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MPMA : Daibochi Presentation

Why Plastics?

Sustainable Plastic Manufacturing

Why Plastics In Packaging ?

Why Plastic In Packaging?

Why Flexible Packaging? Films

- **Mechanical properties**
- **Chemical properties**
- **Thermal Properties**
- **Optical Properties**

* Tensile, tear, puncture
* Oil, fatty food staffs
* Seal ability, boiling, freezing
* Haze, gloss
* Permeability
* Printability
* Machinability
* Aesthetics
* Convenient to use
* Handling/Transportation
* Cost effectiveness

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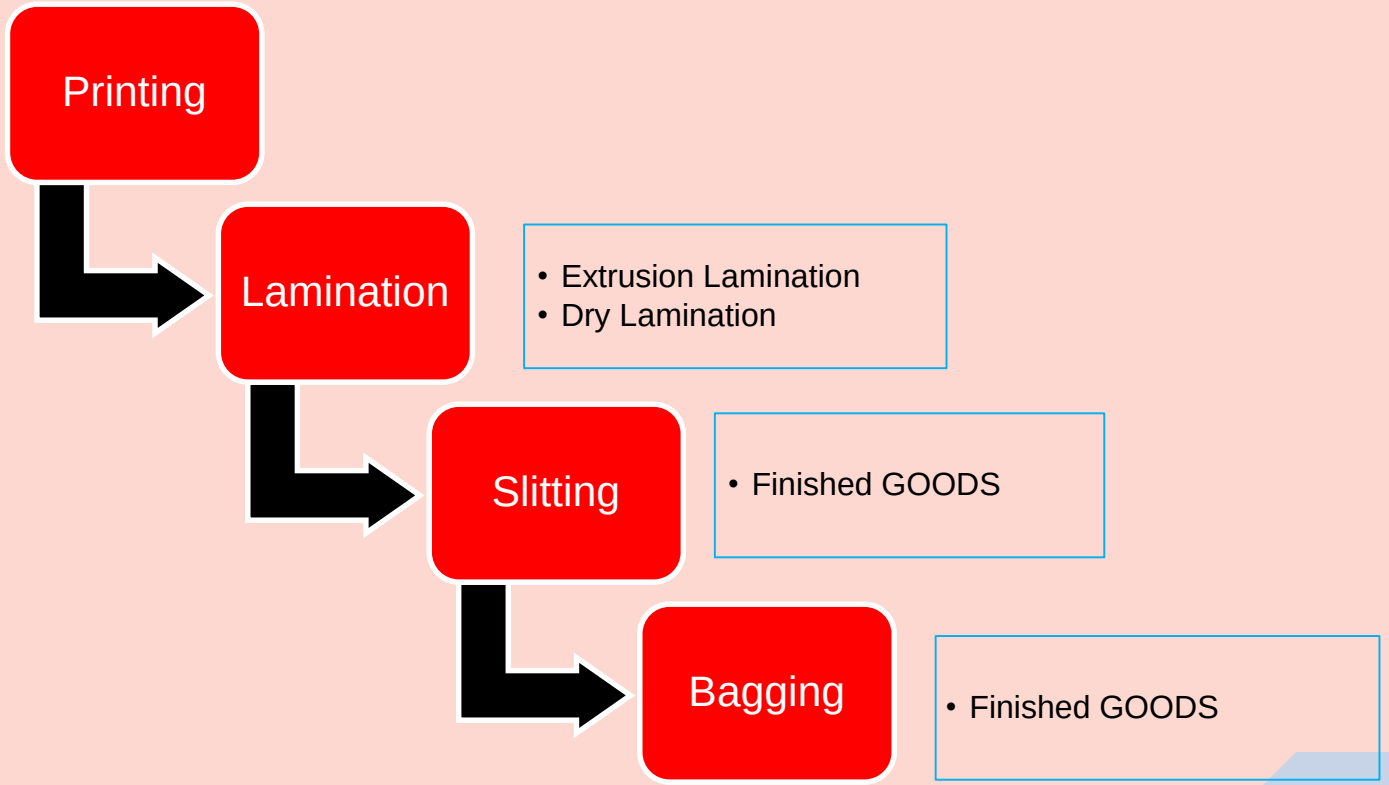
Production Flow Chart :



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Nomenclature :

- **PET :** Polyethylene Terephthalate (Polyester)
- **PP :** Polypropylene
- **OPP :** Oriented Polypropylene
- **CPP :** Cast Polypropylene
- **VMCPP :** Vacuum Cast Polypropylene
- **PE :** Polyethylene
- **LLDPE :** Linear Low Density Polyethylene
- **MDO PE :** Machine-direction orientation Polyethylene

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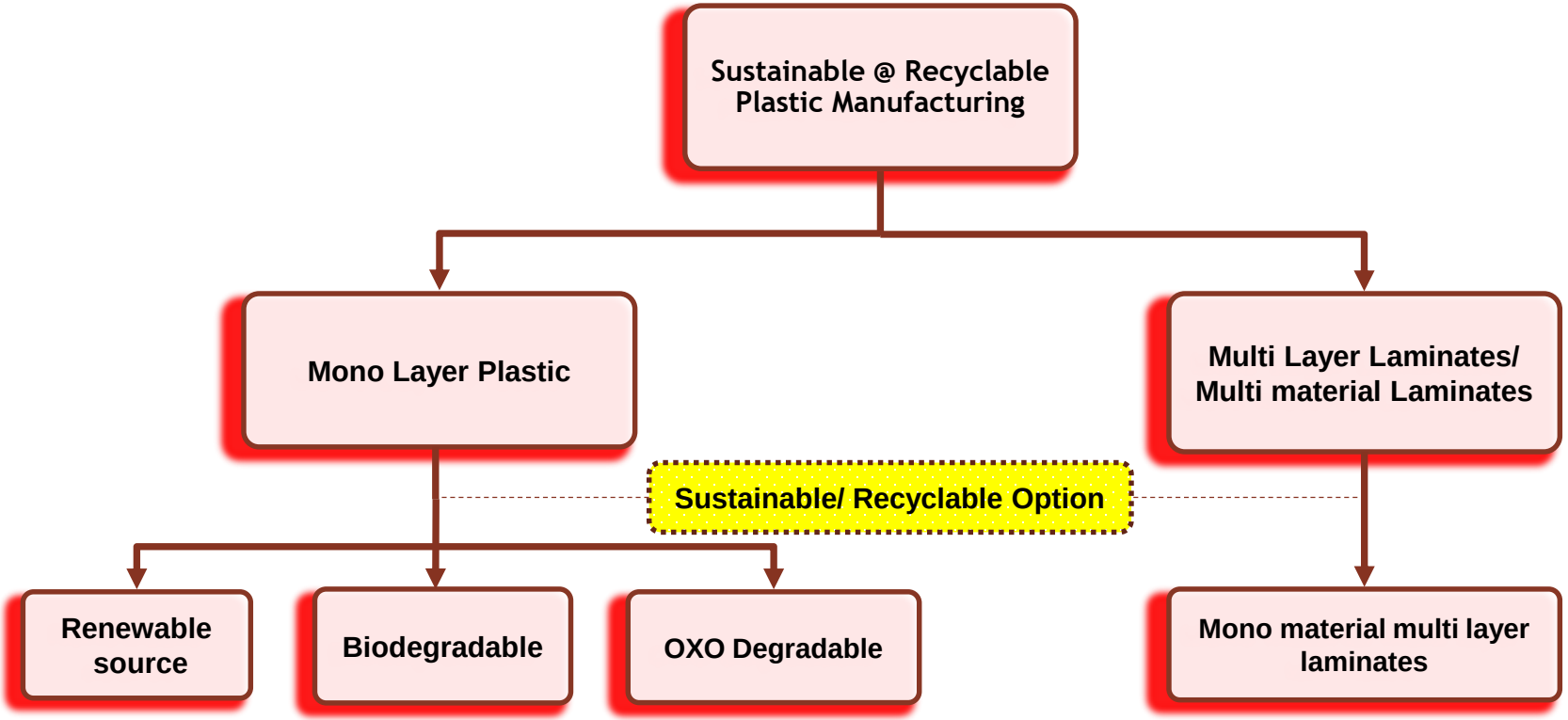
Sustainable @ Recyclable Plastic Manufacturing



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Definition Of Mono Material, Multi layer laminates from : MNC

DEFINITION

- **USE** at least 90% of PE (Mono PE)
- **USE** at least 90% of PP (Mono PP)
- **USE** at least 90% of PE and PP (Mono Polyolefin)
- **USE** not more than 5% EVOH
- **Do NOT** use PA
- **Do NOT** use PET, Aluminium Foil, paper in multi layer Polyolefin based laminates

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Recycle Logo:

Mono PP Laminates

Mono PE Laminates

Polyolefin Laminates

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Laminates Structure :

No	Non Recyclable structure	Recyclable Structure
1	PET VMCPP	OPP VMCPP
2	PET LLDPE	MDO PE LLDPE
3	PET LLDPE	OPP CPP

No	Non Recyclable structure	Recyclable Structure
4	PET PE VMPET LLDPE	OPP MOPP CPP
5	PET PE VMPET LLDPE	OPP PE MOPP PE

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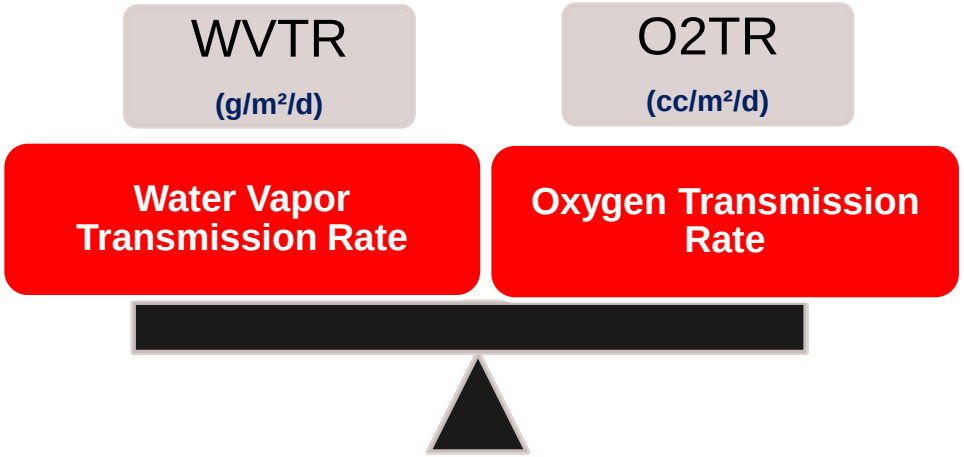
Challenges : Barrier



Films	Barrier Properties	
	WVTR g/m²/d (37.8°c@90%RH)	O²TR cc/m²/d (23°c@0%RH)
1. Aluminium Foil	< 0.1	< 0.1
2. VMPET- high Barrier	< 0.30	< 0.50
3. VMPET- Std Barrier	< 1.0	< 2.0

Barrier Requirement :
Aluminum Foil & VMPET usually have very GOOD WVTR & O²TR barrier

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Challenges : Heat Sealing Window

Films	Melting point (°c)
1. PET	240
2. OPP	170
3. LLDPE	130

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Any questions?

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