored grade produced by latest Spheripol II Technology with following features:

- High Strength
- Good Processability

### Recommended Application:

PP Homopolymer P1030MG is recommended for general purpose injection molding and extrusion applications like:

- Household articles
- Rigid Packaging
- Sheet & Tapes

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min | 3.0     |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @Yield (50mm/min)                    | ASTM D 638  | MPa       | 35.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 12      |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1350    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m       | 35      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 94      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 156     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice

\*Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618

**Recommended Processing Temperature: 170 – 230°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer P1030MG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it shall also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust, dust free and the Storage temperature should not exceed 50°C. Non – compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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**Web:** <https://propel.indianoil.in>

## Polypropylene Homopolymer

## Woven Sacks

### Product Description:

PP Homopolymer P1030RG is a natural colored grade produced by the latest Spheripol II Technology with following features:

- Excellent Processability
- Low water carry over
- Good balance of tenacity & elongation

### Recommended Application:

PP Homopolymer P1030RG is recommended for manufacturing of stretched tapes for applications like

- Cement, Polymers & Fertilizers packaging
- Fabrics for general packaging
- Food grains packaging
- FIBC for bulk industrial packaging
- Carpet Backing

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min | 3.3     |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @Yield (50mm/min)                    | ASTM D 638  | MPa       | 35      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 12      |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1550    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m       | 50      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 95      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 156     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice

\*Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618

**Recommended Processing Temperature:** 170 – 230°C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer P1030RG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it shall also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust, dust free and the Storage temperature should not exceed 50°C. Non – compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Injection Molding & Extrusion

### Product Description:

PP Homopolymer P1060MG is a natural colored grade produced by latest Spheripol II Technology with following features:

- High Stiffness
- Good Processability

### Recommended Application:

PP Homopolymer P1060MG is recommended for General Purpose injection molding & extrusion applications like

- Household articles
- Rigid Packaging
- Thermoforming

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min | 6.0     |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @Yield (50mm/min)                    | ASTM D 638  | MPa       | 35.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 12      |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1500    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m       | 40      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 94      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 154     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice

\*Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618

**Recommended Processing Temperature: 170 – 230°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer P1060MG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it shall also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust, dust free and the Storage temperature should not exceed 50°C. Non – compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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**Web:** <https://propel.indianoil.in>

## Polypropylene Homopolymer

## Cast Film Application

### Product Description:

PP Homopolymer P1070FG is a natural colored grade produced by the latest Spheripol II Technology. The Grade is having following properties:

- Excellent processability
- Excellent clarity and gloss
- Good mechanical properties

### Recommended Application:

PP Homopolymer P1070FG is recommended for cast film applications. The grade can be used for manufacturing of general purpose as well as metallized films used in packaging applications such as.

- Lamination film
- Textile Packaging
- Food Packaging
- Stationary items

### Typical Properties:

| Tested Properties                        | Test Method | UOM       | Values* |
|--|-------------|-----------|---------|
| <b>Resin Properties</b>                  |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)        | ASTM D 1238 | gm/10 min | 7       |
| <b>Mechanical Properties</b>             |             |           |         |
| Tensile Strength @Yield (50mm/min)       | ASTM D 638  | MPa       | 37      |
| Elongation @ Yield (50 mm/min)           | ASTM D 638  | %         | 9       |
| Flexural Modulus (1.3 mm/min)            | ASTM D 790  | MPa       | 1400    |
| Notched Izod Impact Strength @ 23°C      | ASTM D 256  | J/m       | 40      |
| <b>Thermal Properties</b>                |             |           |         |
| Heat Deflection Temperature (0.46 N/mm2) | ASTM D 648  | °C        | 93      |
| Vicat Softening Point (10 N)             | ASTM D 1525 | °C        | 155     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice

\*Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618

**Recommended Processing Temperature:** 210 – 250°C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer P1070FG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 16738:2018. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust, dust free and the Storage temperature should not exceed 50°C. Non – compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

### Storage & Handling:

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## Polypropylene Homopolymer

TQPP Film

### Product Description:

PP Homopolymer P1100FS is a natural colored grade produced by latest Spheripol II Technology with following features:

- Excellent Processability
- Excellent Clarity & Gloss
- Contains Slip and Antiblock additives

### Recommended Application:

PP Homopolymer P1100FS is recommended for production of tubular water quenched polypropylene blown film (TQPP film) for

- Textile overwraps
- Snacks and bakery foods packaging
- Garment bags

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min | 11.0    |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @Yield (50mm/min)                    | ASTM D 638  | MPa       | 35.0    |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 10      |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1500    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m       | 21      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 100     |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 151     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice

\*Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618

**Recommended Processing Temperature:** 170 – 220°C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer P1100FS shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust, dust free and the Storage temperature should not exceed 50°C. Non – compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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**Web:** <https://propel.indianoil.in>

## Polypropylene Homopolymer

## Injection Molding

### Product Description:

PP Homopolymer P1110MAS is a natural colored grade produced by the latest Spheripol II Technology. The Grade is having following properties:

- High flow & high stiffness
- Excellent gloss.
- Contains antistatic agent
- Designed to offer faster molding cycles and the ability to achieve cycle time reduction of up to 18% (Depending on product & equipment).

### Recommended Application:

PP Homopolymer P1110MAS is recommended for Injection Molded applications like

- Furniture
- House articles
- Automotive component (where high stiffness is required)
- Ideal for products requiring very good dimensional stability (low warpage)

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min | 11.0    |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @Yield (50mm/min)                    | ASTM D 638  | MPa       | 42      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 8       |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1800    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m       | 30      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 115     |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 154     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice

\*Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618

**Recommended Processing Temperature:** 170 – 230°C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer P1110MAS shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust, dust free and the Storage temperature should not exceed 50°C. Non – compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Injection Molding

### Product Description:

PP Homopolymer P1110MG is a natural colored grade produced by latest Spheripol II Technology with following features:

- High Flow
- High Rigidity
- Excellent Gloss

### Recommended Application:

PP Homopolymer P1110MG is recommended for injection molding like

- Household articles
- Rigid Packaging
- Furniture

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min | 11.0    |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @Yield (50mm/min)                    | ASTM D 638  | MPa       | 40      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 8       |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1550    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m       | 21      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 100     |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 154     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice

\*Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618

**Recommended Processing Temperature: 170 – 230°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer P1110MG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it shall also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heal to avoid quality deterioration. The storage location should be dry, dust, dust free and the Storage temperature should not exceed 50°C. Non – compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Extrusion Coating / Lamination

### Product Description:

PP Homopolymer P1350EG is a natural colored grade produced by latest Spheripol II Technology with following features:

- Excellent flow characteristics
- Low neck-in and good processability
- Good surface finish & excellent adhesion to substrate

### Recommended Application:

PP Homopolymer P1350EG is recommended for production of

- Extrusion coating on PP Raffia fabrics
- Lamination process

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min | 35.0    |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @Yield (50mm/min)                    | ASTM D 638  | MPa       | 35      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 9       |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1500    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m       | 22      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 95      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 150     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice

\*Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618

**Recommended Processing Temperature: 180 – 250°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer P1350EG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust, dust free and the Storage temperature should not exceed 50°C. Non – compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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Web: <https://propel.indianoil.in>

## Polypropylene Homopolymer

## Fibre & Filaments / Nonwoven

### Product Description:

PP Homopolymer P1350YG is a natural colored grade produced by latest Spheripol II Technology with following features:

- High melt flow and specified for high speed production of fine denier fibre/nonwoven.
- Excellent Processability

### Recommended Application:

PP Homopolymer P1350YG is recommended for production of

- Spun bonded nonwoven fabrics
- Fine denier multifilament yarns

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min | 35.0    |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @Yield (50mm/min)                    | ASTM D 638  | MPa       | 36      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 11      |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1200    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m       | 20      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 85      |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 150     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice

\*Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618

**Recommended Processing Temperature:** 170 – 230°C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer P1350YG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust, dust free and the Storage temperature should not exceed 50°C. Non – compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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## Polypropylene Homopolymer

## Injection Molding

### Product Description:

PP Homopolymer P1500MG is a natural colored grade produced by the latest Spheripol II Technology. The Grade is having following properties:

- High flow
- Excellent Processability
- Designed to offer faster molding cycles

### Recommended Application:

PP Homopolymer P1500MG is recommended for Injection Molded applications like

- Thin Wall Packaging & Multi-cavity Products
- Housewares
- Base resin for Compounds

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min | 48      |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @Yield (50mm/min)                    | ASTM D 638  | MPa       | 35      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 12      |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1450    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m       | 30      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 105     |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 152     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice

\*Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618

**Recommended Processing Temperature: 170 – 220°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer P1500MG shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust, dust free and the Storage temperature should not exceed 50°C. Non – compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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**Web:** <https://propel.indianoil.in>

## Polypropylene Homopolymer

## Thin Wall Injection Molding (TWIM)

### Product Description:

PP Homopolymer P1600MN is a natural colored grade produced by the latest Spheripol II Technology. The Grade is having following properties:

- High flow
- Good Balance of Stiffness and Impact
- Good Dimensional Stability
- Designed to offer faster molding cycles and the ability to achieve cycle time reduction

### Recommended Application:

PP Homopolymer P1600MN is recommended for Injection Molded applications like

- Thin wall Injection Molding (TWIM) products like Containers, lids & Trays
- Multi-cavity Products
- Media Packaging
- Base resin for Compounds

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min | 60      |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @Yield (50mm/min)                    | ASTM D 638  | MPa       | 37      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 10      |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1700    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m       | 27      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 105     |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 150     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice

\*Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618

**Recommended Processing Temperature:** 170 – 220°C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer P1600MN shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust, dust free and the Storage temperature should not exceed 50°C. Non – compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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**Web:** <https://propel.indianoil.in>

## Polypropylene Homopolymer

## Thin Wall Injection Molding (TWIM)

### Product Description:

PP Homopolymer P1750MN is a natural colored grade produced by the latest Spheripol II Technology. The Grade is having following properties:

- High flow
- Good Balance of Stiffness and Impact
- Good dimensional stability
- Contains antistatic agent.
- Designed to offer faster molding cycles

### Recommended Application:

PP Homopolymer P1750MN is recommended for Injection Molded applications like

- Thin wall Injection Molding (TWIM) products like Containers, lids & Trays
- Multi-cavity Products
- Media Packaging
- Base resin for Compounds
- Thin, complex parts

### Typical Properties:

| Tested Properties                        | Test Method | UOM       | Values* |
|--|-------------|-----------|---------|
| <b>Resin Properties</b>                  |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)        | ASTM D 1238 | gm/10 min | 75      |
| <b>Mechanical Properties</b>             |             |           |         |
| Tensile Strength @Yield (50mm/min)       | ASTM D 638  | MPa       | 37      |
| Elongation @ Yield (50 mm/min)           | ASTM D 638  | %         | 9       |
| Flexural Modulus (1.3 mm/min)            | ASTM D 790  | MPa       | 1700    |
| Notched Izod Impact Strength @ 23°C      | ASTM D 256  | J/m       | 25      |
| <b>Thermal Properties</b>                |             |           |         |
| Heat Deflection Temperature (0.46 N/mm2) | ASTM D 648  | °C        | 110     |
| Vicat Softening Point (10 N)             | ASTM D 1525 | °C        | 150     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice

\*Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618

**Recommended Processing Temperature:** 170 – 220°C

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer P1750MN shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust, dust free and the Storage temperature should not exceed 50°C. Non – compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

### Storage & Handling:

**Disclaimer:** IOCL assumes no liability whatsoever in respect of application, processing or any use made of the aforementioned information or products, or any consequence thereof. No liability whatsoever shall attached to any of the IOCL companies for any infringement of the rights owned or controlled by a third party in intellectual, industrial or other property by reason of application, processing or use of the aforementioned information or products by the user.



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Web: <https://propel.indianoil.in>

## Polypropylene Homopolymer

## Injection Molding

### Product Description:

PP Homopolymer P1200MAS is a natural colored grade produced by the latest Spheripol II Technology. The Grade is having following properties:

- Designed High flow to offer faster molding cycles
- Excellent gloss.
- Contains antistatic agent for reducing static charge buildup

### Recommended Application:

PP Homopolymer P1200MAS is recommended for Injection Molded applications like

- Housewares
- Ideal for products requiring very good dimensional stability (low warpage)
- Thin Wall & Multi-cavity Products
- Resin for Compounding Application

### Typical Properties:

| Tested Properties                                     | Test Method | UOM       | Values* |
|---|-------------|-----------|---------|
| <b>Resin Properties</b>                               |             |           |         |
| Melt Flow Index (230°C & 2.16 Kg)                     | ASTM D 1238 | gm/10 min | 20      |
| <b>Mechanical Properties</b>                          |             |           |         |
| Tensile Strength @Yield (50mm/min)                    | ASTM D 638  | MPa       | 35      |
| Elongation @ Yield (50 mm/min)                        | ASTM D 638  | %         | 9       |
| Flexural Modulus (1.3 mm/min)                         | ASTM D 790  | MPa       | 1500    |
| Notched Izod Impact Strength @ 23°C                   | ASTM D 256  | J/m       | 30      |
| <b>Thermal Properties</b>                             |             |           |         |
| Heat Deflection Temperature (0.46 N/mm <sup>2</sup> ) | ASTM D 648  | °C        | 108     |
| Vicat Softening Point (10 N)                          | ASTM D 1525 | °C        | 155     |

\*Typical values not to be construed as specification limits. Values may change without any prior notice

\*Mechanical properties tested on specimen molded as per ASTM D 4101 and conditioned as per ASTM D 618

**Recommended Processing Temperature: 170 – 230°C**

### Packaging Information:

This material is packed and available in raffia bags with net content of 25.0 Kg only. The raffia bags used conforms to the minimum strength requirements of BIS, however, customer shall take due care while handling the bag. Prolonged exposure of these bags to sunlight may deteriorate the bag's performance and cause spillage and wastage. IOCL does not warranty loss of material due to poor material handling practices.

### Regulatory Information:

PP Homopolymer P1200MAS shall meet the requirements stipulated in IS 10910 on 'Specification for Polypropylene and its Copolymers for safe use in contact with Foodstuff, Pharmaceutical & Drinking water'. The grade and Additives incorporated in this grade shall meet the positive list of constituents as prescribed in IS 10909. The Grade and the additives incorporated in it will also comply with the FDA: CFR Title 21,177.1520, Olefin Polymers.

### Storage & Handling:

Prevent PP Material from direct exposure to sunlight & heat to avoid quality deterioration. The storage location should be dry, dust, dust free and the Storage temperature should not exceed 50°C. Non – compliance to these precautionary measures can lead to degradation of the product causing Color changes, Odor & inadequate product performance. It is advised to process PP material within 06 months after delivery.

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