



European Precious Metals
Federation



ANNUAL REPORT 2022

THE EUROPEAN PRECIOUS METALS FEDERATION

CONTENTS

Welcome	03		
The EPMF's Mission	04		
Priorities and Activities	05		
Chemicals Management	05		
• I. Harmonised classification of silver metal	05		
• The issue			
• The EPMF's contribution			
• The EPMF's key messages			
• The EPMF is in dialogue with...			
• II. The Water Framework Directive: Silver - a potential priority substance	07		
• The issue			
• The EPMF's contribution			
• The EPMF's key messages			
• The EPMF is in dialogue with...			
• III. REACH & CLP Revisions	09		
• The issue			
• The EPMF's contribution			
• The EPMF's key messages			
• The EPMF is in dialogue with...			
• IV. Dossier Updates	10		
• The issue			
• The EPMF's contribution			
• The EPMF's key messages			
• The EPMF is in dialogue with...			
Sustainability	13		
• I. Responsible Sourcing	13		
• The issue			
• The EPMF's contribution			
• The EPMF's key messages			
• The EPMF is in dialogue with...			
• II. Waste Policies	15		
• The issue			
• The EPMF's contribution			
• The EPMF's key messages			
• The EPMF is in dialogue with...			
• III. The Critical Raw Materials Act	16		
• The issue			
• The EPMF's contribution			
• The EPMF's key messages			
• The EPMF is in dialogue with...			
Communication	17		
• The EPMF in the media			
• Science and the EPMF			
Time for a Quiz!	18		
The EPMF Secretariat	20		
Precious Metals are...	21		
Structure	22		
• Working Groups	22		
• The Board	23		
• Members	23		

WELCOME

Welcome to the EPMF Annual Report 2022! Last year was busy for the precious metals industry working on the silver classification process, REACH and CLP revisions, EU waste, responsible sourcing policies and much more. A significant step in the silver classification process has been achieved with the finalisation of the RAC discussions. The EPMF continually works on the REACH registration dossier updates to maintain and secure accurate, high-quality information. Speaking of EU policies, 2022 was all about critical raw materials and the upcoming act in 2023. The act is an important EU initiative as precious metals are strategically vital to the success of the green energy transition. They are essential for green hydrogen production in solar panels, wind turbines, fuel cells, and electrolyser systems. Finally, a coherent approach to EU regulation is needed, including consistency with the chemicals legislation.

We trust you enjoy reading this Annual Report!



Wouter Ghyoot

PRESIDENT

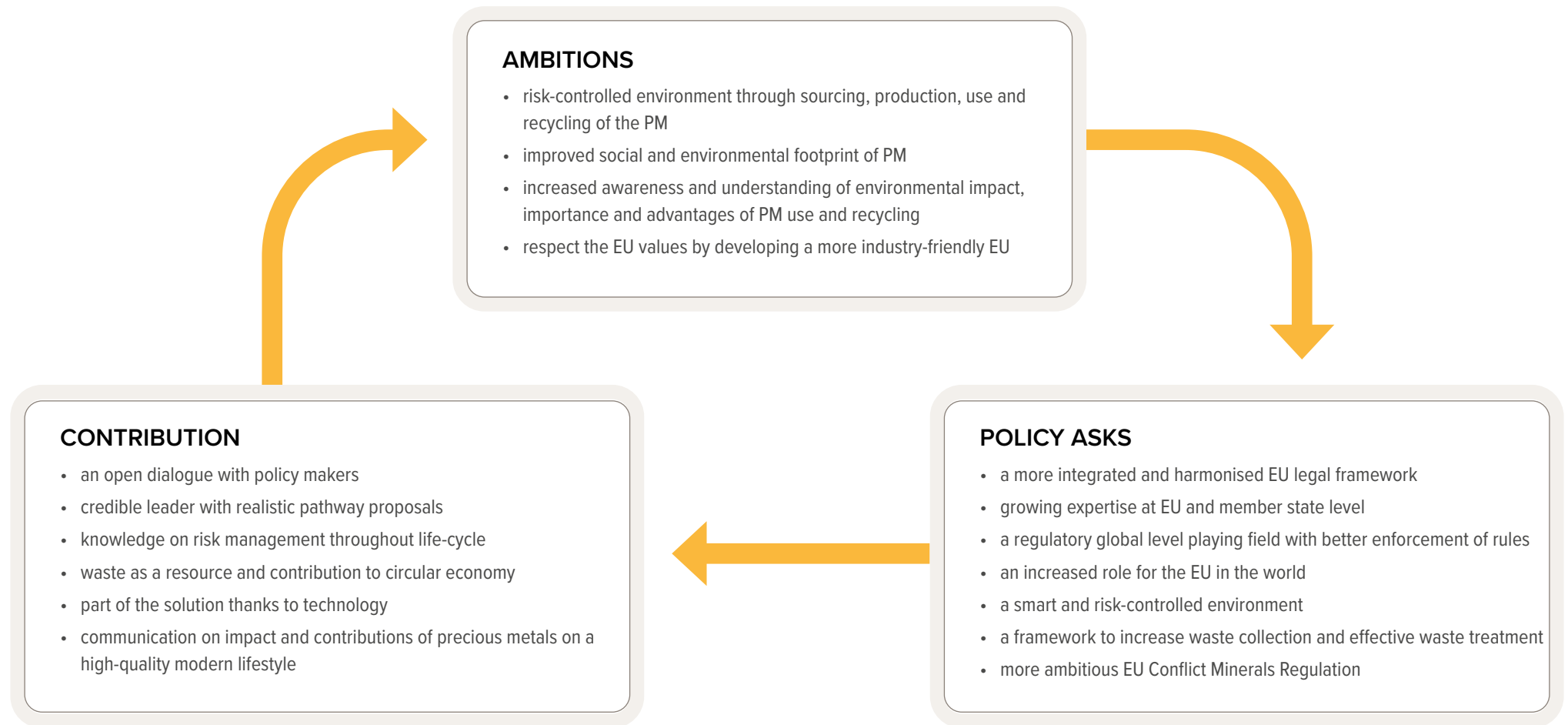


Marius Vigener

VICE PRESIDENT

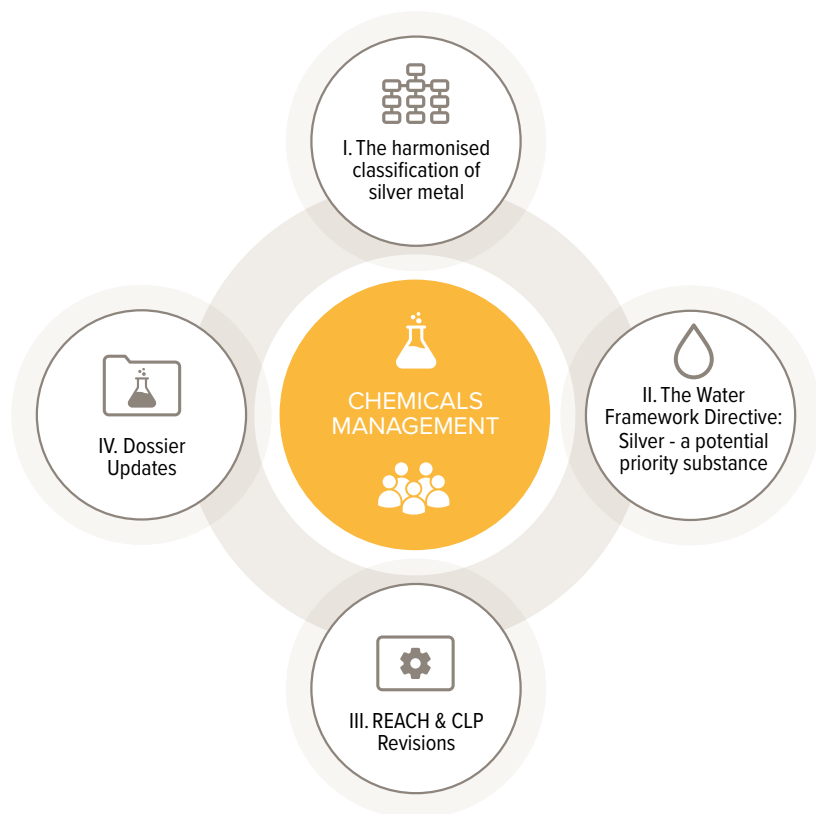
THE EPMF'S MISSION

Since 2007 the EPMF has supported European companies operating in the areas of gold, silver and Platinum Group Metals (PGMs). The EPMF is keen to contribute to the ambitious EU policy agenda on a wide range of issues.



PRIORITIES AND ACTIVITIES

CHEMICALS MANAGEMENT



I. THE HARMONISED CLASSIFICATION OF SILVER METAL

EU citizens own almost 60% of the silver on the EU market via investment, silverware or jewellery. Silver compounds and silver metal are critical components for green technologies such as solar panels, wind turbines, electrodes, fast chargers for electric cars etc.

1. The issue

In July 2019, the European Chemicals Agency (ECHA) published in the registry of Harmonised Classification and Labelling (CLH) Sweden's intentions to classify silver metal as hazardous (i) skin sensitiser cat. 1; ii) mutagenic cat. 2; iii) reprotoxic cat. 1B; iv) aquatic toxicant (acute and chronic) cat 1. This proposal has potential consequences for all uses of silver, including jewellery, silverware, electronics, solar panels, aerospace, and others. The discussions and conclusions around the classification will impact the REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) registration dossiers.

2. The EPMF's contribution

In 2022, the EPMF actively contributed to the scientific discussion of the European Chemicals Agency's Risk Assessment Committee (ECHA – RAC) by providing relevant, robust and reliable scientific data to support the technical discussions. In 2022 alone, the EPMF provided a total of 14 additional documents to ECHA – RAC to support the various endpoint discussions. These included study reports¹, expert opinion², the most recent peer-reviewed publications, external expert statements³ and a white paper on the reliability assessment of publications⁴. The RAC assessed the data along with all other available evidence. Unfortunately, they did not take into account the EPMF grouping and read-across conclusions of silver vs silver compounds, incl. the EPMF recognised specific mode of action for the observed effects (i.e. a copper depletion mechanism following (sub)chronic systemic exposure to silver). Moreover, the RAC did not consider the EPMF position that silver metal (massive and powder) does not require a human health classification. The RAC adopted its opinion on June 2nd, 2022, which is not in line with the EPMF self-classification, but most importantly, nor is it in line with the classification proposed by the Dossier Submitter (KEMI) as shown in the comparative table below.

¹ *In-vivo* comparative toxicokinetic study, Extended One Generation reproductive toxicity study on silver acetate, 90-day repeated dose toxicity study on silver acetate.

² Expert opinion on the specific mechanisms of silver toxicity to support reproductive toxicity discussion.

³ An expert statement (pathologist) clarifying the histopathology of the brain in adults animal to support the STOT RE discussion.

⁴ An updated listing of the *in-vivo* genotoxicity/mutagenicity studies including reliability assessment to support the discussion on mutagenicity.

The RAC adopted its opinion by recommending this classification of silver metal:

Endpoints	KEMI proposal	EPMF self-cl.	RAC Opinion
Skin sensitization	Cat. 1	No classification	No classification
Mutagenicity	Cat. 2	No classification	No classification
Reproductive toxicity	Cat. 1B	No classification for silver (powder and massive) Reprotoxic cat 1B (for nanosilver)	Reprotoxic Cat. 2
STOT-RE	No classification	No classification	STOT-RE 2 (nervous system)
Carcinogenicity	No classification	No classification	No classification
Acute aquatic hazard	Cat. 1	Ag nano: Aquatic acute cat. 1, M=1000 Ag powder: Aquatic acute cat. 1, M=10 Ag massive: no classification	Ag nano: Aquatic acute cat. 1, M=1000 Ag powder: Aquatic acute cat. 1, M=10 Ag massive: no classification
Chronic aquatic hazard	Cat. 1	Ag nano: Aquatic chronic cat. 1, M=1000 Ag powder: Aquatic chronic cat. 1, M=10 Ag massive: no classification	Ag nano: Aquatic chronic cat. 1, M=1000 Ag powder: Aquatic chronic cat. 1, M=10 Ag massive: no classification

Furthermore, it is important to highlight that **minority positions** were also proposed: i) two positions in favor of mutagenicity category 2; and ii) a position in favor of reproductive toxicity category 1B.

3. The EPMF's key messages

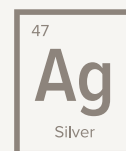
The EPMF takes note of the RAC opinion but supports neither the science behind it nor the proposed minority opinions. define the hazard profile of silver metal (massive and powder).

4. Next steps

The next steps of the CLH process will take place at the European Commission level and Member States Competent Authorities for REACH and Classification Competent Authorities (CARACAL) meetings that will evaluate the RAC opinion. The Commission will present the timing of the 2022 RAC opinions at the next CARACAL meeting on 29th March 2023. In parallel, the EPMF will continue to prepare the risk management phase to limit the impact of the silver metal classification on business.

5. The EPMF is in dialogue with:

- The European Commission: DG ENV and DG GROWTH
- The European Chemicals Agency (ECHA)
- Member States' REACH competent authorities
- Downstream industry sectors



Silver can make it rain. The compound silver iodide has been used for cloud seeding, to cause clouds to produce rain and attempt to control hurricanes.

II. THE WATER FRAMEWORK DIRECTIVE: Silver - a potential priority substance

1. The Issue

Since 2000 the Water Framework Directive (WFD) has been the main legal instrument for water protection in Europe, supported by its 'specific' directives, the Environmental Quality Standards Directive (EQSD) and the Groundwater Directive (GWD). Together, they ensure an integrated approach to water management respecting the integrity of whole ecosystems. The WFD and the EQSD identify the so-called "priority substances" (PS), which are identified as substances posing a significant risk to or via the aquatic environment and for which standards for surface waters (Environmental Quality Standards; EQSs) must be met, and whose emissions must be reduced or phased out. In 2016, the EU Commission's Joint Research Centre (JRC) shortlisted silver as a candidate PS under the WFD. Since then, the EU Member States and stakeholders have been discussing the possible prioritisation of silver and setting a harmonised silver EQS. The EPMF performed additional studies to strengthen the silver ecotoxicity dataset. In 2022, the EU Commission published its proposal to revise the list of PS and their corresponding EQS. This proposal suggested an entry for silver with a freshwater EQS of 10 ng/L. The impact on the EPMF is high as the release of silver is likely to occur in the manufacturing, production and use of silver-containing substances and articles.

2. The EPMF's contribution

The EPMF actively contributed to the discussions on the silver EQS in the silver sub-group led by JRC. The EPMF raised critical methodological questions and concerns on the use and assessment of the silver dataset. In addition, in 2022 the EPMF published [peer-reviewed literature](#) on the evaluation of available European freshwater monitoring data, showing that there is no reliable evidence available indicating an EU-wide risk for silver in the aquatic environment (please see *Science and the EPMF* chapter). As such, silver should not be selected as a PS under the WFD. Furthermore, the EPMF contributed to the Impact Assessment (IA) providing information on the technical feasibility of routinely sampling and monitoring silver at low concentrations.

Despite the above, JRC has largely ignored the EPMF's contributions and concluded there is an EU-wide risk of silver in freshwater. This would, however, not be the case if the originally agreed methodology for risk characterisation and priority setting under the WFD was followed. The Commission's proposal includes silver in its list of PS. In addition, the Commission is following the final opinion of the Scientific Committee on Health, Environmental and Emerging Risks (SCHEER) which recommended a very conservative freshwater EQS of 10 ng/L for silver. This means that the outcome of the 2022 IA, concluding that the costs of adding silver as a PS outweigh the benefits, has also been ignored. In the legislative proposal, the concern that silver might lead to the development of antimicrobial resistance (AMR) is now listed as the main reason to prioritise silver.

Following the Commission's legislative proposal, the EPMF developed an advocacy strategy to be deployed to the Commission, Parliament and Council as of 2023 with the support of Eurometaux.

It is worth noting that the EPMF also updated its assessment of the silver freshwater toxicity data considering the most recent data, leading to a Predicted No Effect Concentration (PNEC)/EQS value of 46 ng/L.

3. The EPMF's key messages

- The EPMF disagrees with the prioritisation of silver as the available EU monitoring data do not suggest an EU-wide risk. As agreed by all the stakeholders, the prioritisation methodology should be applied instead, and this does not identify an EU-wide risk.
- The selection of silver as a PS is not based purely on risk (as mentioned in the WFD and as agreed during the prioritisation exercise) but also on a concern related to AMR, which has been insufficiently investigated for silver.
- The EPMF believes the EQS value proposed by the Commission is overly conservative and without scientific justification.
- Measuring compliance with the very low proposed EQS (10 ng/L) requires sensitive and costly analytical techniques. It is anticipated that several countries will encounter practical problems in monitoring silver at these low (and analytically challenging) concentrations.

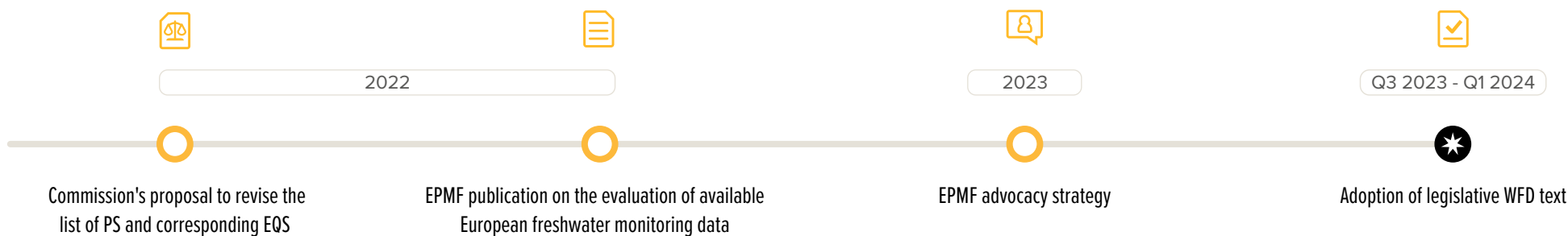
4. Next steps:

The legislative proposal has been submitted to both the European Parliament (EP) and the Council of the EU, and both will now start their scrutiny. The final legislative text is expected to be adopted between Q3 2023 and Q1 2024.

The EPMF will contribute to the public consultation organised by the Commission on the proposal. The EPMF is working with Eurometaux to highlight procedural concerns and include silver-specific comments.

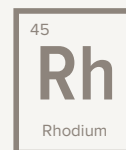
In terms of further scientific investigation, the impact of bioavailability on silver aquatic toxicity will be investigated in a 4-year project, starting in 2023, via the development of a chronic Biotic Ligand Model (BLM). Further research on anti-microbial resistance (AMR) has been launched under ETAP (Environment Toxicity Advisory Panel) to assess if metals (incl. silver) can contribute to, or lead to, the development of AMR and, if so, at what concentrations this occurs. Finally, the EPMF is also performing chronic sediment tests to allow the derivation of a reliable sediment PNEC.

5. Timeline



5. The EPMF is in dialogue with:

- The European Commission: DG ENV and DG GROWTH
- Members of the European Parliament
- The Joint Research Centre (JRC)
- Environment Toxicity Advisory Panel (ETAP)
- Member States
- Academia



Rhodium neutron detectors in nuclear reactors use a digital filter to generate three signals of varying delay to measure the neutron flux level. These signals are then combined in the rhodium detector signal.

III. REACH & CLP REVISIONS

Precious metals are indispensable to modern society and fundamental to many sectors, including electronics, electrical equipment, automotive, aerospace, medicine, medical devices, jewellery and cosmetics. Therefore, the REACH and CLP (classification, labelling and packaging of chemicals) revisions will substantially impact the precious metals industry.

1. The Issue

As announced in the European Green Deal, the Chemicals Strategy for Sustainability is the first step towards a zero-pollution and toxic-free environment. The Strategy aims to boost innovation for safe and sustainable chemicals and improve the protection of human health and the environment against hazardous chemicals. It also seeks to establish a more straightforward 'One Substance - One Assessment (OSOA)' process for chemical risk and hazard assessment. The REACH and CLP revisions are actions under the scope of the Chemicals Strategy for Sustainability.

2. The EPMF's contribution

In 2022, the EPMF continued working on the CLP and REACH revisions in close collaboration with Eurometaux and Cefic. The core of the EPMF activities was dedicated to contributing to the different consultations and workshops in preparation for the Impact Assessment and meeting regularly with DG GROWTH to share constructive proposals, mainly on the REACH reform.

3. The EPMF key messages

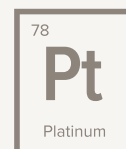
In the context of the REACH revision, the EPMF recommends:

- starting the risk management phase of chemicals with a clear prioritisation system to facilitate data collection and predictability
- effective targeting of critical issues, risk management in REACH should remain risk-driven and consider exposure potential in addition to hazard
- avoiding regrettable substitution by considering safer and more sustainable alternatives in a lifecycle approach

- considering metal specificities: refine the Mixture Assessment Factor (MAF) and confirm the non-application of PBT/PMT for inorganics
- ensuring overall transparency and predictability in the different REACH processes
- extending the low tonnage requirements proportionately while focusing on 'what matters'.

4. The EPMF is in dialogue with:

- The European Commission: DG ENV and DG GROWTH
- The European Chemicals Agency (ECHA)
- Eurometaux and Cefic



Platinum has played an important role historically in helping power the latest inventions and allowing people to live healthier lives. And it will play just as important a role in the future. Platinum is a key component of the catalysts inside electrolyzers that produce green hydrogen from renewable electricity and water. This hydrogen is a truly fossil-free energy source that can be used to power fuel cell vehicles for heating and industrial uses. Clearly platinum will play a critical role in the future as the world decarbonises to achieve net zero.

IV. DOSSIER UPDATES

1. A continuous process for silver, Platinum Group Metals (PGMs) and refinables

The EPMF members registered approximately 100 substances under EU REACH between 2010 and 2018. Each substance registration file contains a test data series in line with the regulatory needs, which depend on the tonnage band the substance is registered within.

For some substances, the generation and/or assessment of the test data indicated a need for additional testing, sometimes beyond the standard requirements. In most cases this related to effects observed in *in vitro* toxicological assays which trigger a need to investigate their *in vivo* relevance (e.g. mutagenicity endpoint). For others, it was due to indications of a possible effect in *in vivo* toxicity screening assays, triggering more dedicated *in vivo* testing to clarify the concern (e.g. reproductive toxicity).

• Progress of the silver dossier

Based on the outcome of the TK (Toxicokinetic) study, the EPMF members agreed that a direct read-across of the mammalian toxicity data of simple silver compounds (e.g. silver acetate) to silver (massive and powder forms) is not appropriate. Accordingly, the conclusion of the EOGRT (the Extended One-Generation Reproductive Toxicity) study that silver acetate needs a classification for developmental neurotoxicity was not applied to silver metal (massive and powder) by the EPMF. Silver metal (massive and powder) thus remains without any self-classification for mammalian toxicity endpoints in the REACH registration dossiers.

At the same time, the TK study confirmed a comparable systemic exposure and tissue absorption/distribution of silver acetate, silver nitrate and nanosilver. As a result, the EPMF agreed to read-across the self-classification of silver acetate as Reproductive Toxicant category 1B) nanosilver. Following the finalisation of the TK and EOGRT studies in 2022, the EPMF updated the silver metal REACH dossier (incl. nanosilver) and resubmitted it in June 2022. The dossiers for silver compounds (silver nitrate, disilver oxide, silver chloride, silver bromide, disilver carbonate, disilver sulphate and silver iodide) have been updated accordingly and will be resubmitted in Q1 of 2023.

• Progress on Platinum Group Metals (PGMs)

The *in vitro* genotoxicity data generated with several precious metal cyanides, water-soluble Rhodium(III) compounds, platinum compounds and a ruthenium compound triggered the inclusion of testing proposals for further *in vivo* genotoxicity testing in the REACH dossiers. The *in vivo* test data generated so far did not confirm the *in vitro* responses and removed any mutagenicity concern. This was the case for a.o. the precious metals cyanides in 2022. The dossier for potassium dicyanoaurate was already successfully resubmitted to ECHA. The potassium dicyanoargentate dossier is currently under review and will be resubmitted in 2023, aligned with the ECHA deadline. The *in vivo* genotoxicity testing with a water-soluble rhodium trisulphate, Platinum (IV) aqua hydroxo nitrato complexes) and a ruthenium compound is ongoing; data will be available and included in the REACH registration dossiers in 2023.

Only the *in vivo* assay with a tetraammineplatinum compound identified a non-conclusive response. The response was equivocal (i.e. neither negative nor positive) and another *in vivo* genotoxicity test has been proposed and accepted by ECHA. This assay (a Transgenic Rodent Gene Mutation Assay) was ordered and set-up by the EPMF in 2022, and test data will be generated in 2023/24. The data from this assay will clarify the mutagenic potential of this substance.

The reproductive toxicity screening assay with 'Karstedt Concentrate' suggested an effect and triggered the classification of this substance as Reproductive toxicant category 2. This information and a proposal for further reproductive toxicity testing (Extended One Generation Reproductive Toxicity Study; 'EOGRTS') were submitted to and accepted by ECHA in 2018. This EOGRTS was initiated in 2022 by the EPMF and is currently running. The assay was initiated in its basic design (i.e. without extension to clarify immunotoxicity and neurotoxicity). Still, the intermediate data triggered the need for further extension to clarify potential fertility issues. The testing will be finalised in 2023, clarifying this substance's possible reproductive toxicity concerns.

In 2022, additional test data was generated with palladium dichloride and a tetrachloropalladate compound in order to replace the read-across approach for the repeated dose toxicity and reproductive toxicity endpoints that were

intermediately included during the REACH registration phase. The tetrachloropalladate dossiers have successfully been resubmitted and accepted by ECHA. The dossier of palladium dichloride is currently under revision and will be updated in 2023. The palladium acetate dossier was updated in 2022 with newly generated substance-specific data. Additional data have been generated since 2022 for platinum and ruthenium metal to remove non-standard waivers for human health endpoints, with anticipated data availability and dossier re-submission in 2023.

Finally, some dossiers need revision due to a change in the market and a switch to a higher REACH tonnage band. If the data for the additional endpoints are unavailable or a solid grouping & read-across approach is not possible, other data need to be generated. In this context, there is currently a review of the dossiers for rhodium trichloride, trinitrate and trihydroxide. A tiered testing strategy was agreed upon to avoid unnecessary animal testing. Considering the chemistry and speciation of these substances, repeated dose toxicity and reproductive toxicity screening data are currently being generated for rhodium trichloride, and a dose-range finding study is being initiated for rhodium trinitrate. The latter should allow a more reliable comparison of the toxic potential between both substances. Once these data are available, the next steps will be defined. Also, substance-specific data is being generated from the end of 2022 to early 2023 for rhodium tris(2-ethylhexanoate) to allow a solid hazard assessment.

- **Progress of Precious Metals Refinables**

Precious Metals (PM) Refinables are complex UVCB (unknown or variable composition, complex reaction products, or biological materials) intermediates produced during the refining and recycling of precious metals (Silver (Ag), Gold (Au), and six Platinum Group Metals (PGMs): Platinum (Pt), Palladium (Pd), Ruthenium (Ru), Rhodium (Rh), Iridium (Ir), and Osmium (Os)).

With most Refinables registration dossiers dating from 2014, current UVCB REACH requirements still need to be met; hence, the EPMF and its Members acknowledged the need for improvement. UVCBs being a topic of the MISA, the PM Refinables were part of the EPMF's commitment to this framework (more

on MISA below). The UVCB MISA workshop, held in November 2019, resulted in an agreement of clear approaches. During 2020-2021 the EPMF resolved the constituent's hazard data information and reporting were tackled by the UVCB platform alongside the substance identification and test data gaps. This platform represented all non-ferrous metals consortia requiring UVCB dossier updates by addressing the common/shared UVCB hurdles. It contributed to the communications/discussions with ECHA (reinforcing the industry approach and position).

The combined efforts of the UVCB platform and the EPMF resulted in a further update of all PM Refinables dossiers. The preparation and the submission of the updates of PM Refinables dossiers occupied 2022 and will continue into 2023.

Key messages

- the generation of test data under EU REACH has triggered further testing requirements beyond the original 2018 REACH registration deadline. The filling of these data gaps is an ongoing process at the EPMF with the intention of providing conclusive answers to potential concerns raised by *in vitro* test data (e.g. mutagenicity endpoint) or *in vivo* screening assays (e.g. reproductive toxicity endpoint).
- some REACH registration files were intentionally submitted using a conservative scientifically unsustainable approach. These dossier weaknesses are being addressed progressively by generating the required data to fill the gaps.
- changes in the market may trigger the need for additional testing. Because market changes are continuous, data generation under REACH is a moving target. Please note that the revision of REACH and CLP Regulations may be future drivers for additional substance data in the lower tonnage bands.

2. MISA

The Metals and Inorganics Sectoral Approach (MISA) program was a voluntary program setup between ECHA and the metals' consortia. MISA ran between 2018 and 2021 and aimed to agree on certain pending scientific and methodological challenges whilst improving REACH dossier compliance and quality.

Under MISA, approximately 60% of the participating metals' dossiers were updated at least once (versus 35% for metallic substances not part of MISA). This confirms that the program was an excellent incentive to improve dossier content and quality. Also, the EPMF has revised its REACH dossiers under the MISA umbrella and updated and re-submitted more than 40 dossiers prior to the end 2021. For some of these dossiers, aspects like data generation or review of the risk assessment have prevented their updating prior to the formal MISA end date. Nevertheless, the EPMF continues working on these and commits to updating them in line with the applicable regulatory timings.

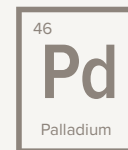
Also important to note is the excellent relationship that has been established between ECHA and the metals industry, including the EPMF, during MISA. Active participation of the EPMF to MISA discussions (by providing examples and input) and transparency in REACH dossier updating schedules were well accepted by the ECHA staff.

To understand more about MISA, please review the [final report](#) published at the end of 2022 by ECHA.

3. MEED

MEED ([Metals Environmental Exposure Data](#)) is a multi-metallic initiative that was initiated under the auspices of Eurometaux in 2022. MEED is a comprehensive program to gather and assess environmental exposure to facilitate the compliance of the metals industry with the Zero Pollution Action Plan (ZPAP) and biodiversity objectives. It comprises a 3-year project (2022-2024). It includes six projects focussing on 1) regional exposure, 2) sewage treatment plant exposure, 3) mixture effects of metals, 4) mixture effects of metals with organics, 5) an assessment of the mixture assessment factor (MAF) and 6) ecological relevance. The timelines of the projects have been set to be able to feed deliverables into regulatory debates (e.g. REACH Revisions, MAF impact assessments, ZPAP, Water Framework Directive et al.) and timely update the REACH registration dossiers.

The EPMF sponsors MEED and actively contributes to all discussions and projects. The EPMF has included all its substances in the project (excl. the Refinables) to ensure a maximal benefit from this program.



Palladium has the ability to absorb up to 900 times its volume in hydrogen, making it the perfect container to not only store hydrogen but also filter it.

MEED made important progress in 2022:

- the MAF impact assessment demonstrated that most of the metals' exposure scenarios under REACH would need further refinement if a MAF was introduced. This assessment also allowed the identification of Inorganic-Priority-Contribution-Substances (IPCs) for soil and water. IPCs are a set of metals that contribute most to the assessed risks. The IPCS identification helps to focus all other MEED projects. Importantly, this work also identified metals whose contribution to the assessed risks is negligible.
- literature reviews have been performed on the combined effects of metal mixtures and metal-organic mixtures. This work included the selection of a robust approach to assess mixture interactions properly. An intelligent testing strategy for the further ecotoxicity testing program to fill identified metal mixture data gaps has been setup and evaluated by independent experts. The experimental work will be initiated in 2023. A similar activity is ongoing to design the metals-organic mixture data gap-filling program.
- a project to update the regional exposure data for the EU aquatic and soil compartments has been initiated.
- the other projects are currently being set up and will be initiated and discussed in the upcoming workshops in 2023.
- the main findings and conclusions of the work are being communicated to the regulatory and scientific community. For instance, the report on the impact of a MAF on the metals dossiers was submitted to and considered by (!) the EU Commission in their ongoing work. Several presentations on MEED have been made at the SETAC Europe (Society of Environmental Toxicology and Chemistry) 2022 annual meeting, and follow-up presentations will be given at the SETAC Europe 2023 meeting. The continuous openness and communication on MEED intend to prepare the regulatory community for this robust scientific response to demonstrate that metals can be used safely.

PRIORITIES AND ACTIVITIES

SUSTAINABILITY



The EU sustainability policies, responsible sourcing and due diligence, are high on the EPMF agenda! In 2022 the EPMF was occupied with several issues relating to waste policies, EU Conflict Minerals Regulation, and an upcoming proposal on critical raw materials. In 2023, the EPMF will continue the work started in 2022 and is already engaged in the upcoming proposal on the Critical Raw Materials Act, evaluation of the EU Conflict Minerals Regulation, and waste issues, incl. the Basel Convention.

I. RESPONSIBLE SOURCING

1. The Issue

The 'EU Conflict Minerals Regulation' aims to control the trade in minerals from conflict areas and establish a supply chain due diligence obligation system for EU importers of tin, tantalum, tungsten, and gold (3TG). The regulation explicitly prioritises responsible sourcing and targets using minerals traded to finance armed groups, forced labour and other human rights abuses. It requires EU companies to import minerals and metals from responsible sources only. The EU Regulation is fully applicable as of January 1, 2021, and by the end of 2023, the European Commission will publish a study on the functioning and effectiveness of the Regulation.

2. The EPMF's contribution

The EU Conflict Minerals Regulation has a number of accompanying measures: a list of conflict-affected and high-risk areas (CAHRAs), a list of the supply chain due diligence schemes, and a 'white list' of smelters and refiners. In addition, the Commission is currently evaluating the functioning of the Regulation, and the report should be available in the second half of 2023. The EPMF is in contact with DG Trade on matters relating to the Regulation, particularly on the implementation of the Regulation, recognition of the supply chain due diligence schemes, CAHRAs list and upcoming revisions in 2023.

3. The EPMF's key messages

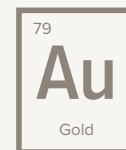
The EPMF supports more ambitious regulation and recommends the following to the EU policymakers:

- Lowering the threshold for gold to cover all gold imports that fall within the scope of the regulation, effectively following already existing industry initiatives. The current 100 kg threshold for gold and 4.000.000 kg for gold ores and concentrates required to trigger regulation risks weakening the standards. This could result in reputational consequences for the industry.

- The EU Conflict Minerals Regulation requires a more in-depth involvement of the entire supply chain rather than focusing only on (upstream) EU importers.
- Coherence of other EU legislations, e.g. Corporate Sustainability Due Diligence.

4. The EPMF is in dialogue with:

- The European Commission: DG Trade
- The OECD (Organisation for Economic Co-operation and Development)
- RAND Europe (consultancy working for the European Commission on identifying CAHRAs for EU importers of minerals)
- TDI Sustainability (consultancy working for the European Commission on the functioning of the EU CMR).
- The London Bullion Market Association (LBMA)



Gold is rare but everpresent! It can be found all over the planet and has been mined on each of the seven continents - even Antarctica (although not in a commercial capacity). It is estimated that 152,000 metric tons of gold have been mined throughout history. This is a surprisingly small quantity when you consider that this would only fill 60 tractor-trailers.

5. Timeline



II. WASTE POLICIES

1. The Issue

The Commission presented a proposal on the revision of the Waste Shipment Regulation in late 2021 and included it as a priority dossier in the 2023 Work Programme. The revision aims to ease shipments of waste for reuse and recycling in the EU, to support the transition to a circular economy by ensuring that waste exported from the EU is managed in an environmentally sound manner in the destination countries, and shift to digital solutions.

At an international level, waste shipment is regulated under the [Basel Convention](#). It controls the transboundary movements of hazardous wastes and their disposal. Parties to the convention – including the EU and all its Member States – are required to ensure that hazardous wastes are managed and disposed of in an environmentally sound manner. The Basel Convention covers wastes defined as ‘hazardous’ based on their origin and/or composition and characteristics. The Waste Shipment Regulation implements the provisions of the Basel Convention into EU law. In December 2022, the Commission proposed adding new metal entries to Annex I, including silver compounds.

2. The EPMF's contribution

Precious metals are the materials of choice in transitioning to a circular economy. They are infinitely recyclable, and thanks to the world's most comprehensive and technologically advanced refining facilities, end-of-life products and production scrap containing precious metals can be successfully and economically refined. Recovery rates exceed 95% and, depending on the type of material, often surpass 99%. Waste is a resource, and the EPMF aims to increase public understanding of how precious metals contribute to the circular economy. Precious metals can be recycled ad infinitum without losing their intrinsic properties and are critical to sustainable product design in the circular economy.

Waste policies are of utmost importance to the precious metals sector; revising the rules on waste shipments will enhance the ability of chemicals and products to enable recycling to improve the uptake of secondary raw materials and substitute substances of concern. It will reduce their presence and enhance tracking if this is not possible. The main challenges for the precious metals industry are the need for more information about substances of concern in products and waste, their presence in recycled products and difficulties in applying EU waste classification methodologies.

3. The EPMF's key messages

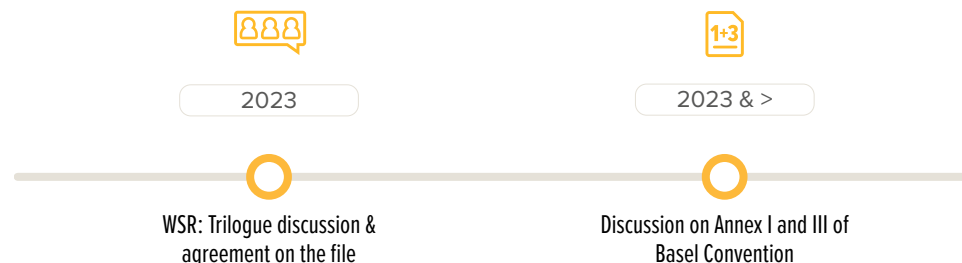
In the context of waste shipment, the EPMF firmly stands for:

- Clear definitions of what is ‘hazardous’ and ‘non-hazardous’.
- Reduction of the administrative burden by switching to a harmonised digital system.
- Fast track procedures for pre-consented facilities of waste shipments.
- A harmonised EU approach dealing with waste classification, procedures, and enforcement.
- All EU Member States should have a general tacit agreement to transit waste for recycling via EU ports without any discharge.
- Any upcoming regulation should secure a level playing field to avoid low-quality waste stream imports of precious metals that increase the burden on EU recyclers and refineries.

4. EPMF is in dialogue with:

- The European Commission: DG ENV
- Eurometaux, Bureau of International Recycling and other non-ferrous metals associations

5. Timeline



III. THE CRITICAL RAW MATERIALS ACT

1. The Issue

Critical raw materials are key to the green and digital transitions as well as to other EU priorities such as EU resilience and security. They are essential components of green technologies used in digital applications and are crucial to the defence, aerospace and health industries. The Commission put forward an action plan on Critical Raw Materials (CRM) to secure a sustainable supply. The European Critical Raw Materials Act was set notably to identify strategic projects along the value chain and build up strategic reserves where supply is at risk. The initiative is based on 3 pillars: 1) developing the critical raw materials value chain in the EU; 2) boosting the diversification of supply and partnering in a mutually beneficial manner in support of global production; and 3) fostering sustainable sourcing and promoting circularity.

2. The EPMF's contribution

Precious metals are strategic and critical raw materials due to their increased demand in energy and digital transitions. Solar PV, wind turbines, hydrogen fuel cells, power cables, and digital technologies all contain precious metals with a defined hazard. The EPMF deplores that the Critical Raw Materials Act debate is not putting more attention to the need for business predictability and thorough risk management from EU Chemicals policy, committing to ensure both in the REACH revision.

The EU's chemicals legislation removes certainty for new investments into refining and recycling capacity for several strategic raw materials. For example, the ongoing classification decisions and/or risk management procedures cover several strategic metals: i) silver classification process, and ii) lead prioritisation process under Authorisation (needed for precious metals recycling). Regulatory processes take 5-10 years to complete, which removes certainty compared to other regions, often without an environmental benefit.

3. The EPMF's key messages

The EPMF strongly supports:

- **tangible actions and speed of implementation for the CRM Act.** The provisions set up in the CRM Act should be easily achievable and not scattered in long and burdensome application processes. The EU precious metals sector is asking for more certainty and predictability for business projects.

- **the reference to consistency with other EU policies.** The EPMF suggests paying special attention to this issue and, especially to the coherence with the REACH revision. The EU's chemicals legislation removes certainty for new investments in refining and recycling capacity of several strategic raw materials. The references made to Chemicals management and REACH in the CRM Act need further clarification to ensure business predictability and thorough risk management from EU chemicals policy.

4. The EPMF is in dialogue with:

- The European Commission: DG GROWTH
- Eurometaux, The International Platinum Group Metals Association (IPA)

5. Timeline

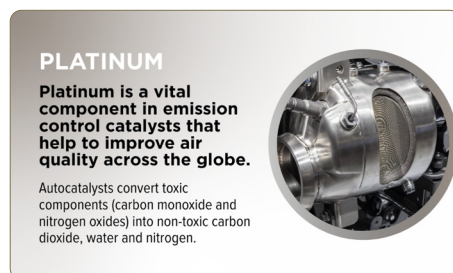
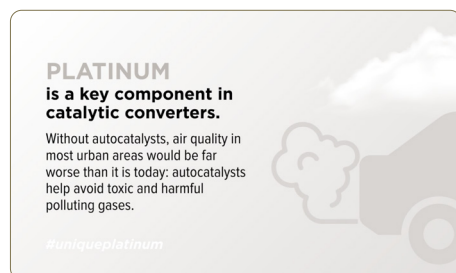
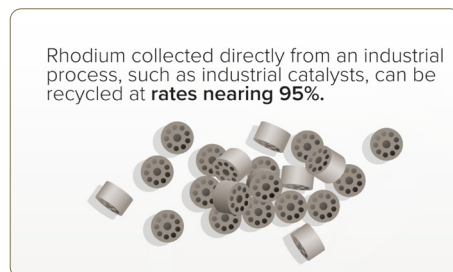


COMMUNICATION

I. THE EPMF IN THE MEDIA

We all like quizzes and visuals! Have you already tested your precious metals knowledge, if not please do check out our [LinkedIn](#) and [Twitter](#)! In 2022, the EPMF presented a quiz on Platinum Group Metals (PGMs) and gold. The EPMF also worked on a set of animations that illustrate the uniqueness and criticality of gold, platinum and rhodium. These informed the public and authorities on the uses of precious metals in electronics, medical devices, chemicals and green applications.

In addition to animations and quizzes, the EPMF published regular newsletters focusing on particular EU policies/actions, e.g. Critical Raw Materials Act or the revision of the Waste Shipment Regulation. The [newsletters](#) are all available on the EPMF webpage.

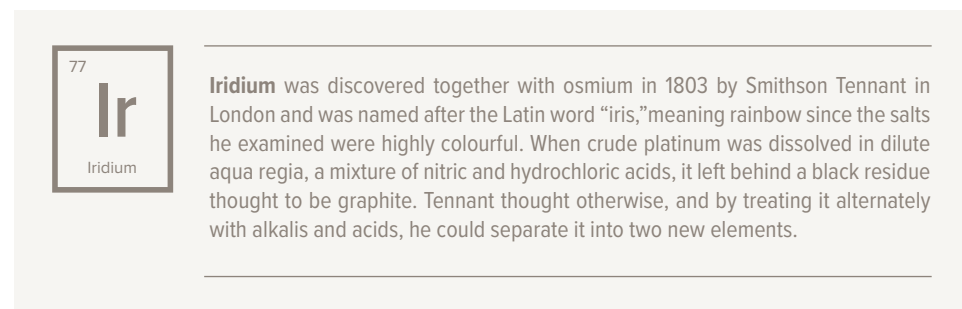


II. SCIENCE AND THE EPMF

Science is at the core of the EPMF's work. In 2022, the EPMF published scientific articles on the following issues:

- [European freshwater silver monitoring data do not suggest a potential European-wide risk](#), co-author Katrien Arijs and Jelle Mertens.
- [Application of Persistence, Bioaccumulation, and Toxicity for Metal Hazard Assessment is Questioned](#), co-author Jelle Mertens.
- [Evaluation of effects-based methods as monitoring tools for assessing ecological impacts of metals in aquatic ecosystems](#), co-author Jelle Mertens.

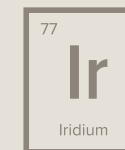
In the previous edition of our [Annual Report](#) we mentioned the EPMF cooperation with the University of Pau and the Adour Region (L'Université de Pau et des Pays de l'Adour (UPPA university) in France) and the INRS (Institut National de la Recherche Scientifique in Canada). As you may remember, the EPMF is sponsoring a master thesis on the hypothesis focusing on the chemical equilibrium platinum and palladium, and the dissolved ligands that are reached in a shorter time scale than the appearance of toxic effects. It is hypothesised that the effect of platinum and palladium on algae is insensitive to the nature of their initial compound used and instead depend on equilibrium conditions. The publicly available scientific publication of the thesis is expected in Q2 2023. The EPMF will keep you posted on our social media channels, so stay tuned for more scientific news related to precious metals!



TIME FOR A QUIZ!

1 What for is iridium and osmium alloy used for in our daily life?

- a. for glass making*
- b. for pen tips and compass bearings*
- c. for circuit boards*



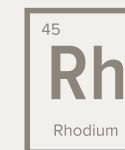
2 Which of these statements is false?

- a. Gold is the most popular precious metal for investments*
- b. Gold prices constantly fluctuate and are often linked to major economic events*
- c. Gold is the most expensive metal*



3 Rhodium is an excellent plating material. Why is it used in silver jewellery making?

- a. to prevent tarnishing during wear*
- b. to increase the costs*
- c. to make it harder*



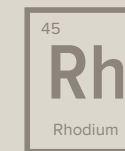
4 What is 'Fool's gold'?

- a. Pyrite*
- b. Copper*
- c. Lead*



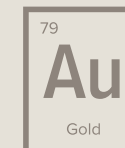
5 The major use of rhodium is in catalytic converters for cars. What is the function of the catalytic converter?

- a. it helps to supply fuel to the cylinder chamber to produce energy*
- b. it cools down the engine*
- c. it reduces the harmful emissions originating from vehicle exhaust gases*



6 Unbelievable but true - 46 tons of gold are used annually for ...

- a. electronics*
- b. dental fillings*
- c. coins*



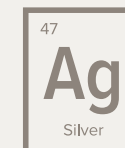
7 The Phoenicians stored water, wine, and vinegar in silver bottles ...

- a. ... because it looked beautiful*
- b. ... because they had too much silver*
- c. ... to avoid bacteria contaminating the liquids*



8 Cyclists use silver-embedded fabrics during the Tour de France to control ...

- a. ... sweat and body temperature*
- b. ... resistance and durability*
- c. ... inflammation and promote healing*



9 During the World War 1 silver was used for what purpose?

- a. to prevent the spread of infection*
- b. for trade*
- c. to produce bullets*



Quiz answers:

1: (b) 2: (c) 3: (a) 4: (a) 5: (c) 6: (b) 7: (c) 8: (c) 9: (a)

THE EPMF TEAM

Are you familiar with all the persons assisting the EPMF Members and working on Chemicals Management, Sustainability and Communication?



The EPMF Staff

Secretary-General: Ms France Capon

Senior Scientific Manager: Dr Jelle Mertens

Scientific Officer: Ms Anissa Alami

Policy Officer: Ms Zinaida Nazarenko

Office Manager: Ms Audrey Rondepierre

Back-Office Assistant: Ms Cathy Martin

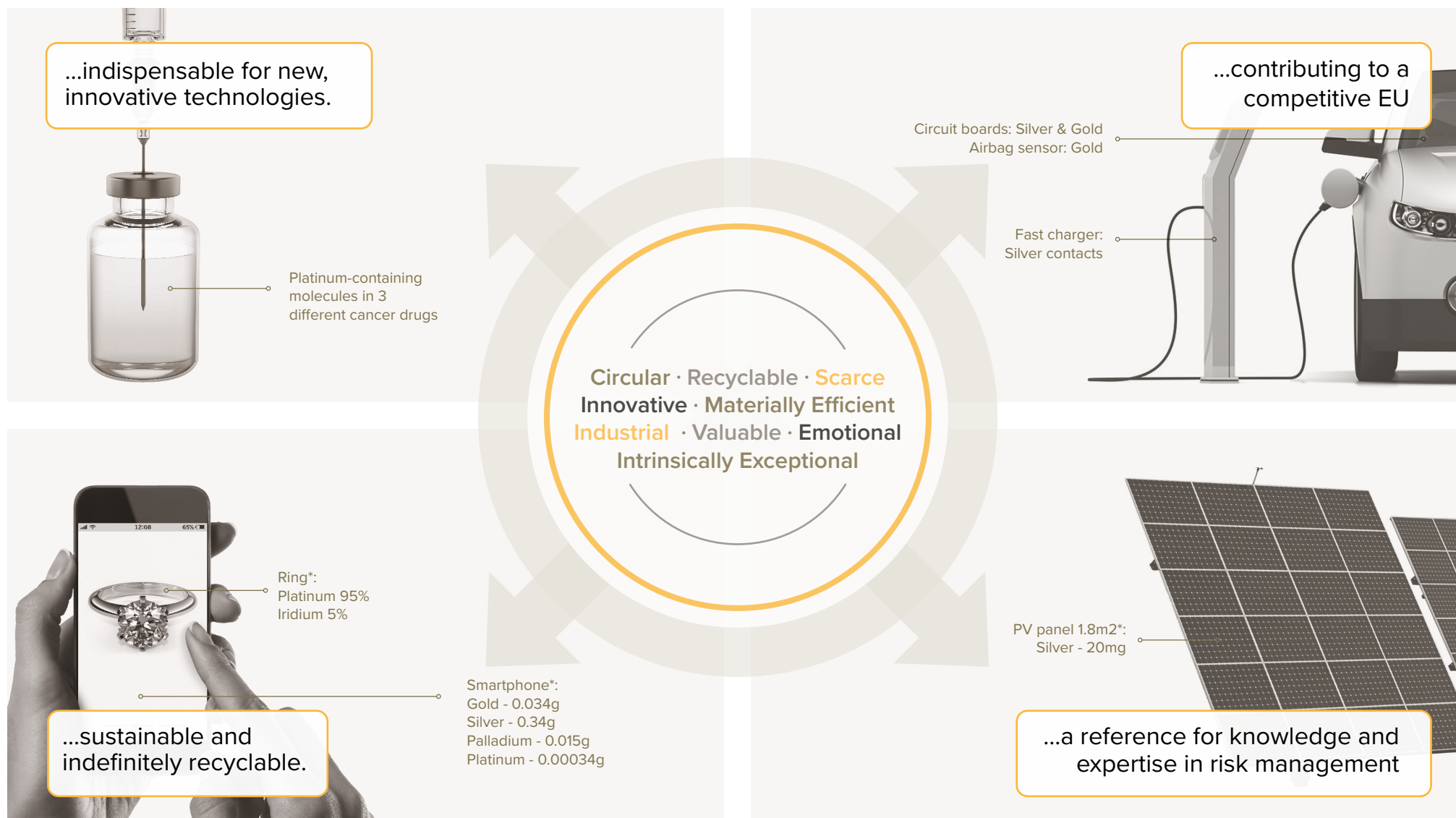
The EPMF Consultants / Project Facilitators:

Ms Katrien Arijs

Mr Maxime Eliat

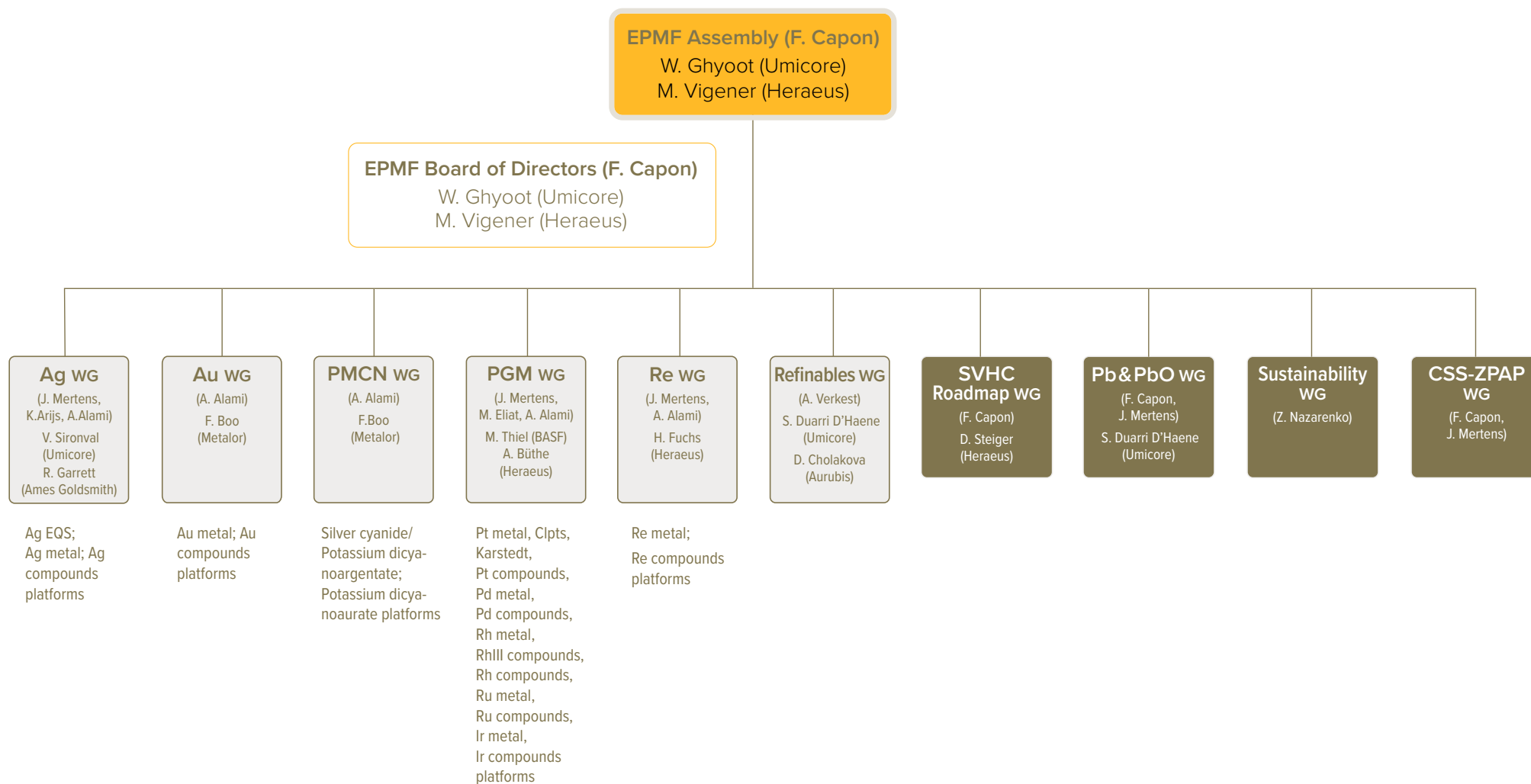
Ms Aurine Verkest

PRECIOUS METALS ARE...



* All figures/constituents are estimates and will differ according to type and manufacturer

STRUCTURE



STRUCTURE

THE BOARD



PRESIDENT

Wouter Ghyoot

Umicore NV/SA, Belgium



VICE PRESIDENT

Marius Vigener

Heraeus Precious Metals, Germany



TREASURER

Clémence Siret

SAFT, France



MEMBER OF THE BOARD

Francisco Boo

Metalor Technologies, Switzerland



MEMBER OF THE BOARD

Stephen James

Johnson Matthey Plc, U.K.



MEMBER OF THE BOARD

Jörn Mühlenfeld

Aurubis AG, Germany



MEMBER OF THE BOARD

Philipp Reisert

C.Hafner GmbH & Co. KG, Germany



MEMBER OF THE BOARD

York A. Tetzlaff

Fachvereinigung Edelmetalle, Germany



MEMBER OF THE BOARD

Holger Zitt

BASF SE, Germany

MEMBERS

Companies

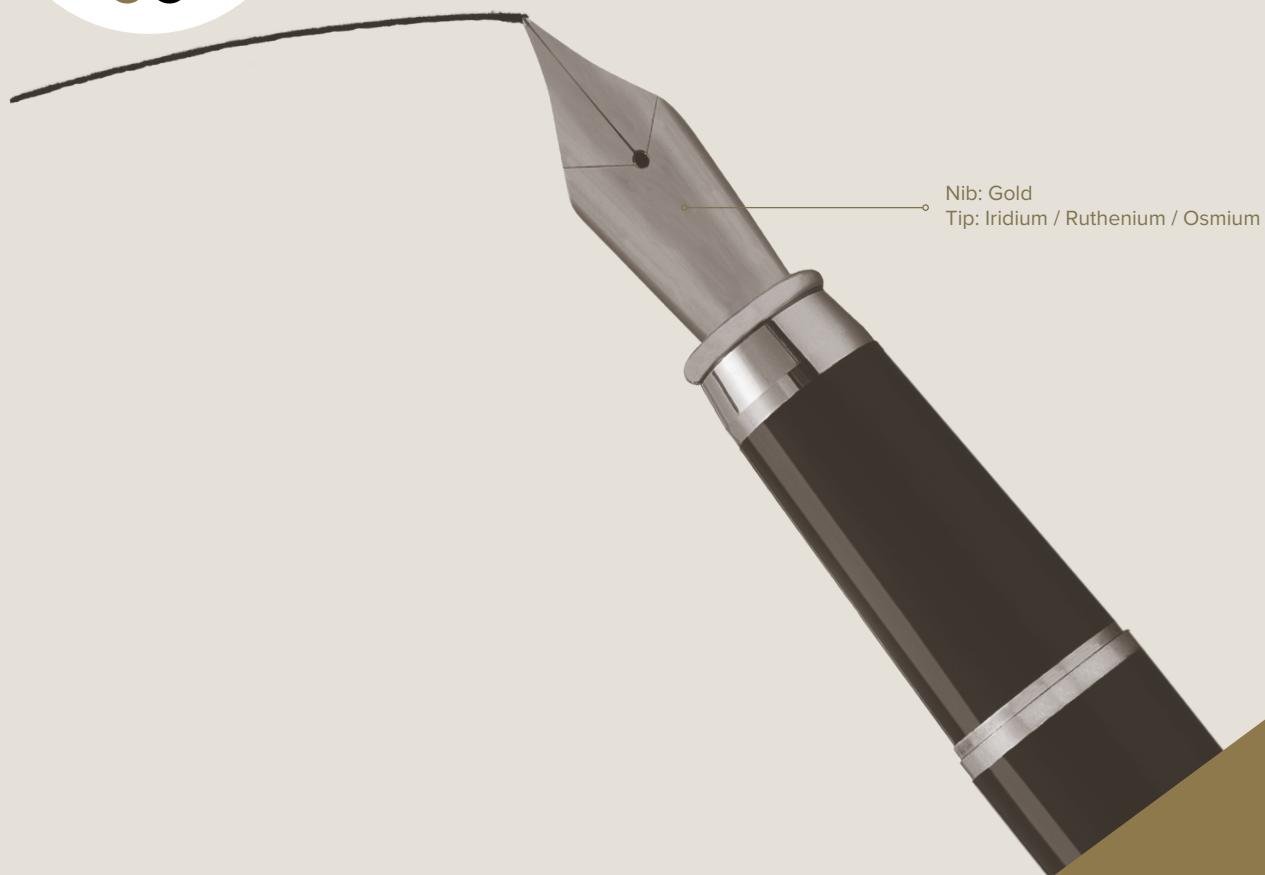


National Associations





PRECIOUS METALS, ALL AROUND YOU



THE EPMF

European Precious Metals Federation a.i.s.b.l.
Avenue de Tervueren 168, Box 6
B-1150 Brussels

info@epmf.be



www.epmf.be