Chairman: *Dave Boyd* (Johnson Matthey)

26 July 2010, 12h00 – 16h30
Johnson Matthey Technology Centre, Palladium room
Blounts Court, Sonning Common, Reading RG4 9NH, United Kingdom

Participants

1.	Dave Boyd	(Johnson Matthey)	United Kingdom	
2.	Lindsey Cubiss	(Harlan)	United Kingdom	
3.	Sarah Hottenroth	(Umicore)	Germany	*(conference call)*
4.	Erin Logan	(WCA)	United Kingdom	
5.	Mark Raffray	(Johnson Matthey)	United Kingdom	
6.	Klaus Rothenbacher	(EPMF)	Belgium	
7.	Steve Tremain	(Harlan)	United Kingdom	
8.	Darran White	(Harlan)	United Kingdom	
9.	Paul Whitehead	(WCA)	United Kingdom	
10.	Steven Wooley	(Harlan)	United Kingdom	

Draft Notes

1.	**Welcome and introduction**
	1.1. Confidentiality and Competition Law
	1.2. Objective of the meeting The objective of the meeting was to finalise open points regarding the CLP testing of PGMs to allow the testing programme to start.
	1.3. Approval of the Agenda
2.	**PGM inventory (including forms) PGM categories** This agenda point was postponed for later discussion with Caroline Braibant.[1]
3.	**PGM categories (based on oxidation state, counter-ion, other (e.g.: water solubility)** This agenda point was postponed for later discussion with Caroline Braibant.[2]
4.	**Testing recommendations: Guidance and expert judgement**
	4.1. General discussions **Melting point** - Harlan/wca recommendation was that a test should be carried out in all the indicated instances even if substance decomposition is predicted. In the latter case, a decomposition temperature will be determined, but for self-ignition/self-heating test waiver to apply the condition of full liquid melt at <160C would need to be fulfilled. **Oxidising test**: Harlan propose to test a worst-case substance, i.e. a substance that has the most structural alerts for oxidising properties (e.g., most oxygen or most halogen atoms within the structure). This approach was agreed in general.

[1] **Post-meeting note:** Last version of PGM inventory including forms as declared by PMC Members was provided to WCA on 29 July 2010.

[2] **Post-meeting note:** this was discussed with WCA on 29 July 2010. Revised categories now show separate categories for organo-metallics. Appropriateness of reading across from one organo-metallic to another (e.g.: from Palladium (II) acetate to Rhodium (III) acetate, or from Dichlorobis (triphenylphosphine) palladium to Dichlorotris (triphenylphosphine) ruthenium) will be considered at a later stage with the input of PGM experts when Phase III testing programme is designed.

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	- No oxidising tests are needed for known reducing substances. An expert statement will be used in that case. This is relevant to Dihydrogen hexahydroxyplatinate compound with 2-aminoethanol in 2-aminoethanol solvent, 68133-90-4; Rh carbonyl acac 14874-82-9; Ir Chloro COD 12112-67-3; Rh tris(2 ethylhexanoate) in ethyl hexanoate and ethyl hexanoic acid 20845-92-5 (according to DAB notes) **- Action: WCA to draft expert statements, where no test is needed, for WG review and adjustment (if required)** **Solutions**: Only test solutions where no pure solid exists, omit tests where solid exists (see discussion on solutions below) **Using waiver statements based on a worst-case reference substance:** - The consultants recommend this approach only for oxidising properties and explosivity, i.e. this is not possible for other physico-chemical properties. Those endpoints will need to be tested for the individual substances. **-** Where substances are being registered for REACH (e.g. Refinables), then the relevant studies should be conducted on the substances; where they are being notified for classification, then close-analogue read across can be used. **Action: WCA/Harlan to provide rationale for selecting the respective worst-case substances** **Action: WCA/Harlan to clarify approach to selecting Rh triiodide as worst case test item to determine oxidising properties of PGM. Rationale should include statement on influence of particle size in test results and how variations in particle size across PGM materials can influence read-across** **Corrosivity to metals**: There appears to be a deficit of established knowledge on this endpoint within the sector and further discussion is required at WG level to assess whether pragmatic prediction of corrosivity is possible. For example, an assumption based on chloride content or tissue corrosivity (see below). The alternative would be to conduct a broad program of testing for an endpoint which could be considered as lesser importance than some other key physical hazards. - This endpoint point was not covered in the spreadsheet circulated by WCA but has been already addressed in previous discussion, where it was agreed to provide an expert statement by the lead registrant. - One option would be to test the most soluble chlorinated-PGM as a worst case. It was felt that

[3] **Post-meeting note**: Two options are considered: obtain expert judgement from Lead Registrant or request each individual Member to provide expert judgement on corrosivity to metals for each substance and intermediate of interest.

[4] **Post-meeting note**: Flash point is indeed determined on Ag and Au electrolytes as recommended by Harlan and WCA. Although now this test seems not to be necessary, assuming these aqueous solutions may contain impurities of unknown nature and since, the test is performed for precautionary reasons. Since these materials are UVCB, the approach taken in the Refinables project should not be used out of context.

[5] **Post-meeting note:** This has been discussed again on 29 July 2010 and has been brought to the attention of Eurométaux in order to obtain a recommendation that is consistent with the approach taken by other NFM consortia. The ultimate decision should be a balance between REACH/CLP legal requirements, liability implications, and testing cost/pragmatism.

[6] **Done**: tonnage plays no role, Pt black must be considered as one of the forms in which Pt can be found on the EEA market.
[7] **Post-meeting note**: Both have been reported but the hydrated form is the most common on the EEA market and is a worst case item that should be preferred for testing purposes.

there is a need to understand better the downstream implications in terms of insurance costs, packaging, etc. PGM chlorides are already classified for air transport; this could be used as starting point.
- Triggers for corrosivity to metals are water solubility and chloride content. Umicore proposed a tiered testing strategy: establish different categories: a) high water solubility, high chloride availability, b) high water solubility, low chloride availability, c) low water sol. – no chloride. However, data on water solubility are obviously required for this approach.

Action: **EPMF to discuss testing approach internally and get back[3]**

Self-ignition/Self-heating
- Normally self-ignition properties are tested in a 100 mm testing cube, requiring significant amounts of test material. For pragmatic reasons of sample availability, Harlan proposes for CLP purposes a modified test based on a 25 mm testing cube with a different temperature programme. This modified test combined with an expert statement on industry experience on handling and use was deemed sufficient to cover this endpoint. If ECHA should not accept this, we are open for discussion and will repeat the standard test if necessary. Registration related testing may still require the test based on a 100 mm cube.
PMRC acknowledges that strategy is slightly uncertain, but this needs to be balanced with a pragmatic approach and is thus justified.

Action: Harlan to provide rationale for modified test, with input from industry

Flash point:
- The WG questioned why a flash point needs to be determined for an aqueous solution. It emerged that there was a misunderstanding on how to define a liquid. Harlan's point is valid for liquids, but aqueous solutions are considered a mixture of the pure material and water and therefore there is no need to determine a flash point test. This justification should be extended to all PMRC projects in order to ensure consistency across projects (notwithstanding properly justified exceptions e.g.: UVCB complex refinables).

Action: the Refinables project seems to handle this point differently. EPMF to discuss internally and coordinate[4]

- Can tests for **self ignition of solutions** be waived on the same grounds? The discussion put on hold until the above point has been clarified.

Water solubility:
- The column elution method is normally used for substances with low water solubility. However, for practical reasons this is not possible since the test substances cannot be dissolved in an organic solvent (to coat them on the inert matrix) and we will have to use shake flask method or a TD screening test.

Granulometry:
- PMRC requested to determine granulometry for all refinable substances. Should we do this for all PGM solids as well? Possible options are a) pre-test with 100 um sieve, b) use an improved Harlan method with more sieves, or c) more complex methods (e.g., cascade impactor, laser diffraction). The extra cost 1500 GBP for full PSD. It not clear what results are needed for, so no decision could be made at this point.

Action: PMRC to take back and discuss internally, taking into account R.7a TGD and R. 7-1-7

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flowchart. [5]

Flammability
Self-ignition / flammability endpoints should be covered by:

- For inorganic material, testing may be waived in cases where the substance is commonly known to be not flammable (i.e. stable salts or metal oxides) or where a flammability hazard can be excluded by any other scientific reasoning.
- Highest oxidation state

4.2. Substance specific discussions

David Boyd/ Mark Raffray have put together detailed comments on the testing plan. There was not sufficient time to go through all of them at the meeting

Action: D. Boyd to circulate written comments (done)

Pt metal (Pt sponge)
- Self ignition: test needs to be carried out. The test should also cover dry Pt black (see below). Carry out Harlan modified test based on a 25 mm testing cube.

Action: PMRC to locate sample provider/confirm Pt black is being marketed in dry form.

Testing for **Pt black** is needed for CLP but not for registration. Since Pt black is known to be pyrophoric, a waiver based on supplier/WG expert statement can be applied for further tests.

Action: EPMF to confirm tonnage (thought to be < 1 tpa)[6]

Post-meeting note: Both Pt sponge and Pt black are forms of pure Pt powder that will be subject to a unique CLP notification and a unique REACH dossier. In selecting the sample to be tested, the nature of the test shall be considered. In some cases Pt sponge (coarser) shall be preferred whereas in others Pt black (finer) shall be used. Where Pt sponge and Pt black are expected to behave differently PMC may decide to test the worst case and derive a unique worst case classification, or test both and derive different classifications. The concerned companies are invited to share experience on the pyrophoricity or any other property of their Pt materials.

Hexachloroplatinic acid
- It was not clear if the anhydrous form exists or if only the hydrated form is available[7]

Action: PMRC to send mail proposing to test only hydrated Hexachloroplatinic acid, unless there are objections by (with short time line for response)

- Melting point: need to determine also if decomposes.
- Self ignition: depending on results from melting point test. If the substance decomposes to a liquid, then there is no need to test.
- The tests on melting point, flammability (solids) and self-ignition were agreed for CPA.

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Tetraamineplatinum dichloride
- Hydrated substance: proposed tests agreed.

Tetraamineplatinum dinitrate in solution
- Flash point: as discussed above, there is no need to determine the flash point for aqueous solutions.

- The waiver for explosivity agreed.

Diammine Pt (II) nitrite
- The substance is known to be explosive. It was decided to waive the test on explosivity and base the assessment on experience of use from members.

Action: JM to provide information if the substance has been tested for explosivity in the past (including the method if possible).

- Umicore is also checking internally on data on explosivity but has no approval to transport the substance as a solid.

Action: PMRC to a) verify if it is produced as a solid (Post-meeting note: Solid form confirmed) **and if so, request data on explosivity**

- Test on melting point: agreed
- Waive tests on self ignition, oxidising properties and flammability if explosivity is confirmed (guidance p 146) and if an A40 test exists

PtO2
- Waiver compound for oxidising properties is not needed. It was suggested to use an expert statement.

Karstedt concentrate
- The proposed test on flash point was agreed

Rhodium triiodide
- Ox-prop: test agreed.

Action Harlan/WCA: clarify rationale for selecting Rh triiodide as worst case test item to determine oxidising properties of PGM.

Tetraammine Pd (II) nitrate
- The substance is expected to be explosive (company evaluation and homology to known properties of Tetraammine Pt dinitrate. It was decided to waive the test on explosivity, oxidising properties, flammability and self-ignition and base the assessment on experience of use from members.
- The latest version of the Annex VII and VIII endpoint testing services listing from Harlan was requested.

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	Action: Harlan – circulate a list of updated costs and sample sizes Harlan reported that some issues had arisen in terms of proper identification and information provision in terms of previous samples sent for the Refinables project. Since this current set of tests represents a significant raft of work, it was suggested that Harlan provide a proforma and checklist to ensure PMRC members act consistently and efficiently. **Action: Harlan – provide a simplified proforma for sample information** **Action: WCA to provide revised testing plan**

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