**技术要求**

1设备：多通道直读光谱仪

2设备用途：铅基、银基样品检测分析

3分析元素和检测范围要求

铅基分析样品：电解铅、高纯铅、合金铅

银基分析样品：电解银、高纯银、注册银

**铅基检测元素及检测范围**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 牌号 |  | 化学成分（质量分数）% | | | | | | | | | | |
| 电解铅 | Pb不小于 | 杂质，不大于 | | | | | | | | | | |
| Ag | Cu | Bi | As | Sb | Sn | Zn | Fe | Cd | Ni | 总和 |
| Pb99.994 | 99.994 | 0.0008 | 0.001 | 0.004 | 0.0005 | 0.0007 | 0.0005 | 0.0004 | 0.0005 | 0.0002 | 0.0002 | 0.006 |
| Pb99.990 | 99.99 | 0.0015 | 0.001 | 0.01 | 0.0005 | 0.0008 | 0.0005 | 0.0004 | 0.001 | 0.0002 | 0.0002 | 0.01 |
| Pb99.985 | 99.985 | 0.0025 | 0.001 | 0.015 | 0.0005 | 0.0008 | 0.0005 | 0.0004 | 0.001 | 0.0002 | 0.0005 | 0.15 |
| Pb99.970 | 99.97 | 0.005 | 0.003 | 0.03 | 0.001 | 0.001 | 0.001 | 0.0005 | 0.002 | 0.001 | 0.001 | 0.3 |
| Pb99.940 | 99.94 | 0.008 | 0.005 | 0.06 | 0.001 | 0.001 | 0.001 | 0.0005 | 0.002 | 0.002 | 0.002 | 0.6 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 高  纯  铅 | 牌号 | 化 学 成 分 | | | | | | | | | | | | |
| Pb含量，% 不小于 | 杂质含量，不大于，ppm | | | | | | | | | | | |
| As | Fe | Cu | Bi | Sn | Sb | Ag | Mg | Al | Cd | Zn | Ni |
| 标  准 | Pb－05 | 99.999 | 0.3 | 0.5 | 0.8 | 1.0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 1.0 | 0.5 |
| Pb－06 | 99.9999 | 0.1 | 0.05 | 0.05 | 0.1 | 0.05 | — | 0.05 | 0.1 | 0.1 | — | — | — |
| 电解铅 | % | 99.995 | 0.0005 | 0.0002 | 0.001 | 0.0015 | 0.0005 | 0.0005 | 0.001 | Te  0.0001 | - | - | 0.0005 | 0.0002 |

**银基检测元素及检测范围**

银基体检测元素包括Au 、Pt、Pd、Al、As 、Bi、Ca、Cd 、Co、Cr、Cu、Fe、In Mg、Mn、Pb、Ni、Sb、Se、Si、Sn、Te、Zn

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 电  解  银  牌号 |  | 化学成分（质量分数）% | | | | | | | | |
| 银含量（质量分数）不小于 | 杂质，不大于 | | | | | | | | |
| Cu | Pb | Fe | Sb | Se | Te | Bi | Pd | 总和 |
| IC-Ag99.99 | 99.99 | 0.0025 | 0.001 | 0.001 | 0.001 | 0.0005 | 0.0008 | 0.0008 | 0.0005 | 0.01 |
| IC-Ag99.95 | 99.95 | 0.025 | 0.015 | 0.002 | 0.002 | —— | —— | 0.001 | —— | 0.05 |
| IC-Ag99.90 | 99.9 | 0.05 | 0.05 | 0.002 | —— | —— | —— | 0.002 | —— | 0.1 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 牌号 | 不小于 | 元素检测标准（max）不大于ppm | | | | | | | | | | |
| 高纯银 | Ag | Bi | Cu | Fe | Sb | Pd | Se | Te | Ni | Zn | 其他 | 总和 |
| 99.999 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 10 |

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| --- | --- | --- | --- | --- | --- | --- |
| 注册银检测元素 元素含量10-4 % | | | | | | |
| 注册银 | Au | Pt | Pd | Al | As | Bi |
| AgRM4 | 10.0±1.0 | 9.6±0.8 | 11.1±0.4 |  | 20.1±1.4 | 28.4±2.5 |
| AgRM5 | 28.4±1.3 | 28.4±1.2 | 31.2±1.0 | 8.5±0.7 | 40.1±2.5 | 9.8±0.9 |
| 注册银 | Ca | Cd | Co | Cr | Cu | Fe |
| AgRM4 |  | 10.0±0.5 | 9.5±0.5 |  | 11.5±0.6 | 11.4±0.8 |
| AgRM5 | 2.5±1.8 | 29.2±1.3 |  | 8.0±0.6 | 32.4±1.3 | 28.6±3.4 |
| 注册银 | In | Mg | Mn | Pb | Ni | Sb |
| AgRM4 | 10.8±0.5 |  | 11.8±0.3 | 29.2±2.1 | 10.3±0.7 | 19.1±1.2 |
| AgRM5 |  | 9.9±1.0 | 1.5±0.2 | 10.2±0.8 | 23.5±1.4 |  |
| 注册银 | Se | Si | Sn | Te | Zn |  |
| AgRM4 | 30.5±2.8 | 10.1±0.9 |  | 28.6±3.7 | 10.0±1.3 |  |
| AgRM5 | 10.4±0.7 | 28.4±2.4 | 10.4±1.0 | 9.7±3.3 | 28.9±2.7 |  |

4仪器曲线建立

校正曲线：根据上述元素及检测范围提供检测曲线

铅锭校正曲线、银校正曲线

校正曲线标准样品（是否有校正标样）

5质量检验验收

提供仪器质量验收标准，及具体验收程序。

6培训

现场培训方案，计划，培训资料

7售后服务

具体售后服务方案