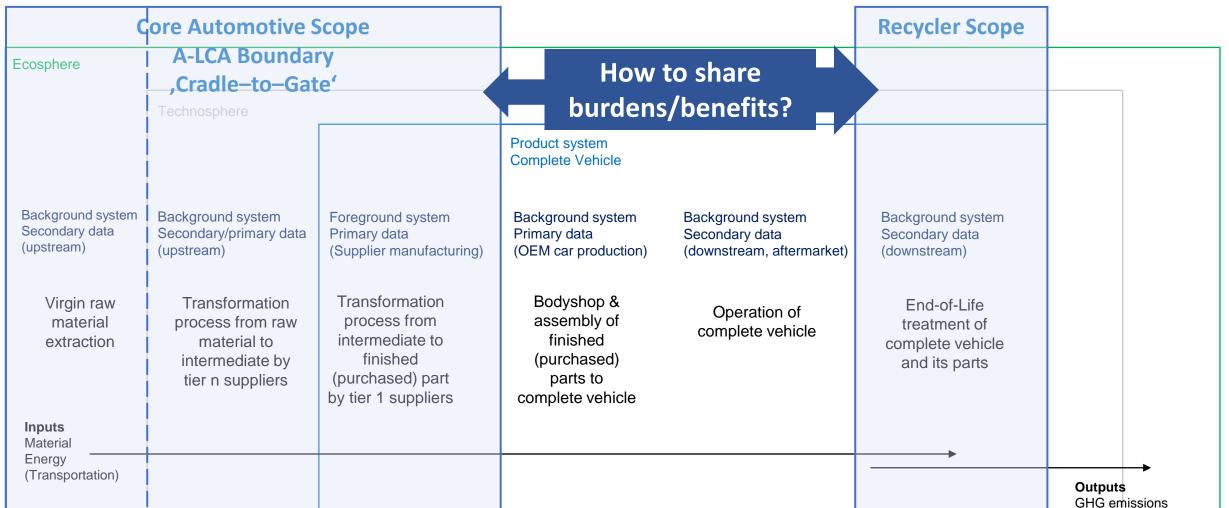




FOREGROUND & BACKGROUND SYSTEM SUPPLIER



EoL allocation method ,CFF' assumes that suppliers have direct cooperation in place for recycling of ELV parts (actually that is covered within OEM responsibility on complete vehicle level).



IMPACT OF UPCOMING ELV REG PROPOSAL COM(2023)451

Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on circularity requirements for vehicle design and on management of end-of-life vehicles, amending Regulations (EU) 2018/858 and 2019/1020 and repealing Directives 2000/53/EC and 2005/64/EC

Annex VII, Part C and Part D

We see the listed parts

... as future mandatory parts for

- reuse/refurbishment
- repurpose/remanufacture
- direct recycling (after dismantling from ELV)

... and to be considered in a standardised PCF & A-LCA

PART C

MANDATORY REMOVAL OF PARTS AND COMPONENTS FROM END-OF-LIFE VEHICLES

- Electric vehicle batteries:
- E-drive motors, including their easings and any associated control units, wiring, and other parts, components and materials;;
- SLI batteries as defined in Article 3, point (12), of Regulation (EU) 2023/****[on batteries and waste batteries]:
- Engines;
- Catalytic converters;
- Gear boxes
- Windshields, rear and side windows made of glass;
- Wheels:
- Tyres
- Dashboards;
- Directly accessible parts of the infotainment system, including sound, navigation, and multimedia controllers, including displays of a surface greater than 100 square centimetres;
- Headlights, including their actuators;
- 3 Wire harnesses:
- Bumpers;
- Fluid containers;
- 16 Heat exchangers
- Any other mono-material metal components, heavier than 10 kg;
- Any other mono-material plastic components, heavier than 10 kg
- Electrical and electronic components:
 - (a) inverters of the electric vehicles;
 - (b) printed circuit boards with a surface area, larger than 10 cm²;
 - (c) photo-voltaic (PV) panels with a surface area, larger than 0.2 m²:
 - (d) control modules and valve boxes for the automatic transmission.

PART D

REUSE, REMANUFACTURING AND REFURBISHMENT OF PARTS AND COMPONENTS

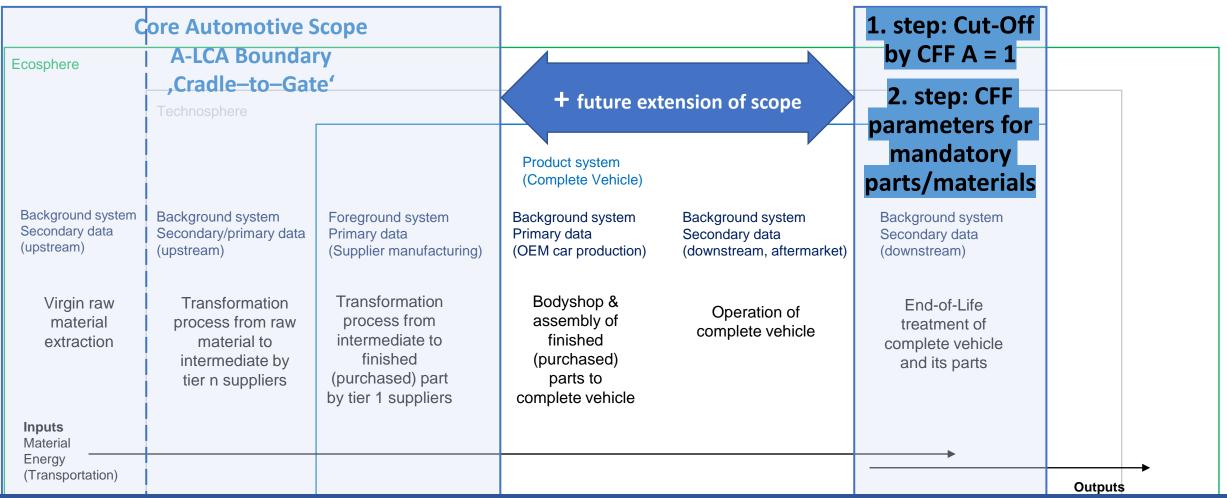
Technical evaluation of the removed parts and components:

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- a) For reuse:
- (i) the part or component is functional;
- (ii) it is fit to be used, in a readily manner, for its primary purpose it was conceived for.
- (b) For remanufacturing or refurbishment:
 - (i) the part or component is complete;
 - an assessment of damage, reduced functionality or performance and repairs needed for restoring the part or component to a state where it is fit to be used;
 - (iii) there is no heavy corrosion.
- Minimum information to be provided in the labelling of the parts and components:
 - (a) name of the component or part;
 - (b) reference to the vehicle identification number (VIN) of the vehicle from which the component or part has been removed; and
 - (c) name, the postal address, indicating a single contact point and e-mail address, a web-address, if applicable, identifying the operator that removed the component or part.



RECOMMENDED SCOPE FOR SUPPLIER IN A-LCA



Recommendation: A-LCA focus on PCF for Cradle-to-Gate upstream activities in supply chain step 1 (level 3&4 ,reporting'): Support ,recycled content' rule automotive parts (,cut-off' EoL-allocation). step 2 (level 1&2 ,technology comparison'): CFF parameters for selected parts (e.g. EU ELV reg. proposal, Annex VII).



PCR FOR TIRES AND AUTOMOTIVE GLAZING

	PCR for preparing an EPD for the product Category TIRES	PCR Glass products used in automotive and transport industry
Contributors	Michelin, Continental, Goodyear,	Saint-Gobain Sekurit
Latest update	November 2017	May 2023
Platform PCR	UL Environment https://www.shopulstandards.com/ProductDetail.aspx?productId=ULE10006 3 S 20220708	Environdec https://environdec.com/pcr-library
Functional/Declared unit	1 tire driven 1,000 km (modules A1 – C3)	1 kg of finished glass product and its packaging to be used in specified market (automotive / train / truck /)". The weight of the packaging is not included in this 1 kg of final product (modules A1-C4)
	Removal (C1): out of scope	Dismantling of product (C1): considered 0 as default scenario as energy consumption is considered neglectable for the glass compared to the energy consumed in the upstream and core process of this this product
	Transport (C2): - in scope if transport to incineration without energy recovery or landfill - out of scope if transport to energy recovery or recycling facilities -> impact allocated to the next product using recycled material or the energy	Waste transport (C2): default value is 100 km by truck
EoL	EoL recovery (C3a): out of scope	Waste processing (C3): considered 0 as the glass is not processed before recycling/landfilling
	EoL disposal (C3b): in scope and includes impacts from physical pre- treatment and management of the disposal site and impacts from landfilling and incineration without energy recovery	-
	-	Waste final disposal (C4): default scenario is 100% landfilled

12/12/2023



EPD WINDSHIELD EXAMPLE

Why an EPD?

- 1/ Proof of our commitment to sustainability by sharing transparent environmental information on a public space
- 2/ Prove that a LCA calculation is robust and can be trusted
- 3/ Answer customer requests on EPDs
- 4/ Give easy access to excel export of all product indicators (self-service)

Key information about EPD for a Windshield manufactured in Poland By Saint-Gobain Sekurit:

- World 1st EPD for automotive glazing (published in May 2023)
- Valid for 5 years
- Verified by an authorized third-party auditor
- 33 indicators presented according to the calculation norm EN 15804+A2
- Declared unit: 1kg of Laminated Windshield and its packaging manufactured in Poland and to be used in the automotive market, composed of 2.1/1.6 mm of flat glass and 0.76 mm of PVB. The weight of the packaging is not included in this 1 kg of final product
- Fol: 100% in landfill

	D		Core			Downstream					Total		
Parameters		A1	A2	A3	Total Core	A4	C1	C2	СЗ	C4	Total Downstream	Total	U
(**)	Climate Change (total) [kg CO2 eq.]	1.27E+00	1.96E-02	2.01E+00	2.03E+00	0	0	1.20E-02	0	1.44E-02	2.64E-02	3.33E+00	0



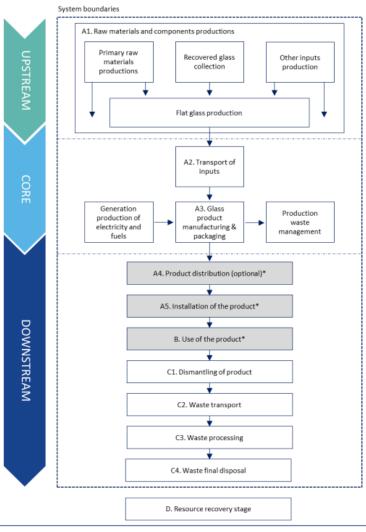


Figure 1: System Boundaries



PCR AUTOMOTIVE GLAZING ONLY

4.7.4 SPECIAL CALCULATION RULES: MODULE D - LOADS AND BENEFITS BEYOND THE SYSTEM BOUNDARIES (OPTIONAL)

Module D assesses the impact of the net flows of recovered materials (recycled or reused) from the life cycle stages A and C. The environmental impacts declared in module D can be negative as well as positive depending on the individual scenario and assumptions made. If declared, module D shall be modelled as explained in PCR 2019:14 Construction products.

Any declared net benefits and loads from net flows leaving the product system that have passed the end-of-waste state shall be included in module D, except those which have been allocated as co-products in modules A1-3.

The net flow of glass recovered is then described by the difference between the amount of input glass that has been recovered (recycled or reused) from a previous system and the amount of glass exiting the system to be recovered (recycled or reused) in a

subsequent system. The loads and benefits associated to the recovery of this net flow may be calculated (according to PCR 2019:14) and declared separately. Results of module D cannot be aggregated with the results of the product life cycle stages (see Table 5).

When assessing the environmental loads of the recovering (recycling or reusing) processes of the waste glass, the particularities of the product type (i.e., waste laminated glass, waste tempered glass, etc.) shall be taken into consideration. Likewise, when estimating the benefits of the material recovery, the specific material displaced shall be considered.

This module is optional because primary or secondary data are not yet available