



BIO-500

(AN IMPACT MODIFIER MASTER BATCH FOR BIOPOLYMERS)



BIO-500 impact modifier master batch is based completely on biopolymer technology, it is 100% biopolymer based. BIO-500 does not contain any petroleum based additives and is completely biodegradable. It was developed specifically for use in PLA, PHA, PBS resins and compounds. BIO-500 will not effect the clarity of blown or cast film based on PLA resin. The addition of BIO-500 to a thin PLA sheet compound, running continuously for over 15 hours, no difference in physical properties were seen as compared to acrylic based impact modifiers.

The BIO-500 can be added to the resin during compounding, blended with the resin or added to the extrusion process by an additive feeder, during the manufacturing of blown film, cast film, sheet and injection molded finished products, resulting in :

- * Significant **impact improvement** (molded and extruded products) containing PLA, PHA and PBS resins.
- * Dramatic **improvement in impact properties** of filled and natural fiber composites containing PLA, PHA and PBS resins.
- * Improved film flexibility (**eliminate brittleness**) both blown and cast film.
- * **Increased tear resistance** (blown and cast film also thin sheet).
- * Dramatically **improved slitting** (blown and cast film also sheet).
- * **Excellent film** and **sheet clarity** (will not effect the clarity of PLA based films, making it ideal for food packaging applications as well as colored applications related to reduced pigment usage).
- * **Improved composting** of PLA based compounds.
- * **Maintaining** the **bio-based carbon content** of finished products.
- * **No gels** (will not create gels in end products).

TYPICAL PHYSICAL PROPERTIES

Melt Index.

40 grams/10 mins.

(ASTM D 1238, 190 C, 2.16 kgs.)

Density
(ASTM 1505) 1.2 grams/cc

Melting Point, C. 150 C

Form. Pellet

SHOULD BE DRIED BEFORE USING - minimum 4 hours at 200 (F), preferred drying under standard conditions used for drying PLA.

TABLE 1

IMPACT PERFORMANCE IN PLA (1)

Amount of BIO-500. %.	Impact properties ASTM D256, Izod (ft.lbs/in)
0	0.3
5	6.0
10	6.5
15	8.0

(1) Nature Works 3001 D

FIGURE 1

PICTURE OF BIO-500 IMPACT



FIGURE 2

**REDUCTION OF BRITTLINESS
MODIFIED MASTER BATCH AND**



IMPROVED EDGE TRIM

