

Authenticae
Responsible Leather Specialists



Authenticae Testing Guide



Passionate about leather as part of a sustainable and circular economy.



Authenticae

Responsible Leather Specialists

A little about us..

Here at Authenticae we are focused on leather biodegradability testing services and advice, with a passion for leather being part of a sustainable and circular economy.

We can help you understand how your leather interfaces with the ecosystem. Our growing suite of tests look at biodegradability, compostability, disintegration, plant response and chemical toxicity.



Authenticae is a family-owned laboratory and consultancy based in the UK. We are known for our in-depth technical knowledge and expertise on the leather tanning process. We have turned that knowledge into helping us and our clients understand the growing field of leather biodegradability. We believe that leather should be seen as part of the puzzle to a sustainable future, and that biodegradable leather is a significant piece of this picture.

Our team are diligent students of leather chemistry, biodegradability and lifecycle assessments. We are constantly developing and improving our knowledge and services, with the aim of providing you with real useable data and access to experts to help you in your journey.



Our Tests



ISO20200 is a lab-scale industrial composting simulation that determines the degree of leather disintegration in a composting environment and shows how well the leather breaks down when it is composted. By incubating the leather in a synthetic compost mixture we observe your samples for a minimum of three months and provide you with robust data on how well your leather breaks down when it is composted.



The EcoToxicity test looks at how safe leather is to the ecosystem, when it biodegrades and whether there are any chemicals of concern present. The test measures 200+ components quantitatively including (but not limited to): metals, volatile organics, phenols, chlorinated hydrocarbons, petroleum hydrocarbons, nitrogen and other pesticides.



Disintegration Test

Placed in reactors with compost @ 58°C

Your leather is placed in a controlled composting environment so that we can collect reliable data throughout this period.



Mixed and watered

The environment relies on being mixed and watered, our lab team carefully tend to each incubator.



3 month analysis

After three months, we will check to see if your leather has disintegrated. If it has, your ISO20200 report will be produced, if it hasn't then we can proceed with your testing for another three months.



ISO20200

ISO 20200
Samples arrive



Back into reactors with compost @ 25°C

The leather is kept in the exact same conditions that it was in, just at a lower temperature, so we can continue to watch for the disintegration.



Mixed and watered

The environment relies on being mixed and watered, our lab team carefully tend to each incubator.



6 month analysis

Once the 3 months are up, there are various options that you can take. You can choose to put your leather through further tests, such as the PRT testing which will look at how well plants respond when grown in your leather compost.



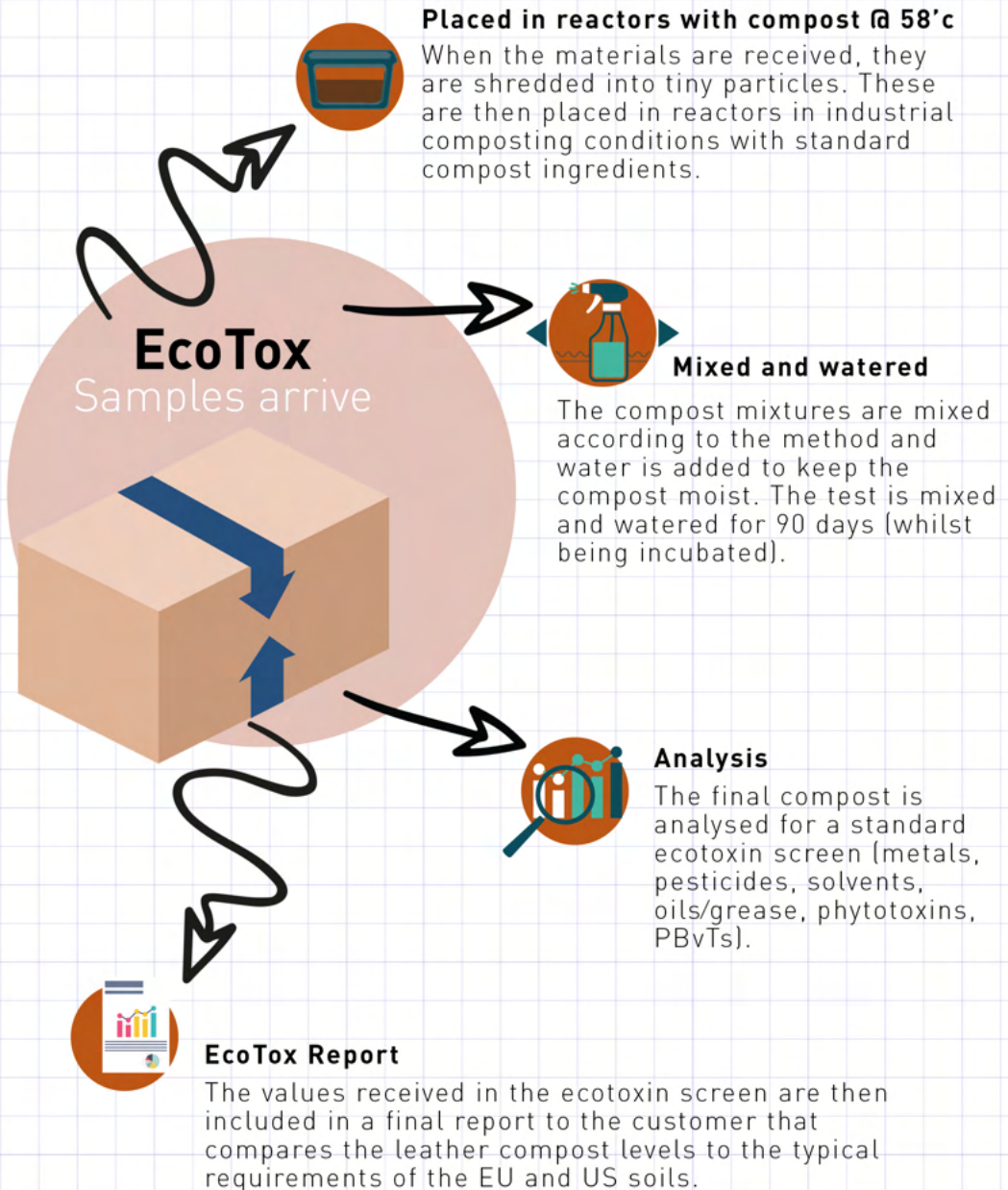
ISO20200 Report

Your report is produced and sent out to you. If you would like more testing or assistance in understanding your results, add on services are available here at Authenticae.





Toxicity Test





Our Tests



Our Plant Response testing evaluates how plants respond to being grown in compost with your biodegraded leather. We can help you understand whether the leather enriches the soil or not.



ISO20136 is a leather specific method which looks to determine biodegradability by using micro organisms. With this technique, leather is put in a "soup" with bacteria. We then measure exactly how much CO₂ is produced using infrared equipment that is accurate to 1ppm. The more CO₂ produced, the more biodegradable your leather is.

Plant Response Test



Material Impact Testing

Placed in reactors with compost @ 58°C



Your leather is placed in a controlled composting environment so that we can break it down. The final compost is then fed to the plants.



Mixed and watered

The compost relies on being mixed and watered, our lab team carefully tend to each incubator,



3 month compost growth

After 3 months the composts are mixed with other growing media and the plants are grown in it.



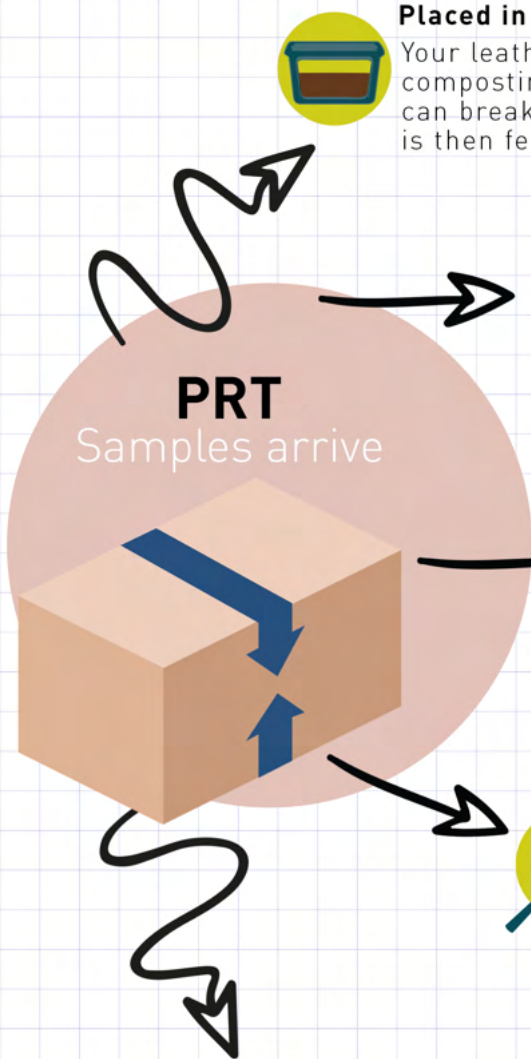
Analysis

After 28 days the growth parameters of the plants are compared to the control plants.



PRT Report

Your report is produced and sent out to you. If you would like more testing or assistance in understanding your results, add on services are available here at Authenticæe.





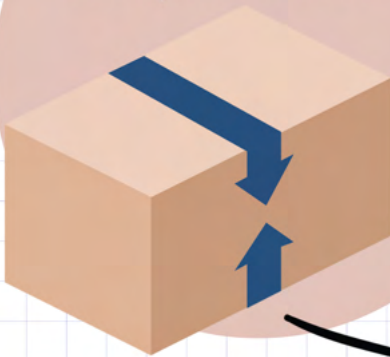
Biodegradability Test



Added to the bacteria

Your ground up leather is added to the bacteria soup. This machinery is kept in a 23°C temperature controlled zone for 28 days. The CO₂ is measured by infra-red detection.

ISO 20136
Samples arrive



Analysis

The CO₂ produced is graphed and the total is then compared to how much CO₂ a control sample could produce.



20136 Report

Your report is produced and sent out to you. You can see your sample biodegradation over time compared to a control (that is very biodegradable).

Your Leather



Expertise



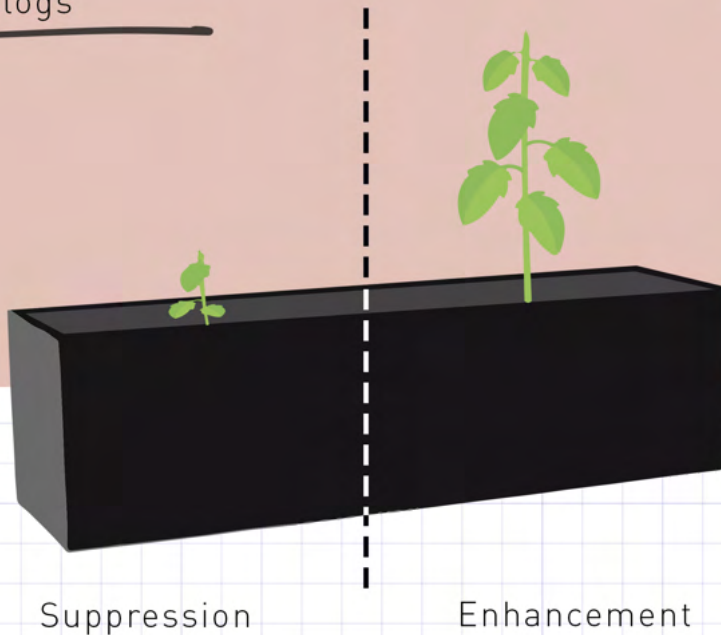
At Authenticae we want you to feel empowered. So we have committed to sharing our Leather expertise to further aid your interest in Leather Biodegradability.

Our ecotoxicity test determines the toxicity of end products in the ISO 20200 compost. These products may enter the environment and include metals, phenols, volatile organics, nitrogen/chlorine and other pesticides, petroleum hydrocarbons, among others.

Leather is made from more than just cows. You can also get buffalo leather, sheep leather, goat leather and pig leather. 1% of the leather industry is also made up of exotic leather from animals such as crocodiles, ostriches and snakes.

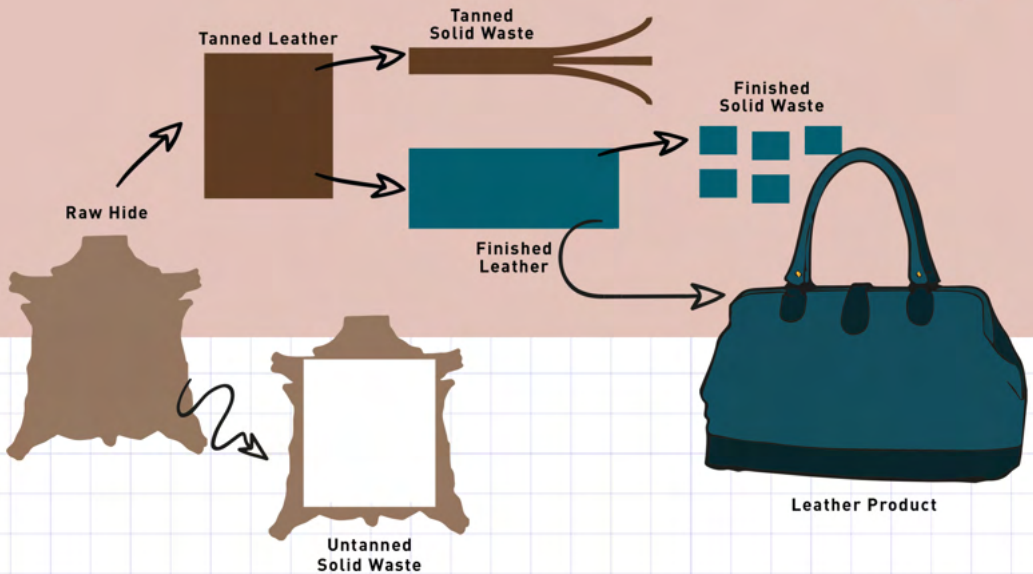
Vegan leather-like materials are often made from plastics such as polyurethane or polyvinylchloride. These plastics are produced from fossil fuels and are not biodegradable. Vegan leather-like materials are therefore not always the most sustainable choice.

Our Biodeterioration test (ISO20200) simulates a composting environment and determines the degree of leather disintegration. Leather is said to be able to disintegrate if at least 90% passes through a 2mm sieve at the end of the test. This test does not tell us if the material is biodegradable - further testing is necessary for this.



Composting Leather By-products:

Composting leather industry waste can reduce the volume of waste entering landfill sites. Raw hides/skins are biodegradable; however, the tanning chemistry alters the rate of this process. Compost containing leather can positively affect plant growth (bio-enhancement) if the leather chemistry contains high levels of nutrients. However, leather can also have negative effects on plants (bio-suppression). Leather compost may be applied to agricultural land in the future for soil remediation; however, it must be monitored to ensure it does not contain high levels of toxins. Responsible chemistry in leather production could make leather compost safe for agricultural purposes.



Leather Industry Waste Reduction – A Circular Economy:

Adding value to by-products during a circular economy model presents a feasible case for sustainable leather production. Extracted keratin from hair can improve the uptake of chrome during leather tanning. During retanning, collagen hydrolysate can replace formaldehyde as a biodegradable filler. Colour fixing agents for dyes can be prepared from collagen hydrolysate, whereas fleshing waste fats can be used as fatliquors for leather lubrication, or biodiesel. Chrome shavings can be modified to produce a retanning product and reused to produce a split leather substitute. Finished leather waste can be prepared into regenerated leather composites. Reusing leather industry waste can reduce the costs associated with solid waste treatment and simultaneously reduce the industry's environmental impact.



Contact us

Email hello@authenticae.co.uk

Phone (01604) 419351

Website www.authenticae.co.uk



Based in the UK, providing services globally.

