

FINAL



INFO
SHEET

RHODIUM AND RHODIUM COMPOUNDS



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1. PROJECT BACKGROUND

In the context of the EPMF Data Gathering Project, data and information (on tonnage, uses and economics) has been collected from EPMF Members through questionnaires followed by phone interviews, in compliance with EU competition law.

The main objectives of the Project are:

- ***To respond to regulatory requests*** - In the context of REACH and other regulatory schemes, it is increasingly important to provide accurate socio-economic data on a sector, on a substance and on related supply chains. This requires disclosing to authorities information on tonnage produced and used. In this context, it is important to update the REACH registration dossier according to the new IUCLID 6 features (e.g.: aggregated tonnage per use) to ensure that authorities use these data in case of prioritization of the substance and for risk management measures in and outside REACH. The REACH registration dossier is and will increasingly become the main data source for such a type of prioritization exercise. If the relevant data is not available in the dossier, the risk will be that authorities use inaccurate data which could trigger inefficient and ineffective prioritization of certain substances.
- ***To engage in government affairs initiatives*** - The Precious Metals industry is an important player on the EU market and from an advocacy standpoint, EPMF would like to be able to demonstrate this by gathering socio-economic facts and figures with a view to:
 - Demonstrate the importance of the Precious Metals industry for the economy;
 - Ensure that recent facts and figures are available on the Precious Metals Industry when meeting Authorities; and
 - Provide up-to-date and complete data when needed at EU/EEA level (and at Members State level), notably in the context of public consultations.



2. TONNAGE AND REPRESENTATIVENESS

7 European Precious Metals Federation (EPMF) Members are involved in the manufacture and/or import of rhodium and its compounds; *inter alia*, rhodium metal, rhodium (I) compounds and rhodium (III) compounds.

The table below reflects the responses received to the questionnaires.

Participating companies have provided their latest EU/EEA figures (including the UK) available for 2015 or 2016.

The total coverage at EPMF level was calculated by comparing total reported tonnage with the estimated tonnage for non-participating companies. The tonnage is expressed as tonnage of the substance.

Table 1: Volumes manufactured or imported in the EU by the EPMF members participating in this exercise. Volumes are expressed in tonnes per year for the substance. The number between brackets refers to the rhodium content.

Substance	SEA participants manufactured tonnage	SEA participants imported tonnage	Total tonnage	Total estimated coverage**
RHODIUM METAL	14	6	20	51%
RHODIUM (I) COMPOUNDS ⁽¹⁾	*	*	4 (1 T Rh)	100%
RHODIUM (III) COMPOUNDS ⁽²⁾	*	*	60 (15 T Rh)	100%

*Not reported for confidentiality reasons. Less than 3 participants manufacturing or importing. For the total (manufacture + import) 3 or more companies have reported data.

** Total estimated coverage is based on the figures received by the respondents to which we added the estimated total tonnage for the substance (manufacture + import) for non-respondents.

⁽¹⁾ Rhodium (I) compounds = Dicarboxylpentane-2,4-dionato-O,O')rhodium, carbonyl(pentane-2,4-dionato-O,O')(triphenylphosphine)rhodium, carbonylhydrotris(triphenylphosphine)rhodium, di- μ -chloro-bis(hapto-1,5-cyclooctadiene)dirhodium(I), tris(triphenylphosphine) rhodium (I) chloride.

⁽²⁾ Rhodium (III) compounds = Rhodium trichloride hydrate, rhodium tris(2-ethylhexanoate), rhodium acetate, rhodium trinitrate, dirhodium trioxide, dirhodium trisulphate, diammonium sodium hexakis(nitrito-N)rhodate, rhodium trihydroxide, rhodium triiodide.

N.B.: There are limitations to the exercise regarding the coverage of the EU market. Indeed, the exercise was performed only at EPMF level and not with other registrants (e.g.: Loa buyers).



3. MASS FLOW ANALYSIS

A mass flow analysis demonstrating the transformation process of one substance into another is provided below. For reasons of traceability we have reported the tonnage as rhodium content (not as total tonnage of the substance compared to the table in section 2 above).

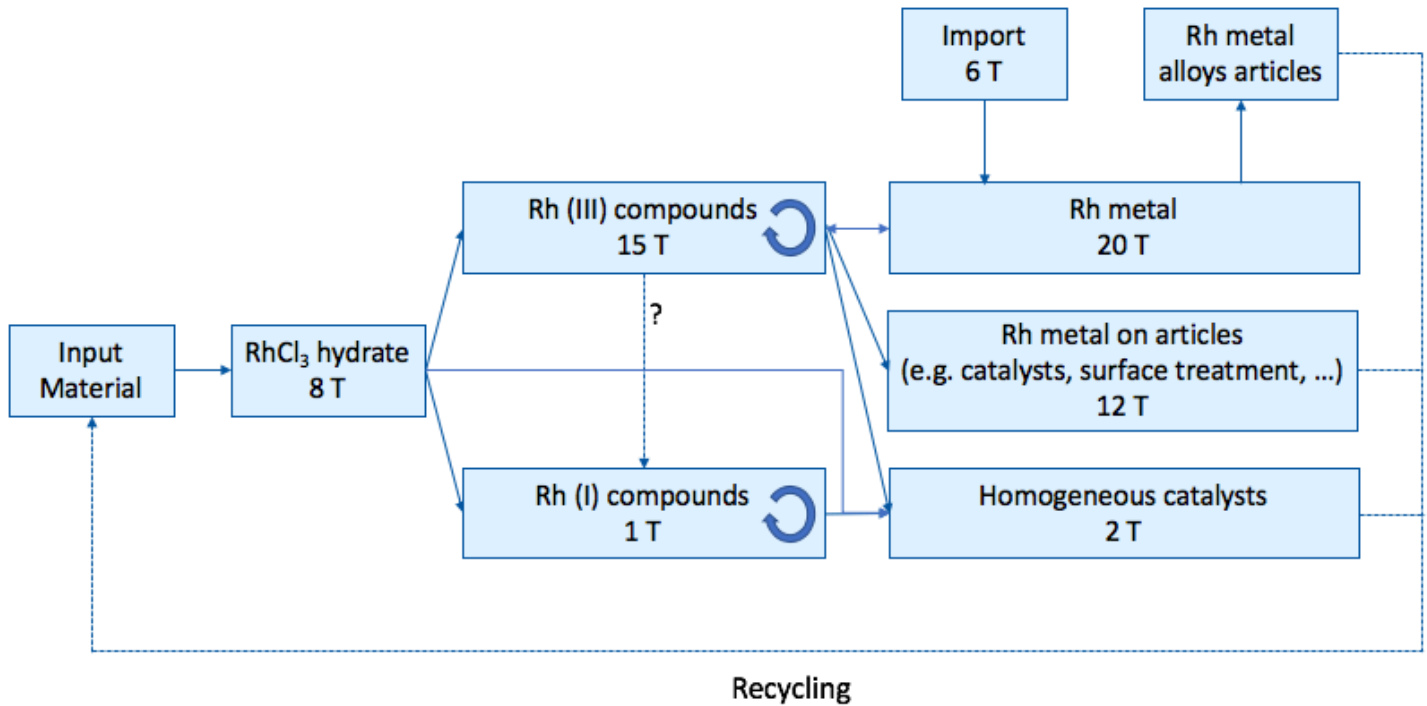


Figure 1: Mass flow of rhodium and rhodium compounds.

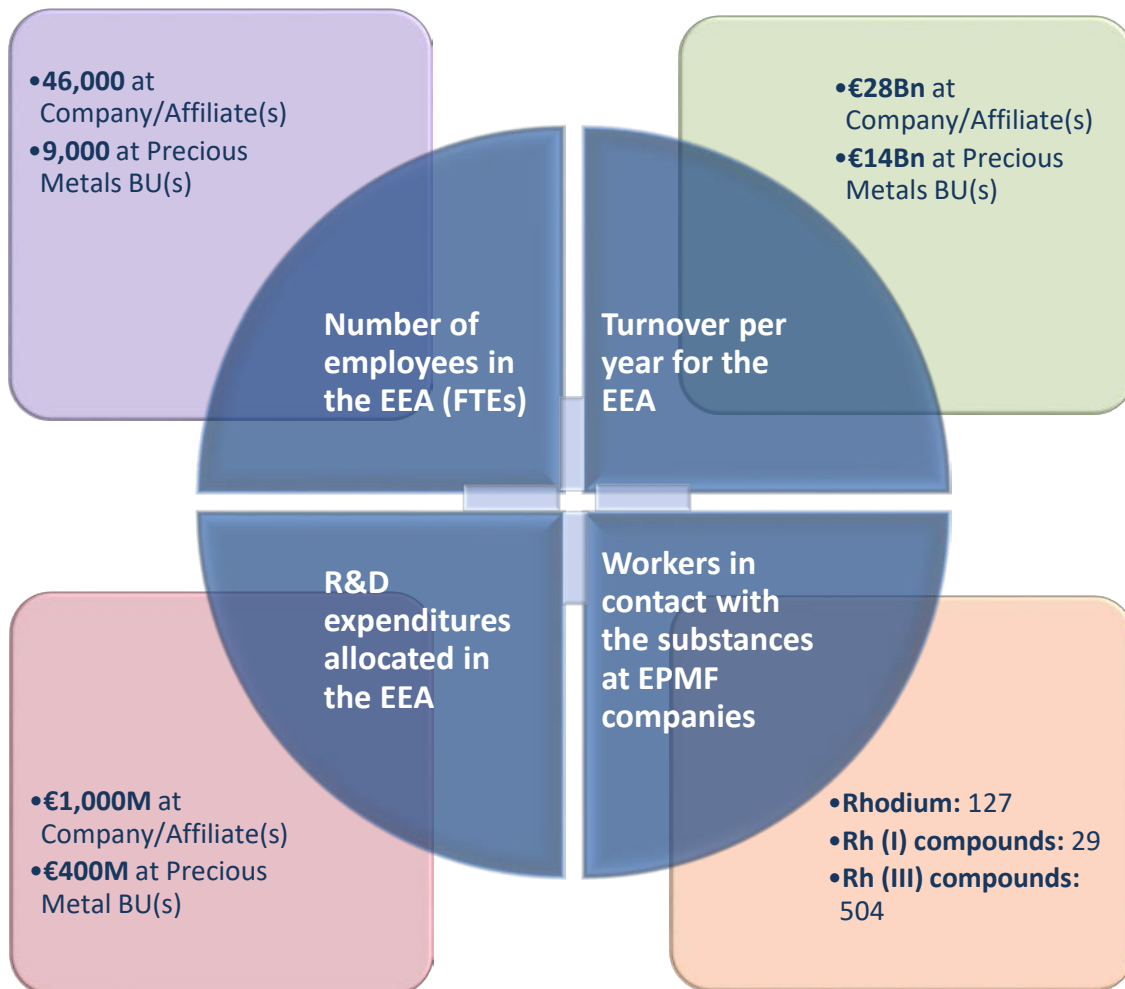


4. SOCIO-ECONOMIC DATA

Participating companies have reported information on a number of items which are detailed below.

The information reported concerns **16 EPMF member companies** and includes data regarding yearly turnover, R&D expenditure, the number of employees (FTE) and the number of workers in contact with the substances. Please note that the data (except for number of workers in contact with the substances) is not specific for palladium and palladium compounds but aggregated for all the precious metals and precious metal compounds manufactured by those companies. Splitting per precious metal was not possible as the manufacture of the different precious metals is interrelated and impact on one metal might affect the other metals as well.

Precious metals are usually a part of a bigger picture. The information is reported at company/affiliate level also covering non-precious metals activities and reported at precious metal business unit specifically covering only the precious metals.





5. TONNAGE DISTRIBUTION

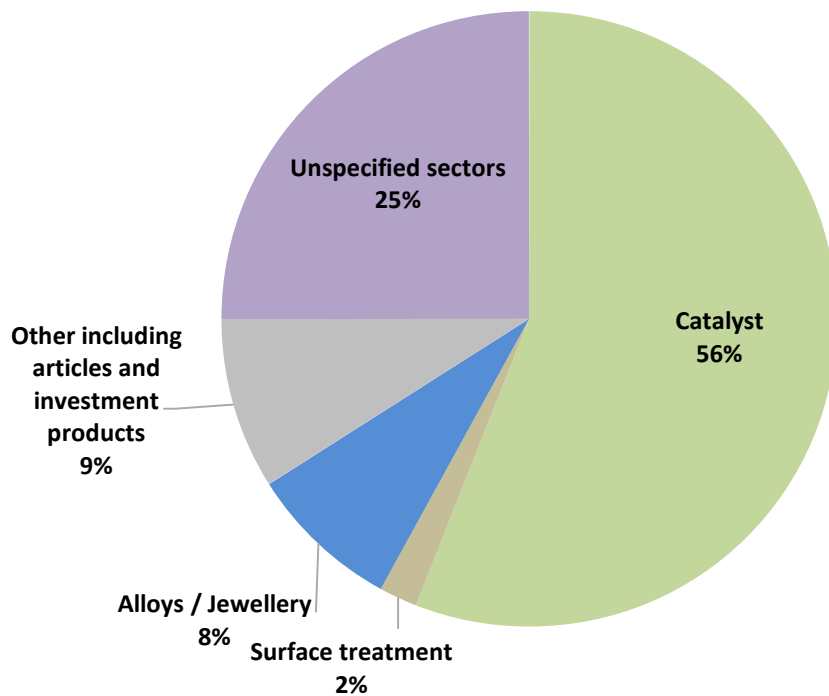
All EPMF substances, and especially rhodium and rhodium compounds, are directly (due to potential classification, wide dispersive use etc.) or indirectly (due to grouping approach) at risk for further regulatory measures. The gathered data will be used to assist in the selection of adequate Risk Management Measures (when necessary).

At this stage, and on the basis of the information reported by participating companies for rhodium and rhodium compounds, tonnage distribution tables have been prepared:

- Distribution of rhodium and rhodium compounds manufactured/imported by EPMF members to the different end sectors;
- Uses of rhodium metal;
- Uses of rhodium (I) compounds;
- Uses of rhodium (III) compounds.



Distribution of rhodium and rhodium compounds manufactured/imported by EPMF members to the different end sectors

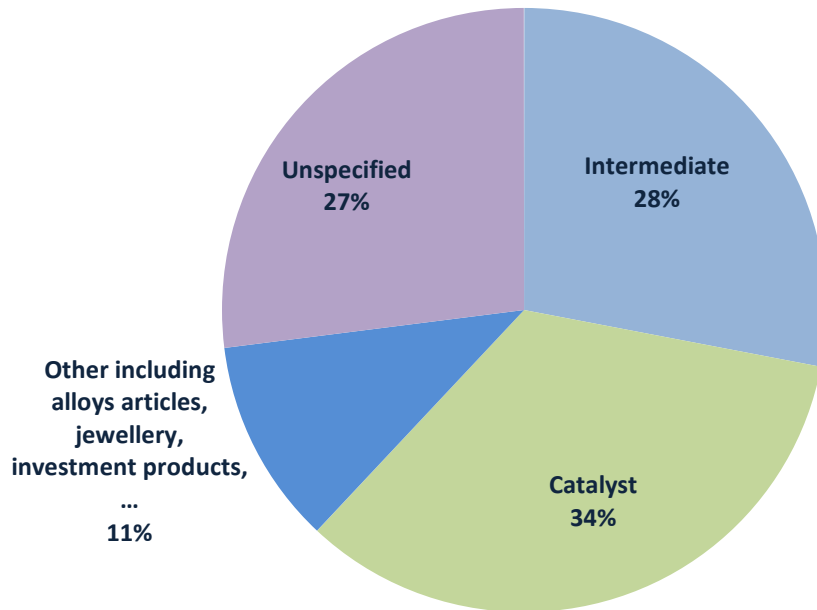


It should be noted that only the end sector is reported. Intermediate uses of rhodium and rhodium compounds are not reported to avoid double counting at that level.

It is worth noting that “Unspecified sectors” most likely represent sectors already mentioned and in particular catalysts and jewellery. But at this stage it was not possible to link the tonnage to a sector in most cases due to the use of a distributor in the supply chain which declared the uses but not the related tonnage for business reason.



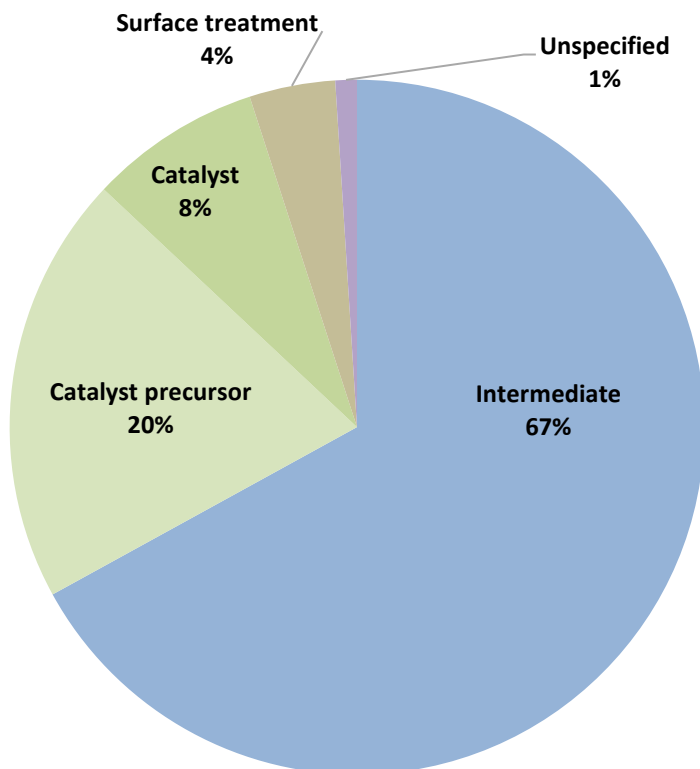
Uses of rhodium metal



For rhodium metal, 27% of the reported tonnage was not allocated to a specific use. It is worth noting that “Unspecified” most likely represent uses already mentioned but at this stage it was not possible to link the tonnage to a use in most cases due to the use of a distributor in the supply chain which declared the uses but not the related tonnage for business reason.



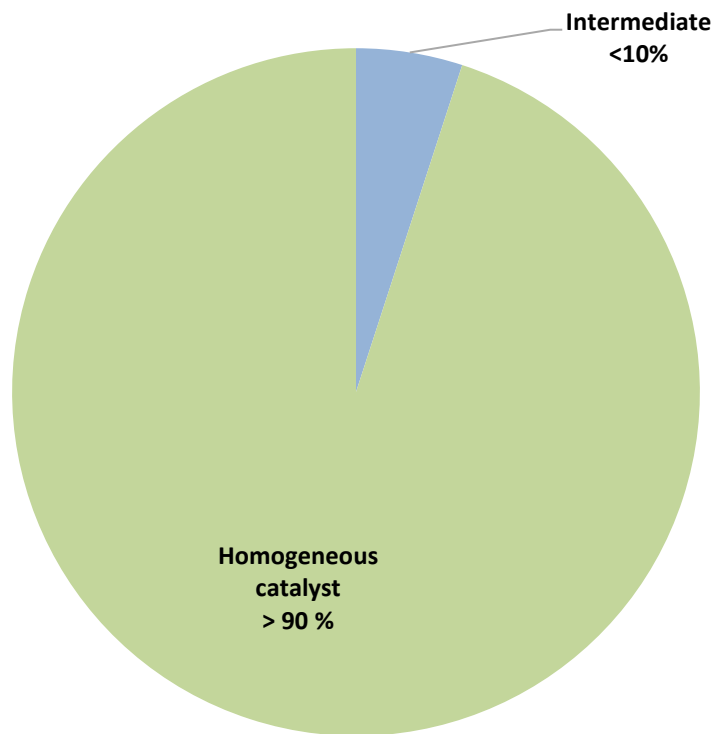
Uses of rhodium (III) compounds



Rhodium (III) compounds are mainly used as intermediates in an industrial setting, either during the manufacture of rhodium metal or during the manufacture of other rhodium compounds or articles containing rhodium metal (e.g. catalysts, surface treated articles). A smaller portion of the rhodium (III) compounds are used as homogenous catalysts.



Uses of rhodium (I) compounds



Rhodium (I) compounds are used as homogeneous catalysts. A small portion is used as intermediate to manufacture other rhodium (I) compounds that will in turn be used as homogeneous catalysts.



6. GLOSSARY

Company means any entity engaged in an economic activity, regardless of the legal status of the entity or the way in which it is financed (Case C-41/90 Höfner and Elser v. Macrotron GmbH, para. 21).

Intermediates means a substance that is manufactured for and consumed in or used for chemical processing in order to be transformed into another substance (hereinafter referred to as synthesis):

(a) non-isolated intermediate: means an intermediate that during synthesis is not intentionally removed (except for sampling) from the equipment in which the synthesis takes place. Such equipment includes the reaction vessel, its ancillary equipment, and any equipment through which the substance(s) pass(es) during a continuous flow or batch process as well as the pipework for transfer from one vessel to another for the purpose of the next reaction step, but it excludes tanks or other vessels in which the substance(s) are stored after the manufacture;

(b) on-site isolated intermediate: means an intermediate not meeting the criteria of a non-isolated intermediate and where the manufacture of the intermediate and the synthesis of (an) other substance(s) from that intermediate take place on the same site, operated by one or more legal entities;

(c) transported isolated intermediate: means an intermediate not meeting the criteria of a non-isolated intermediate and transported between or supplied to other sites;

Isolated intermediate is used for on-site and transported intermediates.

Precious Metals Business Unit means a logical element or segment of a company (such as accounting, production, marketing) representing a specific business function, and a definite place on the organizational chart, under the domain of a manager. Also called department, division, or a functional area. In this case, the segment is related to precious metals business.

Turnover means the amounts derived by the undertaking concerned in the preceding financial year from the sale of products and the provision of services falling within the undertaking's ordinary activities after deduction of sales rebates and of value added tax and other taxes directly related to turnover (see Article 5(1) of EU Regulation (EC) No 139/2004 of 20 January 2004 on EU Merger Regulation).



European Precious Metals
Federation