

# Polymer Processing Aids





# INOLUB™ P Polymer Processing Aids (PPA)

Targeted especially at today's modern polyolefin resins, enabling molecular architectures that can meet the ever-increasing demands of film performance but without compromising their extrusion capabilities

- White free flowing fine powder
- Market leading colour consistency and dispersion
- Unrivalled supply reliability backward integrated

Inolub P series offers a range of fluoropolymer-based processing aids to improve the manufacture of

- LLDPE, LDPE, HDPE, PP blown and cast film
- Extrusion blow moulding
- Pipes and tubing (PEX, HDPE)
- Melt spun fibre
- Wire and Cable



Grade	Typical use level In ppm	Working Extrusion temperature °C	Characteristics
INOLUB P502F	200-1500	Up to 240	Primary product for blown film
INOLUB P501F	100-750	Up to 350	Suitable for high temperature processes, e.g. cast film
INOLUB P401F	50-500	Up to 350	Premier grade for use in presence of interfering additives, e.g. HALS
INOLUB P402F	100-1000	Up to 240	High performance product
INOLUB P412F	100-1000	Up to 240	Outstanding balance of performance and economics

## Final Product Benefits

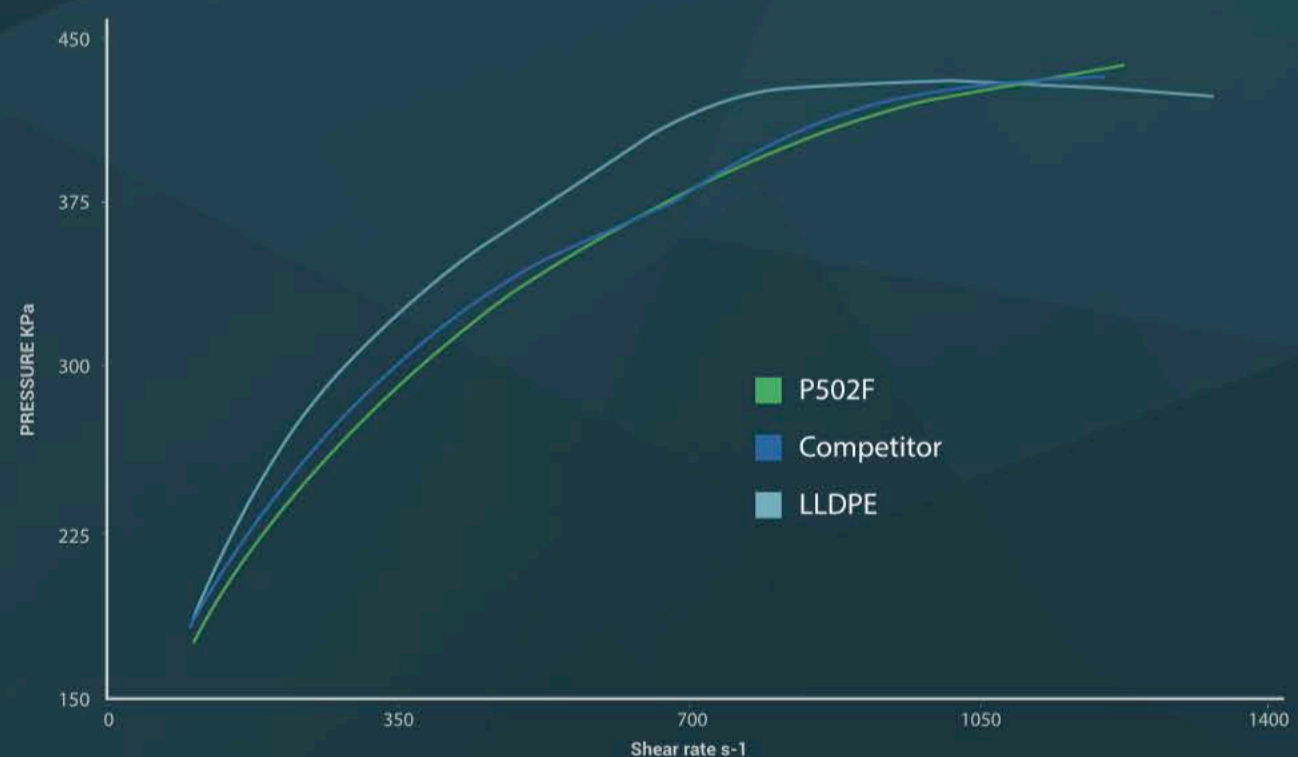
**Inolub P series brings the following benefits:**

- Elimination of melt fracture – “shark skin”
- Improvement of film transparency
- Improvement of surface smoothness
- Reduction of gels

## Processing Benefits

**Inolub P series powder are specially designed to enhance the efficiency of operating conditions:**

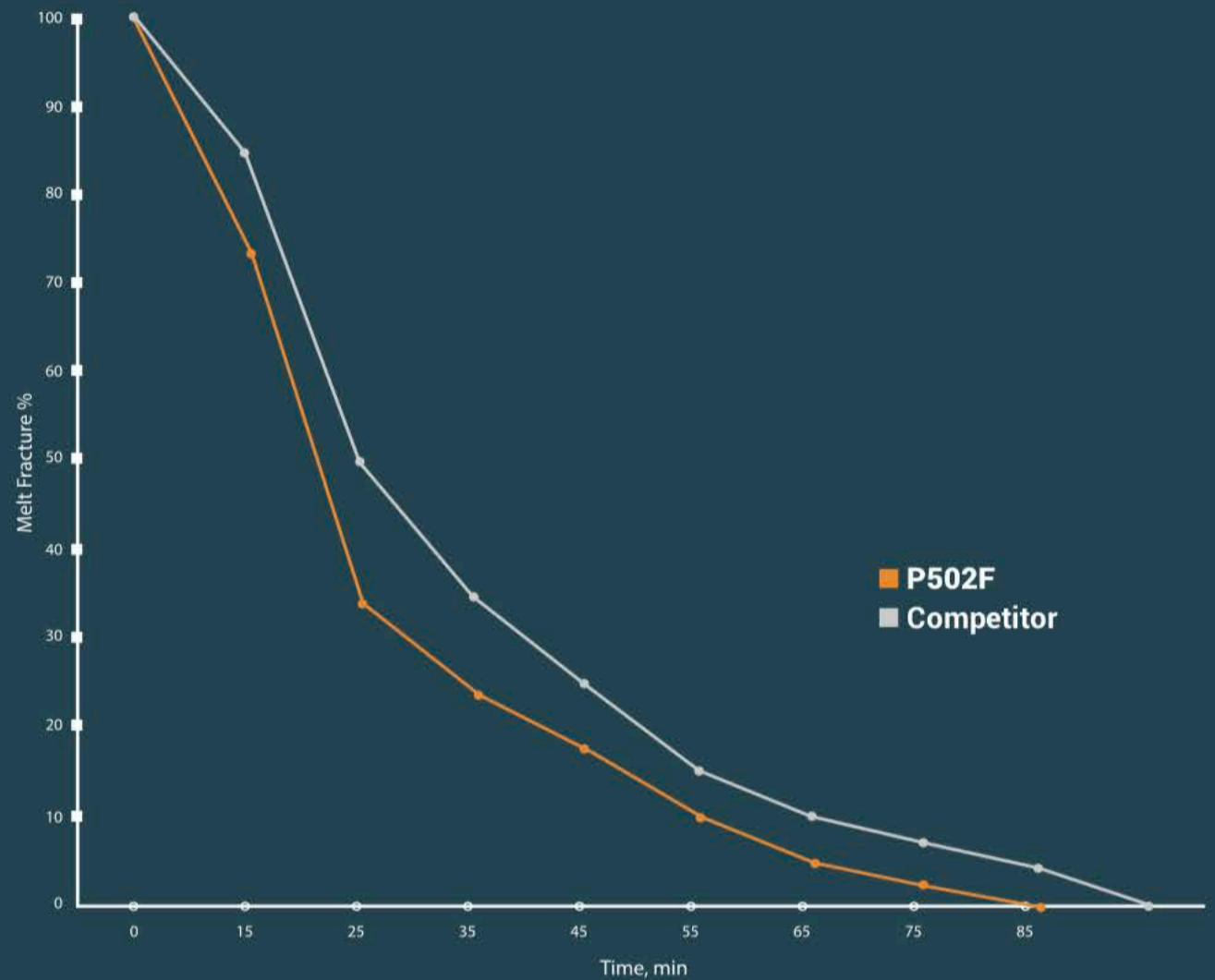
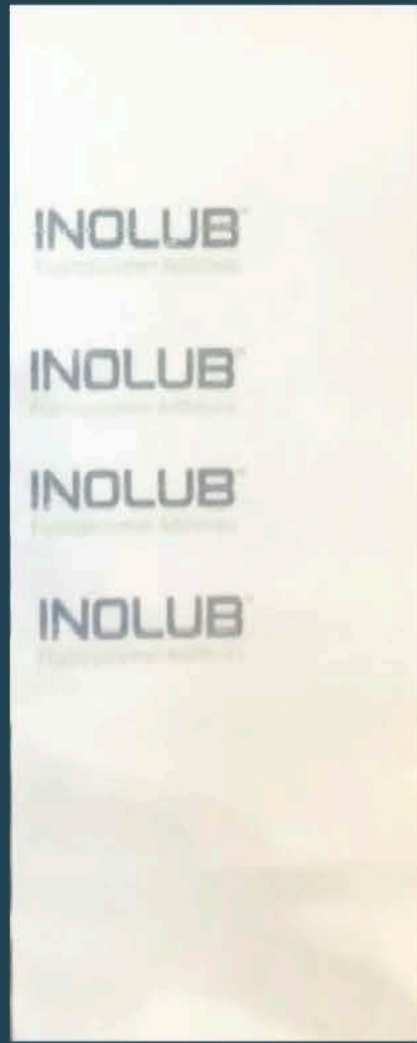
- Maintenance time reduction
- Reduction of die build-up
- Consistency of production
- Smoother extrusion conditions
- Lower energy consumption
- Reduction of cycle times and quicker transition
- Reduction of potential negative interaction with other film additives such as antiblock and HALS
- Reduction of extruder torque
- Reduction of polymer critical shear rate



## Rheology Study



## Melt Fracture Elimination Study



▲ Without Inolub P

▲ With Inolub P

▲ Melt Fracture Elimination - 600 ppm in C4 LLDPE, 0.7 MFI - Melt Temperature 175 °C

### ► Conditions of use

- **Inolub P** is mainly used as an additive at 50 -1500 ppm levels to overcome the processing problems encountered with polyolefins.
- For such a low concentration, it is highly recommended to use Inolub P in the form of a masterbatch (typically containing 1 – 5% of the pure additive) for accurate and uniform dosing.
- All **Inolub P** grades are safe for applications involving contact with food articles and meet USA FDA and European food contact regulations.

### ► How to use INOLUB P

**The two main requirements to get the best out of Inolub P products are:**

- A good dispersion;
- A uniform dosing at the typical low concentration level needed with Inolub P

**For a converter, this is achieved by using:**

- Either a resin that already contains Inolub P (many resin producers propose polyolefin grades which contain Inolub P with appropriate and uniform dosage and good dispersion);

**Or a masterbatch:**

- containing typically from 1% to 5% of Inolub P;
- which can then be diluted into their standard resin; (many masterbatch manufacturers propose PPA masterbatches based on Inolub P)



**Corporate & Marketing HQ**  
**Gujarat Fluorochemicals Limited**

INOX Towers, Plot No.17,  
Sector-16A, Noida – 201301  
U.P, India

t: +91 120 6149600  
f: +91 120 6149610



**EU Headquarters**  
**Gujarat Fluorochemicals GmbH**

6th floor, Regus Business Center,  
Am Kaiserkai 1,20457 Hamburg,  
Germany

t: +49 40808074 667/668  
f: +49 40808074 520



**USA Headquarters**  
**GFL Americas, LLC**

352 N US 77, Rockdale,  
Texas TX 76567, USA

t: +1 512 446 7700  
f: +1 512 446 7703



**Manufacturing Plant**  
**Gujarat Fluorochemicals Limited**

12/A, GIDC, Dahej Industrial  
Estate, Tehsil Vagra, Dist. Bharuch  
392130, Gujarat, India

t: +91 2641 618003  
f: +91 2641 618012