Introduction

Precious metals processes can be applied on primary and secondary feed materials resulting from the extraction and refining of precious metal and/or other non-ferrous metal ores and ore concentrates (e.g.: copper, lead, nickel and zinc).

One 'same' precious metal refinable can therefore result from several refining streams, and present a variable composition depending on its origin. Because of this particular profile, precious metals containing-refinables can generally be considered as UVCB and grouped in highly variable clusters.

This document aims at describing the steps that have been and will be undertaken by the Members of the Precious Metals and Rhenium Consortium (PMC) in order to achieve a successful compliance of the REACH regulation for their "non-waste complex refinables"[1]. Adjustments were made along the way in accordance with the adjustment of the PMC Members' registration intentions.

This document will be used in discussions within the Consortium and with pre-SIEF participants, in order to cross-check with other potential registrants that the Consortium's initiatives regarding complex refinables is realistic and REACH-compliant and explain our approach to the ECHA and MS CA representatives where needed.

STEP 1. Pre-registration (before 1 December 2008)

1. Members were requested to list and describe their refinables in a *first excel spreadsheet*.
2. Information requested included (common) name, CAS and EC number (when available), a generic description (mainly covering the process it originates from and the physical form), composition, classification (if existing), and the corresponding tonnage band.
3. All complex refinables were initially considered as strictly controlled UVCB transported isolated intermediates (cf. section on strict control below).
4. A preliminary categorisation was done for pre-registration, in order to recommend the most suitable EC numbers for the Members to proceed with pre-registration.
5. Generally Members pre-registered their complex refinables as UVCBs. In a few cases the materials were pre-registered as reaction masses pending future discussions on identification and sameness.

STEP 2. Substance grouping

1. Following pre-registration, Members were requested to submit an updated list of pre-registered refinables in a *second excel spreadsheet*.
2. Information requested included name, CAS and EC number, a generic description (mainly covering the source and process it originates from and the physical form), composition, the intermediate status (on-site or transported), and the corresponding tonnage band.
3. A materials flow sheet (Figure 1) was drafted in order to identify the occurrence of the different refinables over the precious metals refining stream.
4. Through an iterative exercise, each refinable was given a number and allocated, based on process, physical form and composition, into one of the following groups[2]:
   - Group 1. Doré
   - Group 2. Matte, precious metals refining
   - Group 3. Slags, precious metals refining
   - Group 4. Slimes and sludges, precious metals refining
   - Group 5.1 Residues, copper-iron-lead-nickel matte, sulfuric acid-insol.

[1] These steps must not be confounded with the phases of the PM refinables project.
[2] Some materials originally declared to the Consortium always contained more than 80% of one main constituent and were, where relevant, considered as simple intermediates to be addressed by the ongoing metals projects (cf. proposed strategy for so-called "impure" materials).

Contact Info of the Consortium
Avenue de Broqueville, 12 - BE-1150 Brussels
Tel.: +32 2 775 63 23 **Fax:** +32 2 779 05 23 **Mobile:** +32 473 52 52 73
E-mail: braibant@epmf.be **Website:** www.epmf.be

- Group 5.2 Residues, copper speiss acid leaching
- Group 6.1 Silver spent electrolyte
- Group 6.2 Gold spent electrolyte
- Group 7. Flue dust, precious metals refining
- Group 8. Residues, precious metal reduction and cementation
- Group 9.1 Materials for reclaim, precious metal with or without support
- Group 9.2 Materials for reclaim, precious metals in bricks, crucibles and trays
- Group 9.3 Materials for reclaim, precious metal production by-products
- Group 10. Lead bullion, precious metal rich

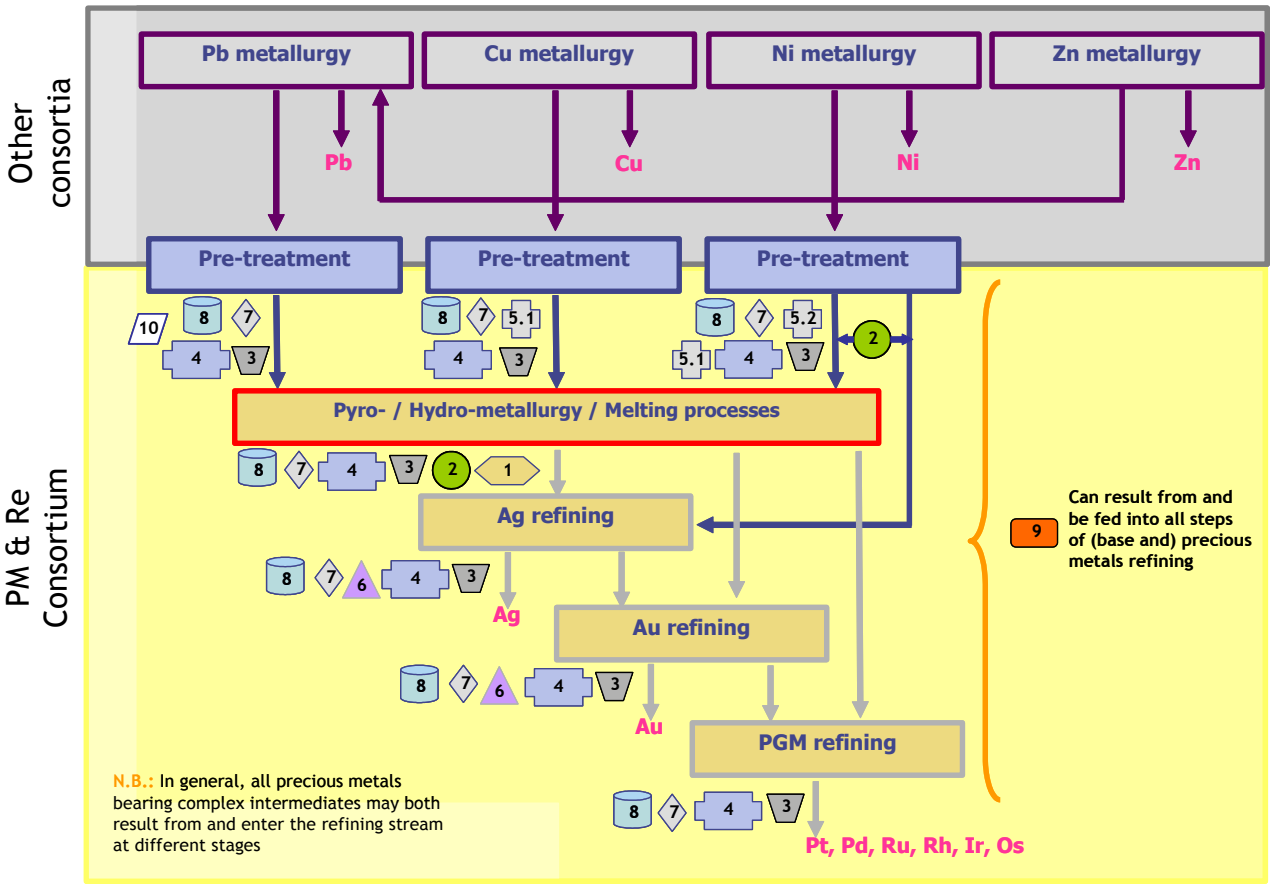

Figure 1. Flow sheet of precious metals refining showing the occurrence of complex refinables (numbers correspond to groups presented in STEP 2.4 above). This figure shows which streams are covered by the PMC and which should be covered by other non-ferrous metals (NFM) consortia.

5. An *ad hoc* ID card (preliminarily including name, ID codes and a description as per REACH guidance) and REACH registration strategy was composed for each group.
6. Possible overlaps with other consortia's scopes were verified. Wherever needed, the PMC Members were put in contact with other consortia and data-sharing among consortia was promoted.

STEP 3. Substance description, Substance sameness, and Tonnage

1. Following the proposed groups 1-10, Members were requested to:
   a. Place their individual (no "in-house" grouping) refinable(s) in each group by completing a *third excel sheet*. For some Members this involved some disassembly of "in-house" grouping that was originally necessary for the pre-registration process.

   b. Complete the composition data that was submitted originally (in the event analytics where ongoing at the time of previous submission) and indicate the method used to obtain this compositional data. Submit amended compositional data where individual refinables have significantly changed.
   c. Confirm, per refinable:
      i. The intermediate status, and
      ii. The highest tonnage band (amongst all individual affiliates).
   d. Indicate, per refinable, whether they intend to proceed to an individual registration (one registration for a specific refinable) or to a grouped one (one registration for all their materials falling in the same group).
2. Based on the information collected above, the initial REACH strategy was re-evaluated and completed/adjusted. All Members agreed to register their materials in accordance with the grouping strategy recommended by the PMC.

STEP 4. Confirmation of REACH strategy, presentation to PMC and pre-SIEFs

1. Each ID Card was completed so as to include:
   a. Identification of the group/refinable:
      i. Name: original EC name, adjusted EC name, new name;
      ii. ID codes: EC number, CAS number, or new number (if SIEF split);
      iii. Description: Physical form, source/origin, process it originates from, main composition.
   b. Synonyms and same/similar substances: other names used in industry sector and/or examples of materials that will be covered by the group.
   c. Typical composition ranges, minimums and maximums.
   d. Classification: existing, default or classification confirmed by speciation and other testing (as required).
   e. Physico-chemical properties: as available or obtained through testing.
   f. Lead Registrant (LR): proposed by PMC, nominated by the PM Refinables Work Group, elected by the PMC Assembly and proposed/supported by each SIEF.
   g. REACH strategy:
      i. One SIEF or several sub-SIEFs (need to contact ECHA),
      ii. Intermediate status and associated tonnage band for which the dossier will be prepared,
      iii. Classification,
      iv. Information requirements and applicable registration deadline.
2. Some sections of the ID Card were left blank during initial communication with Members and pre-SIEFs; and were completed as the information became available (e.g.: through testing) or confirmed.

STEP 5. Testing requirements & Registration deadlines

1. Unless minimum information requirements exist, can be waived or read-across and/or "worst case" assumptions are accepted by Members (not recommended), testing may be required to:
   a. Confirm or refine composition, sameness and classification (though speciation, T/D and/or bio-elution); and
   b. Comply with REACH information requirements (Annex VII) and CLP requirements (physico-chemical toxicological, ecotoxicological and environmental fate endpoints).
2. Testing involves:
   a. Identifying reference samples to be used as representative examples of the intermediates, and sample providers;
   b. Identifying (a) consultant(s) and laboratories to supervise and conduct the tests, respectively, and
   c. Identifying the way of allocating testing and consultancy costs within PMC and in determining the cost of the letter of access to be granted to non-PMC Members in the SIEF.
3. The identification of reference samples was done as follows:
   a. For chemical and mineralogical characterisation ("speciation"):

i. For each refinable, a number of possible representative "profiles" were identified (e.g.: high Ag content and low Ag content/impure Doré; fresh and aged matte, precious metals refining; etc.);
ii. For each "profile" a decision was taken to perform speciation work or not;
iii. For each speciation test to be conducted, the key constituents (having a potential impact on the classification of the refinable) were identified;
iv. The LR of each refinable was considered to be the default sample provider, unless such LR could not provide the required "profile(s)" in which case another potential registrant of the given refinable was invited to volunteer as sample provider;
v. Each sample provider was sent an official PMC sample request including a detailed sampling protocol. The request included a set of information which shall accompany the sample when sent to the testing house;
vi. From the above set of information, the PMC Officers and the project's consultants made sure that the "profile" of each sample corresponded to the testing needs.
vii. As far as Competition Law allows it, each "profile" was disclosed to the PM Refinables Work Group for information/comment;
- Unless the PM Refinables Work Group had raised any objection against the sample "profiles", those were sent to the testing house
- In the event the PM Refinables Work Group had raised an objection, the LR was required to submit another sample and, where this was not possible, another sample provider was identified

b. For T/D: TO BE COMPLETED
c. For physico-chemical endpoints: TO BE COMPLETED
d. For (eco-)toxicological endpoints: TO BE COMPLETED

4. Testing needs to be prioritised for all refinables having to be registered by December 2010:
   a. Transported and > 1000 tonnes per year, and/or
   b. Classified as CMRs (>0,1% for CMs and >0,3% for Rs) and/or R50-53

STEP 6. Classification (REACH and CLP)

1. A notification of classification is required as per CLP/GHS (Section 2 of IUCLID 5). Considering the variability of each refinable within each registering legal entity and across potential registrants, PMC cannot provide:
   a. A unique classification recommendation for each refinable, or
   b. One classification recommendation for each grade of each refinable.
2. Instead, based on the composition confirmed in step 5 above, PMC will develop one or more classification recommendations to be used by potential registrants in their notification. This will be done in a stepwise manner:
   a. **"Potential classification"** – additivity principle: based on the assumed composition (before speciation analysis has been performed), the classification of each constituent (present in a concentration equal or superior to 0,1 % or 0,3 % as the case may be) will be added to sum up an indicative classification. This classification will be used to consider speciation needs and provide indications of the potential registration deadline applicable to the refinable.
   b. **"Preliminary classification"** – speciation and classification matrix tool: after speciation analysis has been performed, the classification matrix tool developed by ARCHE and the Cu Consortium will be used to derive the classification that is likely to apply on the refinable, based on the classification and composition thresholds applicable to each individual constituent it contains.
   c. **"Refined classification"** – T/D: where it applies, 24 h screening or full (as it applies) Transformation/Dissolution (T/D) tests will be performed on those refinables whose hazard profile is unlikely to be fully described by the hazard of each one of its individual constituents. The results of these tests will allow refining the preliminary classification to a more realistic one.
   d. **"Recommended classification"** – the outcomes of the three steps above will be considered to produce one or more (depending on the number of "representative" grades that are relevant in

each case) recommended classifications to be uploaded onto IUCLID 5 for submission with the registration dossier.

3. **"Registrant-specific classification"** – classification matrix tool: in those cases where the classification that has been recommended by the PMC do not apply to (one of) the grade(s) manufactured or imported by a registrant, the latter will be invited to use the classification matrix tool to derive a grade-specific classification.

STEP 7. Registration

1. All refinables included in a certain group are considered to be the same for the purpose of registration. One master registration dossier will therefore be prepared for each refinable group.
2. Dossier preparation will be prioritised for:
   a. Intermediates that require registration by 1 Dec 2010 with Annex VII information requirements
   b. Intermediates that require registration by 1 Dec 2010
   c. Intermediates that require registration after 1 Dec 2010
4. Sections 1 and 3 of IUCLID 5 will be pre-populated by PMC officers and consultants with recommended information but will require completion by each registrant (both the LR and the joint registrants). Remaining sections will have been prepared by the consultant in charge of the PM refinables project.
5. Each LR will receive a copy of its registration dossier in order to verify and complete it before submission. Once it has been submitted, a signal will be given to the joint registrants to proceed with their individual registration (referring to the LR's dossier, using the applicable joint registration name, and the security token number provided by the PMC officers).

STEP 8. Post-Registration

Intermediates dossiers are not subject to evaluation under REACH. However, each Member State Competent Authority (MSCA) may decide to visit the manufacturers and importers located in such State to corroborate their REACH compliance.

In the case of intermediates, the application of strictly controlled conditions (SCC) is of high relevance. Indeed, if an intermediate is not handled under SCC throughout its entire life-cycle and across the supply chain, full information requirements apply.

In the particular case of PM UVCB intermediates, MSCA may also challenge the "substance" status of the material as some may be considered as by-product, waste or end-of-waste materials. This possibility is especially probable when a same material is considered as a substance in one State and as a waste in the other; which may raise questions along the transport of this material inside and outside the European Economic Area (EEA).

SCC

The responsibility for proving strict control of the intermediate throughout its entire life cycle and through the supply chain lies with the registrant:

- If manufactured outside the EEA and imported into the EEA: the importer should make sure strict control is applied as from the moment the material is supplied on the site for further chemical treatment, until it becomes a different substance (opening new life-cycle) with specific requirements under REACH.
- If manufactured in the EEA and exported outside the EEA: the manufacturer should make sure strict control is applied until the material is chemically transformed into another substance, and at least until the reception of the material takes place

In the second situation, the registrant is recommended to obtain an acknowledgement from its customers outside the EEA, who shall confirm the application of strictly controlled conditions[3].

The burden of proof of strict control increases with the lack of evidence on the hazard properties of a substance or a higher classification category. The more information exists on the hazard profile of a substance, the more straightforward it is to prove that the measures put in place are sufficiently protective to ensure a safe manufacture and use of an intermediate. Where no hazard information exists the applicable protective measures are more difficult to corroborate.

The more "classified" a substance is, the more risk management measures must be implemented to protect the environment and the workers and hence implement the required SCC. It is therefore essential to classify each refinable in a sound manner and avoid default classifications which could render the manufacture and transport of the refinable much more impractical and costly.

Waste

TO BE COMPLETED

[3] Meanwhile the ECHA guidance on intermediates (February 2008) is updated, Members are recommended to use the Eurométaux guidance on SCC (June 2008) when communicating with customers and downstream users.