



Add value.
Inspire trust.

Biodegradable packaging certification 生物降解包装认证

Prove your sustainability credentials to the market
向市场证明您的可持续性资质

Your challenges

Compostable and biodegradable packaging contribute to efficient waste management and the circular preservation of resources. They provide added value through organic recycling as an additional waste treatment option. The EU acknowledges the positive role it plays in putting the circular economy model into practice. Consequently, many authorities across the world have banned the use of conventional single-use plastic products. Global regulatory requirements and consumer demand for more sustainable products have therefore impacted the design and manufacture of packaging materials. As manufacturers are developing alternative packaging materials that replace conventional packaging, they need to take care that it meets the requirements for sustainable packaging.

What is biodegradable packaging certification?

Based on the requirements of EN13432 and other European standards and regulations, TÜV SÜD's test programme determines the biodegradability during

您面临的挑战

可堆肥和可生物降解包装有助于高效管理废弃物和保存可循环利用资源。通过有机物回收这种新型废物处理方式，可提供附加价值。欧盟认可该包装实现循环经济实践性所发挥的积极作用。世界各地许多国家已经对传统一次性塑料产品实行了禁令。全球监管要求和消费者对更可持续产品的需求影响了包装材料的设计和制造。为取代传统包装，制造商正致力于开发替代性包装材料，因此包装材料是否符合可持续包装的要求目前倍受关注。

何为可降解包装认证？

根据EN 13432和其他欧洲标准和法规的要求，TÜV南德意志集团的测试项目可以确定包装和包装材料在工业化堆肥过程中的生物降解性。

industrial composting of packaging and packaging materials. Test results are compared with pass/ fail limits, to ensure that the material passes every test requirement. The quality of the compost produced should not be negatively impacted by the addition of the biodegradable packaging material. The test criteria include:

- **Biodegradation** – measures the packaging material’s rate of metabolic, microbial conversion into water, carbon dioxide, mineral salts of any other elements present and new cell biomass.
- **Disintegration** – packaging material is mixed with organic waste for 12 weeks, after which time, no more than 10 percent of material fragments are allowed to be larger than 2 mm.
- **Toxic substances** – there must be a minimal negative effect on the quality of the resulting compost.
- **Ecotoxicity effects** – compares compost produced with and without the addition of packaging material.

Why is biodegradable packaging certification important to your business?

Global consumers are becoming increasingly aware of the negative environmental impact of packaging waste, and many are now refusing to purchase products that use packaging that is not biodegradable. Authorities across the world are also introducing more rigorous requirements, such as the European Union’s Packaging and Packaging Waste Directive, Green Deal and e.g. EN 13432 – “Packaging: requirements for packaging recoverable through composting and biodegradation”.

To meet escalating consumer demand for green packaging, and to be able to continue to sell their packaged products in markets which demand more sustainable packaging, manufacturers must focus on producing environmentally friendly materials. Independent third-party test and certification shows the biodegradability credentials of your packaging and packaging materials, providing proof that your packaging is eco-friendly.

测试结果将与合格/不合格极限值进行对比，确保材料通过每项测试要求。添加的可降解包装材料不应生产的堆肥质量产生不利影响。测试标准包括：

- **生物降解**——衡量包装材料进行新陈代谢、微生物转化为水、二氧化碳、其他矿物元素和新细胞生物体的速度。
- **崩解**——包装材料与有机废物混合12周后，大于2毫米的材料碎片数量不得超过10%。
- **有毒物质**——对堆肥质量产生最小的负面影响。
- **生态毒性影响**——对添加和不添加包装材料所生产的堆肥进行对比。

什么可降解包装认证对您的企业很重要？

全球消费者日渐认识到包装的废弃物会对环境产生不利影响，很多人现在已开始抵制使用不可生物降解包装的产品。世界各地政府也开始引入更加严格的要求，如欧盟的《包装及包装废弃物指令》、《欧洲绿色协议》以及EN 13432的《通过合成和生物降解评定包装可回收性的要求》等。

为满足消费者对绿色包装日益升级的需求以及在可持续包装需求日益增长的市场中免受淘汰，制造商必须重视生产环境友好型材料。独立第三方测试和认证表明您的包装和包装材料具有生物可降解性质，为您的生态友好型包装提供证明。

TÜV SÜD SUSTAINABILITY SERVICES FOR PRODUCTS THROUGH A CIRCULAR ECONOMY LENS

TÜV南德意志集团从循环经济视角为产品提供可持续性服务

RAW MATERIALS 原材料

1 

Mitigate risk of materials and substances of concern
减小相关材料和物质的风险

- Chemical safety testing (based on RoHS, POP, REACH regulatory)
- 化学安全测试 (基于RoHS、POP、REACH法规)
- Biological safety testing
- 生物安全测试
- Packaging and packaging waste directive testing
- 包装及包装废弃物指令测试
- Microplastics testing*
- 微塑料测试*

END OF LIFE 产品寿命结束

4 

Reduce waste and increase secondary material use
减少浪费, 增加材料的二次使用

- Recycled content verification/certification*
- 回收物质含量验证/认证*
- Biodegradability certification*
- 生物降解性认证*
- Recyclability certification*
- 可回收性认证*
- WEEE directive testing/certification
- WEEE指令测试/认证



PRODUCTION 生产流程

2 

Establish resource-efficient production processes
建立资源节约型生产流程

- Facility environmental audits
- 工厂环境审核
- Energy Efficiency testing
- 能源效率测试
- Eco-design/ErP Directive testing
- 生态设计/ErP指令测试
- Wastewater/sludge testing
- 废水/淤渣测试

PRODUCT USE 产品用途

3 

Extend product lifetime and enable re-use
延长产品寿命, 实现重复利用

- Performance and Endurance: durability, functions, handling, maintenance
- 性能和耐力: 耐久性、功能、操作和维护
- Reliability and Performance (mechanical and physical)
- 可靠性和性能 (机械性能和物理性能)
- Lifetime Simulation Testing
- 使用寿命模拟测试

OVERARCHING 总体情况

- Product carbon/water footprint verification
- 产品碳/水足迹验证
- Product Environmental Footprint (PEF) verification*
- 产品环境足迹 (PEF) 验证*
- Supply Chain traceability tools
- 供应链可追溯性工具
- Corporate social responsibility (CSR) audits
- 企业社会责任 (CSR) 审核

*New services / under development
*新服务/正在开发中

The TÜV SÜD Certification Mark

TÜV南德意志集团认证标志



The TÜV SÜD mark is widely recognised and respected as a trusted symbol of quality, safety and sustainability, as our certificates represent third-party endorsement by a globally renowned organisation. The TÜV SÜD certification mark offers an excellent marketing tool by enhancing the value of your brand and inspiring greater confidence among your business partners and end users.

TÜV南德意志集团认证标志是质量、安全和可持续性的象征, 已经得到了广泛的认可和尊重, 因为我们的证书代表了全球知名第三方组织的认可。TÜV南德意志集团的认证标识将作为有力的营销工具, 提升您品牌的价值, 增强您商业伙伴和终端用户的信心。



The certification mark is awarded within the framework of voluntary testing and certification. It demonstrates that the product has been tested and certificated by the third-party organisation, TÜV SÜD. The certification mark is only affixed to products that have undergone inspection by TÜV SÜD and comply with the criteria below:

▪ **≥ 90% Biodegradation rate**

Breakdown of a packaging or packaging material by micro-organisms in the presence of oxygen to carbon dioxide, water and mineral salts of any other elements present (mineralisation) and new biomass. The biodegradation rate shall not be less than 90% after a maximum of six months.

▪ **≥ 90% Disintegration rate**

The physical breakdown of a packaging or packaging material into very small fragments. The packaging or packaging material shall disintegrate during composting such that any remaining material is not readily distinguishable from the other organic materials in the finished compost. Additionally, the packaging or packaging material shall not be found in significant quantities during screening prior to final distribution of the compost. After composting for a maximum of 12 weeks, not more than 10% of the original dry weight of tested packaging or packaging material shall be found in a sieve fraction > 2mm.

该认证标志在自愿测试和认证的框架内授予。该认证标识表明该产品已经过第三方机构TÜV南德意志集团的测试和认证。该认证标识只贴在经过TÜV南德意志集团检验并符合以下标准的产品上：

▪ **≥90% 生物降解率**

微生物会在有氧情况下将包装或包装材料分解为二氧化碳、水和其他矿物元素（矿化作用）和新生物质。最多六个月之后，生物降解率将不低于90%。

▪ **≥90% 崩解率**

包装或包装材料应在堆肥过程中被物理解分成微小碎片，且剩余的材料不易与成品堆肥中的其他有机材料区分。此外，在最终分配堆肥之前的筛选过程中，不得出现明显的包装或包装材料。在12周的堆肥后（最长时间），经测试的包装或包装材料的原始干重中不应出现超过10%的筛分>2mm。

▪ Toxic substances tested

These tests refer to the negative effects on the quality of the resulting compost. The results of the tests (volatile solids, heavy metals, fluorine, SCCP, phthalates and PAH) shall be within the predefined limits based on the standard DIN EN 13432, Regulation (EC) 1907/2006 (REACH), Annex XVII, Regulation (EU) 2019/1021 (POP) and Directive 94/62/EC (packaging and packaging waste).

▪ Ecotoxicity tested

Ecotoxic effects on two higher plants shall be determined by comparing compost produced with and without the addition of packaging or packaging material. The seedling germination rate of the finished compost and the plant biomass in the compost shall be no less than 90% of that of corresponding blank composts, to which no test or reference material was added at the start of testing.

▪ Type tested

The voluntary certification mark with the statement "Type tested" is issued for products and components. The certification mark demonstrates that the product/component was tested and certified by the independent third-party organisation of TÜV SÜD Product Service for conformity with the essential technical safety requirements.

▪ Production monitored

Periodic surveillance and/or monitoring of the manufacture of a product constitutes the basic premise for certification that includes the award of a certification mark. Certification always requires product testing and regular factory inspections.

As a third-party expert organisation, TÜV SÜD Product Service verifies that the manufacturer is able to maintain consistent quality in line with the requirements throughout high-volume production and has established the necessary quality system, including incoming goods inspections, lists of materials and final product testing.

In addition, calibration of the necessary measuring and monitoring equipment must be ensured. Surveillance and/or monitoring covers the testing of safety-critical components and other materials used. If unauthorised changes are made to the product, the certificate will become invalid and the TÜV SÜD certification mark may no longer be used. During the follow up factory inspection, samples are taken to verify the material characteristics.

▪ 有毒物质测试

这些测试参考对堆肥质量的负面影响。测试结果（挥发性固体、重金属、氟、短链氯化石蜡、邻苯二甲酸盐和多环芳烃）应符合标准DIN EN 13432、法规(EC) 1907/2006（REACH）、附件XVII、法规(EU)2019/1021（POP）和指令94/62/EC（包装和包装废弃物）设定的限制。

▪ 生态毒性测试

比较添加和不添加包装或包装材料所产生的肥料对2种高等植物生态毒性的影响。包装或包装材料产生的堆肥中幼苗发芽率和植物生物量应不低于相应堆肥（在测试开始时未加入测试或参考材料）的90%。

▪ 已测试类型

为产品和部件颁发带有“已测试类型”声明的自愿认证标志。该认证标志表明，该产品/部件已由TÜV南德意志集团产品服务部的独立第三方机构测试并认证，符合技术安全基本要求。

▪ 生产监控

认证的基本前提是定期监督和/或监测产品生产情况，并授予认证标志。必须进行产品测试和定期工厂检查，才能完成认证。

TÜV南德意志集团产品服务部是第三方专家组织，负责验证制造商是否能够在大批量生产工艺中保持稳定的质量，并建立必要的质量体系，包括进货检验、材料清单和最终产品测试。

此外，必须完成必要的测量，并校准监测设备。监视和/或监测安全关键部件和其他所用材料的测试。如果未经授权更改产品，证书即告失效，此时不得再使用TÜV南德意志集团的认证标志。在后续的工厂检查中，取样验证材料特性。



■ PPP 14100

The PPP 14100 is a test programme for packaging and packaging material within the scope of the Directive 94/62/EC. It lists all testing items, standards and test modules which are necessary to receive the certification mark.

Within the PPP following aspects are covered:

- Markings
- Relevant documents
- Constituents
- Material characteristics
- Chemical characteristics
- DIN EN 13432

Your business benefits

- **Gain a competitive advantage** – by promoting your efforts towards sustainability and the environmental friendliness of your packaging.
- **Minimise time to market** – by ensuring that your packaging meets regulatory requirements and can be sold in your target markets.
- **Enhance brand reputation** – by gaining an internationally recognised and trusted certificate from TÜV SÜD.

■ PPP 14100

PPP 14100是根据94/62/EC指令规定的包装和包装材料测试程序。它列出了获得认证标志所需的所有测试项目、标准和测试模块。

PPP涵盖以下方面：

- 标志
- 相关文件
- 组成要素
- 材料特性
- 化学特性
- DIN EN 13432

您的企业收益

- **获得竞争优势**——展示您在可持续发展方面所做的努力和您包装的环境友好性。
- **缩短上市时间**——确保您的包装符合法规要求并且符合目标市场的销售要求。
- **提高品牌声誉**——获得TÜV南德意志集团的国际认证和可信任证书。



Why choose TÜV SÜD?

As TÜV SÜD is an internationally accredited certification body, you can be assured that we conduct certifications with the highest degree of professionalism and conformance to international guidelines and standards. Our international network enables us to offer certification and auditor engagement services on every continent, certifying organisations' compliance on a global scale. TÜV SÜD's experts actively participate in international standardisation committees and have a complete understanding of the latest regulatory developments. Our third-party audits are both impartial and independent, helping your organisation to gain valuable insights from an unbiased expert.

为什么选择TÜV南德意志集团?

TÜV南德意志集团是一家国际认可的认证机构，我们的认证建立在最高的专业水平之上，符合国际准则和标准。我们的国际化网络使我们能够在各大洲提供认证服务和审核员聘用服务，从而得以在全球范围内对企业合规性进行认证。

TÜV南德意志集团的专家积极参与国际标准化委员会的工作，全面掌握最新的监管动态。我们作出的第三方审核公正独立，我们的专家将抱着一视同仁的态度为您的企业提供富有价值的建议。



Add value. Inspire trust.

TÜV SÜD is a trusted partner of choice for safety, security and sustainability solutions. It specialises in testing, certification, auditing and advisory services. Since 1866, the company has remained committed to its purpose of enabling progress by protecting people, the environment and assets from technology-related risks. Through more than 25,000 employees across over 1,000 locations, it adds value to customers and partners by enabling market access and managing risks. By anticipating technological developments and facilitating change, TÜV SÜD inspires trust in a physical and digital world to create a safer and more sustainable future.

创享价值，激发信任

TÜV南德意志集团可提供安全、保障以及可持续的解决方案，是您值得信赖的合作伙伴。TÜV南德意志集团专门从事测试、认证、审核和咨询服务。自1866年以来，公司一直致力于通过保护人员、环境和资产免受技术相关风险的影响，以实现进步的目标。公司通过遍布1,000多个地点的25,000多名员工，通过市场准入和风险管理为客户和合作伙伴增加价值。TÜV南德意志集团通过预测技术发展和促进变革，激发人们对实体和数字世界的信任，创造更安全、更可持续的未来。

Related services

TÜV SÜD provides the following related services:

- REACH Regulation certification
- Recycled content verification service
- Corporate social responsibility (CSR) audits.
- Regulatory testing for the European Packaging and Packaging Waste Directive (94/62/EC)
- FSC and PEFC certification for sustainable wood products

相关服务

TÜV南德意志集团提供以下相关服务：

- REACH法规认证
- 回收成分验证服务
- 企业社会责任（CSR）审核。
- 欧盟《包装及包装废弃物指令》（94/62/EC）法规测试
- 可持续木材产品的FSC和PEFC认证

* Some of the services listed are provided due to local regulations only and may not be available in other regions. Please contact us for further details.

* 上述部分服务可能由于当地法规的原因而无法在您的地区提供，欢迎您与我们联系咨询。

