

Enable™ mPE blown film extrusion

processing guide

- Enable mPE rich blends
- Enable mPE pure systems

Enable metallocene polyethylene (mPE) can be processed on extrusion lines designed for processing LDPE or LLDPE film.

This processing guide for Enable mPE provides a summary of basic extrusion information for Enable mPE rich blends or pure films.

Line operators can combine these recommendations with their knowledge of specific equipment to optimize the extrusion parameters for processing.

MACHINE CONFIGURATION	
LLDPE Screw	<ul style="list-style-type: none"> • Screw designed for LDPE or LLDPE • L/D of approximately 24 - 30:1
Filter pack	<ul style="list-style-type: none"> • 20 - 40 mesh screens
Die	<ul style="list-style-type: none"> • Spiral mandrel • Die gap: 30 - 60 mils (0.75 - 1.5 mm) • Die lip temperatures at 390 °F (200 °C)
Cooling ring	<ul style="list-style-type: none"> • Dual lip air ring • IBC (internal bubble cooling) system • Chilled air at 60 °F (15 °C)
Tower	<ul style="list-style-type: none"> • Teflon coated collapsing frame recommended • Stabilization cage recommended
Cutting	<ul style="list-style-type: none"> • Ceramic blades recommended
PROCESSING CONDITIONS	
Temperature Setting	<ul style="list-style-type: none"> • Smooth bore: <ul style="list-style-type: none"> Target melt temperature: 380 - 390 °F (195 - 200 °C) Hump profile - 320/380/365/365/365 °F (160/195/185/185/185 °C) Screen changer / adapter / die: 390 °F (200 °C) • Grooved feed: <ul style="list-style-type: none"> Target melt temperature: 365 - 375 °F (185 - 190 °C) Cooling on feed section (target 75 °F (25 °C)) Decreasing Ramp profile: 375 decreasing to 355 °F (190 to 180 °C) Screen changer / adapter / die: 365 - 375 °F (185 - 190 °C) • Hotter temperature profiles will improve properties but at expense of bubble stability
Extruder line preconditioning	<ul style="list-style-type: none"> • Preheat extruder and die to minimum of 300 °F (150 °C) • Slowly start screw rotation, then bring up temperature • At 350+ °F (175+ °C) melt temperature, pre-coat die with concentrated addition of process aid • On a startup with a clean die, melt fracture may take 40-60 minutes to clear
Drawdown	<ul style="list-style-type: none"> • Medium to High drawdown - typically up to 60:1
PRODUCTS	
Enable mPE blend partners	<ul style="list-style-type: none"> • Add 5-10% fractional met LDPE for bubble stabilization, only if needed. Will not significantly improve optical properties. • Addition of low levels of Exceed™ mPE or HAO LLDPE will improve film strength