



# POLYETHYLENE CLING MASTERBATCH

## PROFILE

Nano Pouyesh Kimiya Co. (NPK) as a manufacturer & trading company founded in 2009 is engaged in production, R&D, marketing, technical services and commercial activities. NPK Company has a great technological and commercial relationship with Iranian Petrochemicals. We have supplied equipment, catalysts, additives, solvents and peroxides for petrochemical, oil and gas industrial chemistry from Germany, Italy, Netherland, Romania, Turkey, Japan, Korea, China, India, etc.

Today NPK is one of the best suppliers of chemicals like:

- ✓ PPA active agents (representation of Lanpoly company)
- ✓ Titanium Dioxide
- ✓ PE cling masterbatch
- ✓ Purge compound
- ✓ PP peroxide masterbatch rheology (MFI) modifier
- ✓ Erucamide slip active agent
- ✓ Anti-Fog active agent and PE base masterbatch
- ✓ Optical brightener active agent and PE base masterbatch
- ✓ Anti-UV active agent
- ✓ Anti-Oxidant active agent
- ✓ Dispersing active agent
- ✓ TPE-O Vistamaxx 6202 (propylene-based elastomer)

## CONTACT

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## INTRODUCTION

Extruded polymer films are being continually developed for new industrial and packaging applications. Stretch or cling film packaging is a major application for polyethylene.

Food stretch film	Pallet stretch film	Silage stretch film
8 to 15 µm film thickness	15 to 25 µm film thickness	15 to 25 µm film thickness
3 to 7 layers – coextruded structures	3 to 7 layers – coextruded structures	3- and 5-layers - coextruded structures
Cast Film Extrusion	Cast film extrusion	Cast and blown film extrusion

The effects of using cling masterbatch in these films are:

- **Peel strength**



High peel cling will prevent unwrapping of the film by friction. (Film applied on silage ball need peel strength).

- **Lap strength**



High lap cling will ensure good interlayer cohesion to the benefit of the holding force and airtight. (film applied on pallet and food stretch film need lap strength).





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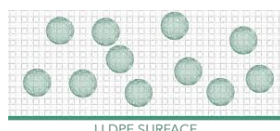
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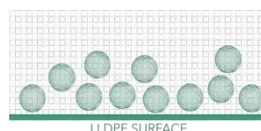
## HOW CLING MASTERBATCH WORKS

It is a concentrate of high molecular weight Polyisobutylene (PIB) tackifier in Linear Low-Density Polyethylene (LLDPE).

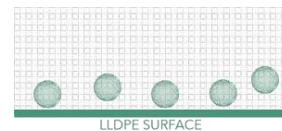
PIB is a viscous polymer and is incompatible with PE. Therefore, it will migrate to the surface of the film over time and thus will give a cling effect.



LLDPE SURFACE



LLDPE SURFACE



LLDPE SURFACE

+3 days

+28 days

## SUPPLIED PE CLING MASTERBATCH

Polytechs (France), the producer of PW, is the holder of a unique liquid injection technology allowing Liquid PIB integration at more than 70% within a solid PE matrix. The PW product range is the Pioneer & Worldwide Market leader of Cling Masterbatches for over 30 years.

3 grades are available (PW70, PW 60, PW 52):

Characterization	PW 70	PW 60	PW 52 (PW S)
PIB	MMW (68-72%)	HMW (57-63%)	HMW (52±2%)
Density (g/cm <sup>3</sup> )	0.910	0.912	0.912
Application	Pallet, food and silage wrap	Silage wrap	Pallet and food wrap
Usage in blown film (%)	6	8	10
Usage in cast film (%)	2-3	3-4	4-6

- PW is based on LLDPE carrier, dried and non-sticky pellet.
- PW is compatible with LDPE, LLDPE, HDPE, EVA, PP and TPE.
- PE base resin can not contain any slip or Anti-block agent or have a density higher than 0.923 so as not affect the normal exudation of tackifier.
- On multilayer film lines, PW 70 is often added to the skin layers only.
- PW migration time is based on the different MW between cling MB and bulk resin (24-72 h).
- PW shelf life is 9-24 months (based on the temperature).
- PW is food contact compliant for Europe, United States, China, and Japan.