
QUALITY REPORT

*Description of the data submitted according to the
Commission Decision 2005/293/EC on the monitoring of the
reuse/recovery and reuse/recycling targets on end-of life vehicles*

DIRECTIVE 2000/53/EC OF 18 SEPTEMBER 2000

DATA FOR THE YEAR 2021

Portuguese Environment Agency
Rua da Murgueira, 9/9A - Zambujal Ap. 7585
2610-124 Amadora-Portugal
tel: (351) 21 472 82 00 | fax: (351) 21 471 90 74
e-mail: geral@apambiente.pt
<http://www.apambiente.pt>

Contact person:
Mafalda Mota
Specific Waste Streams and Waste Markets Unit
e-mail: mafalda.mota@apambiente.pt

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Context

Article 7(2) of Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles defines the reuse/recovery and reuse/recycling targets which the Member States should meet for this stream.

With the view to monitor the achievement of the targets, the Commission published the Commission Decision 2005/293/EC of 1 April 2005 that lays down detailed rules for the Member States, specifically including an annex with tables to be completed in order to show whether or not the objectives are achieved.

In this report the Portuguese Environment Agency, as National Waste Authority, presents the results obtained in the management of end-of life vehicles (ELV) in Portugal in 2021, thus complying with the obligations to report data.

National legislation and ELV management

Directive 2000/53/EC was transposed into Portuguese law with the publication of Decree-Law nº 152-D/2017 of 11 December, which was republished in Annex V of the Decree-Law nº 102-D/2022 of 10 December and amended by Rectification nº 3/2021 of 21 January, Decree-Law nº 9/2021 of 29 January, Law nº 52/2021 of 10 August and Decree-Law nº 11/2023 of 10 February.

The provisions of this Decree-Law include the setting up of a body to manage an integrated ELV management system which should encourage member operators to ensure that the management targets in question are attained.

Decree-Law nº 152-D/2017 defines the following as general management objectives:

- Reduction in the amount of waste arising from vehicles and ELV to be disposed of, and
- Continuous improvement in the environmental performance of all stakeholders in the vehicles' life cycle, particularly those directly involved in ELV treatment.

This instrument also provides that operators taking part in the vehicles life cycle should take the

appropriate measures so that:

- the following targets were achieved by 1 January 2006
 - the reuse and recovery of ELV increase to at least 85%
 - the reuse and recycling of ELV increase to at least 80%
- the following targets were achieved by 01 January 2015
 - the reuse and recycling of ELV increase to at least 85 %
 - the reuse and recovery of ELV increase to at least 95 %;

These targets will only be attained by the combined efforts of the stakeholders, from the manufacturers/importers to operators treating ELV, their components and materials manufacturers, their distributors and final consumers.

VALORCAR – Sociedade de Gestão de Veículos em Fim de Vida, Lda. is the body that manages the integrated ELV system in Portugal; it has been responsible for managing this particular waste flow since July 2004. Its licence has been granted, extended or renewed by the following: Joint Order nº 525/2004 of 21 August, Joint Order nº 6839/2010 of 5 February, Joint Order nº 13092/2010 of 3 August, Joint Order nº 5959/2016 of 4 of May, Joint Order nº 2178-A/2018 of 1 March, Joint Order nº 342/2022 of 11 of January and Joint Order nº 14321/2022 of 15 December.

Figure 1 sets out the ELV treatment circuit.

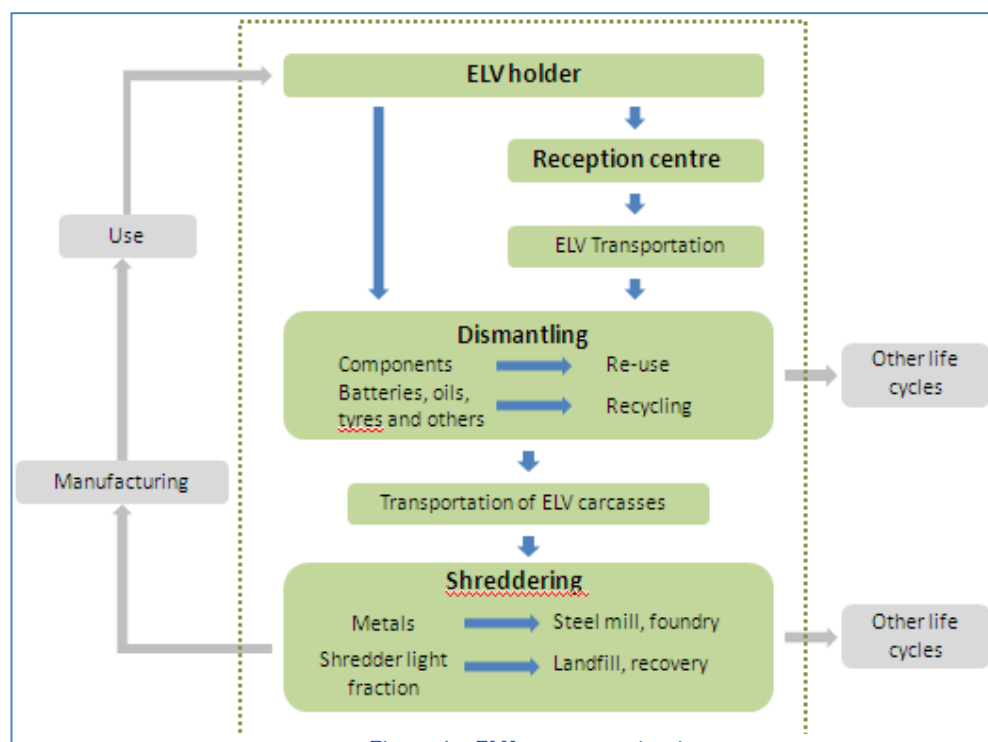
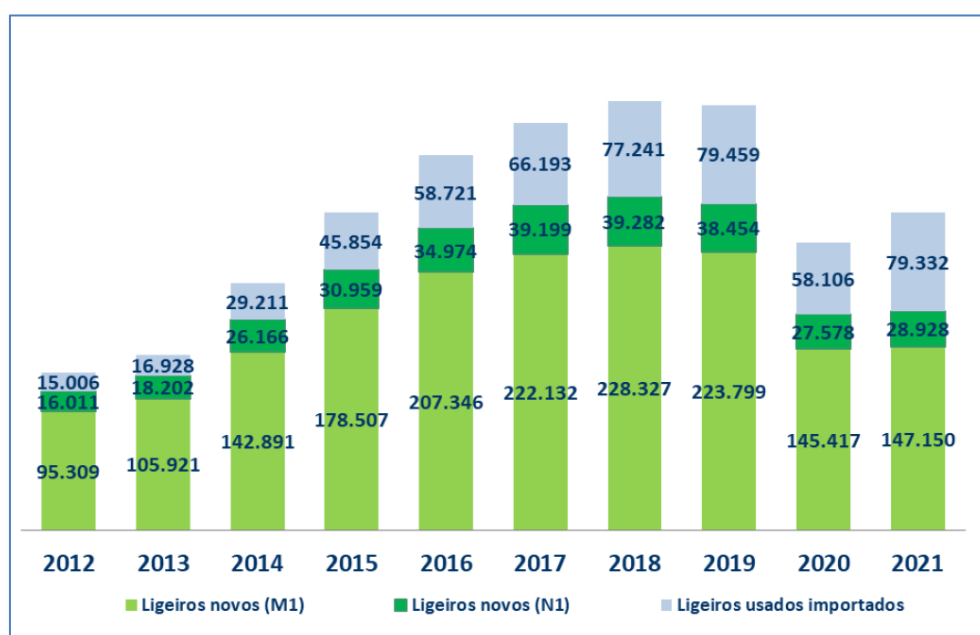


Figure 1 – ELV treatment circuit

Current situation of the national vehicle market

According to the data from the ACAP (Automobile Association of Portugal), in 2021 around 176 ~~172~~ thousand new light passenger vehicles (Graphic 1) were registered on national territory by official representatives of the makes, which represents an increase of 2%—compared with previous year.

Of these, 147,150 were light passenger vehicles (M1) and 28,828 were light commercial vehicles



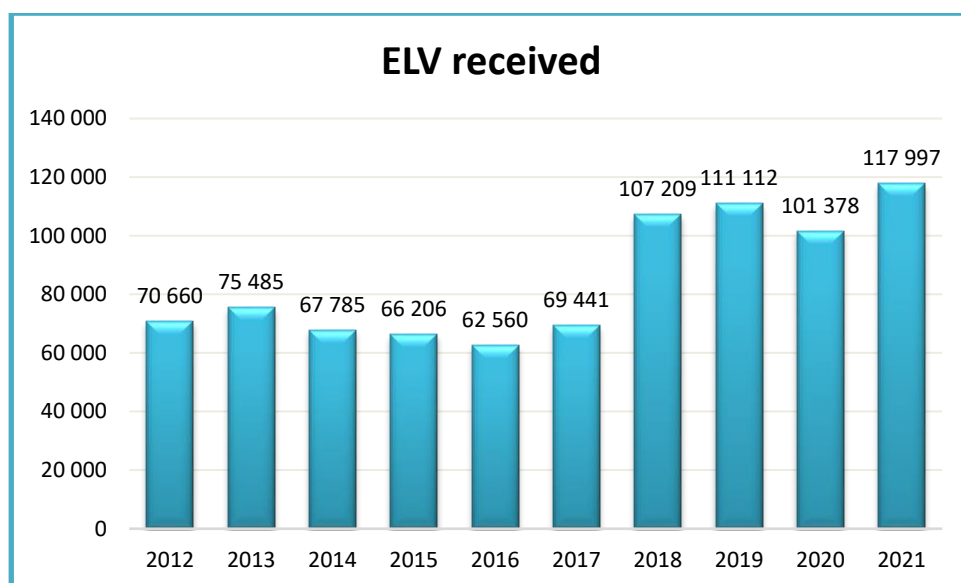
(N1).

Graphic 1 - Number of new light passenger vehicles registered by official representatives of the makes between 2012 and 2021 (Source: ACAP)

Also according to ACAP, the average age of the national light passenger vehicle fleet (about 5.3 million vehicles) has been increasing since 2000, and in 2020 was 13.2 years.

ELV on national territory

According to the information from the dismantlers, 101 378 ELV were received, decrease of 11.16 % (- 12 734 vehicles) compared with previous year (Graphic 2).

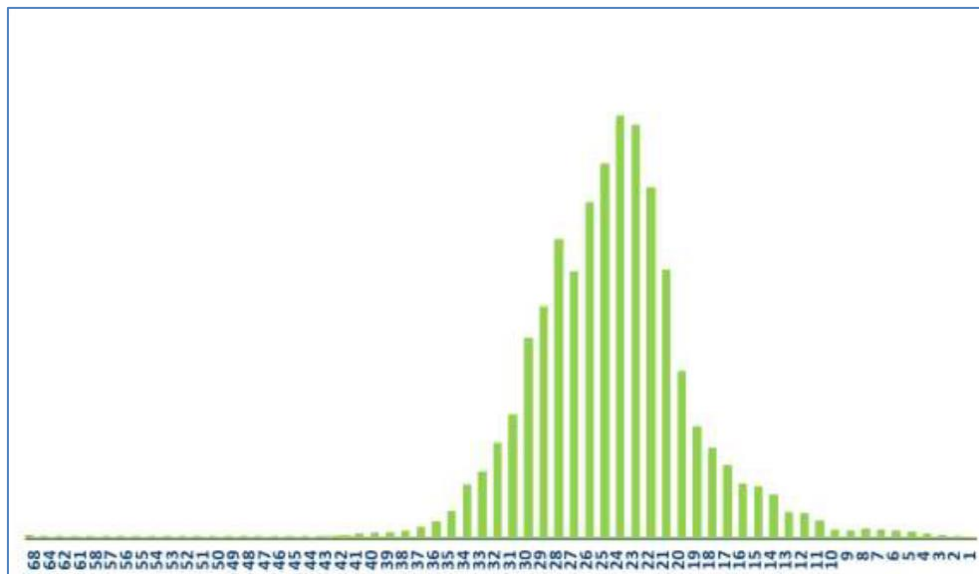


Graphic 2 – Number of ELV received by dismantling operators between 2012 and 2021

The following four graphics (**3** to **6**) characterise the ELV received by the dismantlers.

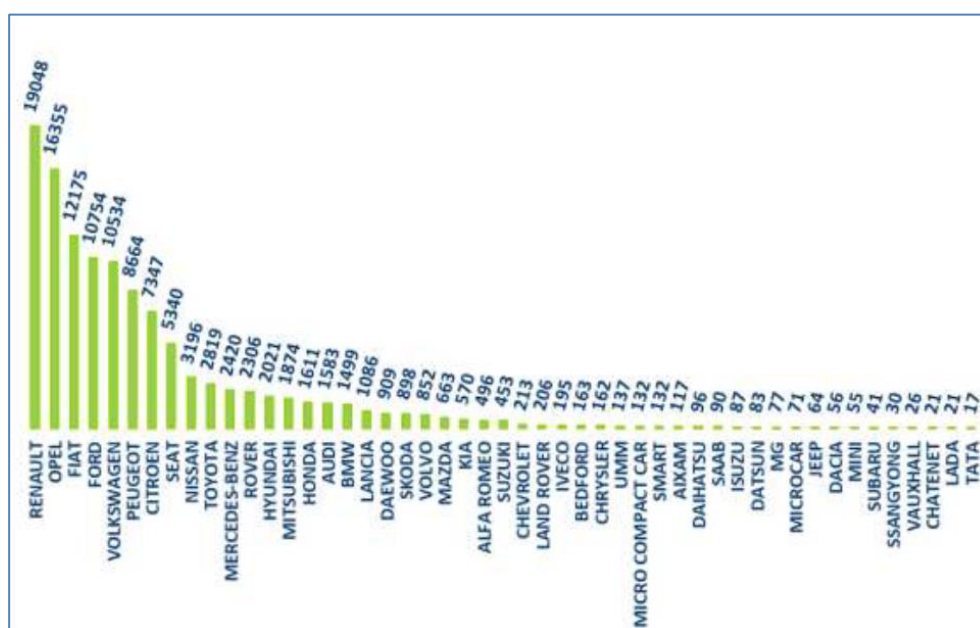
Concerning the category of ELV received, light passenger vehicles (category M1) continue to predominate over light commercial vehicles (category N1).

As may be seen in Graphic 3, there was still a wide range in the age of the ELV received, with a difference of more than 40 years between the newest and the oldest. The average age of the ELV received by the dismantlers was 23.5 years.



Graphic 3 - Age breakdown of the ELV surrendered to the dismantlers in 2021

In 2021, various makes of ELV were again received (Graphic 4).



Graphic 4 – Breakdown by make of ELV surrendered to the dismantlers in 2021

During 2021, ELVs of 136 different brands were scrapped in Portugal, some of them are no longer sold in the country, such as TALBOT, EBRO or PORTARO (the so-called orphan ELV). The distribution of the number of ELV by brand remained roughly the same as in 2020, with RENAULT, OPEL and FIAT occupying the top three positions.

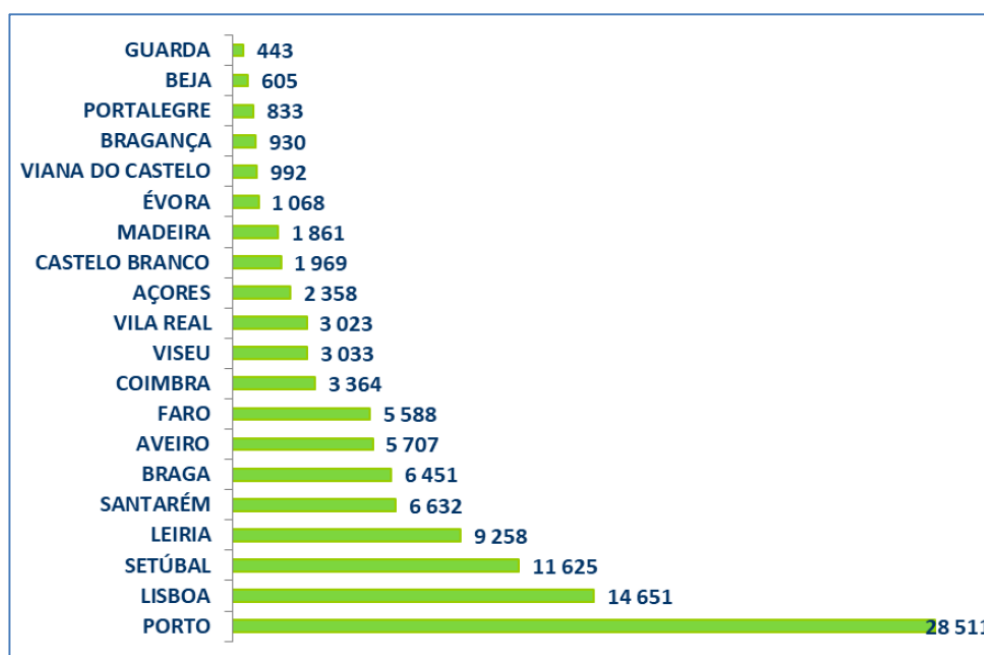
Graphic 5 shows the top 10 models surrendered to the VALORCAR network.



Graphic 5 – Breakdown by model of ELV surrendered to the VALORCAR network in 2021 (Top 20) (Source: VALORCAR)

As in recent years, the Opel Corsa was the model with the most units delivered for national scrapping, accounting for 8.1% of the total volume of ELVs. Also as before, the TOP20 models were clearly dominated by category B ELVs, i.e. small, which explains the low average weight of the ELVs received.

As for the geographical origin of ELV (Graphic 6), the VALORCAR network received ELV from the 18 districts of Mainland Portugal and the Autonomous Regions of Madeira and the Azores, among which the more populated districts, Lisbon and Porto, stand out as having received the greatest numbers of ELV.



Graphic 6 – District of origin of ELV surrendered to the VALORCAR network in 2021 (Source: VALORCAR)

Methodology

Information supplied by the dismantling operators provided the basis for the data on ELV management at national level in 2021 used in completing the tables from the Commission Decision in question.

For the purpose of determining the amount of metal from recovered ELV, the metal content assumption was adopted: the total weight of metals sent for recycling (excluding batteries, filters and catalysts, which have to be removed by law) corresponds to **74,97 %** of the total weight of ELV received, as provided for in the metal content assumption method established in the shredding campaign (see 'Shredder campaign').

For the purpose of determining the amounts of materials and components from ELV undergoing reuse, recycling and energy recovery the following assumptions were taken into consideration:

- The total weight of ELV received corresponds to the total tare weight of all the Category

M1 and N1 ELV for which a certificate of destruction was issued, obtained as follows:

- o Vehicle tare shown in its registration documents, not including the weight of the driver, which is set at 75 kg and the weight of the fuel, which is set at 40 kg (ELV with registration documents);
 - o Vehicle tare obtained from a database of the Traffic Authority (IMT) containing the average tare of all models of vehicles sold in the last 25 years, not including the weight of the driver, which is set at 75 kg and the weight of the fuel, which is set at 40 kg (ELV with no registration documents, e.g. abandoned vehicles).
- When operators that do not belong to the VALORCAR network did not respond to the APA's request to provide data on ELV management, the value taken was the number of copies of certificates of destruction issued and received by the management body (to which all operators are obliged to forward the copies). For the remaining cases whose copies of the certificates were not sent to the management body, the number of ELV adopted were those recorded in the Integrated Map of Waste Registration (MIRR). The results for the de-pollution and dismantling of ELV of all the operators outside the VALORCAR network that did not respond to the APA's request were extrapolated from the results of those operators that do not belong to the network but did provide that information.
- The total weight of materials sent for recycling and energy recovery corresponds to the total weight of all the materials dispatched by the dismantlers to recycling or energy recovery facilities (information contained in the weighing notes and waybills).
- For dismantlers outside the VALORCAR network, information on the destination of materials was obtained directly from the dismantlers themselves or from the Integrated Map of Waste Registration (MIRR) of each dismantler.
- For dismantlers that reported the quantities of used oil by volume a conversion factor of 0,89 was applied.
- In the case of used oil/brake fluid sent to the integrated used oil management system run by Sogilub – Sociedade de Gestão Integrada de Óleos Lubrificantes Usados, Lda., the global results (%) achieved within that system during the current year were applied to the quantities dispatched (89,4% regeneration/recycling and 10,6% disposal);
- Given that the dismantlers send waste tyres to the integrated system of tyre management run by Valorpneu – Sociedade de Gestão de Pneus, Lda., the global results

(%) achieved within this system were applied to the quantities dispatched (3,7% reuse, 78,6% recycling and 17,7% energy recovery). The quantities retreaded and prepared for reuse were recorded in the reuse column. Also included in the reuse column were tyres sold for reuse for the same purpose for which they were conceived.

- Regarding refrigerants only the fraction reused is taken into account and consignments dispatched to oil treatment facilities are considered to have been disposed of.
- Internal consumption of filters in the dismantlers of VALORCAR network correspond to their processing (dismantling of filters, gravity draining, pressing and processing as scrap) by operators legally recognised to this end.
- Where the total quantity of dispatched consignments of a particular material exceeds the maximum limit to be attributed to ELV (Table 1) the surplus is not counted.

Table 1 - Maximum amount to be attributed to each material per ELV

Material	Maximum amount (kg/ELV)
Batteries	15,0
Catalysts	3,5
Filters	0,5
Brake fluid	0,4
Refrigerants	3.6
Oils	5,5
Bumpers	6,0
Other plastics	50,0
Tyres	40,65
Glass	26,0

The total weight of components sent for reuse corresponds to the sum of the weight of the non-metallic fraction of the 21 most commonly reused components (Table 2).

Table 2 – Maximum non-metallic content to be attributed to the 21 most reused components

Component	kg/unit
Seats	6,1
Bonnets	1,5
Boot lids	2,0
Odometers	0,7
Front/rear lights	2,5
Fog lights	0,7
Grilles	1,1
Engines	12,0
Other glass	6,4
Sun blinds	0,2
Bumpers	5,0
Turn indicators	0,1
Doors	10,2
Radiators	2,0
Rear-view mirrors	1,2
Tablier	5,0
Hub caps	0,5
Fuel tanks	9,0
Floor mats	1,0
Triangles	2,0
Windscreens	12,3

- From 2012, the batteries resold for reuse were taken into consideration separately.
- The most relevant licensed shredding facilities are part of the VALORCAR network; the results obtained in the shredding campaign carried out by the management body were therefore adopted for the operators that do and do not belong to the network.
- Comparing to previous years, from 2013 there is a difference in the amount of shredding waste dispatched for the production of Refuse Derived Fuel (RDF) and subsequent co-incineration. Instead of taking into the account only the shredding waste of the ELV received and dismantled in the shredding facilities, it was taken into account the shredding waste of all the ELV. Given that the shredding facilities receive other types of waste and that there is a quantity limit on ELV, it was considered that the amount of shredding waste dispatched to co-incineration cannot exceed the remaining amount of ELV material, which can be recovered, after removal of the materials in the dismantling and shredding process.

Also, in the remaining amount of ELV material sent to co-incineration were considered fractions of filters, oils, brake fluid, non-metallic components including plastics and glass that even after depollution and dismantling remain in the ELV and that can be accounted as energy recovery since they integrate the shredding waste.

Shredder campaign

In 2019 VALORCAR conducted a new shredding campaign that focused on the activity of 3 shredding facilities and a total number of ELV of 310. The campaign was based on the following:

- Trials were made in all the shredders to evaluate its efficiency;
- The sample of ELV involved several makes and models;
- The dismantling process was carried out by a representative number of authorised treatment facilities with different dimensions and locations as well as treatment procedures that result in different reuse rates;
- The sample of ELV, facilities, ELV carcasses and shredding waste was random;
- In the depollution and dismantling process all the mandatory materials and components were removed.

Therefore, the results of the new campaign are a metal content assumption, based on 3 shredders trials, of 74,97% of the total weight of the ELV. The determined metal content excludes catalysts, batteries and oil filters, which were removed mandatorily before shredding.

Comparing to the 2012 campaign, there was an increase of 0,93%, which is consistent with the evolution observed in the adoption of post-fragmentation technologies, present in all shredder operators within the VALORCAR network, leading to a raise in metal recovery efficiency, as well as in the separation of other materials, such as plastics.

Export of (parts of) ELV

APA, the national competent authority for the application of Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste, published Decree-Law No 102-D/2020 of 10 December, which aims to implement and monitor compliance with the Regulation in question.

The cross-border movements of waste subject to prior notification and to request information were thus identified (Table 3 and Table 4). Since these data include waste that does not arise exclusively from the de-pollution and dismantling of ELV it shall not be used in this report.

Table 3 - Cross-border movements of waste subject to prior notification from ELV and vehicle maintenance in 2021

Material	European Waste List Code	Country of destination	Operation ⁽¹⁾	Amounts (t)
hydraulic oils, containing PCBs transformers and capacitors containing PCBs	130101*; 160209*	Belgium	D10	41,181
lead batteries	160601*	Spain	R4	7132,400
wastes containing oil	160807*	Netherlands	R8	24,060
		United States of America	R4	150,263
chlorofluorocarbons, HCFC, HFC	140601*	France	D10	28,310
mineral-based chlorinated engine, gear and lubricating oils	130204*	Belgium	D10	43,400

⁽¹⁾ **R4** - Recycling/reclamation of metals and metal compounds; **R8** - Recovery of components from catalysts; **D10** - Incineration on land

Table 4 - Cross-border movements of waste subject to request information from ELV and vehicle maintenance in 2021

Material	European Waste List Code	Country of destination	Operation ⁽¹⁾	Amounts (t)
end-of-life tyres	160103	Netherlands	R11	61,740
			R3	12,060
end-of-life vehicles, containing neither liquids nor other hazardous components	160106	Spain	R11	119,210
			R4	27368,838
			R5	22,892
ferrous metal	160117	Spain	R4	890,415
		India	R3	20,140
non-ferrous metal	160118	Germany	R4	18,974
		Spain	R3	30,740
			R4	133,922
		India	R4	17,060
		Trukey	R4	13,400
plastic	160119	Belgium	R3	15,860
		Spain	R3	24,357
			R5	0,780
		Italy	R3	24,497
components not otherwise specified	160122	Spain	R4	0,648
		Paquistan	R4	24,220
spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07)	160801	Germany	R3	0,602
			R4	41,528
			R8	0,559
		Belgium	R8	16,279
		Bulgary	R4	20,606
		Spain	R1	0,395
			R11	0,960
			R3	2,864
			R4	190,885
			R6	0,175
			R8	123,128
		Italy	R4	2,492
			R8	22,452
		United Kingdom	R11	15,427
			R4	41,307
			R5	0,031
		Sweden	R8	0,615

⁽¹⁾**R1** - Use principally as a fuel or other means to generate energy; **R3** - Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes); **R4** - Recycling/reclamation of metals and metal compounds; **R5** - Recycling/reclamation of other inorganic materials; **R6** - Regeneration of acids or bases **R8** - Recovery of components from catalysts; **R11** - Use of wastes obtained from any of the operations numbered R1 to R10.

The most updated recycling and recovery rates on ELV¹ of the destination countries were

¹ This information was obtained from the Eurostat website, at: [End-of-life vehicle statistics - Statistics Explained \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1)

applied to the depolluted exported end-of-life vehicles values, in order to consider the relevant parcel.

The shredding amounts, related to the metal parcel considering the Portuguese metal content assumption, were deducted to the amount of ELV exported, containing neither liquids nor other hazardous components, present on Table 4 above.

Annex

Table 1

**Materials from de-pollution and dismantling (in tonnes) of end-of-life vehicles arising in the
Member State and treated within the Member State.**

Materials from de-pollution and dismantling	Reuse (A)	Recycling (B1)	Energy recovery (C1)	Total recovery (D1 = B1 + C1)	Disposal (E1)
Batteries	259,170	1374,360	0,000	1374,360	0,000
Brake fluid	0,000	27,505	0,000	27,505	0,000
Air conditioning fluids	0,087	0,000	0,000	0,000	0,000
Refrigerants	2,155	0,000	0,000	0,000	0,531
Oils	0,000	537,284	0,000	537,284	211,480
Oil filters	0,000	54,451	0,000	54,451	0,000
Other materials arising from de-pollution (excluding fuel)	0,000	0,000	0,000	0,000	0,000
Catalysts	27,888	353,269	0,000	353,269	0,000
Tyres	455,027	3242,068	729,771	3971,839	0,000
Large plastic parts	85,535	874,186	0,000	5874,186	97,320
Glass	169,868	2132,212	0,000	2132,212	0,000
Other materials arising from dismantling	5187,437	0,000	0,000	0,000	26,850
Total	6187,167	8595,335	729,771	9325,106	343,185

Table 2
Materials arising from shredding (tonnes) of ELV originating and treated in the Member State

Materials arising from shredding	Recycling (B2)	Energy recovery (C2)	Total recovery (D2 = B2 + C2)	Disposal (E2)
Ferrous scrap (steel)	75264,155	0,000	75264,155	0,000
Non-ferrous material	5136,336	0,000	5136,336	0,000
Shredder Light Fraction	0,000	8281,742	8281,742	0,000
Others	0,000	0,000	0,000	0,000
Total	80 400,491	8281,742	88682,233	0,000

Table 3**Monitoring of (parts of) end-of-life vehicles originating in the Member State and exported for further treatment (in tonnes per year)**

Country exported to	Material arising from ELV treatment	Total weight exported (t)	Total recycling (F1) (t)	Total recovery (F2) (t)	Total disposal (t)
Spain	Gases in pressure containers (including halons) containing hazardous substances	21,840	21,840	21,840	0,000
Spain	Lead Batteries	7006,500	7006,500	7006,500	0,000
Netherlands	Wastes containing oil	24,06	24,06	24,06	0,000

Table 4

Total reuse, recovery and recycling (in tonnes per year) of end-of-life vehicles arising in the Member State and treated within or outside the Member State

Reuse (A)	Total recycling (B1 + B2 + F1)	Total recovery (D1 + D2 + F2)	Total reuse and recycling (X1 = A + B1 + B2 + F1)	Total reuse and recovery (X2 = A + D1 + D2 + F2)
6187,167	96024,165	119670,099	102211,332	125857,266
W (total number of ELV) = 117997			87,941%	95,715%
W1 (total vehicle weight) = 116227,045			X1/W1 = 0,879	X2/W1 = 0,957

Verification of total balance

$$X2 + E1 + E2 + F3 = 111702$$

$$W1 = 116227$$

The equation $X2 + E1 + E2 + F3 = W1$ is not verified in the data collected. There is a difference of 4524,064 tonnes whose destination is not accounted for in the tables in this Annex. This difference arises mainly because of the following:

- the conditions in which the ELV are surrendered. The basic assumption that the total weight of received ELV corresponds to the total tare weight of all the vehicles shown in the corresponding documents or the vehicle tare obtained from a database of the former DGV is not borne out in practice since the ELV received by dismantlers do not contain all the constituent materials of the vehicles. On the other hand, there may be certain inaccuracies in the total weight of ELV given by dismantlers not integrated in the VALORCAR network.
- In some cases, dismantlers not integrated in the VALORCAR network did not report the destination or amount of certain materials, which may therefore have remained in storage or not have been quantified or declared.
- In some cases, the dismantlers do not remove certain materials at the dismantling stage. Consequently such materials end up being dispatched with the ELV carcasses for shredding.