

Empowering Trust®



How does waste diversion certification work?

UL's Zero Waste to Landfill (ZWTL) validation program focuses on helping organizations reduce the amount of waste they contribute to our environment and communicate their achievements with confidence.

UL 2799 Environmental Claim Validation Procedure for Zero Waste to Landfill is the underlying Standard for the ZWTL program that uses quantitative analysis of waste material flows, combined with supply chain verification, to determine how waste materials are managed and how much is diverted from the landfill. Your diversion rate is the amount of waste your organization produces that does not end up in a landfill.

The more waste that ends up in a landfill, the more harm that's done to our environment. Waste reduction is more important than simply recycling or reusing energy.

Consumer electronics

Electronic waste is a worldwide problem. It accounts for <u>70%</u> of all toxic waste, and only 12.5% is recycled. Electronics manufacturing can produce harmful toxins and expose both workers and consumers to them.

In order to receive ZWTL validation, your organization has to calculate its waste diversion rate.

Did you know?

- Only 30% of resources are recycled
- Supply chains are at risk due to scarcity of resources
- 5% of global greenhouse gas (GHG) emissions are caused by waste decomposition

iources: World Bank, 2012 "What a Waste; A Global Review of Solid Waste Management As You Sow, 2015 "Waste and Opportunity"

Confirm your claims

The ZWTL standard provides all the tools you need to measure, manage and validate waste diversion claims. UL also offers supportive services to calculate your diversion rate considering the waste reduction measures you might already be taking.



Why pursue waste diversion validation?



Risk mitigation

- ✓ Reduce environmental impacts
- ✓ Reduce risks and monitor vendors



Improve cost savings

- ✓ Turn costs into revenue
 ✓ Reduce new material
 - costs

Scope:

- → **Processing residue:** byproducts created as a result of the process to recover waste material
- → Mandated wastes: waste materials that have regulated diversion requirements
- → Inadvertent landfilling: small quantities of waste that are unintentionally landfilled
- → Liquid materials: waste not including wastewater

Enhance reputation

- ✓ Green the supply chains
- ✓ Enhance competitiveness

Who can achieve ZWTL verification?

Any entity that produces waste, including:



If you have a variety of operations under one facility, information for each operation must be included for the assessment.

Entity	Facilities or campuses with a specific address and defined boundaries	Mobile vessels or businesses	Time-based events
Examples	Electronics manufacturing facilities, electronics stores, businesses that accept old electronic devices	Mobile repair stations, event kiosks	Trade shows

Typical validation process



What you need

There are four documentation requirements that you must present in order to be validated. UL requires these records for the 12 months leading up to the validation.





Material inventory

Finished goods and waste, all materials going in or out of the company

 \rightarrow E.g., batteries, cell phones, computer monitors



Calculation of diversion rate

Including hauling records, waste processor information, and declarations on processing methods

 \rightarrow Including exemptions for mandated waste



Manufacturing location and applicable on-site processes

 \rightarrow All facilities within the entity



Quality systems

(and documentation of any estimation methods)

 \rightarrow E.g., sustainability practices already in place

How does this affect your waste diversion?



How much waste are you wasting?

WASTE MANAGEMENT HIERARCHY



What can you reuse?

- → Reused materials are employed in a function or application as a substitute for new commercial materials.
- ightarrow E.g., reuse materials from broken devices

What can you reduce or eliminate?

- → Reduced material is the result of redefined processes, methods or materials that eliminate or reduce the mass of material or product discarded.
- \rightarrow E.g., reduce the use of toxic chemicals, such as lithium

What can you recycle?

→ Recycled material is reprocessed from recovered material and made into a final product or into a component of a product.

What can you compost?

→ Composting is the biological process of breaking organic waste into a useful substance by various microorganisms in the presence of oxygen. It also includes converting organic waste into industrial and manufactured products such as fertilizer, tallow and industrial chemicals.

Can your waste turn into energy?

→ Waste-to-Energy (WtE) is the process of generating energy in the form of electricity or heat from the incineration of waste.

How is waste diversion calculated?

Diversion rate shows how much of your waste **DOES NOT** end up in a landfill.



The diversion equation



There are two types of diversion:

Onsite diversion

Reusing materials or reducing the overall amount of waste created

→ E.g., reducing packaging trimmings or reusing component trays and/or pallets



Offsite diversion

Recycling materials, using waste as energy, and composting

→ E.g., sending old devices to those in need, sending unused parts to a facility that will use them, and recycling waste plastics

In regards to offsite diversion, the UL 2799 Standard assumes that all materials leaving the site are properly processed by the processor as they have declared. If any materials are not processed as intended, they are considered landfill while calculating your diversion rate.

If waste is not diverted, it ends up in a landfill or is incinerated without energy recovery.

Validation rates for zero waste

In order to receive a zero waste claim, your diversion rate has to be at 90% or higher. If your diversion rate includes a fractional value, the reported rate will be rounded up or down based on half-up rounding.

For example, if your diversion rate is 99.5%, your claim will be 100%.

UL identifies four levels of diversion.

Designation	Diversion rate (including WtE)
Certified Landfill Diversion Rate	<90%
Zero Waste to Landfill Silver	90 - 94%
Zero Waste to Landfill Gold	95 - 99%
Zero Waste to Landfill Platinum	100%

How do we treat waste exemptions?



There are laws that regulate how some types of waste can be disposed of, such as hazardous e-waste. UL 2799 allows for the exclusion of these materials from the diversion rate calculation to ensure comparability between industries and facilities with different mandated waste considerations.

In order to exempt this type of waste, you have to apply for a waiver. This application will ask for a description of the materials and a copy of the regulation mandating the disposal method for applicable waste.

Another instance where exemptions may apply is for the process of waste to energy (WtE). WtE is the process of generating energy in the form of electricity or heat from the incineration of waste. Normally, the UL 2799 Standard requires you to achieve 90% diversion through other methods besides WtE in order to be validated with a zero waste claim.

However, when WtE of materials with high energy value significantly reduces carbon emissions compared to conventional energy sources, more than 10% can be considered as a source of diversion. This application will ask for a description of the materials and evidence through studies or other literature that can demonstrate the environmental benefit.

Contact UL

For companies pursuing a waste diversion program UL offers supportive services to help you implement and promote your waste reduction claims.

Visit us at http://circular.ul.com/zwtl/p/1 for more information and a quote.



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