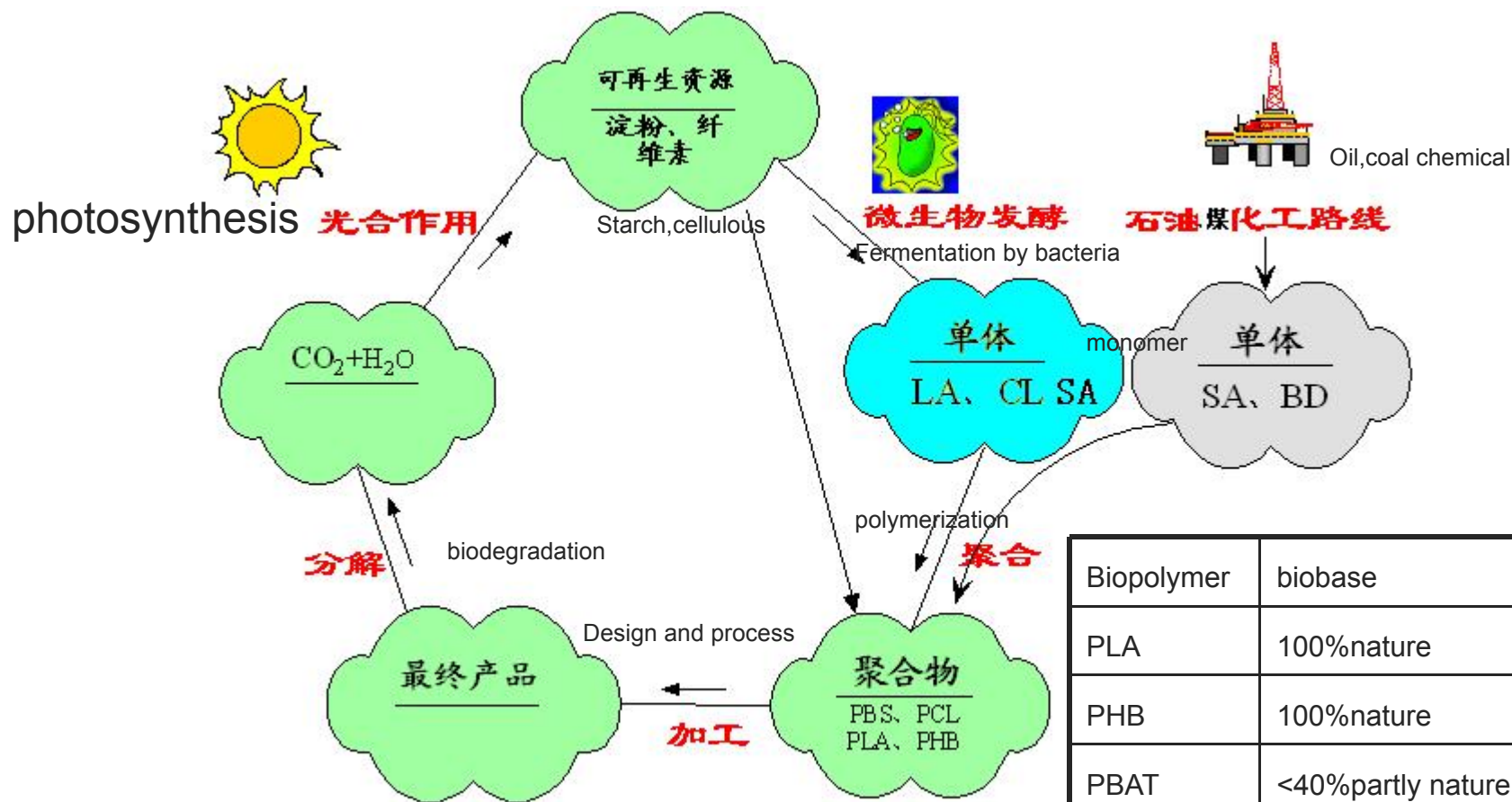


# 生物降解产品生命周期

## Sustainable sources



Biopolymer	biobase
PLA	100%nature
PHB	100%nature
PBAT	<40%partly nature
PPC	40%partly nature
PCL	Partly nature

# 生物降解欧盟标准

## EN 13432 Standard

## EN13432 标准

Materials **MUST** pass 4 phases of testing to classify as Biodegradable (compostable).

材料必须通过测试的四个阶段，方可被归为全生物降解类型

### EN 13432 – Volatile content, Heavy metal content

- Heavy metal limits set on country by country basis (PPM)



### ISO 16929 Disintegration of plastic in commercial compost.

- 12 week composting test
- 90% of plastic must be smaller than < 2 mm.



### ISO 14855 Aerobic Biodegradability and Disintegration in composting conditions

在可控制堆肥条件下的需氧生物降解能力和分解度

- 6 months test,
- 90% of the plastic must completely mineralize to CO<sup>2</sup> and water.



### OECD208A OECD Final Compost Quality Testing using plant seedlings

- Minimum 80% seedling emergence.

挥发量, 重金属含量

以国际标准限制重金属含量 (PPM)



商业堆肥中塑料材料的分解度.

12周堆肥测试

90% 的塑料分解为 < 2 mm的颗粒.



6个月测试,

90% 的塑料定会完全分解成 CO<sup>2</sup> 和水.



使用植物种子进行  
最少 80% 的种子发芽.

# 工业堆肥条件说明

土壤：含有有机质、矿物质和微生物

水分：土壤湿度90%以上

温度：堆肥温度40~60度





# 工业堆肥降解测试示意图

## 2.5.3 Appearance of compost and sample



Before test  
Blowaste / Compost without any material before and after test



After test

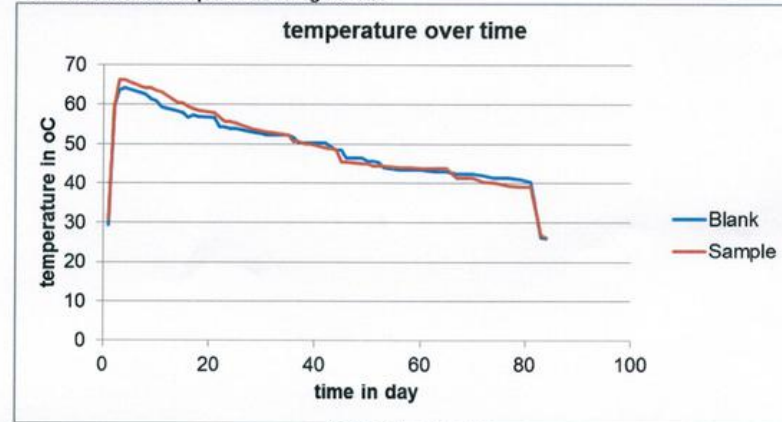


Before test  
Blowaste / Compost with test material before and after test



After test

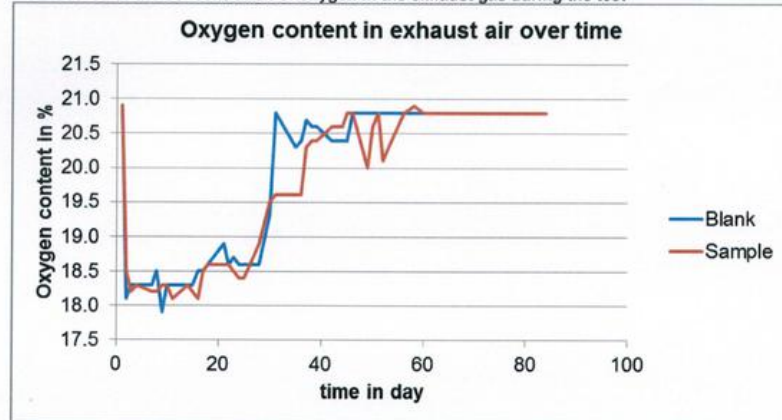
## 2.6.1 Course of the temperature during the test



Temperature over time

Validity parameter: The temperature in the ovens is higher than 60°C, but below 75°C for the first week and higher than 40°C but below 65°C for 4 consecutive weeks. This requirement has been fulfilled. For single values please see on page 11.

## 2.6.2 Course of the concentration of oxygen in the exhaust gas during the test



Concentration of oxygen over time

# 工业堆肥降解率测试

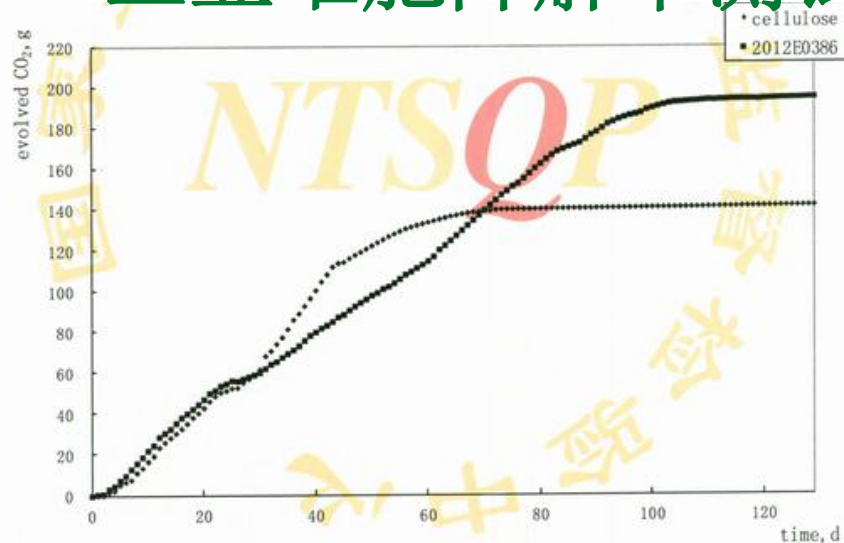


Fig. 5-2 curve of evolved CO<sub>2</sub>

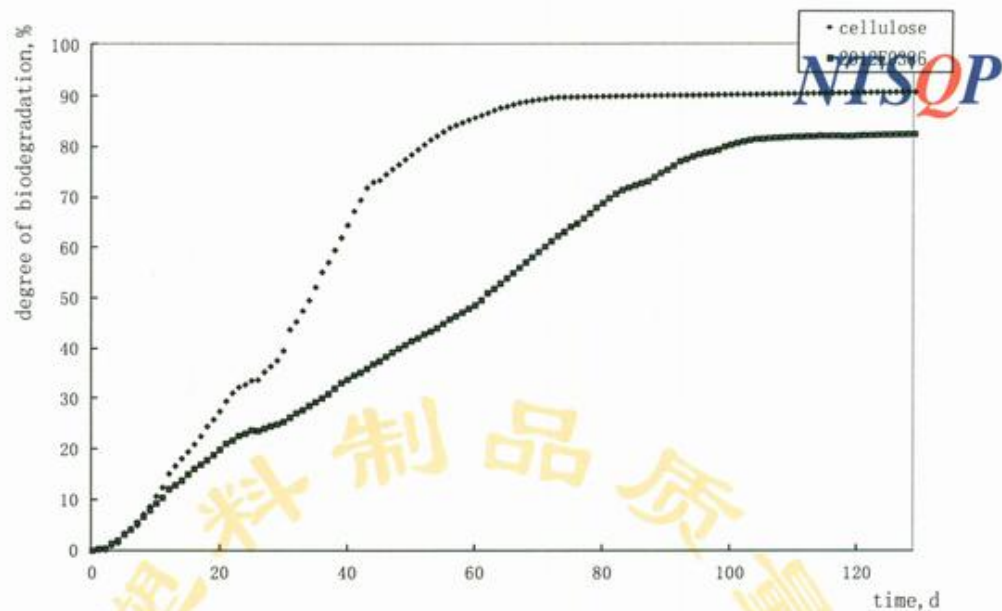


Fig. 5-3 curve of degree of biodegradation

# 生物降解产品降解示意图

