



Precious Metals  
Consortium

Precious Metals & Rhenium Consortium

# PM Refinables Work Group Meeting

11 October 2018 | Brussels



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# 1. Welcome and introduction

*Michiel Ceulemans (Umicore, Belgium)*

# 1.1 Reminder on confidentiality and competition law

DO	DON'T
<u>Application of competition law</u>	
Art. 101 and 102 TFEU may be applicable to the conclusion of any preliminary agreement and activities of any preliminary phase.	Don't assume that conflicts with competition law are excluded simply by the fact that the Agreement complies with the provisions of the REACH Regulation.
<u>Consultation in Matters of Competition Law</u>	
Consult an in-house legal expert or the compliance officer of your company or an external lawyer whenever there are uncertainties respecting compliance with competition law. Stop all meetings/discussions which are not in compliance with these Compliance Guidelines until a legal expert has been involved.	Don't assume that these Compliance Guidelines deal with all competition law issues exhaustively. Basically, compliance with Art. 101 and 102 TFEU can be determined only on the basis of market impact in each individual case. These Compliance Guidelines may therefore be regarded only as a means of providing general conduct recommendations.
<u>Activities in any preliminary phase and at any other stage of operation of the Consortium</u>	
Restrict cooperation within the scope of the preliminary phase to the initially defined goals and purposes of the cooperation.	Pursuant to Art. 101 and 102 TFEU, activities which have the object of the effect of preventing, restricting and/or distorting competition are prohibited within the scope of this Agreement, including: <ul style="list-style-type: none"> <li>- Coming to agreement, including arrangements or collusions, about prices, markets and customers (see Art. 101 paragraph 1 a)-e) TFEU);</li> <li>- Joint boycotting of other companies;</li> <li>- The unjustified unequal treatment of trade partners;</li> <li>- The abusive exploitation of a dominating market position.</li> </ul>
<u>Exchange of Confidential Information</u>	
Involve a Trustee for the exchange of Confidential Information.	The exchange of Information concerning market behaviour and having the object or the effect of preventing, restricting and/or distorting competition is inadmissible; in particular, this relates to : <ul style="list-style-type: none"> <li>- Production capacities;</li> <li>- Productions or sales volumes;</li> <li>- Import volumes;</li> <li>- Market shares;</li> <li>- Price policy;</li> <li>- Distribution and marketing terms;</li> <li>- Marketing strategies;</li> <li>- Information regarding the relationship with suppliers.</li> </ul>
<u>Documentation on Cooperation</u>	
Keep minutes of all meetings which detail the subject of the meeting. In case of uncertainty, have the contents of the minutes reviewed by an external legal expert prior to sending them to all parties of the Agreement. Stop all meetings which are not in compliance with these Guidelines until a legal expert has been involved.	

## 1.2 Tour de table and apologies

Cf. list of participants in agenda

## 1.3 Approval of the agenda

### 1. Welcome and Introduction

- Reminder on confidentiality and competition law
- Tour de table and apologies
- Approval of the agenda
- Approval of the minutes of the last meeting and status of action points

### 2. Refinables Portfolio

- Scope registration updates
- Approval Lead Registrants

### 3. Substance Identity (SID) of PM Refinables

- Update on discussion Eurometaux and ECHA
- Refinements SIP

### 4. Status Refinable Updates

- Phys-Chem data gaps
- Environmental and Exposure Assessment
- Classification

### 5. Implementation Circular Economy Package

- Public consultation on the interface between legislation on chemical, product and waste

### 6. iUVCBs under MISA

### 7. Budget

- Tasks and budget projections 2019

### 8. AOB, next meetings/calls and closing remarks

FOR APPROVAL

## 1.4 Approval of the minutes of the last meeting

- The previous Refinables Work Group meeting was held on 15 March 2018
- Draft minutes were distributed on 23 April 2018

→ *Are the minutes of the WG meeting held on 15 March 2018 approved?*

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## Status of actions

[A]	WHAT	WHO	WHEN	Status
1	Follow-up ECHA / Eurométaux discussions on iUVCB SID and give input when needed	PMC	Q1-Q4 2018	Ongoing
2	Drafting of SIPs for the Solutions from PM leaching and dissolution	Aurubis	Q2 2018	Ongoing
3	Renewal of the tonnage band declarations according the updated list of refinables dossiers.	All	Q2 2018	Done
4	Assignment of Lead Registrants.	PMC	Q2 2018	Done
5	Update SIP, SID and classification	All	Q2 2018	Ongoing
6	Contact consultants for updating of the dossiers	PMC	Q2 2018	Done
7	Discuss broader interest on the circular economy and the refining industry within PMC.	PMC	Q2 2018	Done
8	Assign a main author for the circular economy publication.	PMC	Q2 2018	Cancelled



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## 2. Refinables Portfolio

## Scope registration updates (1)

- 21 Refinable dossiers
  - 4 SCC
  - 17 non-SCC
- 7 dossiers splits and 2 new dossiers

Name	EC number	Highest status	Tonnage band
1.1 Gold Doré	-	non-SCC	10 - 100
1.2 Silver Doré	273-793-6; 69029-47-6	non-SCC	≥ 1000
2 Matte, PM	308-506-6; 98072-52-7	non-SCC	≥ 1000
3.1 Slags, doré furnace	266-975-1; 67711-98-2	non-SCC	≥ 1000
3.2 Slags, production of PM containing materials other than doré	308-515-5; 98072-60-7	non-SCC	≥ 1000
4.1 Slimes , Ag electrolysis	-	SCC	100 - 1000
4.2 Slimes , Au electrolysis	-	SCC	1 - 10
4.3 Residues from PM leaching and dissolution	-	non-SCC	≥ 1000
4.4 Precipitates from PM refining	-	non-SCC	100 - 1000
5.1 Matte leaching residue	310-050-8; 102110-49-6	non-SCC	1 - 10

## Scope registration updates (2)

Name	EC number	Highest status	Tonnage band
6.1 Ag electrolyte	931-506-8; none	SCC	100 - 1000
6.2 Au electrolyte	933-944-5; none	SCC	10 - 100
6.3 Nitric acid solutions from PM leaching and dissolution	-	non-SCC	100 - 1000
6.4 Hydrochloric acid solutions from PM leaching and dissolution	-	non-SCC	≥ 1000
7 Flue dust, PM refining	308-496-3; 98072-44-7	non-SCC	≥ 1000
8 Residues cementation and reduction, PM refining	310-051-3; 102110-50-9	non-SCC	100 - 1000
9.1 Materials for reclaim, PM with or without support	308-526-5; 98072-70-9	non-SCC	100 - 1000
9.2 Materials for reclaim, PM in bricks, crucibles, trays, etc.	931-674-2; None	non-SCC	100 - 1000
9.3 Materials for reclaim, PM production by-products	931-663-2; None	non-SCC	100 - 1000
10.2 Iron bullion, PGM rich	-	non-SCC	100 - 1000
10.3 Cu bullion, PGM rich	-	-	-

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## Approval Lead Registrants (1)

Name	EC number	Highest status	Tonnage band	Lead Registrant
1.1 Gold Doré	-	non-SCC	10 - 100	Umicore
1.2 Silver Doré	273-793-6; 69029-47-6	non-SCC	≥ 1000	Aurubis
2 Matte, PM	308-506-6; 98072-52-7	non-SCC	≥ 1000	Glencore Nikkelverk AS
3.1 Slags, doré furnace	266-975-1; 67711-98-2	non-SCC	≥ 1000	Umicore
3.2 Slags, production of PM containing materials other than doré	308-515-5; 98072-60-7	non-SCC	≥ 1000	Umicore
4.1 Slimes , Ag electrolysis	-	SCC	100 - 1000	Aurubis
4.2 Slimes , Au electrolysis	-	SCC	1 - 10	Aurubis
4.3 Residues from PM leaching and dissolution	-	non-SCC	≥ 1000	Umicore
4.4 Precipitates from PM refining	-	non-SCC	100 - 1000	Umicore
5.1 Matte leaching residue	310-050-8; 102110-49-6	non-SCC	1 - 10	Umicore

## Approval Lead Registrants (2)

Name	EC number	Highest status	Tonnage band	Lead Registrant
6.1 Ag electrolyte	931-506-8; none	SCC	100 - 1000	KGHM
6.2 Au electrolyte	933-944-5; none	SCC	10 - 100	Aurubis
6.3 Nitric acid solutions from PM leaching and dissolution	-	non-SCC	100 - 1000	Aurubis
6.4 Hydrochloric acid solutions from PM leaching and dissolution	-	non-SCC	≥ 1000	Aurubis
7 Flue dust, PM refining	308-496-3; 98072-44-7	non-SCC	≥ 1000	Johnson Matthey
8 Residues cementation and reduction, PM refining	310-051-3; 102110-50-9	non-SCC	100 - 1000	Hereaus
9.1 Materials for reclaim, PM with or without support	308-526-5; 98072-70-9	non-SCC	100 - 1000	Johnson Matthey
9.2 Materials for reclaim, PM in bricks, crucibles, trays, etc.	931-674-2; None	non-SCC	100 - 1000	Johnson Matthey
9.3 Materials for reclaim, PM production by-products	931-663-2; None	non-SCC	100 - 1000	Johnson Matthey
10.2 Iron bullion, PGM rich	-	non-SCC	100 - 1000	Hereaus
10.3 Cu bullion, PGM rich	-	-	-	TBD

FOR APPROVAL



## 3. Substance Identity (SID) of PM Refinables

# Update on discussion Eurometaux and ECHA

## Discussions Intermediates TF

- Complex Inorganic Pigments – sector specific SID Guidance
  - >80% defined
  - speciation XRF/XRD (metal oxides)

→ Limited applicable to the refinables

- iUVCB inquiry
  - 3 new iUVCB inquiries were accepted by ECHA in 2018
  - Clarifications asked by ECHA
    - SID & naming
    - Source/process information
    - Typical concentrations (achieving 100%)
  - Main improvement: LE specific manufacturing data

# Update on discussion Eurometaux and ECHA

## Data requirements iUVCB inquiry:

- UVCB naming follows specific rules:
  - Reaction product of 'source materials and process'
  - Or in 'borderline cases' it can be based on the composition with indications on the manufacturing process
- **LE specific manufacturing data:**
  - Providing complete manufacturing process
  - Providing an example of pre-sample analysis to illustrate what is important to know
  - Clarifying source materials information and how its variability can affect some constituents variability
  - Providing scheme process
  - Composition: in the same composition entry provide the species as identified in the XRD/...analyses and the 'MeX equivalent' for the species as expected + elemental indications where still needed

## Refinements SIP

Updated SIP sent as background documents on 25 September 2018

Updates:

- Composition – tonnage band declarations
- Composition – substance description
- Inclusion of Cu bullion

# Doré & Bullion dossiers

## Gold Doré

	min (% w/w)	max (% w/w)	Typical (%w/w)
Silver	0,1	49	15
Gold	50	99	83
Copper	0,1	49	1,7
Other constituents	0	1	0,3

## Silver Doré

	min (% w/w)	max (% w/w)	Typical (%w/w)
Silver	63	99	85
Gold	0,2	6,6	2,1
Copper	0,3	9	3,6
Tellurium	0	25	3,6
Other constituents	0	4,7	2

Mooiman & Simpson (2016):

- Gold doré: 30-98% Au
- Silver doré: >50% Ag

## Iron Bullion

	min (% w/w)	max (% w/w)	Typical (%w/w)
Iron	55	78	67
PGMs	12	15	13
Copper	1,7	5	3
Nickel	0	10	5
Iron	55	78	67

## Copper Bullion

	min (% w/w)	max (% w/w)	Typical (%w/w)
Copper	35	85	55
Silver	10	60	30
Gold	0,2	50	5
PGM	1	10	3
Lead	0	3	1

## Doré - 2014

	range (% w/w)	Typical (%w/w)
Silver	15-99	71,6
Gold	0-83	8,5
Copper	0-50	6,4
Iron	0-25	1,5

Iron Bullion & Copper Bullion compositions included in original dossier?



# Materials for reclaim, precious metals with or without supports (9.1)

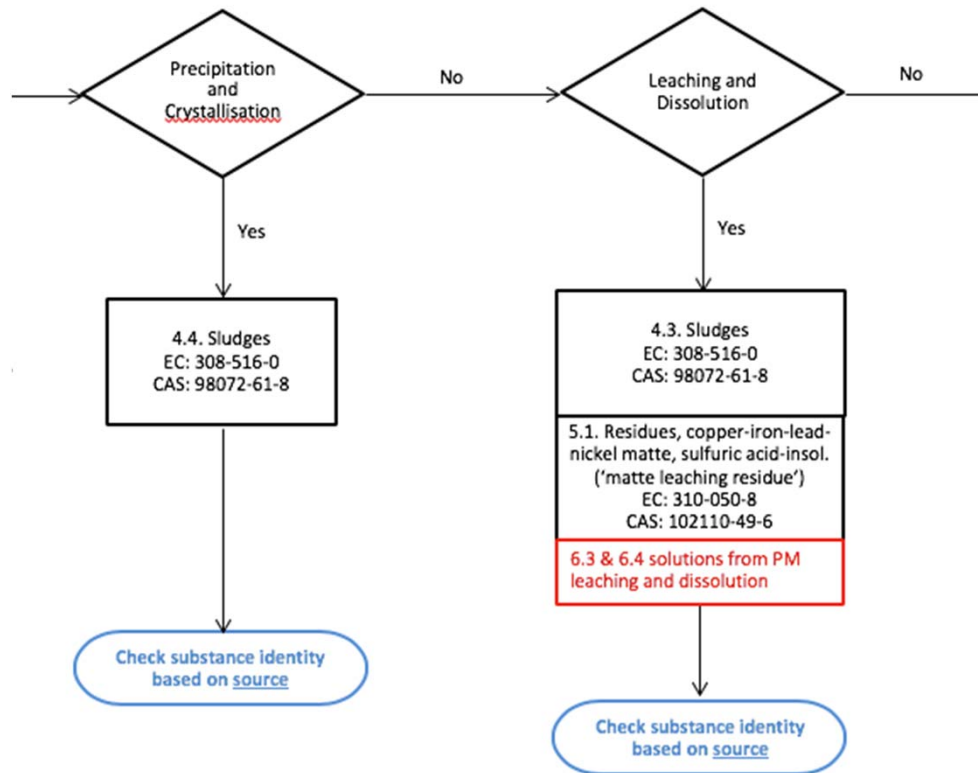
## Process description:

Primary and secondary sources of precious metals in metallic, oxide, chloride and other forms in varying concentrations, resulting from the application of thermal or thermo-chemical processes or end-of-life criteria whose supports may, where present, include varying amounts of:

- Ceramics (such as silica, alumina and zeolites),
- Carbon or organics (such as carbon, paper, or plastics), and/or
- Metallics (such as stainless steel or other transition metal alloys).

	min (% w/w)	max (% w/w)	Typical (%w/w)
Silver and gold	0	8	2
PGMs	4	61	23
Silicon	2	60	21
Aluminum	0	18	7
Copper	0	12	4
Oxygen	0	34	21
Carbon	0	12	3

# Decision tree



Proposition for the addition of:

6.3 Nitric acid solutions from PM leaching and dissolution

6.4 Hydrochloric acid solutions from PM leaching and dissolution

## Next tasks

1. Review of the first 6 dossiers by the LR + review & approval by the WG
2. Assign identifiers to 'new' dossiers (LR)
3. Complete SIP of 'new' dossiers (LR + EPMF)
4. Adjust the decision tree accordingly the dossiers

## Other issues?





## 4. Status Refinable Updates

# Phys-Chem data gaps

Information requirement	1.1 Gold Doré	1.2 Silver Doré	2 Matte, PM	3.1 Slags, doré furnace 3.2 Slags, other	7 Flue dust	
Phys state	TBD	Silver and brown granules (Harlan 2010)	Grey solid	Green black solid	TBD	Grayish powder
Melting/freezing point	TBD	>450°C	>450°C	>450°C	TBD	>450°C
Relative density	TBD	10.8 at 21.4°C	4.18 at 22.0°C	2.78 at 22.0°C	TBD	4.1g cm-3 at 20°C
Water solubility	TBD	T/D testing	T/D testing	T/D testing	TBD	T/D testing
Flammability	???	Waiver Exp Jud.	Waiver Exp Jud.	Waiver Exp Jud.	???	Not highly flammable
Granulometry	TBD	0.449% ≤100 μm	9.26% ≤100 μm	14.7% ≤100 μm	TBD	D50=5.16μm

Amounts test sample:

- 1g Melting/Freezing temperature
- 30g Relative density
- 19g Granulometry
- 15g T/D testing

**= 65g total**

3.1 Slags, doré furnace???

Supportive information?  
Test data?



# Environmental and Exposure Assessment

## General:

- CSR are site-specific and no generic human health CSR available
- How do we deal with LoA?

→ Creation of a generic environmental and human health CSR

## Environmental assessment:

- IUCLID: AE are created to each of the metal IU templates
  - CSR: Site-specific but substance independent
- Site-specific assessments included in CHESAR

# Environmental and Exposure Assessment

## Human Health assessment:

- IUCLID: AE are created to each of the metal IU templates
- CSR: Site-specific + **substance dependent** (+activity dependent)  
→ **More constituents than available IU templates!**
- Tiered approach to complete the assessment:
  1. Available IU templates of constituents
  2. Use of national exposure limits
  3. Qualitative assessment of remaining “minor, less hazardous constituents”
- Exposure assessment based on biomonitoring (e.g. Pb) not possible to incorporate in CHESAR  
→ **Feasible for inclusion in CHESAR?**  
→ **Alternative spread sheets will be created for the HH assessment**

# Classification – General Approach

## Step 1: Hazard/risk management driven grouping

		Transport & packing	Permits	SEVESO
Hazardous to the aquatic environment -	Acute Cat 1, Chronic Cat 1,2	YES		YES
	Cat 3,4	NO		NO
Hazardous to the ozon layer		NO		NO
Acute Toxicity	Cat 1,2,3	YES	YES	YES
	Cat 4	NO		NO
Skin corrosion/irritation	Cat 1 (1A, 1B, 1C)	YES	YES	NO
	Cat 2, 3	NO		NO
Serious eye damage/eye irritation	Cat 1, 2A, 2B	NO		NO
Respiratory or skin sensitization	Cat 1	NO		NO
Germ cell mutagenicity	Cat 1A, 1B, 2	NO	YES	NO
Carcinogenicity	Cat 1A, 1B, 2	NO	YES	NO
Reproductive toxicity	Cat 1A, 1B, 2	NO	YES	NO
Specific target organ toxicity single exposure	Cat 1, 2, 3	NO		NO
Specific target organ toxicity repeated exposure	Cat 1, 2	NO		NO
Aspiration hazard	Cat 1, 2	NO		NO



## Step 2: Composition/process-driven grouping

- Qualitative grouping: Keep it simple!



## 5. Implementation Circular Economy Package

## Implementation Circular Economy Package

- Public consultation on the interface between legislation on chemical, product and waste
  - Consultation period: 23 July – 29 October 2018
  - Discussed at the REACH forum
  - No further actions required
  
- Broader interest of EPMF in CPW and circular economy of PM, will be tackled in a different platform





## 6. iUVCBs under MISA

## MISA & iUVCB

### MISA discussion ECHA/ Eurometaux – 30/31 August 2018

- Preparatory discussions on UVCBs in MISA
- Current status and ongoing work was presented by EM
  - SID
  - RA
  - Reporting in IUCLID
- Priority of UVCB work in MISA is questioned

### Next steps:

- Provide ECHA with revised SID guidance – [December 2018](#)
- Reflection on a pilot formatting-case – [January 2019?](#)
- Continue interaction on TCC and inquiry difficulties



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## 7. Budget

# Tasks

## 1. Update 6 dossiers:

- Finalisation SID and decision tree
- Conduct Phys-chem:
  - Assign test facility
  - Organise reference sample collection
- Finalise update site-specific exposure assessments
- Update classification

## 2. Organise update of remaining 15 dossiers:

- Finalisation SID
- Conduct Phys-chem:
  - Assign test facility
  - Organise reference sample collection
- Update classification

## 3. Contribute to the MISA discussion

# Budget Projections 2019

- ???



## 8. AOB, next meetings/calls and closing remarks

## Any other business

- A.O.B.
- Actions summary
- Conclusions
- Next meeting/conf call:
  - **PMC General Assembly meeting: 4-5 December 2018, Brussel**
  - **WG meeting: 1-3 April 2019, Brussels**





# THANK YOU

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