



Precious Metals  
Consortium

Precious Metals & Rhenium Consortium

## **Pb/PbO in Precious Metals recycling and refining**

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  - The Precious Metals Consortium
  - The Precious Metals industry
- Pb/PbO in precious metals recycling and refining
- Intermediate or not?



# About the European Precious Metals Federation

**1957**

- Comité de Liaison des Industries de Métaux Non Ferreux de la Communauté Economique Européenne

**1988**








- Eurométaux
- Eurométaux Precious Metals Group

**2007**

- European Precious Metals Federation (EPMF)
- Precious Metals Consortium (PMC)

**European Precious Metals Federation (EPMF)**  
 15 Members (EU Companies, National Associations)

## Companies

 Affinor	 Ames Goldsmith	 Boliden	 C.Hafner
 Heimerle +Meule	 Heraeus	 Johnson Matthey	 KGHM
 Metalor	 Umicore	 Vale	

## Associations

 Asociación de Empresas de Metales Preciosos de España (ANEMEPRE)	 Association Suisse des Fabricants et Commerçants de Métaux Précieux (ASFCMP)	 Associazione Nazionale Industrie Metalli non Ferrosi (ASSOMET)	 Fachvereinigung Edelmetalle
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**Precious Metals Consortium (PMC):**  
 REACH registrants (43 Members)

Website: [www.epmf.be](http://www.epmf.be)

# Precious Metals Industry



**Mining**



**Refining,  
recycling**



**Manufacturing,  
Importing**



**Banking, Trading**

Gold

Silver

Rhenium

Platinum

Ruthenium

Palladium

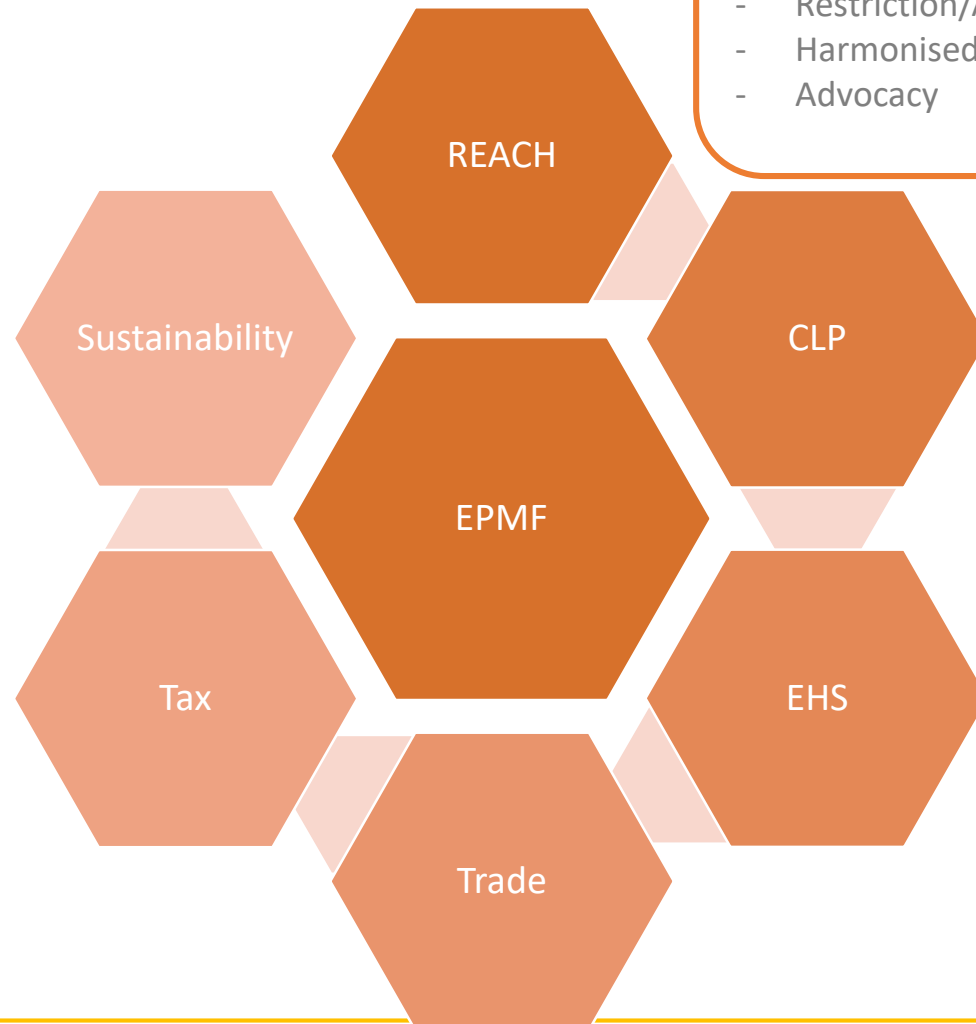
Rhodium

Iridium

Over 100 substances to register!



# Our activities



## PMC: REACH & CLP

- Preparation of registration dossiers, Dossier maintenance
- Evaluation
- Restriction/Authorisation
- Harmonised classification
- Advocacy



# Industry reliance on precious metals



Electronics



Aerospace



Healthcare



Alternative energy



Automotive



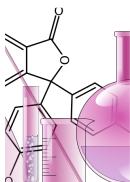
Precious Metals



Jewellery



Glass/Mirrors



Catalysts/Chemical production



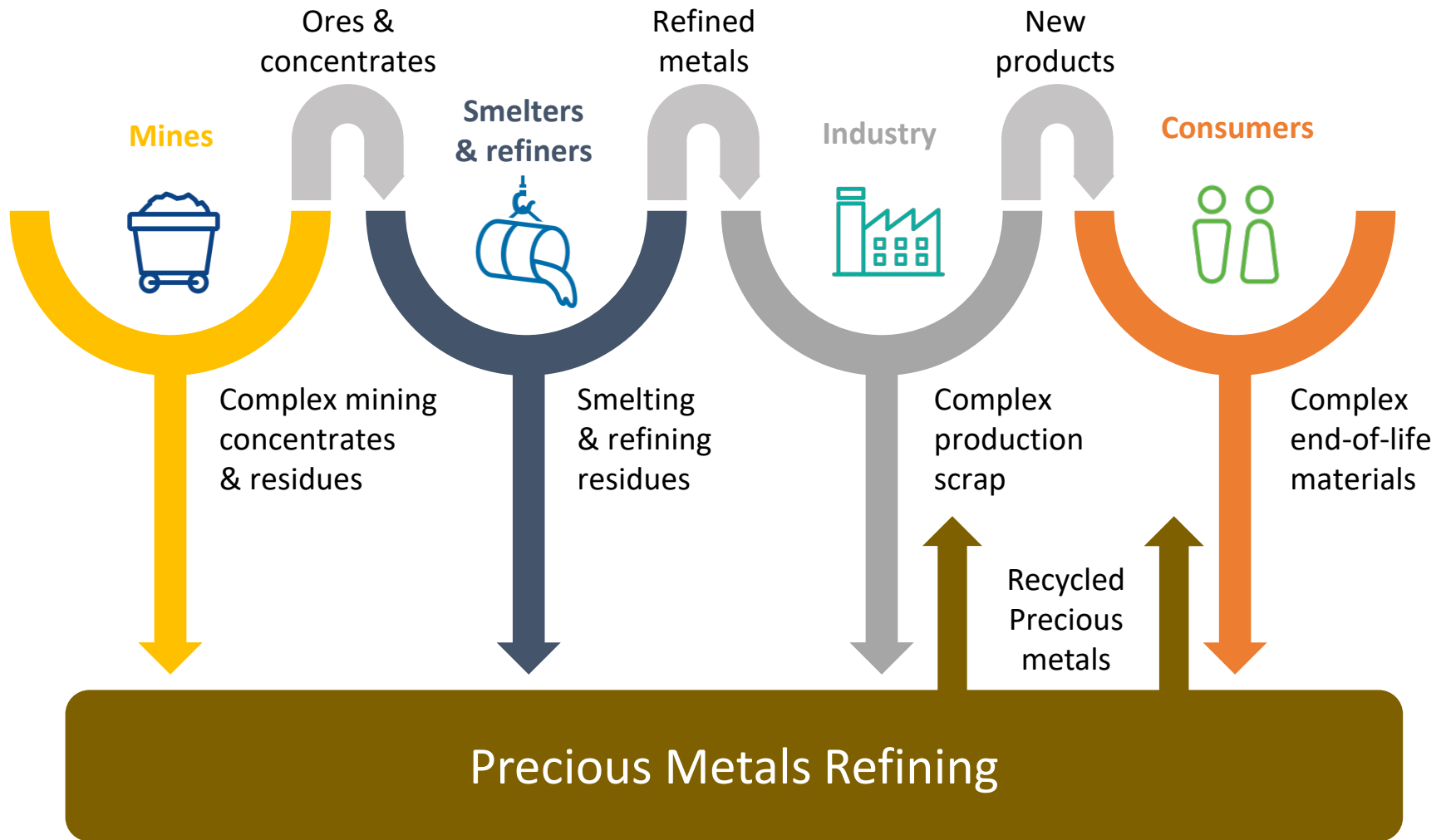
Investment



Photography



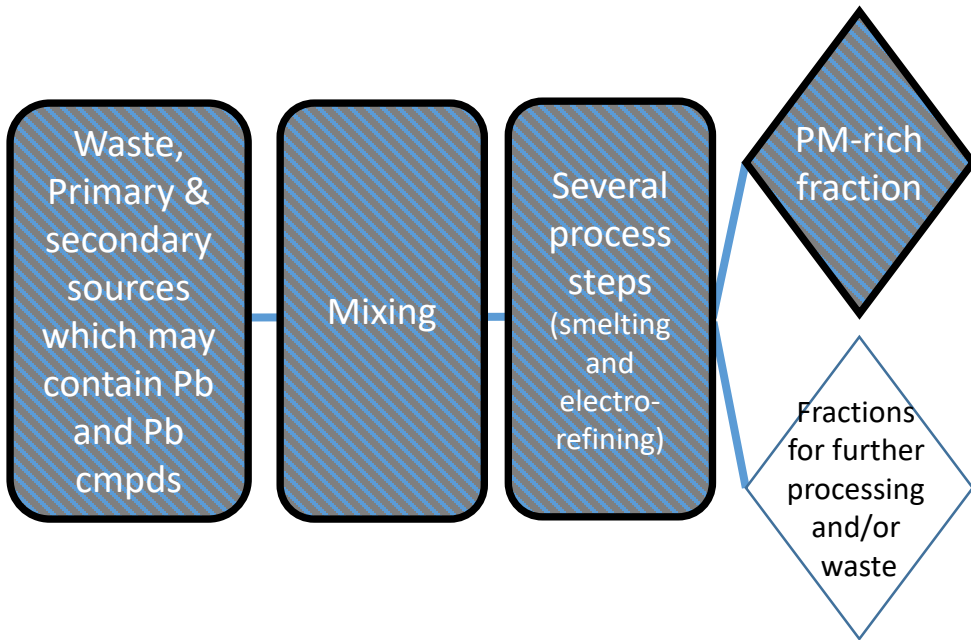
# Refining of Precious Metals





# PM refining process – initial process steps

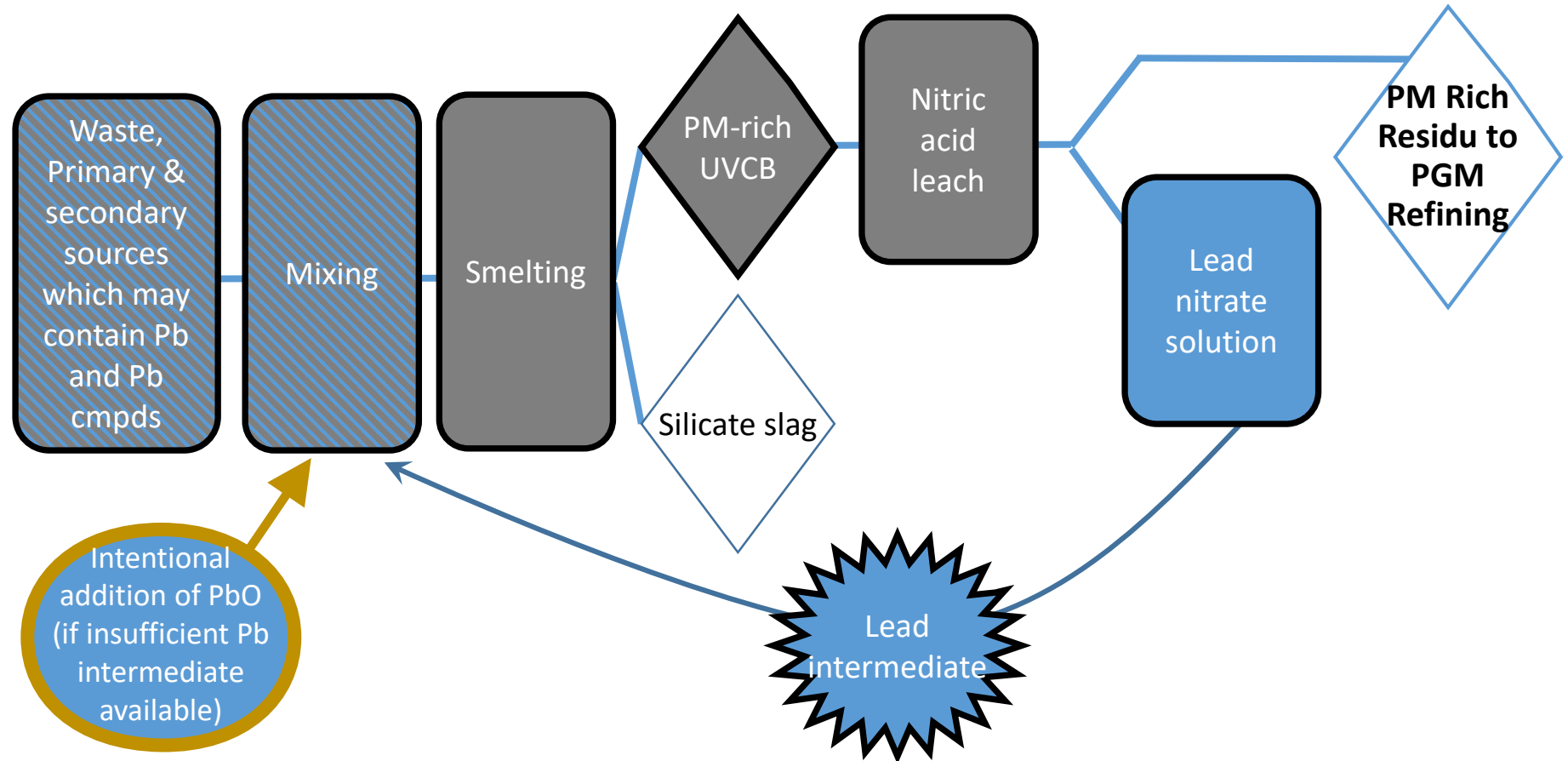
- Steps where lead (cmpd) is expected
- as Pb
  - as Pb cmpd
  - as Pb&Pb cmpd
- Registered as substance
- Registered as UVCB
- Registered as Intermediate



# PM refining process – Case 1

*PbO used in order to produce a PM rich UVCB*

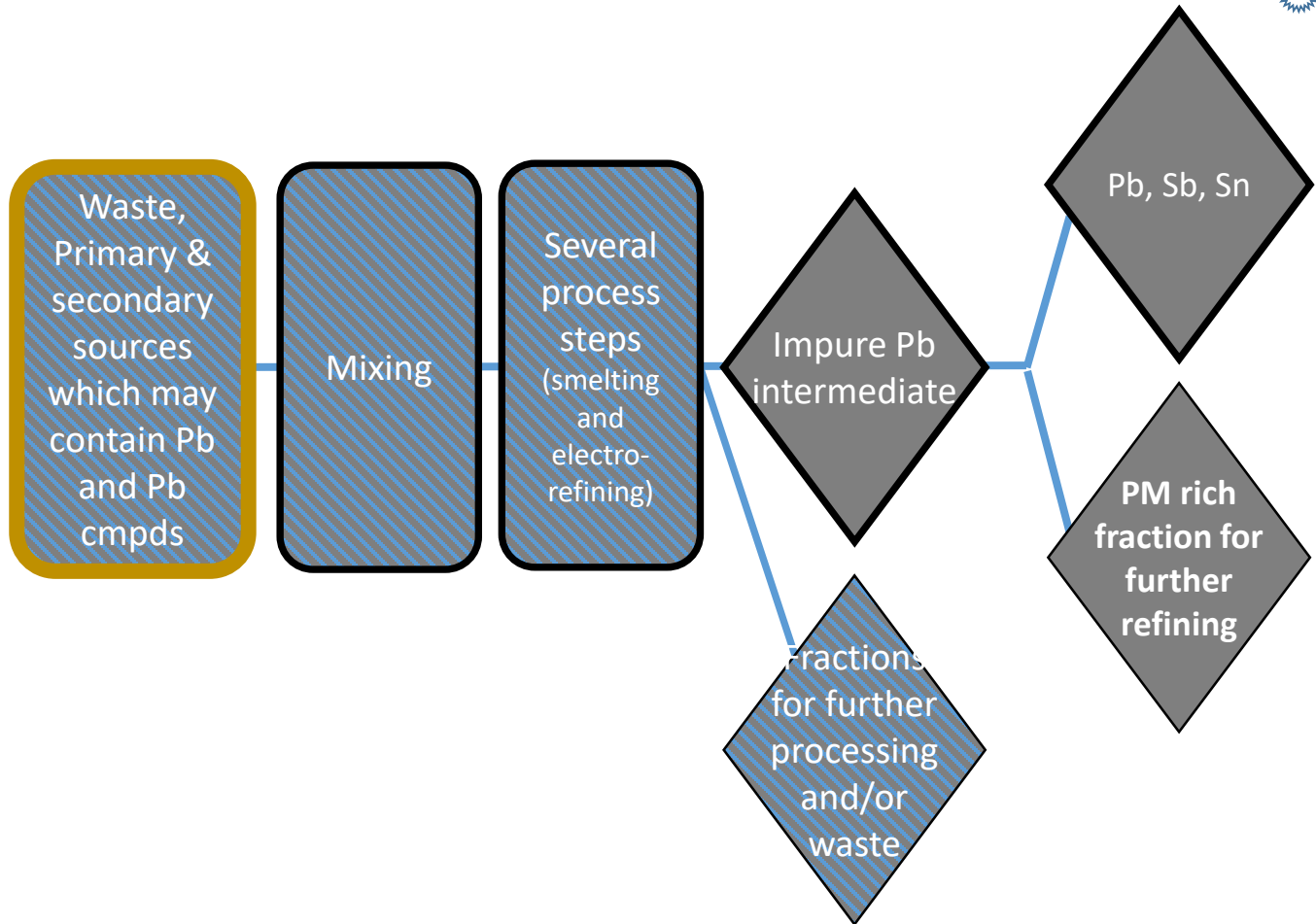
- Steps where lead (cmpd) is expected
- as Pb
  - as Pb cmpd
  - as Pb&Pb cmpd
  - Registered as substance
  - Registered as UVCB
  - Registered as Intermediate



# PM refining process – Case 2.1

*Pb(PbO) as carrier metal in the refining of PM  
(and non-PM) – Pb/PbO present in input material*

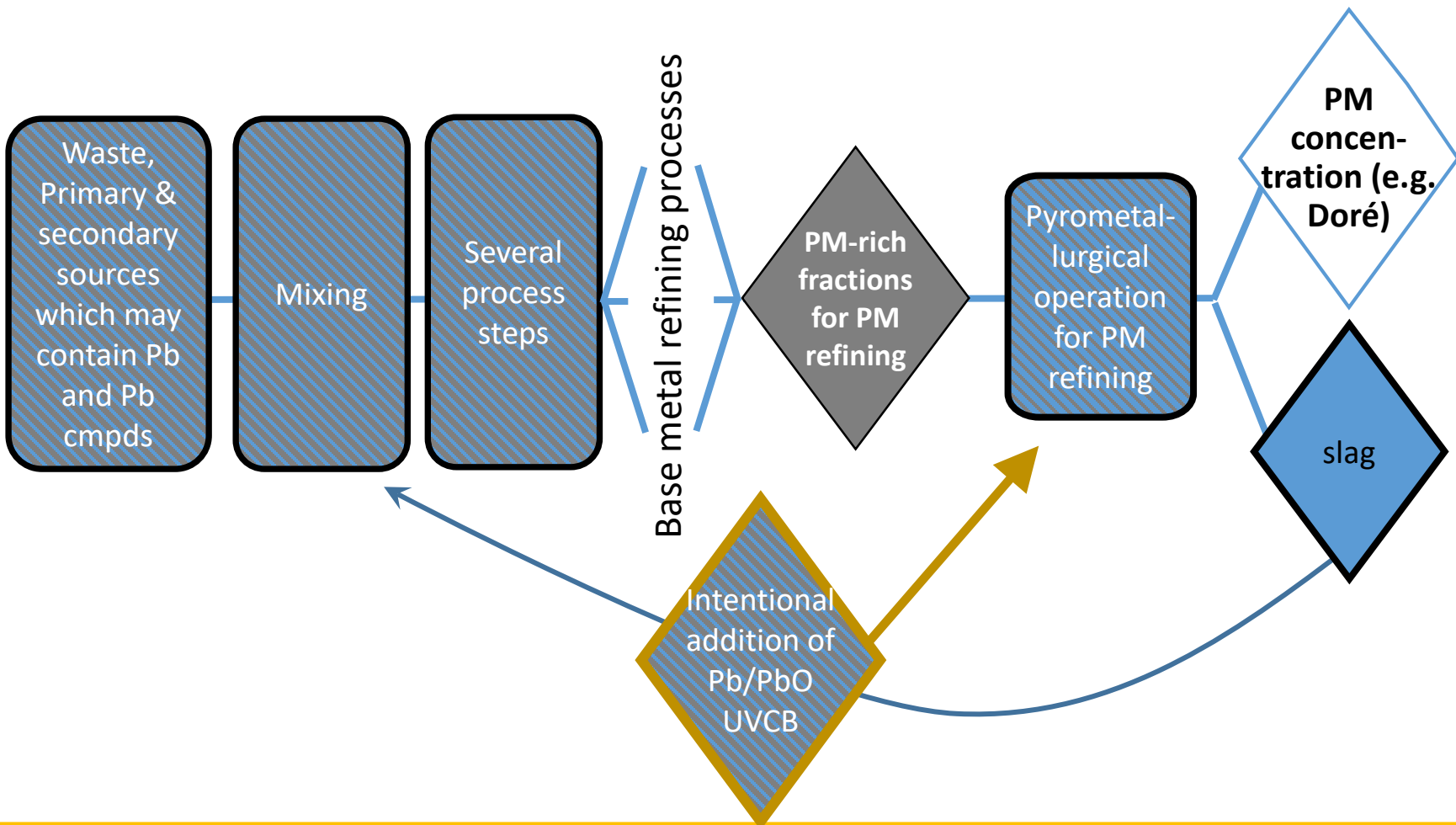
- Steps where lead (cmpd) is expected
- as Pb
  - as Pb cmpd
  - as Pb&Pb cmpd
  - Registered as substance
  - Registered as UVCB
  - Registered as Intermediate



# PM refining process – Case 2.2

*Pb(PbO) as carrier metal in the refining of PM  
(and non-PM) – Pb/PbO UVCB added to form a slag*

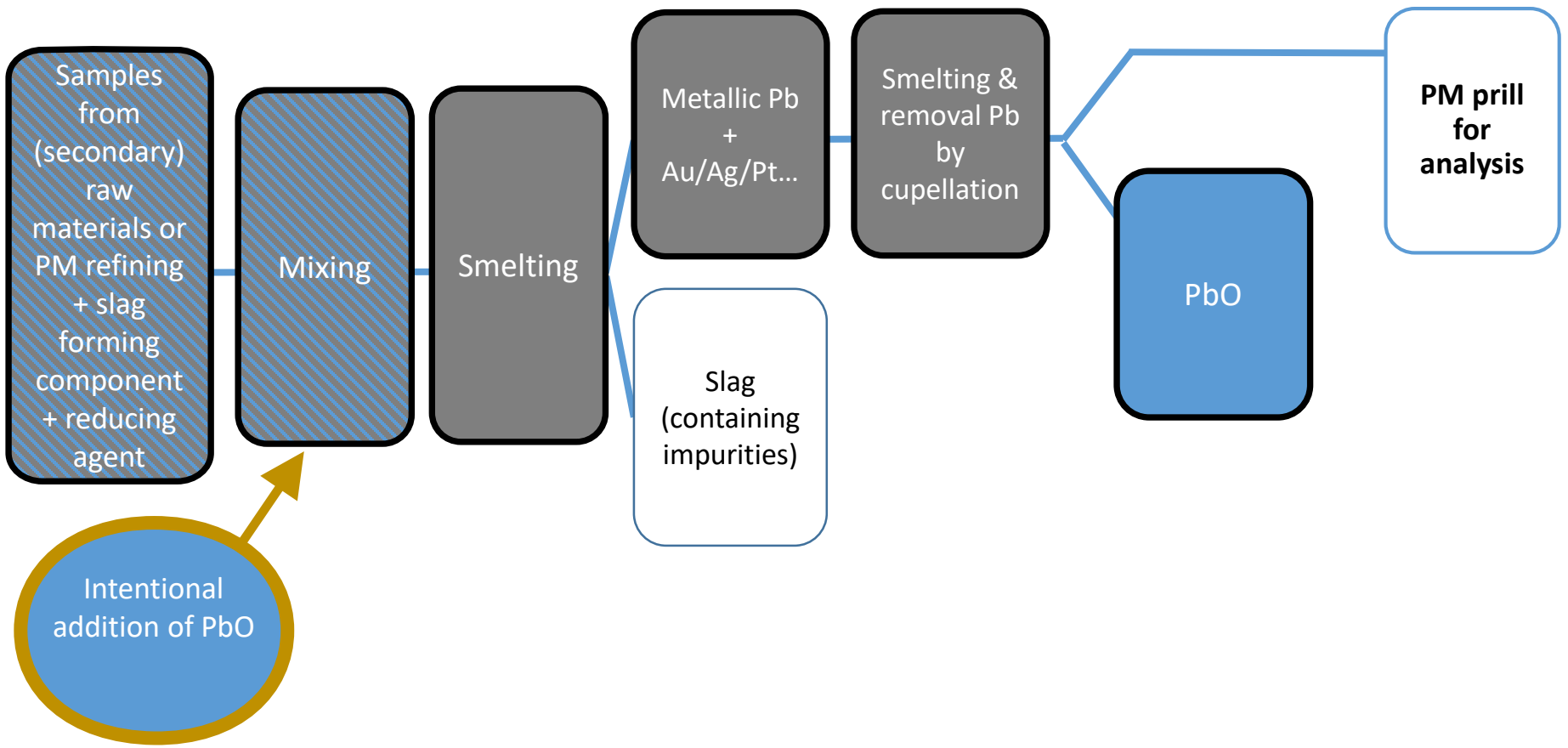
- Steps where lead (cmpd) is expected
  - as Pb
  - as Pb cmpd
  - as Pb&Pb cmpd
- Registered as substance
- Registered as UVCB
- Registered as Intermediate



# PM refining process – Case 3

## *PbO when used in fire assay (lab use)*

- Steps where lead (cmpd) is expected
- as Pb
  - as Pb cmpd
  - as Pb&Pb cmpd
  - Registered as substance
  - Registered as UVCB
  - Registered as Intermediate



## In summary: 4 cases

### Case 1: PbO used in order to produce a PM Lead alloy (UVCB)

- PbO is intentionally added if not enough Pb intermediate available in feed
- PbO and Pb intermediate are added to produce Pb (used as collector for precious metals during smelting)
- Main purpose: have more Pb to collect precious metals
- Conversion to metallic Pb is complete

### Case 2.1: Pb(PbO) as carrier metal in the refining of PM (and non-PM) – Pb/PbO present in input material

- Pb/PbO might be part of input material (unintentionally present)
- Pb/PbO contained in UVCB is transformed to Pb metal and refined in lead refinery
- Main purpose: no use of PbO, and no relevance for PM refining

### Case 2.2: Pb(PbO) as carrier metal in the refining of PM (and non-PM) – Pb/PbO UVCB added to form a slag

- Pb/PbO contained in UVCB intentionally added as slag forming reactant
- Pb/PbO transformed to PbO to remove non-PM impurities via slag which is re-introduced in initial mixing
- Main purpose: collect non-PM impurities
- Conversion to PbO is complete

### Case 3: PbO when used in fire assay

- Fire assay = lab use for determination PGM content
- Pb/PbO as part of sample and/or intentionally added during assay
- All transformed to Pb during smelting
- Reoxidation of Pb to PbO during cupellation



# Intermediate or not?

Case 1: PbO used in order to produce a PM Lead alloy (UVCB)

- Based on previous description this use is considered as an intermediate use

Case 2.1: Pb(PbO) as carrier metal in the refining of PM (and non-PM) – Pb/PbO present in input material

- This is not a use of Pb/PbO, and not relevant for the intermediate discussion

Case 2.2: Pb(PbO) as carrier metal in the refining of PM (and non-PM) – Pb/PbO UVCB added to form a slag

- This is not a use of Pb/PbO, and not relevant for the intermediate discussion

Case 3: PbO when used in fire assay

- Based on previous description, this use cannot be considered as intermediate use.





# THANK YOU

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