

TCO Certified generation 10 draft 2





Agenda

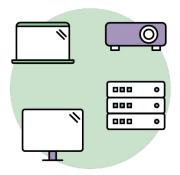
- Brief introduction to TCO Certified
- Brief introduction to Generation 10
- Suggested changes in Draft 2 Chapters 1-8
- Q & A 30 min?
- Wrap up closing of webinar

Write your questions in the webinar tool and we'll go through them after the

5 min 5 min 50 min



Like an ecolabel but so much more



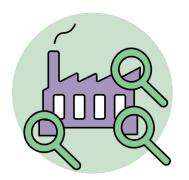
Global sustainability certification for IT products Trusted by purchasers around the world.



Environmental and social criteria with direct impact Criteria go beyond legislation and are updated every three years. All criteria are mandatory.



20,000 hours of independent verification each year Verification is mandatory and continuous – carried out both before and after certification.

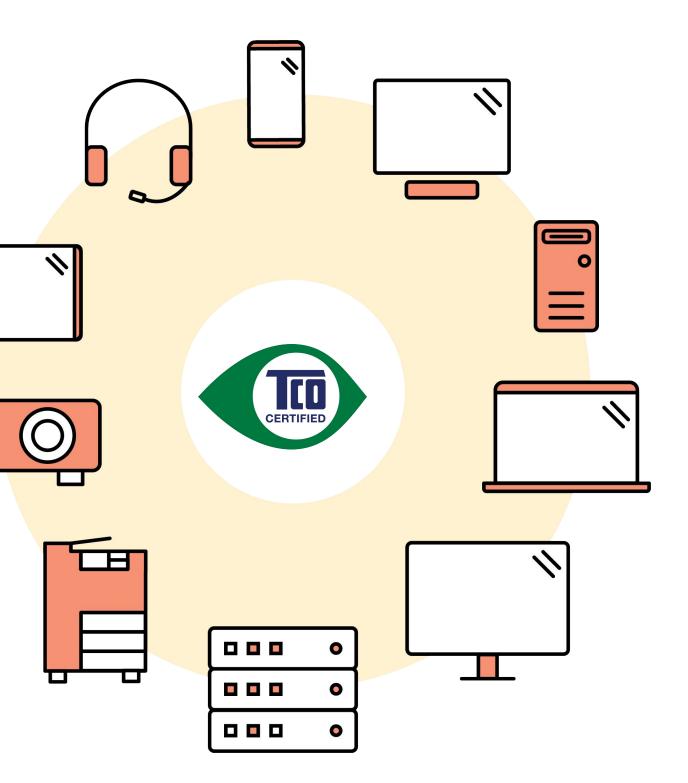


We detect issues — and make sure that they are solved Holding industry accountable. Non-compliance is met with real consequences.



Wide choice of certified products from the brands you know

- Thousands of product models are already certified.
- Around 100 million certified products are manufactured each year.
- 12+ product categories.
- Find certified products at our Product Finder.



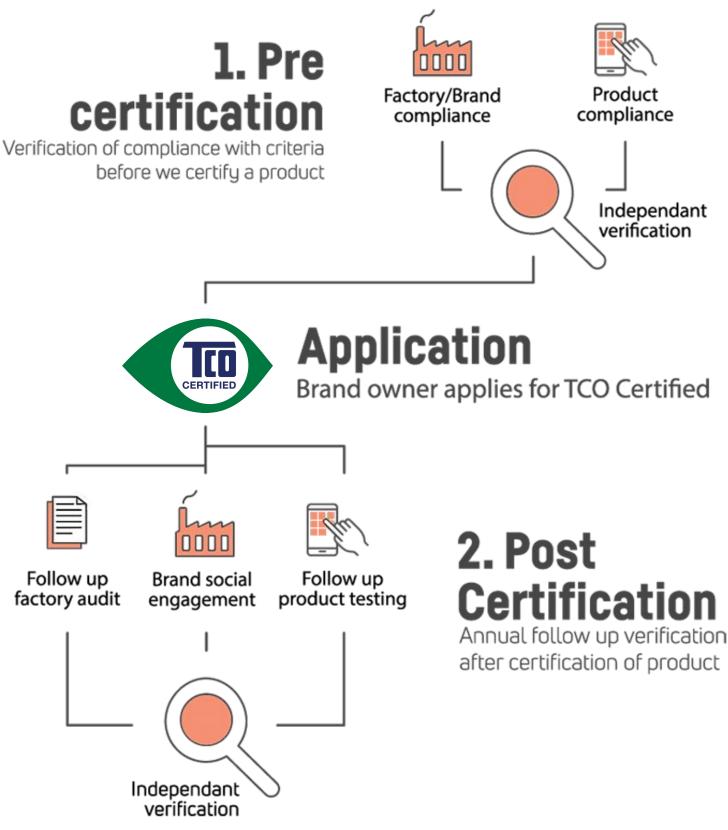


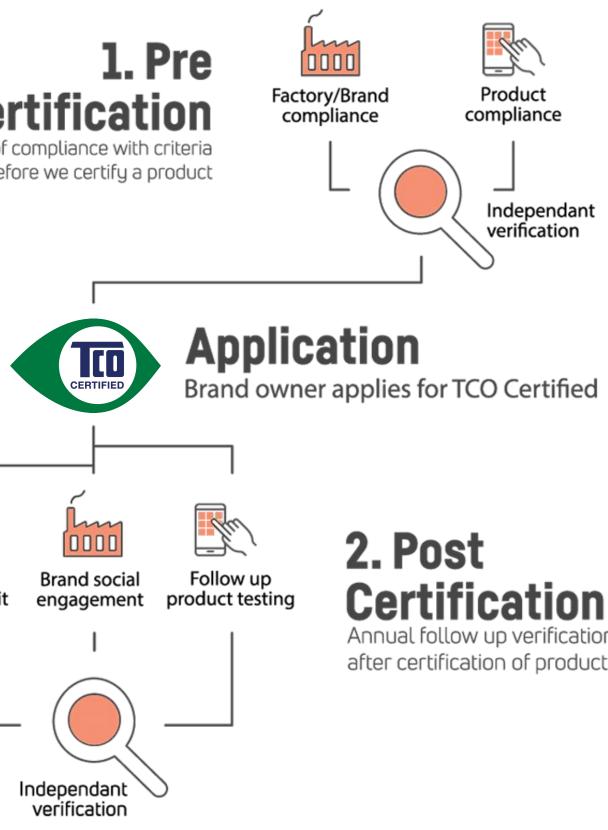
Independent verification

Pre-and post-certification verification

- Independent product testing
- Independent verification of factory audits
- Follow up product spot checks
- Follow up factory spot checks
- Annual review of brand progress

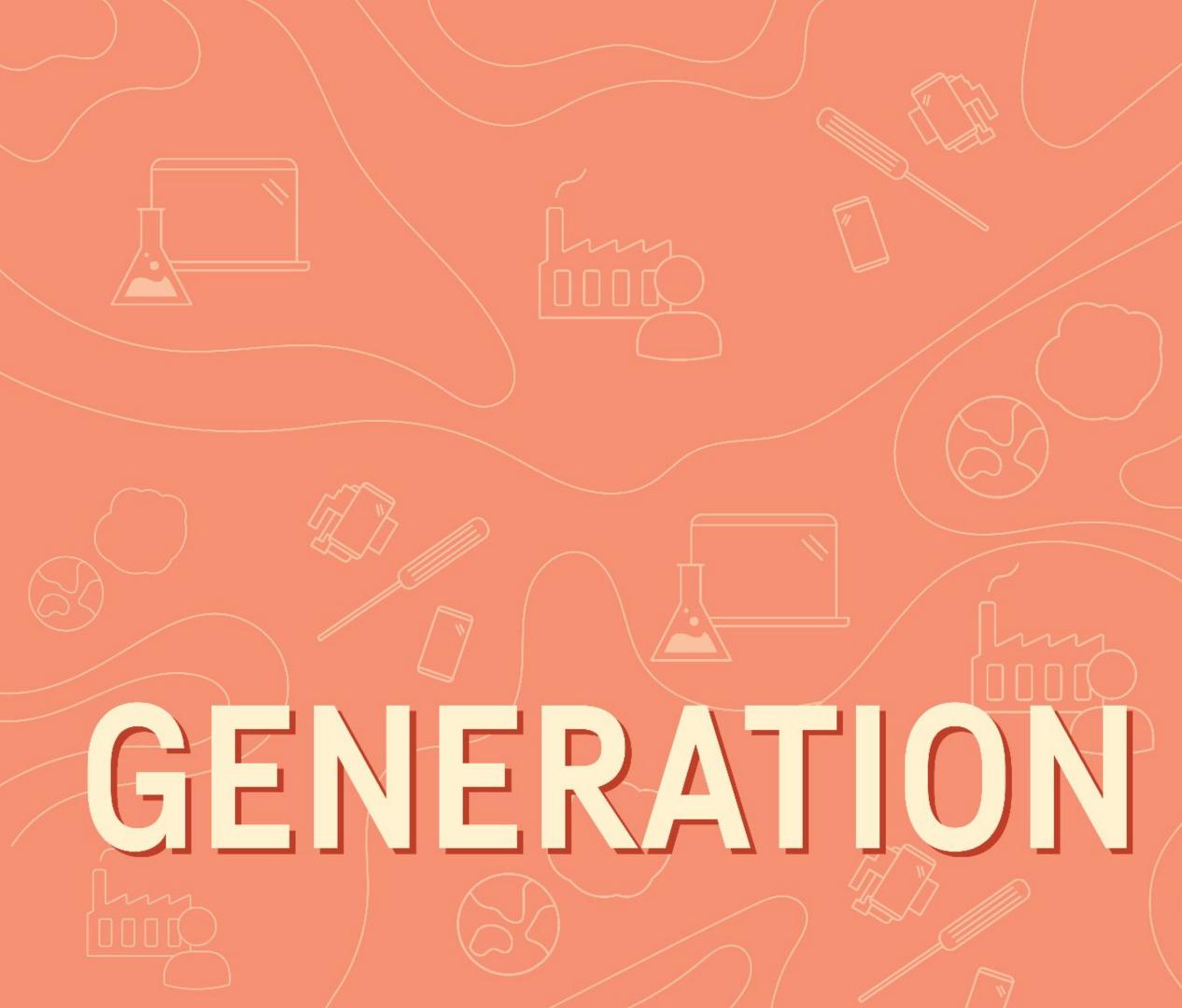
Independent verification partners accredited to ISO 17025





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TCO Certified generation 10 draft 2





About this presentation

- The presentation covers the most important suggested changes from Gen 9 with key changes from Gen 10 draft 1 explained
- Unchanged criteria are not presented (remain same as generation 9)
- Primarily aimed at industry stakeholders (brand owners, manufacturers etc.)



Today's presenters



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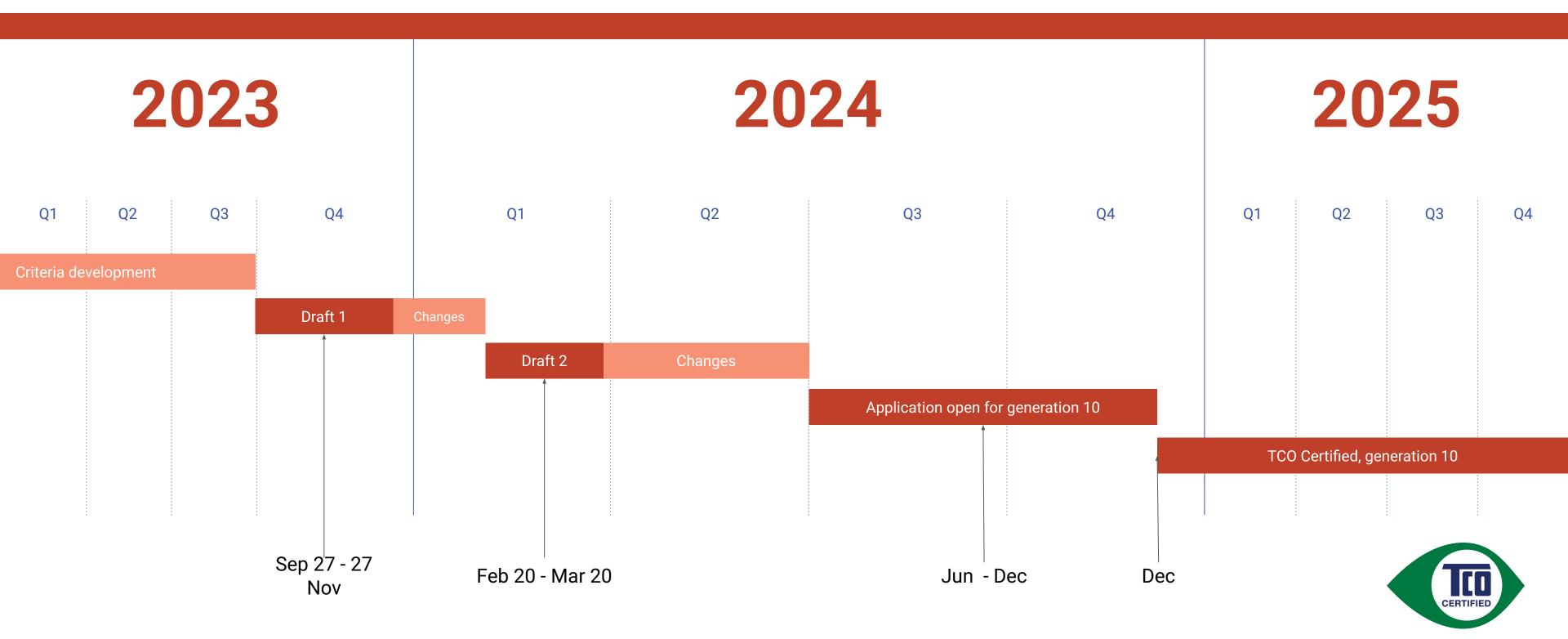
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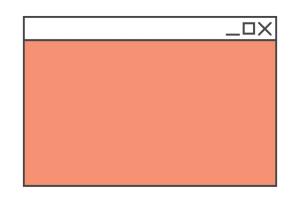
Martin Söderberg Industry Relations Manager martin.soderberg@tcodevelopment.com

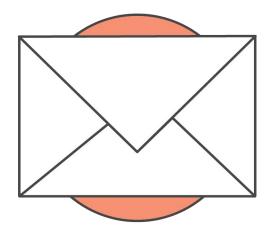


Timeline – Development of generation 10

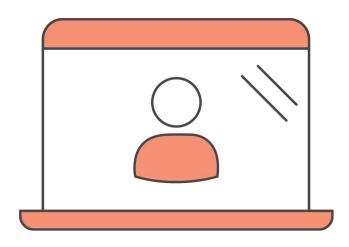


How to give feedback?



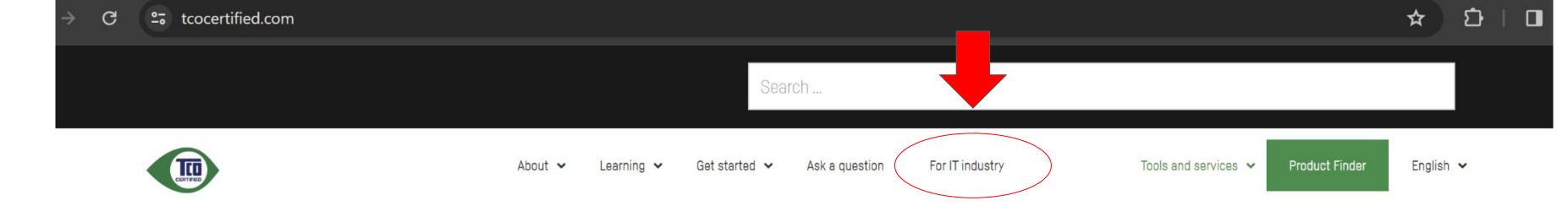


Through our gen. 10 E-mail us website comments @tcodevelopment.com



Ask for a meeting







Guilty until proven otherwise – the right strategy for chemicals

While banning hazardous chemicals is the most common strategy,

Upcoming event



Exclusive deep-dive training at the Procura+ Conference

Recently certified products





Certification process 👻 🛛 Downlo

Downloads 🗸

News & support 💌

General section

Industry support

Archive of updates and changes

Changes of criteria documents

Technical Update newsletter

Communication guidance

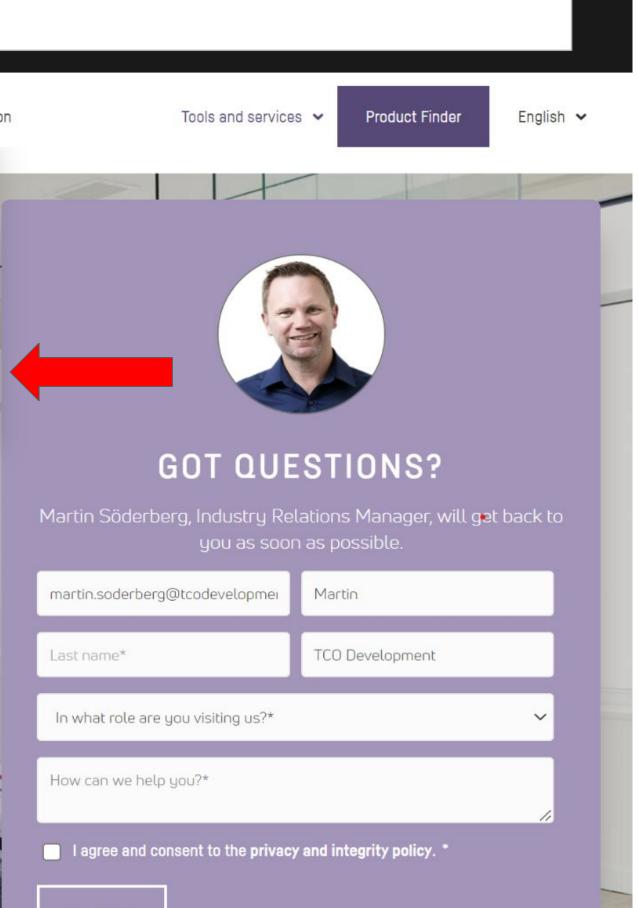
TCO Certified, generation 10

FAQ

- TCO Certified for industry

Certified products make you sustainability claims more trustworthy

TCO Certified gives you a clear signal of purchaser priorities and demand. Proven product claims help you compete in the growing market for sustainable IT products.





TCO Certified, generation 10

LAUNCHES IN DECEMBER 2024

The first draft of TCO Certified, generation 10 is now released. The development process is open to all stakeholders, and we invite you to contribute by providing feedback before 27 November. Criteria must be challenging, driving and relevant. Your feedback helps us find the right level.



DOWNLOAD DRAFT 1 DOCUMENTS 🝣

Comment on draft 2

If you have several or more substantial comments, please use this **Excel template document**. Then, upload the document with your comments through this form or send it via email to comments@tcodevelopment.com.

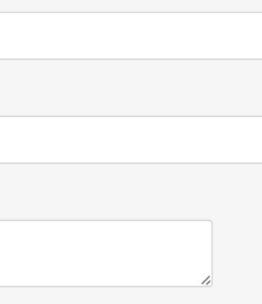
First name *	Last name *
Enter your first name	Enter your last name
Email *	Company *
Enter your email address	Enter your company name
Comment or question *	
Enter your comment or question	

For several or more substantial comments, please use this Excel template document.

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I agree and consent to the privacy and integrity policy. *

SUBMIT COMMENT





A	В	С	D	E	F	G	Н
DATE	Product Category	Criterion	Comment	SUBMITTER	Company	Email to submitter	
2023-09-22	All (general)	_	Write your comment here	The name of the submitter	The name of your	Contact information to submitter	
	Desktop		Write your comment here				
	All In One		Write your comment here				,
	Smartphones Tablets		Write your comment here				
	Projectors		Write your comment here				
	Imaging equipment		Write your comment here				
	Networking equipment	A	Write your comment here				
	Data storage Headsets		Write your comment here				
	Servers						
	All (general)						
	Computers						



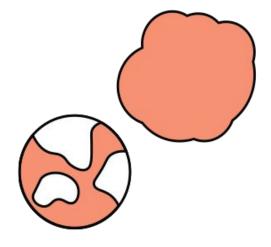
A	В	С	D	E	F	G	H
DATE	Product Category	Criterion	Comment	SUBMITTER	Company	Email to submitter	
2023-09-22	All (general)		rite your comment here	The name of the submitter	The name of your	Contact information to submitter	
		Chapter 1					
		Chapter 1 Information	to end users				
		Chapter 1 Product spe	ecification				
		Chapter 1 Sustainabilit	y performance indicators				
		Chapter 1 Unique product identifier					
		Chapter 2					
		Chapter 2 Supply chair	n responsibility				
		Chapter 2 Supply chair	n transparency				
		Chapter 2 Anti-bribery management system Chapter 2 Responsibly sourced minerals Chapter 2 Process chemicals Chapter 3					

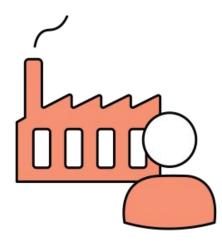


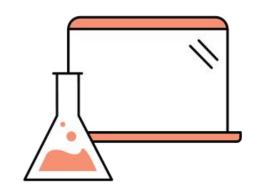
TCO Certified, generation 10 draft 2



The main themes for TCO Certified, generation 10



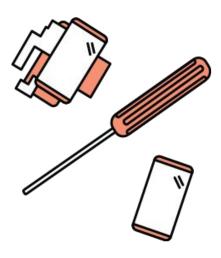




Climate

Supply chain

Substances

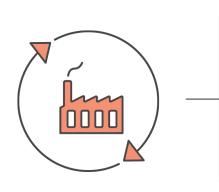


Circularity



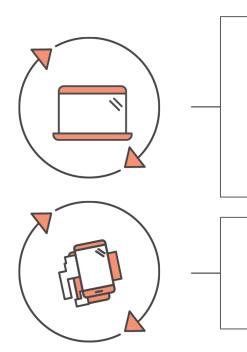
Chapters - TCO Certified generation 10

Material Sourcing & Manufacturing Phase



Use & Reuse Phase

Recovery & Recycling Phase



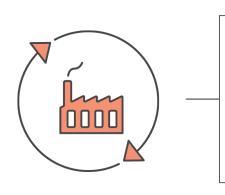
- . Product and sustainability information
- 2. Socially responsible manufacturing
- 3. Environmentally responsible manufacturing
- 4. User health and safety
- 5. Product performance
- 6. Product lifetime extension
- 7. Reduction of hazardous substances
- 8. Material recovery



Chapters - TCO Certified generation 10

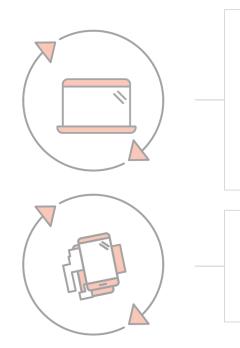
4.

Material Sourcing & Manufacturing Phase



Use & Reuse Phase

Recovery & Recycling Phase



- 1. Product and sustainability information
- 2. Socially responsible manufacturing
- 3. Environmentally responsible manufacturing
 - User health and safety
- 5. Product performance
- 6. Product lifetime extension
 - Reduction of hazardous substances
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1. Product and sustainability information

- Information to end users
- Product specification
- Sustainability performance REMOVED
- Unique product identifier NEW



Information to end users

The information to end user document can only be made available in digital format going forward to reduce unnecessary use of paper manuals.



Product specification

- A **product specification** of the worst case (heaviest) product configuration must be reported.
- The total weight of the heaviest product configuration including the power supply and cables (without packaging) in kg must be reported.

It will be possible to have multiple configurations on the same certificate to showcase a range of weight for one product model.



Sustainability performance - Removed

The criterion "1.3 Sustainability Performance" has been removed and the sustainability data is collected in each mandate under the heading:

"The following is submitted to TCO Development and may be published"

A list of data that may be published can be found on the draft page under additional documents.

1 Product and sustainability information

- well as greenwash.

Transparency improves decision-making

To drive sustainable development in the complex IT industry, accurate and comparable information about products and manufacturing conditions is needed. Transparency around this type of data also helps purchasing organizations make more informed product choices, and measure and report the true sustainability impact of the certified models they actually buy. Another positive effect of giving purchasers and industry access to verified product claims is that it helps IT brands compare their sustainability performance with peers, and reduces the risk of unfair competition and greenwash.

Providing access to independently verified sustainability data

To increase transparency around certified products, data is collected in TCO Certified. This data makes it possible to measure and report on the sustainability impact of using IT products. To ensure accurate reporting, gathered data is verified by independent experts. In those cases where collected data may be published in a non-anonymous format towards purchasers or other stakeholders, this is explicitly written in the criterion mandate under the headline "The following is submitted to TCO Development and may be published".

 The IT industry is complex and finding reliable data about products and manufacturing conditions can be a challenge.

• The lack of verified product claims can lead to unfair competition between brands as

• Accurate and comparable information helps both brands and purchasers make informed decisions and measure their sustainability progress.



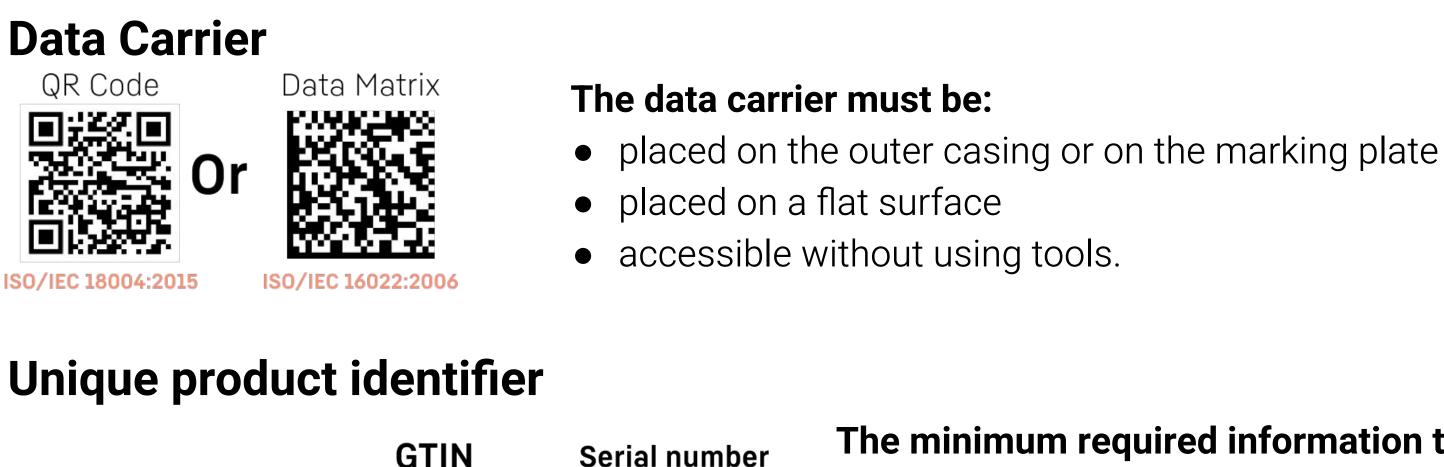
Unique product identifier - NEW

- Part 1: The certified product must have a Data carrier containing a Unique product identifier as specified in GS1 digital link standard or equivalent.
- **Part 2:** When the data carrier is scanned by a device, it must redirect to a website displaying unit-specific product information.



Unique product identifier - NEW

Part 1: The certified product must have a Data carrier containing a Unique product identifier as specified in the GS1 digital link standard or equivalent.



ISO/IFC 15459-6

https://id.brand.com/01/09506001343376/21/4EEE2F46

The minimum required information to include is: the GTIN based on ISO/IEC 15459-6 Product serial number



Unique product identifier - NEW

• Part 2: When the data carrier is scanned by a device, it must redirect to a website displaying unit-specific product information.

Required data to display

- model name
- serial number
- GTIN

The first time a brand applies for a TCO Certified, generation 10 certificate, a period of 12 months may be granted to implement scanning functionality of the data carrier so it leads to a unit-specific website.



2. Socially responsible manufacturing

- Supply chain responsibility
- Anti-bribery management system
- Responsible mineral sourcing
- Process chemical management



Supply chain responsibility

- Revised Factory audits and corrective actions.
 - Schedule for the implementation of corrective actions revised. Ο
- Revised Suppliers to final assembly factories.
 - Each factory manufacturing display panels >10"- Independent audit requirements. Ο
 - Updated supply chain identification template limited to specific suppliers Ο
- Independent verification
 - Annual review process by accepted verifier Ο
 - Independent audits Ο



Anti-bribery management system

- Revised Level of compliance.
 - Improve alignment with ISO 37001 anti-bribery management system Ο
- Independent verification
 - ISO 37001 certificate OR Ο
 - Annual review process by an accepted verifier Ο



Responsible mineral sourcing

- Revised Policy requirements
 - Include requiring smelters or refiners (SORs) participate in third party audit programs.
- Revised Required level of SOR participation and sourcing.
 - At least 70% registered as comformant to an accepted third party audit program.
- Independent verification
 - Annually report using responsible mineral sourcing template and comparison tool.

cing. hird party audit program.



Process chemicals

- Revised Data collection to include: adhesives and lubricants.
- Revised Each factory manufacturing display panels >10".
 - Must have a certified ISO 45001 health & safety management system. Ο
 - Must use cleaning substances or formulations on TCO Certified ASL. Ο
- Independent verification
 - Accepted: CEPN or TCO Certified data collection tools. Ο
 - Independent factory audits. Ο



3. Environmentally sustainable manufacturing

- Environmental management system
- Energy management System
- Renewable energy NEW
- Product carbon footprint
- Product carbon footprint reductions NEW
- Post-consumer recycled content



Environmental management system

Mandate

All final assembly factories and <u>all factories manufacturing display panels >10"</u> for the certified product must now have a structured environmental management system that is independently certified to ISO 14001.





Energy management system

Mandate

All final assembly factories and <u>all factories manufacturing display panels >10"</u> for the certified product must now have a structured energy management system that is independently certified to ISO 50001. (18 months time to implement ISO 50001)





Renewable energy - NEW

Mandate

At least 15% of the electricity used in the final assembly of the certified product must be procured and/or generated from renewable sources. This ratio must be reported yearly.

Acceptable sources:

- Wind
- Solar
- Geothermal
- Hydropower (pumped hydro storage is not accepted)
- Biomass (agriculture waste and residues, forest biomass, biofuels plants)



Renewable energy - NEW

Accepted systems

Procured and generated electricity must be issued with one of the following RECs:

- I-REC, REC, GEC, EECS-GO, J-credit, FIT-NFC, CPPA
- Indian national EAC system
- National Guarantees of Origin
- Korean national EAC system

Exception for high market price

If the market price of all allowed RECs in the market is high it is allowed to source a percentage of accepted I-RECs from markets with neighboring borders.

- 30% may be sourced if price is above 10 USD / Mwh
- 70% may be sourced if price is above 30 USD / Mwh

e of the following RECs: PA



Renewable energy - NEW

Reporting period

- Reporting must be done at latest 31 of August for the previous calendar year
- RECs may be purchased until 31 of March.
- Factories with no TCO Generation 10 certified product (from any brand) before 31 August must be in compliance the following calendar year.

Factory of product level

Choose to report on factory level, or, on the manufacturing of certified products. Electricity used to manufacture certified products is estimated based on the allocation of manufacturing volume (total electricity consumption of the factory is allocated to individual products based on units manufactured).



Renewable energy - NEW

Reporting on product level

- Total electricity consumption of the factory (X)
- RECs designated to the factory (with the factory name) (Y)
- Total number of units of any kind manufactured (Z)
- Certified units manufactured for the brand owner (W)
- RECs designated to the factory and brand owner (for certified products) (S).

Calculations

- Estimated electricity to manufacture certified products (E = X/Z*W)
- Ratio of renewable electricity by the factory ($R_F = Y/X$).
- Ratio of renewable electricity by the brand owners manufacturing ($R_c = S/E$)
- Ratio of renewable electricity in the assembly of certified products ($R_{T} = R_{F} + R_{C}$)





Product carbon footprint

Mandate

Revised - A PCF report must now exist for every certified product

- The PCF must be available as a link for download (category A) or
- On-demand from the brand owner (category B)



Product carbon footprint reductions - NEW

Mandate

A comparable product carbon footprint value must be estimated for the certified product according to the Px3 methodology with any implemented reductions subtracted.

Clarification

- For every product a Px3 estimation of the PCF will be published
- A list of best practice solutions to reduce the PCF will be available on the TCO Development web. The list can be expanded over time.
- A brand owner can claim implementation of one or more reduction solutions which will then reduce the published Px3 estimation for the product.
- In TCO Certified generation 10 it is not mandatory to implement a reduction solution.



Post-consumer recycled content

Mandate

The worst-case configuration (lowest PCR content ratio) of the certified product (including) any external power supply) must be reported:

- % of identified post-consumer recycled materials by weight of the product weight
- % of post consumer recycled plastics by weight of the total weight of all plastics.



Post-consumer recycled content

Worst case configuration

The worst-case configuration (lowest PCR content by weight of total product weight) that is available for purchase must be defined and stated in the verification report.

It must be defined through a unique brand owner code, a unique product identifier, or a list of configuration choices that are available at the time of purchase.

If there are several versions of the same component (e.g. due to different suppliers) and the buyer cannot influence which version they get, then the worst-case version of the component must be reported.)



Post-consumer recycled content

Independent documented proof

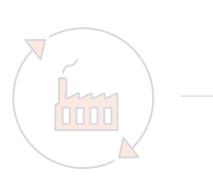
Document proof from an independent third party covering each part containing post-consumer recycled material must be provided if it is to be included in the PCR percentage. TCO Development has the right to require a full bill of material.



Chapters - TCO Certified generation 10

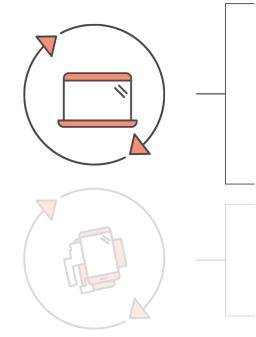
3.





Use & Reuse Phase

Recovery & Recycling Phase



- . Product and sustainability information
- 2. Socially responsible manufacturing
 - Environmentally responsible manufacturing
- 4. User health and safety
- 5. Product performance
- 6. Product lifetime extension
- 7. Reduction of hazardous substances
- 8. Material recovery



4. User health and safety

- No major changes
- Electrical safety
- Acoustic noise



Electrical safety

- Additional standard for medical equipment
 IEC 60601-1
- Removal of EN version of 62368 standard
 - Only IEC standard may be used in gen 10.



Acoustic noise

- Updated standard revisions
 - ISO 7779:2018
 - ECMA-74 20th edition
 - operating mode & idle mode
 - operating modes for computers
 - \circ Web browsing
 - Office productivity



5. Product performance

- Energy efficiency

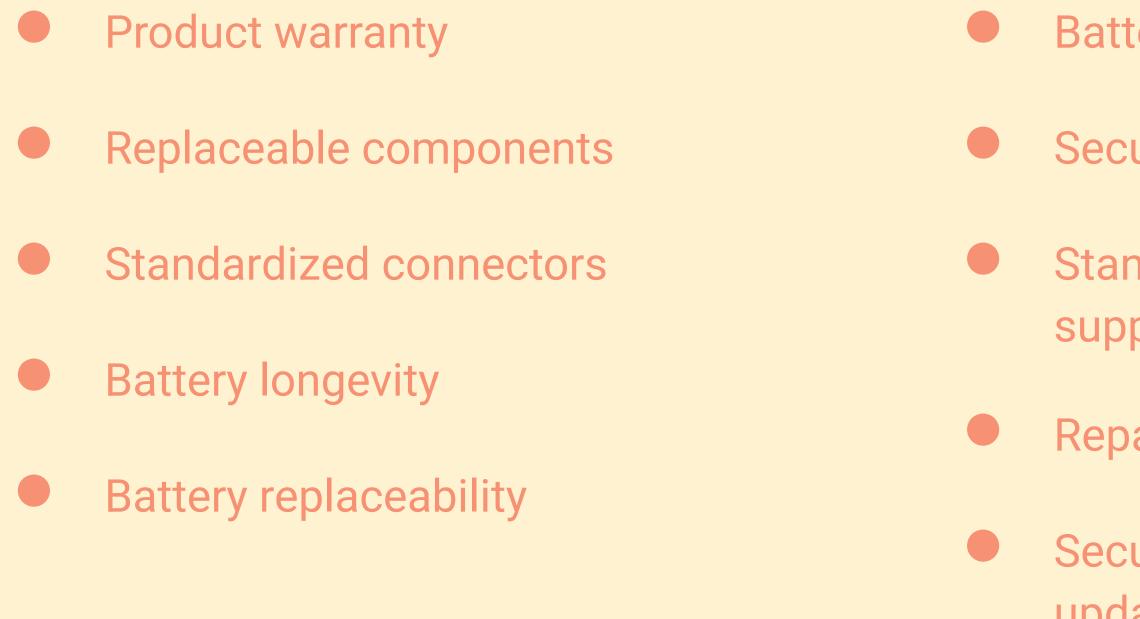


5.1 Energy efficiency

- Displays
 - **ENERGY STAR for Display 8.0** Ο
 - For products sold on the European market, testing and evaluation of the energy efficiency index of the Ο product must also be performed in accordance with the Regulation on ecodesign for electronic displays (EU) 2019/2021
- Notebooks, Desktops, All-in-one PCs, Tablets
 - **ENERGY STAR for Computers 8.0** Ο
- Network equipment
 - ENERGY STAR for Large Network Equipment (LNE) version 1.0 Ο
 - Small network equipment (SNE) no longer included. Ο
- Data storage
 - ENERGY STAR for Data storage version 2.0 Ο
- Servers
 - ENERGY STAR for Computers servers version 4.0 Ο
- Imaging equipment
 - ENERGY STAR for Imaging equipment version 3.0 Ο



6. Product lifetime extension



Battery information and protection

- Secure data removal
- Standardized external power supply compatibility
- **Repairability index New**
- Security and functionality software updates New



Definition of "product warranty"

Product warranty: covers defects existing at the time of delivery and those appearing after delivery that are due to material or manufacturing faults. It does not cover damages due to misuse or accidents. (However, functionality defects resulting from normal wear and tear, such as battery degradation, fan and keyboard wear-down, etc. must be covered.)"



Mandate

In all markets where the product is sold, the brand owner must:

- Offer a 5-year minimum available warranty, where at least 1 year must be included free of charge.
- Each year of warranty, which is not included free of charge, must be offered for a maximum of 15% of the MSRP (manufacturer's suggested retail price) of the product and must be available for purchase together with the product.



The following may be published

- Minimum included product warranty in years
- Minimum purchasable extended warranty in years
- Minimum total available warranty in years (free + extended)
- The maximum cost (in % of product cost) per year for the extended warranty
- A link to a public commitment on warranty covering the certified product

ded) the extended warranty e certified product



How to prove compliance

The brand owner must provide a link to a public statement in English covering the certified product, where the brand owner commits to the minimum warranties on any market where the product is sold, as well as information on how to purchase an extended warranty.



Replaceable components

Updated mandate text and Removed SPI's

Provide a service manual describing how to replace all critical components. The service manual must be available for anyone to read, free of charge.

SPI's removed:

- Fasteners and connectors (Class A-C) 1.
- Necessary tools for repair/upgrade (Class A-D) 2.
- Availability of spare parts (Class A-E) 3.
- Comprehensiveness of available information (Class A-C) 4.



Standardized connectors

The device must carry at least one USB Type-C connector that is backward compatible with USB 3.1 Gen 1 or faster.

TCO Certified generation 9: USB 2.0 TCO Certified generation 10: USB 3.1 Gen 1 or faster.

Evidence: A product manual including an exploded diagram of the device illustrating the types of connectors used.



Product durability

Added clarification for low temperature:

For the low temperature test: If a stricter testing is applied, such as Cold (C2) or Severe Cold (C3) then the duration must be at least 4h in storage and 4h in operation.



Battery longevity

- Increased the minimum requirement from 80% to 90% SoH of the rated capacity after 300 cycles.
- Removed SPI's



Battery replaceability

- The battery must be replaceable by the end-user with the use of commercially available tools or tools provided free of charge with the product. No proprietary tools, thermal energy, or solvents must be necessary to replace the battery.
- The battery must be available for anyone to purchase
- The instructions on how to replace the battery must be available for anyone to read, free of charge online throughout the whole lifetime of the certificate.



Battery information and protection

2. The brand owner must provide software that can determine and monitor:

- State of Health
- State of Charge

•The number of full charge cycles that the battery has gone through. (Not applicable if the battery is replaceable by the user without tools)



Secure data removal from products

No change in mandate.

Added clarification:

Pre-installed data encryption technologies must have a security stronger or equal to: AES encryption algorithm in cipher block chaining (CBC) or XTS mode with a 128-bit or 256-bit key.



Standardized external power supply compatibility

New updated Applicability:

Gen 10: All products with rechargeable batteries and external power supplies ≤ 240W

Gen 9: Products with external power supplies up to 100 W.



Repairability index - New

Applicability: Notebooks, Smartphones and Tablets:

Harmonization with EU Regulation 2023/1669 of June 2023 and EU Lot 3 - JRC/B.5: Reparability scoring systems for laptops

Major changes:

- Updated critical components
- Added Spare parts duration evaluation
- Updated evaluation spreadsheets, available for download at our TCO Certified, generation 10 draft 2 webpage



Repairability index - New

Applicability: Notebooks, Smartphones and Tablets:

The below aspects must be evaluated and calculated into a repairability index. (No minimum level is required but the index will be used as an SPI.)

- Disassembly depth for all listed parts
- Fasteners (type)
- Tools (type)
- Spare Parts information + Spare part (duration) for Notebooks
- **Repair Information**
- Software Updates (duration)



Repairability index Tablet and Smartphones -Evaluation

PRODUCT PARAMETERS EVALUATED

Spare part (target group)

Software Updates (duration)

Repair Information for all parts

Disassembly depth (AGGREGATED)

Fasteners (type) (AGGREGATED)

Tools (type) (AGGREGATED)

Battery (if multiple, con Display assembly (if mu back cover or its asseml storage (SSD,HDD) (if m System memory (RAM) external/internal PSU mechanical buttons systemboard/motherbo fans hinge assembly or mechanical display folding mechanism

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ltiple, consider deepest)	
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ultiple, consider deepest)	
(if multiple, consider deepest)	
bard	
hanical display folding mechanism	



Repairability index Notebooks - Evaluation

	Battery (if multiple, consider deepest)
PRODUCT PARAMETERS EVALUATED	Display assembly (if multiple, consider deepest)
	Keyboard
Spare part (target group)	storage (SSD,HDD) (if multiple, consider deepest)
Spare part (target group) Spare part (duration) - NEW	System memory (RAM) (if multiple, consider deepest)
Repair Information for all parts	external/internal PSU
Disassembly depth (AGGREGATED)	Ports (Vga, Hdmi, USB)
Fasteners (type) (AGGREGATED)	Back cover or its assembly
	Systemboard/motherboard
Tools (type) (AGGREGATED)	
	Fans



Security and functionality software updates - New

Mandate

- The brand owner must publicly guarantee the availability of security updates, corrective updates and functionality updates to the operating system for at least 5 years after the end of placement on the market.
- A link to the statement and the last year that the brand owner publicly commits to delivering such updates must be reported and may be published by TCO Development.



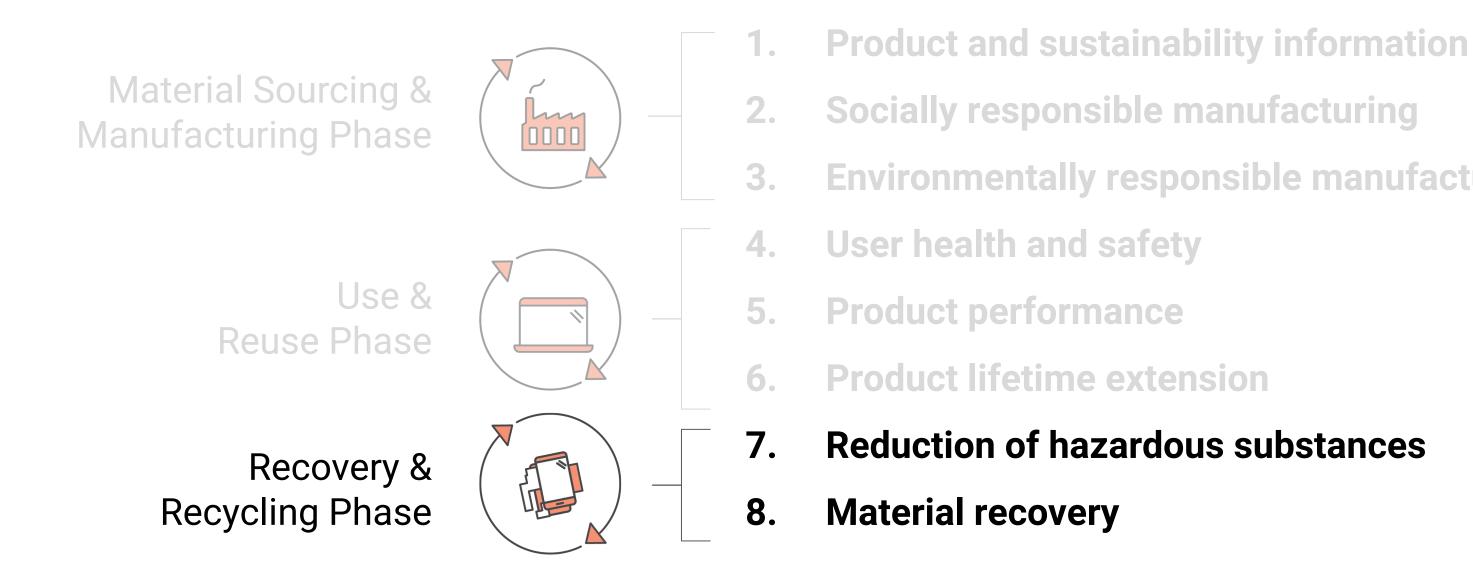
Security and functionality software updates - New

Clarification

- "The date of end of placement on the market" is defined as "the last manufacturing date" in this criterion.
- The software updates must cover the operating system delivered with the product or a newer version of the same operating system that must then be supported by the product without any additional cost for the user.



Chapters - TCO Certified generation 10



- **Environmentally responsible manufacturing**



7. Reduction of hazardous substances

- Halogenated substances
- Non-halogenated substances



Halogenated and Non-halogenated substances

Revised for safer cables.

- TCO Certified Accepted Substance List to include:
 - New category Safer vinyl polymer stabilizers (PVC stabilizers).
 - All external cables to use safer stabilizers, flame retardants and plasticizers.
 - All printed circuit boards (PCBs) to use safer flame retardants.
 - Exemption upheld:
 - PCBs and wires sealed inside electronic components
- Independent verification
 - Hazard assessment to GreenScreen or ChemFORWARD.
 - XRF screening and chemical analyses of parts at an independent laboratory.

oilizers). Ints and plasticizers. Idants.



8. Material recovery

- Product packaging
- E-waste management



Product packaging

- All parts of the packaging of the certified product weighing more than 25 grams must be possible to separate into single material types without the use of tools.
- For product packaging solutions that are comprised of \geq 20% plastic, by weight of all packaging materials, the following must be fulfilled:
 - \geq 50% of the total plastic packaging must be composed of post-consumer recycled Ο plastics, by weight.



E-waste management

The brand owner must annually complete the e-waste management template and prove that:

- In all countries where the certified product is sold, the brand owner offers product take-back.
- At least 40% of all first-tier reuse- and recycling facilities used by non-EPR take-back systems are certified according to R2, e-Stewards, WEEELABEX, EN50625, or equivalent.



E-waste management

Reporting and verification guideline

- The number of certified products that were manufactured. 1.
- 2. The take-back volume of products (in numbers) by the brand owner for each product category. (take-back carried out by EPRs systems, which is mandatory/approved by local law/government are excluded)
 - The number of products processed for Reuse а.
 - b. The number of products processed for Recycling
- З. The name and weblink to all used take-back systems (EPR and non-EPR).
- All countries in which the certified products were sold together with one take-back system covering 4. the country.
- 5. The name and address of all first-tier reuse- and recycling facilities used by the non-EPR take-back systems to process the products.
 - The certificates held by the first-tier reuse- and recycling facilities used to process the products. a. (i.e. R2, e-Stewards, WEEELABEX, EN50625, or equivalent.)









Questions? martin.soderberg@tcodevelopment.com



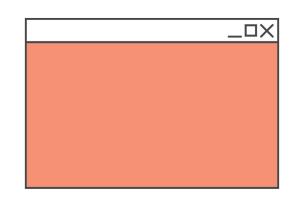
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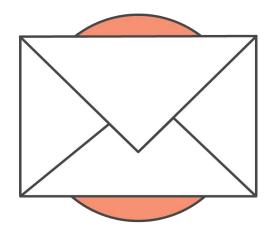




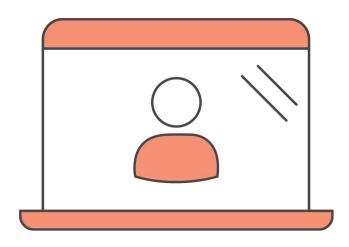


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