



manunature[®]

Biodegradable Stretch Film

At Manupackaging, we are extremely committed to producing a circular economy for our stretch wrap solutions.

Our stretch film blend, developed with additive technology for safe, microplastic-free biodegradability, is just one of the ways we are working to reduce plastic packaging's environmental impact.

100% RECYCLABLE* / 100% BIODEGRADABLE**

MANUNATURE® & MANUPACKAGING'S ENVIRONMENTAL COMMITMENT

REDESIGN

Create and develop new products and solutions offering higher levels of performance from both cost and environmental perspectives.

RECYCLE

Reduce volume of waste going to landfill by developing more recyclable blends and producing products with higher amounts of PCR content.

REDUCE

Produce thinner, lighter and stronger solutions with the aim of minimising customer plastic use without affecting product integrity.

BIODEGRADABILITY & RECYCLABILITY; UNITED BY MANUNATURE® BD

80% of all plastic packaging waste in the ocean is caused by uncontrolled waste disposal on land.

In response to such concerning data, BSI's PAS 9017:2020 has been established, defining precise quantitative criteria for biodegradation on land, in open-air environments. Manupackaging integrated the suitable technology in Manunature® BD films. Independent tests concluded that safe, microplastic-free degradation was achieved.

We are proud to announce that Manunature® BD is fully compliant with BSI PAS 9017:2020 for safe biodegradation.



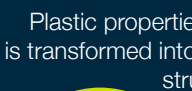
UNMANAGED WASTE ENTERS THE **BIODEGRADATION** PROCESS; WITH EXPOSURE TO AIR, LIGHT AND MOISTURE, POLYMERS DISINTEGRATE INTO **BIOMASS, WATER AND CO₂**, LEAVING **NO MICROPLASTIC REMAINS**

BIODEGRADATION OVER TIME (UNDER OPEN-AIR TERRESTRIAL CONDITIONS)



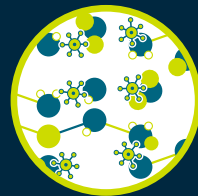
UP TO 1 MONTH

Material rapidly loses physical integrity as polymer chains are broken into smaller molecules across the amorphous and crystalline structure of the plastic.



1-4 MONTHS

Plastic properties are no longer present as the film is transformed into bio-residues with small molecular structures and hydrophilic properties.



4-24 MONTHS

Bio-residues are now so small they are digestible by naturally occurring bacteria and fungi, converting them into CO₂, water and biomass.

BIOMASS + WATER + CO₂ = NO MICROPLASTICS

FINISHED BLEND

Manunature® BD is manufactured to be a high quality, superior performance Polyethylene stretch film based on our **17 micron ATX** film specification with a 12-month product service life.

* Recyclable within first 12 months of product service life ** Under correct conditions, see above