

# **London Platinum and Palladium Market**

## **The Good Delivery Rules for Platinum and Palladium Plates and Ingots Specifications for Good Delivery Plates and Ingots and Application Procedures for Listing**

**March, 2010**

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## 1. Introduction

The list of acceptable refiners of platinum and palladium plates and ingots in the London market, the “LPPM London / Zurich Good Delivery List”, has been developed and is maintained by the London Platinum and Palladium Market (“the LPPM”) in order to facilitate the international distribution and acceptability on technical grounds of standard plates and ingots produced by those refiners:

- (a) who meet the criteria for inclusion in the list; and
- (b) whose plates or ingots have passed the testing procedures laid down by the LPPM.

Standard plates or ingots are plates or ingots ranging between 1 kilogram (32.151 troy ounces) and 6 kilograms (192.904 troy ounces). Plates and ingots are listed at the discretion of the Management Committee of the LPPM, which reserves the right to make any investigations that it deems appropriate into an applicant for listing.

An entry on the List relates to one refinery at one specific location. Separate applications are required if an applicant wishes to register plates or ingots produced in refineries situated at different locations.

If a company on the List wishes to change the location of its refinery or the registered marks on its standard plates or ingots then it must inform the LPPM in advance, providing all appropriate details. Similarly, if a company on the List is subject to a substantive change in its ownership or the technology used in refining or if its financial position deteriorates significantly it must inform the LPPM accordingly. The LPPM reserves the right in such circumstances to ask the company to submit a new application.

The Good Delivery List is the copyright of the LPPM. Reproduction and dissemination of the List is permitted only with the express written permission of the LPPM and an acknowledgement of the LPPM’s copyright.

## 2. Criteria

The LPPM is unlikely to give favourable consideration to an application for listing unless the following criteria are met:

- (a) the applicant has been in existence for not less than five years and has been involved in refining operations of the metal for which it is applying for Good Delivery status for not less than three years prior to the application;
- (b) the applicant has an established annual refining production (which need not be in the form of standard plates or ingots) of not less than five hundred kilograms;
- (c) the applicant has a tangible net worth of not less than the equivalent of 10 million pounds sterling or such figure as the LPPM may from time to time determine.

The LPPM believes that the long-term viability of a refinery as well as its ability to meet the required standards of the Good Delivery List depend on it having a certain volume of production as well as a minimum tangible net worth. If a refinery suffers a substantial and sustained fall in refined production relative to the minima mentioned in paragraph (b) above or if its tangible net worth falls significantly below that indicated in paragraph (c) above, it should inform the LPPM of the reasons for the fall and, if appropriate, the likely future development. The Management Committee of the LPPM will then determine whether the refiner’s brand should remain on the List and if so what further action, if any, is required or be moved to the Former Refiners List.

## 3. Procedure for Submission of an Application

An applicant company wishing to apply for Good Delivery status for its refinery must submit an application to the LPPM Chairman using the application form given in Annex A.

The application must be accompanied by a number of documents (which are described in detail in Annex A). These should give a clear description of the ownership, operating history and financial position of the refinery, together with details of the Good Delivery plates or ingots produced.

These documents are required firstly to provide a general description of the operations at the refinery and the standing of the applicant company and secondly to ascertain the ownership structure and in particular to meet the compliance requirements for the setting up of a customer account for the applicant to facilitate the subsequent provision of sample plates or ingots for testing and the settlement of the troy ounce content thereof upon completion of the application process.

The Application Form also includes declarations relating to the applicant's willingness to (a) respond to any complaints from the market about the quality of its plates or ingots and (b) have the quality of its refining tested from time to time by the LPPM (by means of the proactive monitoring system).

Documents must be provided in English. In the case of documents originally published in the applicant's local language, an English translation must be provided. Where copies of official documents are to be provided the LPPM may at its discretion require such documents to be notarised by a public official.

The LPPM Management Committee will treat the production data as confidential. This information will normally only be examined by the LPPM Management Committee and its consultant.

It should be noted that the application fee of £2,000 + VAT at the current rate where applicable, must be paid at the time of the application, either in the form of an accompanying cheque in favour of the London Platinum and Palladium Market or by direct bank transfer to the LPPM's bank account including all bank charges. Details of the LPPM's bank account are given in Annex A. The LPPM will issue a corresponding invoice/receipt when the payment has been received (or if required, an invoice in advance). The application fee is non-refundable in the event that an application is unsuccessful, irrespective of the stage reached. Details of the other charges involved are given in Section 6.

The LPPM will normally acknowledge receipt of the application within ten working days. As soon as possible after receipt of the application, the LPPM Management Committee will decide whether the application should be accepted for technical assessment.

The LPPM reserves the right, where this is considered necessary, to arrange a short inspection visit before accepting an application for technical appraisal. The costs of the inspection visit, including business class flights, local subsistence and travel, must be paid for by the applicant. The inspectors will be nominated by the LPPM Management Committee

If, having considered all the information submitted, the LPPM Management Committee agree that the application meets all the relevant criteria and should therefore be processed further, the applicant will be so advised and will be required to pay the balance of the application fee namely £10,500 plus VAT where applicable and submit sample plates or ingots for inspection, assaying and testing.

Throughout the application process, the LPPM will act as the intermediary between the applicant and the referees (see list in Annex B) that will be used in the technical assessment stage. The LPPM will also keep accounts in respect of the charges for the technical assessment stage of the application and the plates or ingots that the applicant supplies for testing and any other costs involved. The applicant will not be informed of the identities of the referees carrying out the technical assessment and the referees will only be informed of the identity of the applicant when the application has been successfully completed and the applicant advised of the result.

#### **4. Technical Assessment Procedure**

##### **4.1 Testing the applicant's assaying capability**

The applicant will be required to state the assay of the sample plates or ingots that it submits to the LPPM for inspection and testing and provide the LPPM with a copy of its detailed spectrographic analysis report. **Particular attention should be paid to Annex F listing the "core" and supplementary elements that the Referees are likely to look for.**

The assay report should list the individual number of each plate or ingot and show the assay determined for each plate or ingot to five significant figures (i.e. expressed as parts per million) and the applicant's interpretation of the assays to four significant figures, according to the rules shown below.

For the purpose of rounding five-figure assays to four figures, the following principle should be observed (except in the two instances shown below).

If the fifth significant figure is a six or greater, then the fourth significant figure should be rounded up by one.

The exceptions are as follows:

a) an assay determination of between 99.946% and 99.949% should not be rounded up to 99.95% but should be reported as 99.94%.

b) an assay of 99.996% or above should not be rounded up and should be reported as 99.99%.

The assay report should also provide full details of the assaying method that has been used.

In order to pass the assaying test on the plates or ingots, the applicant's assay determinations should agree with the average of the assay determinations of the referees within  $\pm 10$  at the fifth significant figure (i.e. 100 parts per million); for example, if the average of the referees assay determinations on the sample is 99.975% then the applicant's assay determination would have to fall within the range 99.965% to 99.985%.

#### **4.2 Submission and testing of sample plates or ingots**

The applicant will be required to ship three sample plates or ingots to the LPPM's nominated duty and VAT-free warehouse in London ("the nominated vault"). These plates or ingots must conform generally to the specifications and standards laid down by the LPPM (see Sections 7 to 9 below). There are, however, additional requirements for plates or ingots submitted for testing

- (a) One of the plates or ingots should be stamped with the identifying stamp of the refinery and other marks as listed in sections 7 to 9 below and should conform with the photograph and line drawing submitted with the application.
- (b) The remaining two plates or ingots should only be stamped with an identifying code provided by the LPPM (such as LPPM 09-01) plus a number from 1 to 2.
- (c) The sample plates or ingots should be accompanied by a weight list showing in respect of each plate or ingot the plate or ingot number, the weight in either troy ounces expressed to three decimal places or in grams to one decimal place and the five and four figure assays.

Usually the plates or ingots must be received by the LPPM's nominated vault within four weeks of the applicant being requested to submit them. Failure to submit the plates or ingots within this time-frame may, in the absence of specific agreement by the LPPM, result in an application being rejected with the forfeiture of the fees paid.

The applicant is required to insure the plates or ingots on a vault-to-vault basis and is recommended to use one of the carriers in the United Kingdom, nominated by the LPPM (see list at Annex D), for transporting the plates or ingots from the point of entry into the United Kingdom to the nominated vault. All transportation and insurance costs are payable by the applicant.

The LPPM's nominated vault will check-weigh the sample plates or ingots against the accompanying weight list (see paragraph (c) above). A representative of the LPPM will check the plates or ingots against the photograph and scale technical drawing submitted with the application (see Annex A) and, together with at least one other representative of the LPPM, will then carry out an initial visual examination of the plates or ingots. If found to be satisfactory, one of the unmarked sample plates or ingots will then be sent for testing to each of two referees appointed by the LPPM.

The two referees will independently examine the plates or ingots and comment on the general appearance and finish of the plates or ingots. The referees will also check-weigh the plates or ingots. For the technical testing the referees will take, by means of cutting, drilling or sawing, not less than two samples from each plate or ingot. The referees will generally use spectrographic analysis when checking the assay of the plates or ingots, conducting not less than three trials on each sample taken. Each referee will then take the average of all trial results to produce an overall assay determination for the plate or ingot. In order to pass the assaying test the applicant's five figure assay determination (which must not be less than 99.950%) of the plate or ingot, must agree with the referees assay determination within +/- 10 at the fifth significant figure. The LPPM does not set maximum acceptable levels for impurities but seeks to ensure that they are within appropriate limits and the referees' reports will include their evaluation of the impurities found in this regard.

A referee may if it considers it necessary melt the plate or ingot and assay a sample taken from such melt.

## 5. Results

An applicant must satisfy the Management Committee of the LPPM that it has met all the above criteria and testing requirements before it can be included in the list of acceptable refiners.

When the Management Committee has approved an application for listing, the LPPM will inform the applicant. The Chairman will arrange for the applicant's details to be included on the Good Delivery List and will prepare and send to the applicant a certificate marking its acceptance onto the List.

## 6. Charges and Accounting

Fees are levied by the LPPM for a Good Delivery application to cover the costs of the LPPM and the work of the referees. Such fees may be reviewed by the LPPM at any time but not retrospectively once an application has commenced. Currently the total fee, excluding VAT, amounts to £12,500 for each of platinum and palladium. The fees are payable in two tranches:

### **Fees Payable by Good Delivery Applicants (in £ sterling – plus VAT at the then current rate)**

<b>Fees (all fees are payable to the LPPM)</b>	<b>Platinum</b>	<b>Palladium</b>
On Application (plus VAT at the applicable rate)	2,000	2,000
Stage 1: Testing of Applicant's plates or ingots (plus VAT at the applicable rate)	15,500	15,500
<b>Total</b>	<b>17,500</b>	<b>17,500</b>

The above-mentioned fees are payable in advance at each stage. In the event of an applicant not progressing to the next stage, for whatever reason, no part of the fees already paid is refundable. However, in such situations, no fees are payable for the next stage.

Once the tests have been completed, the after-testing weight in troy ounces of the sample plates or ingots supplied by the applicant will be notified to the applicant by the LPPM. By separate arrangement with the LPPM, the platinum or palladium may be sold and the proceeds credited to the applicant. Alternatively, an equivalent weight of platinum or palladium can be made available to the applicant (subject to the settlement of all outstanding fees) on a loco London or Zurich basis by book transfer through the London or Zurich platinum and palladium market clearing mechanism, any charges or expenses associated therewith being for the applicant's account.

## 7. General Specifications for Good Delivery Plates or Ingots

The LPPM's recommended specifications for Good Delivery plates and ingots are shown below. Detailed requirements for platinum and palladium Good Delivery plates and ingots are given in the Sections 8 and 9 respectively. The LPPM considers that the appearance of plates or ingots is important, firstly because of the technical reasons described below and secondly because the maintenance of high standards of surface finish indicates a good level of quality control in general. A

poor plate or ingot appearance might, on the other hand, suggest that standards of refining or assaying are less than desired.

**If ingots / plates are produced in the general form of Good Delivery ingots / plates, but due to their intended use (for example ingots / plates produced for and delivered directly to an industrial customer for use as a raw material) they do not meet the Good Delivery specifications (for example, inferior appearance or sub-standard bar marks) then the Good Delivery refiner must stamp the bars NGD (meaning Non Good Delivery) in close proximity to the LPPM's-approved manufacturer's mark.**

**Weighting:** Bars should be weighed in accordance with the procedure laid down by the LPPM (see section 4.2 (c) above).

**Shape:** Plates and ingots must be easy and safe to handle and convenient to stack and should show the plate or ingot marks as detailed below. It is important that the edges of the plates and ingots must not be sharp, so as to avoid the risk of injury during handling.

**Appearance:** Plates and ingots must be of good appearance. Faults that must be avoided, especially on the top surface of a ingot / plate, are irregularities such as surface cavities, cracks, holes or blisters (debris and water can accumulate in such irregularities which can affect the weight of the plate or ingot and, accumulated water can cause an explosion when the plates or ingots are melted) and excessive shrinkage (i.e. the concavity of the top face of the ingot and any concentric cooling rings must not be such that it makes it difficult to either apply or read the ingot marks or in the case of concavity ingots become unstable when stacked on top of each other). The sides and bottom surface should be smooth and free from cavities, lumps and layering.

**Marks:** Plates and ingots must be marked on the larger surface of the two main surfaces of the ingot. This is the surface that would normally be uppermost when the ingots are stacked. The marks should include the stamp of the refiner (which, if necessary for clear identification, should include its location), the assay mark (where used), the fineness, the serial number (which must not comprise of more than ten digits or characters), the letters PT or PLATINUM or PD or PALLADIUM (as appropriate), the year of production and the weight in grams, kilograms or troy ounces. The year of manufacture should be shown as a four digit number unless incorporated as the first four digits in the plate or ingot number. If plate or ingot numbers are to be re-used each year, then the year of production must be shown as the first four digits of the plate or ingot number although a separate four digit year stamp may be used in addition. Marks should be clear and may be applied to plates or ingots either by using conventional stamping or by dot matrix (pneumatic punching), provided always that if pneumatic punching is used the marks must be no less clear and at least as durable as if conventional stamping had been used.

If plates or ingots are delivered in to the London or Swiss market and the recipient vault is of the opinion that the plates or ingots do not conform to the above requirements the recipient vault may ask the LPPM to appoint independent inspectors to examine the plates or ingots and express an opinion as to whether the plates or ingots are acceptable for Good Delivery purposes. For the avoidance of doubt, any proposed recipient of plates or ingots has, irrespective of any view expressed by an inspector on the condition of a plate or ingot, the absolute right to refuse to accept delivery of a plate or ingot if its vault manager considers that the plate or bar does not meet the Good Delivery standards as set out in these Good Delivery Rules.

## 8. Specifications for a Good Delivery Platinum Plate or Ingot

The physical settlement of a loco London / Zurich platinum trade is a plate or ingot conforming to the following specifications:

**Weight:** minimum permitted weight is 1 kilogram (32.151 troy ounces) and the maximum permitted weight is 6 kilograms (192.904 troy ounces)

The gross weight of a plate or ingot should if expressed in grams be shown to one decimal place, if expressed in kilograms be shown to four decimal places and if

expressed in troy ounces shown to three decimal places. Weights should never be rounded-up.

- Fineness: the minimum acceptable fineness is 99.95%
- Marks: Serial number (see additional comments in section 7 above)  
 Assay stamp of refiner  
 Fineness (to four significant figures)  
 PT or PLATINUM  
 Year of manufacture (see additional comments in section 7 above)  
 Weight in grams or troy ounces as specified above

## 9. Specifications for a Good Delivery Palladium Plate or Ingot

The physical settlement of a loco London / Zurich palladium trade is a plate or ingot conforming to the following specifications:

- Weight: minimum permitted weight is 1 kilogram (32.151 troy ounces) and the maximum permitted weight is 6 kilograms (192.904 troy ounces)  
 The gross weight of a plate or ingot should if expressed in grams be shown to one decimal place, if expressed in kilograms be shown to four decimal places and if expressed in troy ounces shown to three decimal places. Weights should never be rounded-up.
- Fineness: the minimum acceptable fineness is 99.95%
- Marks: Serial number (see additional comments in section 7 above)  
 Assay stamp of refiner  
 Fineness (to four significant figures)  
 PD or PALLADIUM  
 Year of manufacture (see additional comments in section 7 above)  
 Weight in grams or troy ounces as specified above

## 10. Proactive Monitoring

The LPPM operates a system of monitoring the quality of the production and assaying ability of refiners on the Good Delivery List. The proactive monitoring system was introduced with effect from 1<sup>st</sup> January, 2009. The proactive monitoring will necessitate refiners providing on request a sample from a normal production run which will be check-assayed by two of the LPPM's referees. Normally refiners will be subject to monitoring once every three years. A newly listed refiner would not normally be monitored within the first three years of being listed. A separate paper "Proactive Monitoring Procedures and Criteria" for the proactive monitoring of Good Delivery refiners describes the operation of the system in detail and is included as Annex E

### 10.1 Annual Monitoring Fee

In order to pay for the costs involved in the testing required for proactive monitoring each refiner on the Good Delivery List must pay an annual monitoring and testing fee to the LPPM (currently £1,000 per metal). However, the monitoring fee for refiners which are either Members or Associates is included in their annual Membership or Associateship fees. All the above amounts are subject to UK Value Added Tax where applicable.

## 11. Retesting of Plates or Ingots

The LPPM reserves the right when appropriate to ask refiners on the Good Delivery List to submit plates or ingots for testing if, in its opinion, a refiner is unable to demonstrate the required competence in assaying (as revealed by the proactive monitoring system) or if the appearance of a refiner's plates

or ingots give cause for concern. At its discretion, the LPPM may request a refiner to send one or more plates or ingots to a London vault for inspection and testing.

### **11.1 Testing Method**

The methods of inspection and testing specified in section 4.2 of these Rules will generally be followed.

### **11.2 Charges**

The refiner will be required to pay for the cost of insurance and shipping the plates or ingots to the London vault. If a subsequent inspection by a panel of clearing vaults or other specialists appointed by the LPPM is satisfactory, the LPPM will charge the refiner the sum of £2,000 plus VAT as applicable. However, should the vault inspection indicate the need for further testing of the plates or ingots by the LPPM's referees, then an additional charge of up to £8,000 plus VAT as applicable will be levied to cover the cost of shipping the plates or ingots to the referees and the testing of the plates or ingots by the referees.

### **11.3 Transfer to List of Former Refiners**

If at anytime the Management Committee of the LPPM deems that the quality of a Good Delivery refiners plates and / or ingots falls short of the standards set out in these Rules and the refiner concerned either refuses or is unable to rectify the problem identified by the Management Committee then the LPPM Management Committee reserves the absolute right to transfer the refiner from the LPPM Good Delivery List to the list of Former Refiners

## **12. Further Information**

Any questions or requests for further information about the Good Delivery List, specifications or application procedures should be addressed to the Chairman of the LPPM.

March, 2010

**Annex A – Application Form for Good Delivery Listing**

**PLATINUM / PALLADIUM †**

Name \_\_\_\_\_ of \_\_\_\_\_ Refinery

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Address of Refinery.....

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Name of Company and address of Head Office if different from those of Refinery

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Contact name, title and address to which correspondence should be addressed

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Telephone No: .....Fax No: .....

E-mail:.....

† Delete as applicable.

Please complete a separate Application Form for platinum and palladium if both metals are applied for.

See overleaf for documents and payment to be enclosed.

**Documents and other information to be enclosed**

Unless otherwise specified, the documents must be in English and if provided as a translation into English, they should in each case be authenticated, in a manner acceptable to the LPPM, as being a true translation of the original document.

1. A written reference from a major well known commercial bank with which the applicant has an established relationship and confirming how long the relationship has been in existence, that the relationship has always operated to the issuing bank's entire satisfaction and that to the issuing bank's best knowledge and belief the applicant is of sound reputation and financial standing.
2. Certified true copy of the applicant's Certificate of Incorporation (or Certificate of Trade).
3. Latest published annual report and audited financial statements for the most recently available annual accounting period. If these documents are not officially published in English, a translation of the following into English should be provided:
  - Auditor's letter approving the Accounts
  - Balance Sheet
  - Profit and Loss Account.
4. Description of the structure of the Company's ownership, including:
 

*(If a privately owned company)*

  - List of five principal shareholders, with their addresses and shareholdings
  - List of all directors

*(If a publicly quoted company)*

  - Details of the Stock Exchange(s) on which the company is listed.
5. History and description of the company's business and refining operations, including:
  - exact location of refining plant
  - history of refining operations at the plant
  - a general description of the main sources of feedstock
  - a brief description of the main refining processes used
  - a general description of the main customers for the refinery's main products
  - a description of the methods and equipment used for assaying platinum and/or palladium
6. Figures for the last three years' annual production of refined platinum / palladium
7. Estimate of next two years' annual production of refined platinum / palladium
8. Illustrations of the platinum / palladium plates or ingots as follows;
  - an electronic high-quality high resolution coloured digital image in the form of a jpg file (pixel dimensions should be in the order of 2700 by 1800) showing the detailed plate / ingot marks on the face of the plate / ingot, the marks should be clear and in focus,
  - an electronic high-quality high resolution coloured digital image in the form of a jpg file (pixel dimensions should be in the order of 2700 by 1800) showing the plate / ingot in three-dimensional view with the plate / ingot marks upper most,
  - three high quality hard copies of each of the above (**not copies reproduced on ordinary quality paper using an inkjet printer**),
  - a fully dimensioned, black and white scale technical drawing on A4 size paper. This should show the location of the marks on the main surface and a detailed view of the marks.
  - a detailed description of the applicant's logo appearing on the plates / ingots explaining what the individual characters and / or symbols represent
  - a statement confirming whether plate / ingot numbers are re-cycled each year and an explanation of what the individual digits within the plate / ingot number represent.

9. Sterling cheque for £2,350-00 (£2,000-00 + 350-00 VAT) in favour of the London Platinum and Palladium Market or confirmation of the payment direct to the LPPM's bank account (see overleaf)

**DECLARATION**

(To be signed by a Director/Authorised Officer of the Applicant, as appropriate.)

To: The London Platinum and Palladium Market

We confirm that we have read the LPPM paper on The Rules for Good Delivery Platinum and Palladium Plates and Ingots which sets out the specifications and procedures applied by the LPPM for the examination of the assaying capability and the testing of plates and ingots of Applicants for Good Delivery status. We also agree that this procedure should be applied to assess our melting and assaying capability and that, in order to be included by the LPPM in the list of Acceptable Refiners, we must satisfy the Management Committee of the LPPM that we have met the criteria and requirements of the tests laid down in the Procedures.

We agree to pay the initial application fee of the LPPM with this application, and those fees subsequently payable during the course of the testing procedures whether or not our application is successful.

We agree that if accepted onto the Good Delivery List, we will respond appropriately to any complaints from the market about the quality of our plates or ingots.

We agree that if accepted onto the Good Delivery List, we will submit to regular proactive monitoring.

Please declare (a) or (b)

- (a) We are not a Member or Associate of the LPPM and agree to the payment of an annual monitoring fee in respect of continuing membership of the Good Delivery List
- (b) As a Member/Associate of the LPPM, we understand that the annual Good Delivery List monitoring fee will be included as part of the annual charge for Membership/Associateship

For and on behalf of:

.....  
(Name of Applicant Company)

Signature of Director/Authorised Officer.....

Name in BLOCK letters .....

Date.....

This application, together with all supporting documents, should be sent to the Chairman of the LPPM at the address specified for the Chairman in the list of the LPPM Management Committee members on the LPPM website, or such other address as the LPPM may specify

LPPM Bank Account Details:  
HSBC Bank PLC, 100 Old Broad Street, London EC2N 1BG  
Sort Code: 40-07-31.  
Account Name: London Platinum and Palladium Market.  
Current Account Number: 31292277.  
IBAN Code: GB52MIDL40073131292277  
SWIFT Code: MIDLGB2141R

## **Annex B – Referees**

### **List of Approved Good Delivery Referees**

The following companies have been appointed as Referees to the LPPM Good Delivery system.

Inclusion in this list does not constitute or imply any representation or warranty by the LPPM as to creditworthiness or as to the services or goods supplied or quality or compliance with any specification relating thereto. No liability for direct or consequential loss, howsoever caused, whether by negligence or otherwise, whether by use of this list or reliance thereon, is accepted by the LPPM.

#### **Company**

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**Johnson Matthey plc**

**Metalor Technologies SA**

**PAMP SA**

**Tanaka Kikinzoku Kogyo K.K.**

**Valcambi SA**

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## Annex C – Supervisors

### List of Approved Good Delivery Supervising Companies

The following companies have been appointed as Supervisors to the LPPM Good Delivery system.

Inclusion in this list does not constitute or imply any representation or warranty by the LPPM as to creditworthiness or as to the services or goods supplied or quality or compliance with any specification relating thereto. No liability for direct or consequential loss, howsoever caused, whether by negligence or otherwise, whether by use of this list or reliance thereon, is accepted by the LPPM.

Company	Address	Contact Details
<b>Alex Stewart Assayers Limited</b>	Caddick Road Knowsley Business Park Prescot L34 9HP United Kingdom	T: +44 (0) 151 548 7777 F: +44 (0) 151 548 0714 E-mail: andrew.smith@stewartgroupglobal.com Paul.scales@stewartgroupglobal.com
<b>Alfred H Knight International Limited</b>	Eccleston Grange Prescot Road St Helens Merseyside WA10 3BQ United Kingdom	T: +44 (0) 1744 733 757 F: +44 (0) 1744 27062 E-mail: enquiries@ahkgroup.com (for the attention of John How)
<b>Inspectorate International Limited</b>	2 Perry Road Witham Essex CM8 3TU United Kingdom	T: +44 (0) 1376 515 081 F: +44 (0) 1376 520 819 E-mail: info@inspectorate.co.uk For the attention of Paul Alston

## Annex D– List of Security Transport Companies

List of Security Transport Companies known to the LPPM that may be able and willing to transport platinum and palladium plates and / or ingots

Company	Address	Contact Details
<b>Brink's Limited</b>	Arnold House 36-41 Holywell Lane London EC2P 2EQ United Kingdom	Tel: +44 (0) 20 7247 9481 Fax: +44 (0) 20 7377 5513 Contact name: Mr Simon Churchill Sales Executive, Precious Metals Email: simon.churchill@brinksinc.com
<b>G4S International</b>	4th Floor 1-3 College Hill London EC4R 2RA United Kingdom	Tel: +44 (0) 20 7776 1300 Fax: +44 (0) 20 7776 1301 Contact name: Mr Mark Woolley, Regional Director, Europe Email: mark.woolley@sivt.securicor.com
<b>VIA MAT International Limited</b>	Unit 13, Shepperton Business Park, PO Box 92 Govett Avenue Shepperton Middlesex TW17 8UQ United Kingdom	Tel: +44 (0) 1932 230130 Fax: +44 (0) 1932 230231 Contact name: Mr Graham Tuck Email: graham.tuck@viamat.com

## **Annex E – Proactive Monitoring – Procedures and Criteria**

### **1. Introduction**

With effect from 1<sup>st</sup> January, 2009, the LPPM Management Committee introduced a system of proactive monitoring of refiners on the Good Delivery List in order to ensure the integrity and further enhance the reputation of the List and the refiners on it.

Proactive monitoring will involve the refiner submitting a sample taken from their normal production process for testing by the LPPM's Good Delivery referees. It is believed that this method combines the desirable features mentioned above.

An important aspect of the new system is that it necessitates a greater involvement on the part of the LPPM's panel of referees and it was decided at the outset to expand the panel. At its meeting in September, 2007, the Management Committee decided to appoint three new referees as per Annex B.

It is anticipated that the first round of proactive monitoring will commence during the third quarter of 2009. The first refiners to be monitored will be selected by the LPPM based on a number of criteria, such as whether there had been recent changes in ownership or production technology and the length of time since the company was first tested for admission to the Good Delivery List. Normally, all refiners on the List will be monitored once every three years.

### **2. Notice to Refiners about Monitoring**

The LPPM will send a letter to the refiner concerned (with a copy via email or fax) informing it that proactive monitoring of its platinum and/or palladium production is to take place within a period of one month.

The monitoring operation will normally begin with the taking of a sample from the refiner's normal production process (this operation being witnessed by a representative of an LPPM-approved supervising company). The method of sampling will be compatible with the refiner's normal method of production and will be agreed with the selected LPPM supervisor. Refiners that are on both the platinum and palladium List will be required to undergo monitoring for both metals at the same time (for instance, with the procedures described below being carried out on the same or successive days).

### **3. Sampling**

#### **3.1 Appointment of supervisor**

A refiner being monitored should, in the first place, appoint a supervising company from the LPPM-approved list (see Annex C) that will provide a representative ("supervisor") to witness the sampling operation on behalf of the LPPM. The LPPM-approved list of supervising companies comprises internationally recognised assaying and inspection companies. These companies have local representatives or laboratories around the world.

The costs and expenses of the supervisor must be paid by the refiner. The supervising company will charge a fixed fee (currently £1250-00 plus VAT where applicable) for each sampling operation monitored, unless specifically agreed otherwise, plus travelling and subsistence expenses incurred by its representative. Thus, the expenses chargeable by the supervising companies will depend on the locations of their representative offices relative to that of the refiner.

#### **3.2 Witnessing Production of the Sample**

The production from which the sample is taken should have a fineness of 99.95% or above.

The sample should be taken from a normal production and the operations leading up to the actual casting of the sample must be witnessed by the supervisor. The refiner should, prior to the supervision visit taking place, advise the selected supervisor of its normal method of taking samples for assaying to ensure that the supervisor is satisfied that such method is suitable for the purpose of proactive monitoring. If the sample is requested during holiday periods or other enforced shutdowns, the LPPM is willing to be flexible on the time allowed for arranging production of the sample.

The refiner should be confident about what the sample production contains and that it is homogeneous before taking the sample. If the sample is produced using the dip sampling method such sample should be taken at the final stage of production, that is, just before casting.

The purpose of taking the sample is to provide sufficient homogeneous material to provide the samples to be assayed by the refiner and the LPPM's referees, together with enough spare samples in case of various eventualities.

The sample material produced should be capable of being divided in to six separate pieces of approximately 30mm x 30mm x 3mm each and be in a form suitable for testing using spectrographic methods. If the production of samples in such form would cause a problem for the refiner the LPPM may be willing upon request to consider accepting samples in another form, for example sponge.

The supervisor will report to the LPPM using a standardised format including information on:

- the use to which the refined metal will be put,
- the raw materials used,
- the processes leading up to the sample being produced,
- the method of sampling employed,
- in the case of plates or ingots which are to be numbered, the numbers of the plates or ingots produced, and
- the refiner will also, in the supervisor's presence, either produce, or permit the supervisor to produce, colour digital photographs of the refiner's most recently produced and fully marked plates or ingots complying with the LPPM Good Delivery specification, which clearly show the standard of finish of the plates or ingots. The supervisor will forward these photographs to the LPPM for their records.

#### 4. Treatment of the Samples

Two of the six individual samples will be sealed and sent by the supervisor to the LPPM. One will be left with the refiner for assaying and three will be sealed by the supervisor and left with the refiner as reserves in case they are needed subsequently, for instance if any samples are lost in transit. Initially the individual samples should be sealed in clear polythene bags with no indication of the refiner's identity before being sealed in the supervisor's normal packing, this is to enable the LPPM in due course to forward the samples to the LPPM referees for cross-checking without opening them thereby reducing the possibility of contamination whilst at the same time maintaining the anonymity of the refiner producing the samples.

##### 4.1 Refiner Assay

The sample left with the refiner by the supervisor should be assayed by the normal method used in the refinery for assaying platinum and / or palladium. The number of individual trials to be carried out is not specified by the LPPM but is instead left to the refiner, according to its normal practice. The report should include the individual trial results expressed to five significant figures of fineness and the mean of the trial results, also to five figures. The assay results should be sent by e-mail to the address specified by the LPPM within five local working days after the sampling. The method of assaying must be stated in the report, including the type of spectrographic testing used. A copy of the refiner's detailed spectrographic analysis should also be provided. When assaying platinum and / or palladium by spectrographic methods, oxygen and nitrogen should be ignored when deducting the sum of the impurities from 1000 (in other words, the oxygen and nitrogen should be treated as platinum or palladium as appropriate). **Particular attention should be paid to Annex F listing the "core" and supplementary elements that the Referees are likely to look for. Annex F is purely for guidance, it is not a mandatory list of elements to be looked for by the refiner.**

The LPPM will treat the information provided by the refiner in strictest confidence. In particular, none of this information will be transmitted to any of the referees other than on a "no names basis".

The mean assay value and the detailed trial results will be assessed by the LPPM in consultation with the referees as may be necessary. The mean assay and (in borderline cases) the standard deviation of the trial results may be viewed by members of the LPPM Management Committee who will treat all such data as confidential.

#### 4.2 Referee Assay

On receipt of the two samples by the LPPM, one sample will be sent according to a rota to each of two of the LPPM's referees who will be asked to assay the sample to five significant figures. It should be noted that the referee will not be aware of the identity of the refiner that provided the sample. The referee will carry out at least three trial assays and in the report submitted to the LPPM will also provide details of the individual trial results and the methods of assaying used.

If the assay of the refiner and the average of the two referee's assays fail to agree within the tolerances described in Section 6 below the refiner will be asked to unseal one of the spare samples, carry out an assay on it and submit a new assay report to the LPPM within five local working days. At the same time the refiner will be asked to send the remaining two retained samples to the LPPM who will in turn send them to two other LPPM referees not involved with the initial samples.

### 5. Assessment Criteria and Further Testing

The LPPM, taking advice where necessary from its technical consultants, will compare the mean five-figure assay results provided by the refiner and the referees. In borderline cases, the LPPM will also take account of the individual trial results.

The criteria are shown below. The tolerances on assaying shown here are expressed as the number of units at the fifth significant figure of fineness, and expressed as parts per million. Thus, for instance, +/-10 at the fifth significant figure for an assay of say, 99.970% means a range of fineness from 99.960% to 99.980% and is equivalent to 100 parts per million.

### 6. Consideration of Assay Results

#### 6.1 Consideration of Assays from First Set Samples

The criteria used for assessing the assays on the samples provided are based on those contained in the Good Delivery Rules for new applicants. The refiner's and referee's assay results on the first sample provided by the refiner will be assessed as follows:

**Full pass** – agreement between the average of the two referee's and refiner's assays within +/-10 at the fifth significant figure will be regarded as a full pass with no further testing being required.

**Borderline pass** – i.e., agreement in the range +/-11-20 at the fifth significant figure this will necessitate the refiner sending two further samples to the LPPM to be tested by two further LPPM referees and that the refiner will be asked to assay, within five local working days, one of the spare samples which have been sealed and left at the refinery by the supervisor. On receiving the assay results from the refiner and the second set of referees, the LPPM will compare all the results and, if necessary taking technical advice, decide on whether the results are acceptable. If they are not, the refiner will, at the LPPM's absolute determination, either be asked to arrange for a new sample to be produced, witnessed by an LPPM supervisor, within one month and provide a further two samples for testing by the LPPM's referees or assay up to three reference samples produced by the LPPM referees in which event the cost of the reference samples and any shipping costs will be for the account of the refiner.

**Fail** – i.e., a divergence of >21 at the fifth significant figure in which event, the refiner will at the LPPM's absolute determination either be required to provide a further two samples from a new witnessed dip sample within one month or assay up to three reference samples produced by the LPPM

referees in which event the cost of the reference samples and any shipping costs will be for the account of the refiner.

## **6.2 Cases where a Second Sampling Operation is Required**

Each of the second pair of samples will be sent for assaying to LPPM referees. The LPPM will assess the results based on the criteria described above but taking into account all the assay results provided by the refiner and the referees. If necessary after taking advice from its technical consultants, the LPPM will then decide whether the refiner has passed the proactive monitoring assaying test and if not what further action is to be taken.

## **7. Annual Proactive Monitoring and Testing Fee**

Refiners (excluding Good Delivery refiners who are Full Members of the LPPM) who wish to remain on the LPPM Good Delivery List will be required in January of each year to pay an annual proactive monitoring and testing fee which is currently £1,000-00 +VAT(as applicable) per metal . This fee may be reviewed and changed by the LPPM at any time.

## **8. Treatment of Refiners who are Unwilling to be Monitored**

Those refiners who decide not to submit to regular monitoring will be transferred to the Former List. This List shows the names, marks, etc of companies that were formerly accredited as Good Delivery, together with the date of transfer to the Former List. It is felt that rather than giving a note of explanation about the reason for the transfer, most refiners in this position would prefer that no such explanation should be given in the List.

# Annex F – Residual Elements

## Determination of residual Elements by Spectrographic Analysis

Good Delivery applicants and refiners undergoing Proactive Monitoring using spectrographic analysis for determining the assays of their material are responsible for identifying all residual elements present in their plates / ingots or samples which will affect the assays determined.

The lists set out below are not intended to be prescriptive as far as refiners are concerned but merely to provide guidance as to the elements that LPPM Referees may typically look for.

The “core” elements are those which all the LPPM Referees will normally look for when analysing platinum and palladium samples and are shown in Table 1. Table 2 shows those elements which may in addition be looked for by some LPPM Referees.

Table 1 – Core Elements	Platinum	Palladium		Table 2 – Additional Elements	Platinum	Palladium
Silver - Ag	x	x		Lithium - Li	x	x
Aluminium -Al	x	x		Phosphorus – P	x	x
Arsenic - As	x	x		Germanium - Ge	x	x
Gold - Au	x	x		Selenium - Se	x	x
Boron -B	x	x		Strontium - Sr	x	x
Bismuth - Bi	x	x		Barium -Ba	x	x
Calcium - Ca	x	x		Potassium - K	x	x
Cadmium - Cd	x	x		Beryllium -Be	x	x
Cobalt - Co	x	x		Gallium -Ga	x	x
Chromium - Cr	x	x		Indium - In		x
Copper - Cu	x	x		Tantalum - Ta		x
Iron - Fe	x	x		Mercury - Hg		x
Indium- In	x			Thallium - Tl		x
Iridium - Ir	x	x		Vanadium - V		x
Magnesium - Mg	x	x		Osmium - Os		x
Manganese - Mn	x	x		Rhenium - Re		x
Molybdenum - Mo	x	x				
Sodium - Na	x	x				
Nickel -Ni	x	x				
Osmium - Os	x					
Lead - Pb	x	x				
Palladium - Pd	x					
Platinum - Pt		x				
Rhodium - Rh	x	x				
Ruthenium - Ru	x	x				
Antimony - Sb	x	x				
Silicon - Si	x	x				
Tin - Sn	x	x				
Tellurium - Te	x	x				
Titanium - Ti	x	x				
Thallium - Tl	x					
Tungsten – W	x	x				
Zinc - Zn	x	x				
Zirconium - Zr	x	x				

