



# Polypropylene & Polyethylene



Scan for  
HMEL Polysure Grades





**H PCL-Mittal Energy Limited (H MEL)** is a joint venture between Hindustan Petroleum Corporation Limited (A Fortune 500 & Forbes Global 2000 Oil Refining Company in India) & Mittal Energy Investments Pte. Ltd., Singapore (A Lakshmi N Mittal Group Company). Both the JV Partners hold a stake of 49% each in the company and remaining 2% is held by financial institutions. The joint venture partners bring more than four decades of experience in the oil refining industry and expertise in the global industry to the table.

H MEL currently operates a state-of-the-art crude oil refinery of 11.3 Million MT/annum capacity, along with a Polypropylene Unit of 0.5 Million MT/annum capacity, at Bathinda in Punjab, India. H MEL's wholly owned subsidiary HPCL-Mittal Pipeline Limited (HMPL) operates a dedicated 1017 km pipeline (Mundra, Gujarat to Bathinda, Punjab), along-with the crude handling facilities of Single Point Mooring (SPM) System, crude oil storage tanks and blending facility at Mundra.

H MEL has set up a world class Dual-feed Cracker and Petrochemical Complex, integrated with the existing Refinery at Bathinda. H MEL's integrated Refinery & Petrochemical Complex produces a total of 2.2 Million MT/annum of Polyethylene (PE) and Polypropylene (PP) products catering to all application segments, along-with other petroleum and petrochemical products.

H MEL's PE and PP units bring to the customers, a spread of world's best technologies:

| UNIT NAME               | LICENSOR                       | TECHNOLOGY                | CAPACITY (KTA) |
|-------------------------|--------------------------------|---------------------------|----------------|
| Dual Feed Cracker       | Lummus, USA                    | Lummus                    | 1200           |
| Swing Unit (LLDPE/HDPE) | Univation Technologies, USA    | UNIPOL™ PE                | 2 X 400        |
| Dedicated HDPE Unit     | Chevron Phillips Chemical, USA | MarTECH™                  | 450            |
| PP Unit – 1             | Novolen, Germany               | Lummus Novolen Tech, GmbH | 500            |
| PP Unit – 2             | Lyondell Basell, Italy         | Spheripol – II            | 500            |

H MEL produces PP Impact Copolymer, Random Copolymer and **Speciality Terpolymer** along with Homo-Polymer variants in the new PP unit. The swing plants produce wide range of HDPE & LLDPE grades for various applications including the **Metallocene LLDPE** for flexible packaging. Dedicated HDPE unit produces wide range of HDPE grades, with very special attributes of **Large Blow Molding** grades.



| Sector  | Grade          | MFI* | Typical Applications  | Special Characteristics  |
|---|----------------|------|---|--|
| <b>Polysure PP- Homopolymer (Novolen / Lyondell Basell)</b> |                |      |   |  |
| BOPP Film   | F03RR / F03RR1 | 3.2  | Adhesive tapes, Metallisable film, Flexible packaging                               | Gel Free, Excellent Clarity & Stretchability                           |
| Raffia  | R03RR / R03RR1 | 3.4  | Woven sacks for Cement, Food grain, Sugar packaging, Leno bags, Box Strapping, FIBC | Low Water Carryover & Excellent Tenacity                               |
| Thermoforming   | T03NR / T03NR1 | 3.5  | Disposable Cups & Glasses, Food containers, Trays, Rigid packaging                  | High Stiffness & Excellent Optical Properties                          |
| Cast Film   | F08RR / F08RR1 | 8    | Cast Film for Textile overwraps, Garment bags, Snacks & Food packaging              | Low Neck- in & Excellent Optical Properties                            |
| TQPP Film   | F10SR / F10SR1 | 10   | Snacks Packaging, Textile Overwraps, Grocery & Bread packaging                      | Excellent Openability & Optical Properties                             |
| Injection Molding   | M12RR / M12RR1 | 12   | General Purpose IM, Closures, Furniture, Houseware, Toys                            | Good Aesthetics & Low Warpage  |
|   | M18NH / M18NH1 | 18   | Thin Wall Injection Molded Containers, Household items                              | Low Cycle Time & Good Stiffness  |
|   | M20CR / M20CR1 | 20   | Medical Syringes, High Clarity Consumer Products                                    | Low Cycle Time & Good Clarity  |
|   | M50NR / M50NR1 | 50   | TWIM, Housewares, Compounding   | Smooth Processing & Low Cycle Time                                     |
|   | M65NR / M65NR1 | 65   | Multi cavity Molding, TWIM, Housewares, Compounding                                 | Excellent Flowability & Low Cycle Time                                 |
| Fibre & Filament  | Y12GR / Y12GR1 | 12   | Staple Fibers, High Tenacity Multifilament Yarn                                     | Excellent processing & superior tenacity with Anti Gas Fading Property |
|   | Y25GR / Y25GR1 | 25   | Carpets, Multifilament Yarn, Bulk Continuous Filament                               | Narrow MWD & Anti Gas Fading Property                                  |
| Nonwoven  | Y35GR / Y35GR1 | 35   | Spunbond Nonwoven Fabric, Face Masks & Medical Apron, Suit Covers, Diapers          | Excellent Spinnability & Anti Gas Fading Property                      |
| Extrusion Coating   | E35RR / E35RR1 | 35   | Lamination on Woven & Nonwoven Fabrics, Paper Coating                               | Low Neck- in & Excellent Bonding Strength                              |
| <b>Polysure PP- Random Copolymer (Lyondell Basell)</b>      |                |      |   |  |
| PPR Pipe  | RP01TR         | 0.3  | Hot Water PPR Pipe  | Smooth Surface & Long Service Life                                     |
| Extrusion Blow Molding                                      | RB02RR         | 2    | IV Fluid Bottles, Small Blow Molded Containers                                      | Superior Melt Strength & Clarity                                       |
|   | RB02CR         | 2    | High Clarity Containers, Bottles, Sheet, Ball Pen Refills                           | Superior Clarity & Processability                                      |
| Injection Molding   | RM12CR         | 12   | High Clarity Containers, Laboratory Products, ISBM Bottles                          | Low Cycle Time, Excellent Clarity & Stiffness                          |
|   | RM30CR         | 30   | High Clarity Consumer Products, ISBM bottles, Medical Applications                  | Excellent Clarity with Antistatic Additive                             |
| <b>Polysure PP- Impact Copolymer (Lyondell Basell)</b>      |                |      |   |  |
| Extrusion   | CE02RR         | 1.8  | Sheet Extrusion, Flute Board, Blow Molded Container                                 | Excellent Rigidity & Smooth Processing                                 |
|   | CE06NR         | 6    | Caps, Closures, Lids  | Superior Organoleptic Properties & Rigidity                            |
| Injection Molding   | CM03RR         | 3.5  | Automotive Components, Furniture, Crates  | Good Stiffness- Impact Balance   |
|   | CM08NR         | 8    | Paint Pail, Furniture, Industrial Components  | Good Stackability & Impact Strength                                    |
|   | CM10TE         | 9.5  | Battery Casing, Under Hood Automotive Components                                    | Optimum Stiffness- Impact Balance & Thermal Stability                  |
| Injection Molding & Compounding                             | CM12RR         | 12   | Housewares, Automotive Components, Luggage, Paint Pail, Appliances, Compounding     | Good Stiffness- Impact balance & Easy Processing                       |
|   | CM12RE         | 12   | Luggage, Automotive Components, Compounding   | No Break Grade with Superior Toughness                                 |
|   | CM25NR         | 25   | Rigid Packaging, Automotive Components, Compounding                                 | Low Warpage & Low Cycle Time   |
|   | CM40NR         | 40   | TWIM, Appliances, Housewares, Compounding   | Reactor Grade, Good Stiffness- Impact balance                          |
|   | CM65NR         | 65   | Compounding, TWIM, Appliances, Housewares   | Reactor Grade, Low Warpage & Low Cycle Time                            |
| <b>Polysure PP- Terpolymer (Lyondell Basell)</b>            |                |      |   |  |
| Heat Seal BOPP  | TF06RE         | 6.0  | Heat Seal Layer of BOPP Film for Flexible Packaging                                 | Terpolymer, Excellent Sealability & Low SIT                            |

\* MFI in g/10 min as per ASTM D1238



| Sector   | Grade   | MFI*                   | Density** | Typical Applications  | Special Characteristics  |
|--|---------|------------------------|-----------|---|--|
| <b>Polysure HDPE (Chevron Phillips Chemical)</b> |         |                        |           |   |  |
| Raffia & Extrusion                               | R0151D  | 0.55                   | 0.951     | Fertilizer bags, Food Grain bags, Tarpaulin, Wrapping fabric                                | Excellent Processability & High Tenacity                               |
| Blow Molding                                     | B0155D  | 0.35                   | 0.955     | GPBM -Containers for Lube oils, Edible oils (upto 20L)                                      | Good Melt Strength & Die Swell   |
|  | B0148D  | 10 (I <sub>21</sub> )  | 0.948     | MBM-Shipping Containers, Jerry cans, Fuel Tank (upto 120L)                                  | Excellent ESCR & Stackability  |
|  | B0053D  | 2.5 (I <sub>21</sub> ) | 0.953     | LBM -L Ring Drums, Lube oil Drums, Industrial Tanks (upto 220 L)                            | Low Parison Sagging & Superior Stackability                            |
| Film Extrusion                                   | F0146D  | 0.18                   | 0.946     | General Purpose Film, T Shirt bags, Multi-wall liners, Trash bags                           | Smooth Processing & Excellent Bubble stability                         |
|  | F0050D  | 8 (I <sub>21</sub> )   | 0.950     | HM Film, Heavy Duty Film, Merchandise bags, Industrial liners                               | Bimodal MWD & Excellent Mechanical Strength                            |
| Pipe Extrusion                                   | P0147D  | 0.9 (I <sub>5</sub> )  | 0.947     | PE 63 Pipe- Ducting, Drainage Pipe & Drip Lateral   | Good Processability & Smooth Surface                                   |
|  | P0147DU | 0.9 (I <sub>5</sub> )  | 0.947     | PE 63 Pipe- Telecom / Cable Duct for outdoor applications                                   | Good Processability & UV Resistance                                    |
|  | P0148D  | 9 (I <sub>21</sub> )   | 0.948     | PE 80 Pipe- Pressure pipes for Gas & Water distribution, Sprinkler Irrigation               | Smooth Surface & Good Mechanical Strength                              |
|  | P0049D  | 8 (I <sub>21</sub> )   | 0.949     | PE 100 Pipe- High Pressure Pipe for Water distribution & Industrial applic., Large Dia Pipe | Bimodal MWD & Superior Creep Resistance                                |
| Injection Molding                                | M0662D  | 6.5                    | 0.962     | Heavy-duty Crates, Tote Boxes, Industrial Products  | Superior Dimensional Stability & Excellent Stiffness                   |
|  | M0662DU | 6.5                    | 0.962     | Heavy-duty Crates, Luggage Shells, Defence Applications                                     | UV Stabilized for long term outdoor exposure, good impact resistance   |
|  | M1855D  | 18                     | 0.955     | Housewares & general purpose items, Food Containers, TWIM                                   | Smooth Processing & Low Warpage  |
| <b>Polysure HDPE (Univation Technologies)</b>    |         |                        |           |   |  |
| Pipe Extrusion                                   | P0142S  | 0.6 (I <sub>5</sub> )  | 0.942     | PE 63 Pipe- Ducting, Drainage Pipe & Drip Lateral   | Good Processability & Smooth Surface                                   |
| Blow Molding                                     | B0158S  | 0.15                   | 0.958     | GPBM- Containers for Lube oils, Edible oils (upto 20L)                                      | Good Melt Strength & Die Swell   |
| Film Extrusion                                   | F0153S  | 0.20                   | 0.953     | Carry Bags, GP Film & Co- extruded films  | Smooth processing & excellent Bubble stability                         |
| Raffia & Monofilament Extrusion                  | R0150S  | 1                      | 0.950     | Raffia, Stretch tapes, Woven sacks, Tarpaulin   | Good Processability & High Tenacity                                    |
|  | Y0154S  | 1                      | 0.954     | Yarn, Monofilament for Nets, Twines, Ropes  | Excellent Spin-ability & Low Die Build-up                              |
| Injection Molding                                | M0252S  | 2                      | 0.952     | Caps & Closure, Small industrial parts  | Superior Organoleptic Properties & Low warpage                         |
|  | M0861S  | 8                      | 0.961     | Heavy- duty Crates, Helmets & Industrial products   | Good Rigidity & Impact strength  |
|  | M0861SU | 8                      | 0.961     | Crates, Luggage, Helmet, Defence Application  | UV Stabilized for Long Service Life                                    |
|  | M2050S  | 20                     | 0.950     | Houseware items, Food Container, TWIM   | Dimensional Stability & Minimum Warpage                                |
|  | M3050S  | 30                     | 0.950     | TWIM, Food Container, Filler Master batch   | Minimum Warpage & Good Filler Dispersability                           |
| <b>Polysure LLDPE (Univation Technologies)</b>   |         |                        |           |   |  |
| Film & Extrusion                                 | F0120L  | 1                      | 0.920     | General purpose packaging, Multilayer films, Liners, agricultural film                      | Excellent Optical Properties with Slip & Anti-block                    |
|  | F0118L  | 1                      | 0.918     | General purpose packaging, Multilayer films, Liners, Drip Lateral, agricultural film        | Excellent Clarity, without Slip & Anti-block                           |
|  | D0120L  | 1                      | 0.920     | Drip Lateral applications   | Easy Processability & Good Surface                                     |
|  | F0120LM | 1                      | 0.920     | High Performance Multilayer films, FFS packaging films                                      | Metallocene, Excellent Dart Impact & Clarity with Slip & Anti-block    |
|  | F0118LM | 1                      | 0.918     | High Performance Multilayer films, FFS Film, Overwrap Film, Freezer Film                    | Metallocene, Excellent Dart Impact & Clarity without Slip & Anti-block |
|  | F0218L  | 2                      | 0.918     | Liners, Agricultural film, Air bubble film, Cast Film for Stretch Wrap                      | Excellent Clarity, without Slip & Anti-block                           |
| Wire & Cable                                     | W0426L  | 3.7                    | 0.926     | Low Voltage Power Cable Insulation using Silane-Crosslinking                                | Excellent Processability & Barefoot Resin                              |
| Rotomolding                                      | R0536L  | 5                      | 0.936     | Water Storage Tank, Loft Tank, Waste Bin, Slides / Toys                                     | High Stiffness-Impact Balance & Low Sintering Time                     |
|  | R0536LU | 5                      | 0.936     | Water Storage Tank, Waste Bin, Toys for Outdoor applications                                | Excellent UV Resistance & Low Sintering Time                           |
| Extrusion Coating                                | E0725L  | 7                      | 0.925     | Extrusion Coating on Fabrics, Paper and Allied Substrates                                   | Low Neck-in & Superior Adhesion  |
| Masterbatches & IM                               | M2024L  | 20                     | 0.924     | Master Batch, TWIM, Houseware Items   | Good Filler Dispersibility & Dimensional Stability                     |
|  | M5026L  | 50                     | 0.926     | Master Batch, Houseware Items, Thin Wall Containers   | Excellent Filler Dispersion & Processability                           |

## Customer Services & Development Center

**H**MEL has chartered on a goal to emerge as a responsible player in the Petrochemical Industry. HMEL has set up a state-of-the-art Customer Services & Development Center (CSDC) at Noida to strengthen its customer value proposition through Research & Development.

HMEL's CSDC is equipped with sophisticated and advanced testing equipment and is aptly designed to have flexibility which allows diverse modes of testing. We are committed to produce consistent quality products in line with industry needs & always stand by our customers for all-round support for product, application and market development initiatives.

### Mission of CSDC



World Class  
Customer Services



Continuously adding value  
to HMEL's Product



Developing  
Polymer Solutions

### Accreditation of CSDC

- This center is accredited to **ISO/IEC 17025:2017** by National Accreditation Board for Testing and Calibration Laboratories (NABL), Govt. of India.
- Further, Customer Services & Development Center (CSDC), Noida has been recognized and registered as one of the key scientific and industrial R&D facility by **Department of Scientific & Industrial Research (DSIR)**, Ministry of Science and Technology, Govt. of India.
- CSDC is recognised by **Bureau of Indian Standards (BIS)**, Government of India.



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## Our Core Values

Our values define and measure us. Our core values speak of our actions so ingrained to steer us towards success and act as the driving force.

Our values are our philosophy and culture, helping to build a world-class Energy Company.

