

1 July 2015

Background document for pentalead tetraoxide sulphate

Document developed in the context of ECHA's 6th 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 public 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.

1. Identity of the substance

Chemical name:	Pentalead Tetraoxide Sulphate
EC Number:	235-067-7
CAS Number:	12065-90-6
IUPAC Name:	Pentalead Tetraoxide Sulphate

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 authorisation¹. Results of the prioritisation of all substances included in the Candidate List by June 2013 and not yet included or recommended in Annex XIV of the REACH Regulation is available at http://echa.europa.eu/documents/10162/13640/prioritisation_results_6th_rec_en.pdf

The prioritisation results of the substances included in the draft 6th recommendation have been updated as necessary after the public consultation. The updated results are available at http://echa.europa.eu/documents/10162/13640/updated_prioritisation_results_6th_axiv_rec_en.pdf

2.1. Intrinsic properties

Pentalead tetraoxide sulphate 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 3.1 (the list of harmonised classification and labelling of hazardous substances) of Regulation (EC) No 1272/2008 as Toxic for Reproduction, Category 1A, H360D ("May damage the unborn child"), and was therefore included in the candidate list for authorisation on 19/12/2012, following ECHA's decision [ED/169/2012].

¹ Document can be accessed at http://echa.europa.eu/documents/10162/13640/gen_approach_svhc_prior_in_recommendations_en.pdf

2.2. Volume used in the scope of authorisation

The amount of pentalead tetraoxide sulphate manufactured and/or imported into the EU is according to registration data in the range of 10,000 – 100,000 t/y.

Part of the registered tonnage is claimed as being used as an intermediate. However, based on available information it appears that the uses described are likely not to be intermediate uses. It is stressed that the prioritisation exercise is not taking a formal position whether certain uses of substances are regarded as uses as intermediates in accordance with the definition in article 3(15).

2.3. Wide-dispersiveness of uses

Registered uses of pentalead tetraoxide sulphate in the scope of authorisation include uses at industrial sites (use as stabiliser in PVC processing, use in lead battery production).

Furthermore, according to registration data the substance is used in articles in volumes above 10 t/y (e.g. plastic articles).

Further information on uses is provided in Section 3.

2.4. Further considerations for priority setting

It appears that pentalead tetraoxide sulphate is used in some similar applications (batteries) with orange lead (lead tetroxide), lead monoxide, and tetralead trioxide sulphate. However, it has not been assessed whether the function of these substances in these applications is the same and whether or under which conditions substitution could happen in practice.

2.5. Conclusions and justification

Verbal descriptions and Scores			Total Score (= IP + V + WDU)	Further considerations
Inherent properties (IP)	Volume (V)	Wide dispersiveness of uses (WDU)		
Pentalead tetraoxide sulphate is classified as toxic for reproduction 1A meeting the criteria 57c Score: 1	The amount of pentalead tetraoxide sulphate used in the scope of authorisation is estimated to be > 10,000 t/y. Score: 15	Pentalead tetraoxide sulphate is used at industrial sites. Initial score: 5 Furthermore, the substance is used in articles in volumes >10 t/y. Refined score: 7	23	Grouping of pentalead tetraoxide sulphate with other lead substances used in batteries

Conclusion

Pentalead tetraoxide sulphate is considered for prioritisation based on grouping consideration with orange lead and other lead substances used in batteries (lead monoxide, tetralead trioxide sulphate).

On the basis of prioritisation criteria orange lead (lead tetroxide) receives high priority among the substances in the Candidate list (see link to the prioritisation results above).

However, other substances included in the draft 6th recommendation have higher priority based on Art. 58(3) prioritisation criteria and/or based on grouping considerations. In accordance with Art. 58(3) the number of substances included in a recommendation need to take into account ECHA's capacity to handle applications for authorisation in the time provided for. Therefore, the recommendation of orange lead (lead tetroxide) and other lead substances used in batteries is postponed. Consequently, pentalead tetraoxide sulphate is not included in ECHA's final 6th recommendation for inclusion of substances in Annex XIV. The substance will be reassessed for priority in future recommendation rounds.

3. Further information on uses

In addition to the registration information, further details on uses can be found in comments provided during the public consultations on the 6th draft recommendation (ComRef, 2015) and on SVHC identification (RCOM, 2012).

The uses of pentalead tetraoxide sulphate seem to be limited to processing at industrial sites (use in stabilisers and in PVC processing, use in lead battery production) leading for part of the tonnage also to the incorporation into articles. Information on the main (sector of) uses, tonnage and current trends are provided below.

Use in the production of batteries

Pentalead tetraoxide sulphate is used in the process to produce automotive and industrial lead acid batteries. The battery production process begins with initial chemical reactions for lead oxide and lead tetroxide, leading into the transformation of both substances into a mix of pentalead tetraoxide sulphate and tetralead trioxide sulphate, and further into lead metal and lead dioxide. Detailed information on the production process of lead-acid batteries, including a description on how the above-mentioned substances are interlinked in the production process, can be found in the comments received during the SVHC public consultation (EUROBAT and ILA comments - RCOM, 2012; ComRef, 2015).

During the production process pentalead tetraoxide sulphate is converted into another substance and only some residual concentrations remain in the final article (RCOM, 2012).

From aggregated survey data of its member companies, EUROBAT (The Association of European Automotive and Industrial Battery Manufacturers) estimates that 369,000 tonnes of tetralead trioxide sulphate and 39,000 tonnes of pentalead tetraoxide sulphate are produced during the battery production process by the European battery industry per annum (RCOM, 2012):

- 173,000 tonnes of tetralead trioxide sulphate and 18,000 tonnes of pentalead tetraoxide sulphate being used for the production of **automotive** batteries;
- 196,000 tonnes of tetralead trioxide sulphate and 21,000 tonnes of pentalead tetraoxide sulphate being used for the production of **industrial** batteries.

Lead-based batteries are widely used in automotive vehicles (e.g. SLI² batteries, start-stop systems in micro-hybrid vehicles, batteries used in mild, full and plug-in hybrid vehicles) and in industrial motive and standby applications, e.g. in forklift trucks and electric wheelchairs, as Uninterruptible Power Supply (UPS) for hospitals, IT applications and telecommunication systems including both landline and mobile telephone base station applications (RCOM, 2012).

² Starting, Lighting, Ignition

Key countries for lead-based battery production in Europe include the Czech Republic, France, Germany, Italy, Spain, Poland and the United Kingdom (RCOM, 2012).

Use as stabiliser

A significant use of pentalead tetraoxide sulphate is as a stabiliser in PVC production. According to information provided during the public consultation on the 6th draft recommendation (ComRef, 2015) this use represents approx. 4.5 % of the market. The stabiliser sector has a voluntary commitment to replace lead stabilisers completely by end of 2015 across the EU-28. According to comments received the European PVC industry is on track to fulfil its phase out commitment. In many cases lead stabilisers are replaced by calcium based stabilisers and during the period 2001-2011 lead stabiliser consumption decreased by approximately 82%. The total tonnage of lead stabilisers used in EU seems however to remain above 1,000 t/y. Registration dossiers have not been updated with regard to the specific tonnage allocated to that use.

According to information from industry (RCOM, 2012) there was less than 10 sites manufacturing lead stabilisers in the EU-27 (totalling probably between 100 and 500 employees directly involved with lead stabilisers) while up to 20,000 plastic converters are processing PVC and a fraction of them may use lead stabilisers to produce articles such as discharge water pipes and window profiles, roofing, flooring and many others.

The sector also counts a very high number of PVC recyclers (mainly SMEs) handling post-consumer waste. Lead is expected to remain in recycled PVC for many years even after the phase out due to the long life time of most PVC products (e.g. 40 to 50 years for window profiles, or pipes) (ComRef, 2015).

4. 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 XIV³. The draft Annex XIV entries for substances included in the 6th recommendation are available at http://echa.europa.eu/documents/10162/13640/6th_axiv_recommendation_july2015_en.pdf

[This section is not relevant as the substance is not included in the final 6th recommendation.]

³ Document can be accessed at

http://echa.europa.eu/documents/10162/13640/draft_axiv_entries_gen_approach_6th_en.pdf

5. References

ComRef (2015): "Comments and references to responses" document for pentalead tetraoxide sulphate. Document compiling comments and references to respective answers from commenting period [01/09/2014-01/12/2014] on ECHA's proposal to include Pentalead tetraoxide sulphate in its 6th recommendation of priority substances for inclusion in the list of substances subject to authorisation (Annex XIV).

http://echa.europa.eu/documents/10162/13640/6th_axiv_rec_comref_pentalead_tetraoxide_sulphate_en.pdf

RCOM (2012): "Responses to comments" document. Document compiled by ECHA from the commenting period 03/09/2012-18/10/2012 on the proposal to identify Pentalead tetraoxide sulphate as a Substance of Very High Concern.

<http://echa.europa.eu/documents/10162/6c2affb2-73d9-4a06-b774-857603a6282a>