

12 April 2023

## Background document for lead

### Document developed in the context of ECHA's eleventh recommendation for the inclusion of substances in Annex XIV

*ECHA is required to regularly prioritise the substances from the Candidate List and to submit to the European Commission recommendations of substances that should be subject to authorisation. This document provides background information on the prioritisation of the substance, as well as on the determination of its draft entry in the Authorisation List (Annex XIV of the REACH Regulation). Information comprising confidential comments submitted during the consultation or relating to content of registration dossiers which is of such nature that it may potentially harm the commercial interest of companies if it was disclosed, is provided in a confidential annex to this document.*

Information relevant for prioritisation and/or for proposing Annex XIV entries provided during the consultation on the inclusion of lead in the Authorisation List or in the registration dossiers<sup>1</sup> as well as the MSC opinion<sup>2</sup> were taken into consideration when finalising the recommendation and are reflected in the present document.

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<sup>1</sup> As of the last day of the consultation, i.e. 2 May 2022

<sup>2</sup> Opinion of the Member State Committee on the draft eleventh recommendation of the priority substances to be included in Annex XIV, adopted on 8 February 2023

## 1. Identity of the substance

Identity of the substance as provided in the Candidate List<sup>3</sup>:

Name: lead  
EC Number: 231-100-4  
CAS Number: 7439-92-1

## 2. Background information for prioritisation

Priority was assessed by using the General approach for prioritisation of SVHCs for inclusion in the list of substances subject to authorisation (ECHA, 2020). Results of the prioritisation of all substances included in the Candidate List by July 2021 and not yet recommended or included in Annex XIV of the REACH Regulation is available in ECHA (2022a).

The prioritisation results of the substances included in the draft 11<sup>th</sup> recommendation have been updated as necessary after the consultation. The updated results are available in ECHA (2023).

### 2.1. Intrinsic properties

Lead was identified as a Substance of Very High Concern (SVHC) according to Article 57 (c) as it is classified in Annex VI, part 3, Table 3 (the list of harmonised classification and labelling of hazardous substances) of Regulation (EC) No 1272/2008 as Toxic for Reproduction, Category 1A, H360FD ("May damage fertility. May damage the unborn child") and effects on or via lactation, H362 ("May cause harm to breast-fed children") and was therefore included in the Candidate List for authorisation on 27 June 2018, following ECHA's decision ED/61/2018.

### 2.2. Volume used in the scope of authorisation

The amount of lead manufactured and/or imported into the EU is according to registration data (ECHA, 2022b) above 1,000,000 t/y. Part of this tonnage is exported outside the EU. Some uses appear not to be in the scope of authorisation such as the use as intermediate (e.g. in the manufacture of lead oxide for stabiliser manufacturing), in medical devices and, to the extent the conditions for the generic exemption for the use in Scientific Research and Development are met, the uses as laboratory agent and in chemical analysis.

Based on use and tonnage information provided by the Lead REACH Consortium during the consultation on ECHA's draft recommendation (ECHA, 2023), it is estimated that more than 90% of the total amount of lead metal manufactured and/or imported into the EU is used for uses falling in the scope of authorisation.

Therefore, in conclusion, the volume in the scope of authorisation is estimated to be >>10,000 t/y.

More detailed information on the main uses and the relative share of the total tonnage is provided in Annex I.

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<sup>3</sup> For further information please refer to the Candidate List and the respective support document at <https://www.echa.europa.eu/candidate-list-table>.

### 2.3. Wide-dispersiveness of uses

Registered uses of lead in the scope of authorisation include uses at industrial sites (such as in the production of lead batteries, lead articles or alloys, in the production and use of solder, in galvanisation, as heat transfer fluid or in formulation and use of lubricant) and uses by professional workers (e.g. use of lead solder, use of materials to be in contact with drinking water, use as construction material, use for building or maintenance of art artefacts or musical instruments) (ECHA, 2022b and 2023).

The consumer use of solder reported in a high number of registration dossiers has been advised against by the lead registrant and falls under a generic restriction on CMR substances used as substances or in mixtures sold to the general public above the concentration limit (REACH Annex XVII, entry 30). Therefore, consumer uses of the substance above the limit should not take place and are not considered for the priority assessment.

Furthermore, according to registrations, substance in article notifications (ECHA, 2022b), and comments submitted during consultation (ECHA, 2023) the substance is used in a wide variety of articles, e.g. for machinery, vehicles, construction, electronic or sanitary applications (such as batteries, cast, rolled or extruded articles, screws, nuts, bolts, valves, bearings, faucets or cable sheathing). For some articles releases of the substance cannot be excluded (e.g. lead sheets in the building sector). The volume used in those articles is >10 t/y.

More detailed information on uses is provided in Annex I.

### 2.4. Further considerations for priority setting

#### Restrictions proposed or completed but not yet in force<sup>4</sup>

- Lead in projectiles (for firearms and airguns), and in fishing sinkers and lures for outdoor activities;
- Use of lead shots over wetlands;
- Use of lead compounds to stabilise PVC and on the placing on the market of PVC articles stabilised with lead compounds.

ECHA did assess the impact of the proposed or completed-but not yet in force restrictions and concludes based on the information available that the priority of lead remains high even if for the purposes of prioritisation, it is considered that there are currently no remaining uses of lead in shot and ammunition and that lead in PVC is banned.

#### Other considerations

The European Commission in its amendment of Annex XIV (Commission Regulation (EU) 2020/171) postponed the decision on the inclusion of four lead compounds in the authorisation list, which are as well used in battery production. Reference was made to the Chemical Agents and Industrial Emissions Directives covering lead and its compounds and to the revision of the binding occupational and biological limit values.

A number of comments were received considering the postponement of the inclusion of the other lead compounds as a reason not to recommend lead (ECHA, 2023). In its response document (ECHA, 2023), ECHA concludes that recommending lead brings it to the same regulatory stage

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<sup>4</sup> See [Registry of restriction intentions until outcome - ECHA \(europa.eu\)](#)

as the other lead compounds with similar uses already recommended. Bringing these substances to the same regulatory stage may facilitate a consistent and holistic regulatory approach for those substances. The Commission is best placed to define the most appropriate timing and regulatory context for the decision to include those substances in Annex XIV to be taken, considering also ongoing developments under various regulatory frameworks.

## 2.5. Conclusion

Verbal descriptions and scores			Total score (= IP + V + WDU)
Inherent properties (IP)	Volume (V)	Wide dispersiveness of uses (WDU)	
Lead is classified as toxic for reproduction 1A meeting the criteria of Article 57 (c).  Score: 1	The amount of lead used in the scope of authorisation is above 10,000 t/y.  Score: 15	Lead is used at industrial sites and by professional workers.  Initial score: 10  Furthermore, the substance is used in articles in volumes >10 t/y.  Refined score: 12	28

### Conclusion

On the basis of the prioritisation criteria, lead receives priority among the substances on the Candidate List (ECHA, 2023). Therefore, **lead is recommended for inclusion in Annex XIV**.

## 3. Background information for the proposed Annex XIV entry

Draft Annex XIV entries were determined on the basis of the General approach for preparation of draft Annex XIV entries for substances to be included in Annex XIV (ECHA, 2020) and as further specified in the practical implementation document (ECHA, 2020). The draft Annex XIV entries for all the substances that underwent consultation are available in ECHA (2022a).

The final draft Annex XIV entries that ECHA recommends are available in ECHA (2023).

### 3.1. Latest application and sunset dates

ECHA recommends the following transitional arrangements for lead:

Latest application date (LAD):                      Date of inclusion in Annex XIV plus **at least 36 months**

Sunset date (SSD):                                      18 months after LAD

The LAD slots are set in 3 months intervals (normally 18, 21 and 24 months after inclusion in Annex XIV).

Allocation of (groups of) substances to LAD slots aims at an even workload for all parties during the opinion forming and decision making on the authorisation applications. All substances can therefore not be set at the same LAD. ECHA proposes to allocate those substances to the “later” LAD slots (21 months or more) for which the available information indicates a relatively higher complexity of supply chain. Groups of substances are considered together.

During the consultation, a number of comments requested an extra long LAD for lead. Having assessed all information received during the consultation, and based on information currently available, ECHA considers that in the specific case of lead, there is ground for deviating from the standard LAD slots mentioned above.

The anticipated workload associated to lead justifies to not include it in the same slot as any other substance recommended in this round.

An LAD of at least 36 months is proposed considering the very high complexity of the supply chain<sup>5</sup> and the fact that some more time might be needed in the AfA preparation phase to clarify specific questions inherent to lead or the metal supply chains (e.g. borderline between mixtures and articles impacting decision on the actors that need to apply for authorisation; clarification of the scope of the authorisation requirements for uses (partly) covered under other legislation).

The additional time should allow to get organised in the supply chain and prepare fit for purpose joined or individual AfAs.

Additionally, as outlined in Art. 58(3) of REACH, when setting LADs, ECHA also needs to consider the Agency’s capacity to handle applications in the time provided for. In case they would not be exempted, the Commission may contemplate the possibility/added value of defining additional longer LAD(s) and Sunset dates(s) for uses within the scope of the RoHS Directive, ELV Directive, and Drinking Water Directive, (including upstream uses), with the aim to spread the workload for ECHA, its Committees and Commission when dealing with AfAs, and to facilitate regulatory coherence of decisions taken under those specific legislative frameworks and REACH.

Some comments requested longer time between LAD and SSD considering the very high number of AfA to be expected and the capacity for ECHA, its committees and the Commission to handle those. ECHA does not see a reason to deviate from the approach of setting the SSD to 18 months after the LAD on the basis of workload arguments. An applicant and its downstream users do not have to cease the use of the substance for the use applied for by the SSD, if an application for the use was submitted before the substance’s LAD. In this case, applicant can continue using the substance after its SSD, until the date of adoption of the European Commission’s decision. Therefore, in case the workload would delay the ECHA process, the opinion making or the decision by the European Commission, this would not have an impact on the continued use of the substance.

In its opinion, the MSC did agree with ECHA’s proposal for the LAD and the SSD.

ECHA made the final LAD allocation using all available relevant information including that received in the consultation. A summary of the information available is provided in Annex I.

### **3.2. Review period for certain uses**

In its draft recommendation ECHA had seen no ground to include in Annex XIV any review period for lead.

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<sup>5</sup> The complexity of the supply chain has been assessed based on the number of different uses, affected industry sectors, the number of layers in the supply chain, and the number and type of companies concerned (including SMEs).

During the consultation ECHA did not receive comments requesting upfront review periods for specific uses.

ECHA therefore **does not recommend to include in Annex XIV any review periods** for uses of lead.

### 3.3. Uses or categories of uses exempted from authorisation requirement

#### 3.3.1 Exemption under Article 58(2)

In its draft recommendation ECHA had not proposed any exemptions for uses of lead on the basis of Article 58(1)(e) in combination with Article 58(2) of the REACH Regulation.

During the consultation (ECHA, 2023) ECHA received requests for exemptions for a high variety of uses, including<sup>6</sup> for uses in batteries; applications exempt under RoHS or ELV; alloys in contact with drinking water; alloys in solder; alloys in keys and locks; alloys in other sectors; metal industry (general); semiconductor industry; complex machineries; aerospace industry; new and recent vehicles; spare parts for vehicles, electronics and machinery; historic vehicles; radiation shielding in medical devices; radiation shielding (others); electronic medical devices; cable sheathing; steel wires; military ammunition; other military uses; hunting; shooting; stained glass art; maintenance of art heritage/historical buildings; historic artefacts; archaeological investigations; other uses in construction sector; musical instruments; letter printing; jewellery and watchmaking exempted from restriction; analysis of fineness of gold; extraction medium in recycling and metallurgical processes. Many of these requests refer to the extensive body of legislation relevant to lead and its compounds.

ECHA's detailed assessment of the requests taking into account the existing EU legislation is provided in the section 'C.2.01. Response to requests for exemptions under Art. 58(2) based on existing legislation' of the Response document to the comments submitted during the consultation (ECHA, 2023).

For the assessment, ECHA assessed whether existing EU legislation imposes minimum requirements to properly control risks to human health via all relevant exposure routes and at all life-cycle stages relevant for the uses.

ECHA concludes that it is not clear if there is sufficient basis to propose Art 58(2) exemptions for any uses of lead for which an exemption request has been received. **ECHA has therefore not suggested exemptions** for uses of lead on the basis of Article 58(1) (e) in combination with Article 58(2) of the REACH Regulation in its recommendation.

If the Commission were to consider Art 58(2) exemptions possible, uses of lead exempted/authorised and subject to regular review under the RoHS, ELV, and DWD legislation may have a stronger case for Art 58(2) exemption than other uses.

The future Batteries Regulation was not assessed together with the *existing* community legislation, considering that it is not yet adopted. If by the time a decision is taken to include the substance in Annex XIV the Batteries Regulation is in place it should be assessed whether it fulfils (possibly in conjunction with other community legislation) the conditions set out in Art. 58(2) for lead. ECHA invites the Commission to consider the requirements set under this upcoming regulation before including the substance in Annex XIV.

After assessing the information provided in the consultations, the MSC in its opinion states that it cannot be concluded that [existing] legislations offer a similar level of protection for the human

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<sup>6</sup> The list presented is not fully exhaustive.

health as could be achieved under REACH authorisation and agrees with ECHA that it is not clear as to whether the Article 58(2) conditions are met for any of the uses that fall within the scope of authorisation. The MSC therefore invites the European Commission to examine the possibility for exemptions for uses of lead that are exempted or authorised and subject to regular review under the RoHS, ELV and DWD legislation. In its opinion, MSC also invites the European Commission to consider this upcoming Batteries regulation before including the substance in Annex XIV.

### **3.3.2 Exemption of product and process oriented research and development (PPORD)**

In its draft recommendation ECHA had not proposed to include in Annex XIV any exemption from authorisation for the use of lead for PPORD.

During the consultation ECHA did not receive any requests for exemptions from the authorisation requirement for PPORD for the substance.

No PPORD notifications had been submitted by the end of the consultation.

ECHA therefore **does not recommend exempting any use of lead for PPORD** from authorisation.

## 4. References

ECHA (2012): [Registry of SVHC intentions until outcome - ECHA \(europa.eu\)](#), filter by substance lead monoxide (EC 215-267-0), lead tetroxide (EC 215-235-6)

- Comments on an Annex XV dossier for identification of a substance as SVHC and responses to these comments. Document compiled by ECHA from the commenting period 03/09/2012-18/10/2012 on the proposal to identify lead monoxide as a Substance of Very High Concern.
- Comments on an Annex XV dossier for identification of a substance as SVHC and responses to these comments. Document compiled by ECHA from the commenting period 03/09/2012-18/10/2012 on the proposal to identify lead tetroxide as a Substance of Very High Concern.

ECHA (2015): ECHA's final 6<sup>th</sup> recommendation. 1 July 2015. [Recommendations for inclusion in the Authorisation List - ECHA \(europa.eu\)](#), filter by substance lead monoxide, EC 215-267-0

- Comments and references to responses on ECHA's Draft 6th Recommendation for Lead monoxide (lead oxide) (EC number: 215-267-0). Document compiling comments and references to respective answers from commenting period 01/09/2014 – 01/12/2014 on ECHA's proposal to include lead monoxide in its 6th recommendation of priority substances for inclusion in the list of substances subject to authorisation (Annex XIV).

ECHA (2018): [Registry of SVHC intentions until outcome - ECHA \(europa.eu\)](#), filter by substance lead, EC 231-100-4

- Annex XV report. Proposal for identification of a substance of very high concern on the basis of the criteria set out in REACH Article 57. Substance Name: Lead (lead powder and lead massive), EC Number: 231-100-4, CAS Number: 7439-92-1
- Comments on an Annex XV dossier for identification of a substance as SVHC and responses to these comments. Document compiled by Sweden from the commenting period 08/03/2018-23/04/2018 on the proposal to identify lead as a Substance of Very High Concern.

ECHA (2020): Agreed and applied approaches. 5 March 2020.

[Recommendations for inclusion in the Authorisation List - ECHA \(europa.eu\)](#), filter by substance lead, EC 231-100-4

- Prioritisation of substances of very high concern (SVHCs) for inclusion in the Authorisation List (Annex XIV). Prioritisation approach.
- Preparation of draft Annex XIV entries for substances recommended to be included in Annex XIV. General approach.
- Setting Latest Application Dates. Practical implementation document for the Annex XIV entries approach.



ECHA (2022a): ECHA's 11th draft recommendation. 2 February 2022.

[Recommendations for inclusion in the Authorisation List - ECHA \(europa.eu\)](#), filter by substance lead, EC 231-100-4

- Prioritisation assessment results of the Candidate List substances assessed - Substances included in the Candidate List by July 2021 and not yet recommended for inclusion in Annex XIV.
- Draft 11th Recommendation of Priority Substances to be included in Annex XIV of the REACH Regulation (List of Substances Subject to Authorisation).

ECHA (2022b): Lead. ECHA's dissemination website on registered substances. Accessed on 2 May 2022.

<https://echa.europa.eu/search-for-chemicals>

ECHA (2022c): WFD - Waste Framework Directive, SCIP Database, [SCIP-Database - ECHA \(europa.eu\)](#), search by substance lead, EC 231-100-4

ECHA (2023): ECHA's final 11<sup>th</sup> recommendation. 12 April 2023.

[Recommendations for inclusion in the Authorisation List - ECHA \(europa.eu\)](#), filter by substance lead, EC 231-100-4

- Updated priority assessment results of the substances included in the draft 11th recommendation for inclusion in Annex XIV. 12 April 2023.
- Recommendation of the European Chemicals Agency of 12 April 2023 for the inclusion of substances in Annex XIV to REACH (List of Substances subject to Authorisation).
- "Responses to comments" document. Document compiling the responses to comments from commenting period 02/02/2022 – 02/05/2022 on ECHA's proposal to include lead in its 11th recommendation of priority substances for inclusion in the list of substances subject to authorisation (Annex XIV).
- "Comments and references to responses" document. Document compiling comments and references to respective answers from commenting period 02/02/2022 – 02/05/2022 on ECHA's proposal to include lead in its 11th recommendation of priority substances for inclusion in the list of substances subject to authorisation (Annex XIV).

## Annex I: Further information on uses

### 1. Main (sector of) uses and relative share of the total tonnage

The amount of lead metal manufactured and/or imported into the EU is according to registration data above 1,000,000 t/y. According to information provided by the lead REACH Consortium (ECHA, 2023), the volume of lead used in the EU was close to 1,500,000 t in 2021.

Use of lead metal in the production of lead-based automotive and industrial batteries is the main application: EU battery production is reported to account for 86-90% of the use by volume.

In its comment submitted during consultation, the Lead Reach consortium summarised the further key but smaller-in-volume industrial uses of lead metal as follow (in no particular order):

- Use as an alloying element in free-machining brasses, bronzes, steel, and aluminium alloys, including in the automotive sector under ELV Annex II exemptions and in sectors regulated by the RoHS Directive (2011/65/EU)
- Use in solder, e.g., in the case of electrical and electronic equipment, as permitted under exemption in the RoHS Directive
- Use in the production of inert lead anodes, articles which are used in for electrowinning and electro galvanising processes, and in every chrome plating facility
- Use in sheathing of electric cables, e.g. for high-voltage export cables connecting renewable energy farms to the electricity grid
- Use as a chemical reagent in scientific research and development, including in fire assay for precious metals analysis
- Use in the production of radiation shielding, e.g. for medical, dental, veterinary, and non-destructive testing facilities, in nuclear medicine and in security applications
- Use of molten lead in closed systems, as a heat transfer agent e.g. in the nuclear industry
- Use as an industrial lubricant, e.g. in aerospace applications
- Lining of tanks/vessels/pipework in the chemical industry, e.g. for phosphoric acids, bromides
- Use as a chemical intermediate to make lead compounds, including in the battery production process
- Use in the production of architectural lead sheet, e.g. for weatherproofing, soundproofing and in earthquake protection
- Use in the production of ballast
- Use in the production of various cast and extruded articles such as weights and counterweights
- Use in the production of lead wool, primarily used as caulking to seal joints between lead and steel fittings in industrial settings, and also in specialist gas sensors
- Use in other galvanising processes such as hot-dip galvanising
- For steel wire patenting
- Use in the production of ammunition for hunting and sports shooting
- Lead also acts as (extraction) medium in recycling and precious metal metallurgical processes.

Some additional uses have been commented during the consultation e.g use in explosives, use in paints/coatings, adhesives, use in electrolytes, use in glass or ceramic, use in solder/alloys not in scope of ELV/RoHS (ECHA, 2023)<sup>7</sup>.

The table below presents a breakdown of tonnage per high level application areas.

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<sup>7</sup> Not exhaustive list

**Table: EU uses of lead in 2021 (ECHA, 2023)**

Area of application	Volume tonnes
Automotive batteries	809,000 (57%)
Industrial batteries	460,000 (32 %)
Rolled and extruded products	50,000 (4%)
Shot and ammunition	57, 000 (4%)
Lead compounds	20,000 (1%)
Cable sheathing	20,000 (1%) <sup>8</sup>
Alloys (including solders)	5,000 (<0.5 %)

For the purpose of prioritisation, it has been assumed that the uses reported as 'Lead compounds' in the table may correspond to use of lead as intermediate and the corresponding tonnage may therefore not fall in the scope of authorisation.

ECHA has also assessed the impact of proposed and completed but not yet in force REACH restrictions<sup>9</sup>. Based on the information available, it appears that the priority of lead remains high even if considering no remaining uses of lead in these applications.

The adoption of the Batteries Regulation, the revision of the ELV Directive and the RoHS Directive (including their annexes), might lead to further uses of lead being restricted/banned in the future. However, the tonnage of uses of lead not covered by those regulatory risk management tools and falling in the scope of authorisation appears still very high (>10,000 t/y).

## 2. Further details on the type of applications, functions and market trend per use

The main use of lead metal is in batteries production. According to information provided in RCOM (2018), 99% of lead batteries are collected and recycled in Europe. Consequently, > 85 % of a new lead battery is made from recycled materials. Overall, lead batteries make up 90 % of the global market share for rechargeable batteries. There are indications, that the market trend has been consolidated in the last decades within the EU and the International Lead Association (ILA) estimates that there are fewer than 20 battery producers remaining on the EU market, while the import of lead batteries has increased in recent years (ECHA, 2018). As outlined in some comments (ECHA, 2023), the batteries supply chain is very complex, with few battery producers, but many users of the batteries and recyclers, including SMEs.

Lead is used in a number of alloys, including brass and steel, providing them specific properties, like workability, electrical conductivity or corrosion resistance. Such alloys are used in a wide variability of applications, including cables, pipes, vehicles and machinery (RCOM, 2018). In a number of applications (e.g. sanitary, keys and locks, machinery), the lead content in the alloys, plays a crucial role for recyclability or energy consumption during use (ECHA, 2023). In particular, in the sanitary sector, a high number of professional and industrial actors (including SMEs) are affected, as shown in a number of comments (ECHA, 2023).

Lead soldering takes place at many sites, in particular within the electronics sector. Some of

<sup>8</sup> Europacables commenting during the consultation provided another estimate of 40,000 tons of lead used annually by its members in 2021.

<sup>9</sup> Restriction of lead in projectiles (for firearms and airguns), and in fishing sinkers and lures for outdoor activities; Restriction on the use of lead shots over wetlands; Restriction on the use of lead compounds to stabilise PVC and on the placing on the market of PVC articles stabilised with lead compounds

those uses may fall outside the scope of authorisation (e.g. uses in medical devices). Some of the remaining uses are covered (and explicitly exempted) under RoHS or ELV. Many remaining uses are not covered by any of those legislations (e.g. in high voltage applications, specific vehicles).

Due to its unique properties, lead is also used in radiation shielding, where it has a wide variety of applications (ECHA, 2023). Though some applications might be out of scope of authorisation (e.g. x-ray medical devices), others are not (e.g. nuclear power plants, scanners at airports).

Lead metal is also widely used in cable sheathing (ECHA, 2023), in particular for chemically aggressive conditions and where higher mechanical and temperature resistance is required, e.g. under ground or under water. One of the main applications here is to connect offshore wind farms to the mainland.

Additionally, a wide range of articles is directly produced from rolled and extruded lead metal, making this the use with the highest volume after the use in batteries (Annex XV SVHC report, 2018). The presence of lead in articles is confirmed by the high number of Substances in articles notifications received in the SCIP database (ECHA, 2022c). Main types of articles notified include different parts of vehicles, electronic instruments or machines, furniture, lamps or metal articles (also in aluminium, steel or other metal articles).

Professional workers are also using lead metal (in mixtures or in articles) in a variety of applications (ECHA, 2018; ECHA, 2022b), such as soldering, ammunition (non-military), installation and maintenance of lead sheathed cables, assembly of lead acid batteries, leaded steels or inert anodes.

Some uses of lead correspond to a very minor volume of the substance (<0.1 % of total tonnage), but affect a high number of industrial and professional users (including many SMEs), and have an important societal role e.g. stained glass, art conservation, musical instruments, jewellery, buildings (ECHA, 2023).

Recycling activities, though not considered in scope of authorisation, play an important role in many of the sectors where lead is used (ECHA, 2023). In certain sectors, the recycling activity aims at recovering lead (e.g. re-melting and reuse of lead strips for stained glass), in other sectors lead is used to regain specific alloys (e.g. in sanitary), or recover other pure metals (e.g. metallurgy).

### 3. Structure and complexity of supply chains

The following assumptions are made based on currently available information and will be used, together with any relevant information from consultation, to allocate the substance to a specific LAD slot in the final recommendation.

Lead is manufactured and/or imported by a high number of registrants. Based on information available in Annex XV SVHC report, RCOM (ECHA, 2018) and comments received on the draft recommendation (ECHA, 2023), the number of industrial sites where lead metal is used is well above 100.

The supply chain can be characterised<sup>10</sup> by the following actors: formulators, users at industrial sites, professional workers, articles producers, articles assemblers (multi-layer assembling chain), (relevant life cycle stages: F, IS, PW, SLs).

Lead seems to be used in the following product categories: base metals and alloys; fillers,

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<sup>10</sup> Categories listed here after (life cycle stage, SU, PC and AC) make reference to the use descriptor system described in ECHA's guidance on use description:

[https://echa.europa.eu/documents/10162/17224/information\\_requirements\\_r12\\_en.pdf](https://echa.europa.eu/documents/10162/17224/information_requirements_r12_en.pdf)

putties, plasters, modelling clay; explosives; metal surface treatment products; heat transfer fluids; lubricants, greases, release products; semiconductors; washing and cleaning products; welding and soldering products, flux products; oil and gas exploration or production products, electrolytes for batteries (relevant product categories: PC 7, PC 9b, PC 11, PC 14, PC 16, PC 24, PC33, PC 35, PC 38, PC41, PC42).

A number of sectors is relying on the substance in some of their uses including agriculture, forestry, fishery; manufacture of bulk, large scale chemicals (including petroleum products); manufacture of plastics products, including compounding and conversion; manufacture of basic metals, including alloys; manufacture of fabricated metal products, except machinery and equipment; manufacture of computer, electronic and optical products, electrical equipment; general manufacturing, e.g. machinery, equipment, vehicles, other transport equipment; manufacture of furniture; building and construction work; health services; electricity, steam, gas water supply and sewage treatment (relevant sector of use categories: SU1, SU 8, SU 12, SU 14, SU 15, SU 16, SU 17, SU18, SU 19, SU 20, SU23).

Uses of lead in the scope of authorisation seem to be relevant for the production of a number of article types such as vehicles; machinery, mechanical appliances, electrical/electronic articles; electrical batteries and accumulators; stone, plaster, cement, glass and ceramic articles; Fabrics, textiles and apparel; metal articles (relevant article categories: AC 1, AC 2, AC 3, AC4, AC5, AC 7).

Some of the categories mentioned are not explicitly reported in registrations but could be derived from information on uses available in registration dossiers, the Annex XV SVHC report (ECHA, 2018), comments received on ECHA's draft recommendation (ECHA, 2023) and Substance in Articles notifications.