



OUR FUTURE: THE CHOICE IS YOURS[©]



PLA

(SUSTAINABILITY)

www.ilip-bio.it





	Pag.
• <u>PLA</u>	3
What is PLA Advantages of PLA Who produces PLA	4 5 6
• <u>Thy PLA cycle</u>	7
Production CO ₂ emissions Disposal methods: composting	9 12 13
• ILIP and PLA	15
ILIP BIO DIN CERTCO certificate How to stock and transport PLA products	16 17 18
• <u>Useful links</u>	19

















- <u>100% RENEWABLE</u>
- REDUCED NEED OF FOSSIL ENERGY
- LOWER CARBON DIOXIDE EMISSIONS
- BIODEGRADABLE/COMPOSTABLE
- EXCELLENT PRODUCT PROPERTIES:
 - excellent transparency;
 - high rigidity and stiffness;
 - good crack resistance;



- oil/fat resistance;
- flavour and oxygen barrier;
- low water steam barrier;
- good printability.







Life cycle analysis of a product

It is a tool to compare different materials or technologies and to identify the best ones taking into account their:

- energetic performance;
- impact on the environment.

It is a detailed scientific analysis of all the phases related to the life of a product (e.g. raw material extraction, transformation and transport processes, usage and disposal methods) which allows a thorough evaluation of its impact on the environment.





THE CYCLE OF PLA









The PLA resin (granule) is totally obtained by renewable vegetable resources. The resin is created in the production plant by extracting and processing the carbon stored in the corn sugars.



THE IMPACT OF PLA ON AVAILABILITY AND USE OF CORN

Only a small percentage of the total corn production is used to obtain polylactic acid. Farmers will also benefit by harvesting corn for PLA.



Only corn starch is used to produce bioplastics. Starch represents about half of the corn weight.

As a consequence, to get **1 Kg**. of bioplastics, is necessary about **2.8 Kg.** of corn, which correspond to **1,4 Kg.** of lactic acid.

All the other components are transformed into products for human nutrition and animal feeding.



PRODUCTION OF PLA



1st PHASE

sugar can be obtained from starch through the simple hydrolysis process. Sugar is then purified from possible waste and prepared for the following steps.





PRODUCTION OF PLA



3rd PHASE

lactic acid molecules are used after polymerisation as a basic component for production of plastics and fibers (PLA) suitable for industrial use.





... FOR TRADITIONAL PLASTICS :



Carbone dioxide is released in the atmosphere at every step (production and transformation of traditional plastic).

Corn, like other vegetables, absorbs CO_2 from the atmosphere and releases oxygen (chlorophyllose photosynthesis). Carbon dioxide is released during the manufacturing process but it is then absorbed by corn. In this way, the cycle is closed and sustainable.



PLA DISPOSAL METHODS











TIME OF DEGRADATION OF THIS PLA CONTAINER:

• <u>47 DAYS</u>

AT 60 °C IN INDUSTRIAL COMPOST SITES

• <u>120 DAYS</u>

AT 40 °C IN DOMESTIC COMPOST SITES

• 1 YEAR AND 3 MONTHS

AT 20 °C IF LEFT ON THE SOIL OR IN SMALL COMPOST CONTAINERS

• <u>2 YEARS</u>

AT 15 °C IF BURIED UNDERGROUND

• <u>4 YEARS</u>

AT 4 °C IN LAKES AND OCEANS

























DIN CERTCO CERTIFICATE





ARE AUTHORIZED TO USE, FOR THEIR PLA PRODUCTS,

THE COMPOSTABILITY LOGO



CERTIFIED BY:



(QUALITY REQUIREMENTS IN **COMPLIANCE WITH THE EN 13432 EUROPEAN STANDARDS)**



40053 BAZZANO (BO) ITAL Y

hereby receives confirmation that the product/s

Trays, Lid for Trays, Clamshells

conforms to

DIN EN 13432:2000-12 Certification scheme products made of compostable materials

and is granted the licence to use the mark



according to licence conditions in conjunction with the Registration No. below.

Registration No.: 7P0103

This Certificate is valid until 2008-10-31.

2006-02-17

Dipl.-Ing. Dipl.-Wi.-Ing. Sören Scholz

Acting Head of Certification Body



DIN



SHIPPING AND STOCKING







- Mark out on the boxes "product sensitive to temperature"
- Always specify the routes, shipping times, delivery dates in order to effect transports in the coolest parts of the day
- Choose insulated covers or refrigerated means of transport
- Stock under 105°F/40°C







DO NOT LEAVE UNDER THE DIRECT SUNLIGHT

- Mark out on the boxes "product sensitive to sunlight"
- Plan just-in-time deliveries for packaging of fruit and vegetables

• STOCK ON LOWER RACKS

- Always stock in the cooler places of the warehouse
- Open the mean of transport immediately after arrival
- Do not stock near spotlights or heating points
- avoid stocking under metallic roofs or in places lacking in air circle

• HANDLE WITH CARE

- Do not leave the product loaded for long periods
- Choose the truck and shipping accessories with adequate insulated roofs
- Load and ship during the coolest part of the day
- Place the material in ad adequate place immediately after its delivery
- Ship and stock in white corrugated cartons





• www.ilip.it

- www.natureworksllc.com
- www.european-bioplastics.org
- www.dincertco.de