**国家标准《稀土硅铁合金及镁硅铁合金化学分析方法第1部分：稀土总量、十五个稀土元素含量的测定》**

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**（送审稿）**

**赣州有色冶金研究所有限公司**

**二〇二三年十月**

**国家标准《稀土硅铁合金及镁硅铁合金化学分析方法第1部分：稀土总量、十五个稀土元素含量的测定》**

**（送审稿）编制说明**

一、工作简况

（一）任务来源

根据2022年7月19日，国家标准化管理委员会《关于下达2022年第二批推荐性国家标准计划及相关标准外文版计划的通知〉》（国标委发[2022]22号）的要求，国家标准《稀土硅铁合金及镁硅铁合金化学分析方法第1部分：稀土总量、十五个稀土元素含量的测定》修订项目由全国稀土标准化技术委员会归口，项目计划编号：20220762-T-469，由赣州有色冶金研究所有限公司负责起草，项目周期16个月。

（二）主要参加单位和工作成员及其所作的工作

1.主要参加单位情况

本文件起草单位：赣州有色冶金研究所有限公司，国合通用测试评价认证股份公司，中国北方稀土（集团）高科技有限责任公司，虔东稀土集团股份有限公司，赣州稀土友力科技开发有限公司，包头市宏博特科技有限责任公司（方法二），有研稀土新材料股份有限公司（方法一），包头华美稀土高科有限公司（方法二），包头稀土研究院（方法一），内蒙古圣泉科利源新材料科技有限公司。

赣州有色冶金研究所有限公司是本项目负责起草单位，公司前身赣研所正式成立于1952年，是新中国冶金系统最早成立的三个科研院所之一，现隶属于整合后的江西钨业控股集团有限公司，并承担江西钨业控股集团有限公司技术中心和博士后科研工作站运行和管理的工作职责。赣研所是一家集采矿、选矿、冶金、材料、环保、设备制造、自动化等多个专业，以有色金属、黑色金属和非金属为综合性研究主体，重点研发和推广钨、稀土、钽铌等有色金属资源采、选、冶、二次资源综合利用、节能环保、自动化新工艺、新技术和新设备以及非煤矿山工程设计、节能评估、安全检测、职业卫生以及有色金属产品分析检测、咨询等服务的综合性科研院所。赣州有色冶金研究所在标准修订过程中，负责提出标准修订的试验方案、试验报告，负责统一样品的制备与发放，汇总精密度数据，并进行数据处理，随后与其他标准参加单位共同形成标准征求意见稿，进行广泛的意见征集，并负责在标准预审会、审定会上进行项目介绍与答辩，最终形成报批稿，协助稀土标准化技术委员会秘书处完成标准的报批工作。

国合通用测试评价认证股份公司和中国北方稀土（集团）高科技有限责任公司是一验单位，在标准的修订过程中对标准文件和研究报告中的各项试验参数进行了验证，同时提供试验样品的精密度数据，对标准文件、研究报告和编制说明提出了相应的修改建议。

虔东稀土集团股份有限公司、赣州稀土友力科技开发有限公司、包头市宏博特科技有限责任公司、有研稀土新材料股份有限公司、包头华美稀土高科有限公司、包头稀土研究院是二验单位，在标准修订过程中对试验样品进行测试提供精密度数据，并对标准、研究报告和编制说明提出了相应的修改建议。内蒙古圣泉科利源新材料科技有限公司是二验单位，在标准修订过程中提供部分试验样品，对试验样品进行测试提供精密度数据，并对标准、研究报告和编制说明提出了相应的修改建议。

2.主要工作成员所负责的工作情况

本标准主要起草人及工作职责见表1。

表1 主要起草人及工作职责

|  |  |
| --- | --- |
| 起草人 | 工作职责 |
| 谢璐 | 负责方法的起草，各阶段标准文本、编制说明的编写。 |
| 刘鸿、黎英 | 与验证单位联系及数据统计。 |
| 曾雪花、罗燕生、石象 | 协助完成相关试验。 |
| 胡芳菲、田佳、田智瑞、刘鹏宇、董三力、徐宁、吴英昕、王新 | 负责方法一验工作，对条件实验进行验证，并完成精密度数据。 |
| 温斌、江媛、朱霓、胡巍钟、李明来、崔春燕、吕楠楠、于亚辉、马寒坤、艾凤革 | 负责方法二验工作，提供精密度数据，或提供部分统一样品。 |

（三）主要工作过程

1**.**预研阶段

2021年8月，针对稀土硅铁合金及镁硅铁合金中稀土测定在实际应用中出现的问题，赣州有色冶金研究所有限公司通过对相关产品企业与科研院所等单位进行调研，确定修订内容，并通过初步试验形成了草案稿，证明了本项目制定方案的可行性，完成立项报告及项目建议书的编写。

2**.**立项阶段

2021年10月，赣州有色冶金研究所在稀土标委会上，提交了稀土硅铁合金及镁硅铁合金化学分析方法第1部分修订的项目建议书、立项报告并进行了答辨，与会专家就稀土硅铁合金及镁硅铁合金化学分析方法第1部分修订进行讨论；2022年7月，根据《国家标准化管理委员会关于下达2022年第二批推荐性国家标准计划及相关标准外文版计划的通知》（国标委发[2022]22号文件，国家标准《稀土硅铁合金及镁硅铁合金化学分析方法第1部分：稀土总量、十五个稀土元素含量的测定》的修订任务下达，项目由全国稀土标准化技术委员会提出并归口，由赣州有色冶金研究所有限公司负责起草，项目计划号20220762-T-469，周期为16个月。

3**.**起草阶段

2022年9月，全国稀土标准化技术委员会组织召开了《稀土硅铁合金及镁硅铁合金化学分析方法》等共12项国家标准修订任务落实会，确定由国合通用测试评价认证股份公司，北方稀土（集团）高科技有限责任公司，虔东稀土集团股份有限公司，赣州稀土友力科技开发有限公司，包头市宏博特科技有限责任公司，有研稀土新材料股份有限公司，包头华美稀土高科有限公司，包头稀土研究院，内蒙古圣泉科利源新材料科技有限公司一共9家单位参与起草验证。

2022年9月-2023年6月，赣州有色冶金研究所有限公司组建《稀土硅铁合金及镁硅铁合金化学分析方法第1部分：稀土总量、十五个稀土元素含量的测定》标准编制小组，收集合适的试验样品，进行方法试验并于6月中旬完成所有试验工作。

2023年6月20日，赣州有色冶金研究所有限公司完成实验数据整理工作，编写了《稀土硅铁合金及镁硅铁合金化学分析方法第1部分：稀土总量、十五个稀土元素含量的测定》方法研究报告，并将样品和方法研究报告邮寄给验证单位进行验证工作。

截止2023年7月20日，各验证单位陆续完成验证试验，并将验证报告返回至起草单位。各验证单位提出意见见验证单位意见汇总处理表。

2023年7月，标准编制组对验证单位意见和数据进行汇总处理，对讨论稿进一步完善，形成《稀土硅铁合金及镁硅铁合金化学分析方法第1部分：稀土总量、十五个稀土元素含量的测定》征求意见稿。

4**.**征求意见阶段

编制组通过中国有色金属标准质量信息网上公开、会议、发函等形式对《稀土硅铁合金及镁硅铁合金化学分析方法第1部分：稀土总量、十五个稀土元素含量的测定》（征求意见稿）征询意见。

2023年7月21日《稀土硅铁合金及镁硅铁合金化学分析方法第1部分：稀土总量、十五个稀土元素含量的测定》在中国有色金属标准质量信息网上公开征求意见。

2023年7月26日~28日在内蒙古包头召开全国稀土标准化工作会议，会上对《稀土硅铁合金及镁硅铁合金化学分析方法第1部分：稀土总量、十五个稀土元素含量的测定》（征求意见稿）进行意见征询。会上湖南稀土金属研究院、西安汉唐、乐山有研等单位的40余位专家代表对本标准征求意见稿、编制说明等进行了细致的讨论，并提出修改意见。

征求意见阶段通过邮件等方式向10家相关单位发送《稀土硅铁合金及镁硅铁合金化学分析方法第1部分：稀土总量、十五个稀土元素含量的测定》（征求意见稿），收到回函9家，回函并有建议或意见的单位3家，详见《征求意见稿 意见汇总处理表》。

5**.**审定阶段

2023年9月20日~22日在四川成都召开2023年第六次稀土标准会议。

二、标准编制原则

本标准起草过程中遵循以下原则：

（一）规范性原则：本标准是根据GB/T 1.1-2020《标准化工作导则 第1部分:标准化文件的结构和起草规则》、GB/T 20001.4-2015《标准编写规则 第4部分：试验方法标准》和GB/T 6379.2-2004《测量方法与结果的准确度》的要求进行编写的；

（二）先进性：本次修订的标准是包含电感耦合等离子体发射光谱法和EDTA滴定法体现了检测技术的进步，适应稀土产业的发展，对国内稀土生产企业及相关行业的技术进步产生积极的促进作用。

（三）适用性：本标准以满足我国稀土硅铁合金及镁硅铁合金产品实际检测需求为原则，宜于应用，能够满足企业需求。本标准根据稀土硅铁合金及镁硅铁合金中稀土总量的不同范围采用两种方法测定，反映了国内各企业的技术水平，适用性广。

（四）充分考虑国家法律、安全、卫生、环保法规的要求。

三、标准主要内容、确定依据及主要试验和验证情况分析

（一）标准的主要内容、确定的依据

本标准为修订标准，因此在标准的修订过程中主要对以下几个方面进行了确认：

1.适用范围的确定

GB/T16477.1文件适用于稀土硅铁合金及镁硅铁合金中稀土总量、十五个稀土元素含量的测定。

2.检测范围的确定

根据最新修订的稀土硅铁合金产品标准和稀土镁硅铁合金产品标准结合生产厂家及使用厂家的含量要求并在此基础上结合日常检测样品的实际情况，确定了电感耦合等离子体原子发射光谱法（方法一）稀土总量的测定范围为：0.50 %~10.00 %，EDTA滴定法（方法二）稀土总量的测定范围为：10.00 % ~40.00 %，具体见表2、表3。

表2　方法一测定范围

|  |  |  |  |
| --- | --- | --- | --- |
| 测定参数 | 质量分数  % | 测定参数 | 质量分数  % |
| La | 0.03～10.00 | Dy | 0.03～0.50 |
| Ce | 0.03～10.00 | Ho | 0.03～0.50 |
| Pr | 0.03～0.50 | Er | 0.03～0.50 |
| Nd | 0.03～0.50 | Tm | 0.03～0.50 |
| Sm | 0.03～0.50 | Yb | 0.03～0.50 |
| Eu | 0.03～0.50 | Lu | 0.03～0.50 |
| Gd | 0.03～0.50 | Y | 0.03～10.00 |
| Tb | 0.03～0.50 | RE | 0.50～10.00 |

表3　方法二测定范围

|  |  |  |  |
| --- | --- | --- | --- |
| 测定参数 | 质量分数  % | 测定参数 | 质量分数  % |
| La | 0.05～40.00 | Dy | 0.05～2.00 |
| Ce | 0.05～40.00 | Ho | 0.05～2.00 |
| Pr | 0.05～2.00 | Er | 0.05～2.00 |
| Nd | 0.05～2.00 | Tm | 0.05～2.00 |
| Sm | 0.05～2.00 | Yb | 0.05～2.00 |
| Eu | 0.05～2.00 | Lu | 0.05～2.00 |
| Gd | 0.05～2.00 | Y | 0.05～40.00 |
| Tb | 0.05～2.00 | RE | 10.00～40.00 |

3.测定方法的确定

本次为修订方法，保留原标准中采用的电感耦合等离子体发射光谱法和EDTA滴定法。两种方法均能满足土硅铁合金及镁硅铁合金中稀土总量、十五个稀土元素含量的测定。

（二）主要试验和验证情况分析

1.电感耦合等离子体原子发射光谱法条件试验

1.1方法原理

试料经硝酸和氢氟酸分解，氢氟酸沉淀稀土分离铁后，经高氯酸冒烟盐酸分解氟化稀土，加入少量铁与稀土在氨水中共沉淀以分离镁、钙等杂质元素。在稀盐酸介质中，于电感耦合等离子体原子发射光谱仪直接测定，按工作曲线法计算十五个稀土元素的质量浓度，以质量分数表示测定结果，十五个稀土元素质量分数加和为稀土总量。

1.2条件试验

1.2.1标准系列配置试验

方法一采用电感耦合等离子体原子发射光谱法测定，方法二采用滴定法测定，但方法二中平均摩尔质量的计算需用电感耦合等离子体原子发射光谱法测定十五种稀土元素配分量后得出，两方法均需采用电感耦合等离子体原子发射光谱法测定。方法一和方法二稀土成分组成类似，可采用同一标准系列溶液进行仪器测定。稀土镁硅铁合金及稀土硅铁合金中稀土均有钇基、铈基、镧基三种主基体，还有镧铈基（10+90、35+65）等不同比例，稀土组成成分复杂，考虑此种情况，标准系列采用统一进样浓度，不同稀土配分比的方式配置，更符合实际样品中稀土组成特点。最终配置标准系列共8个点，根据样品基体不同选择其中6点。

1.2.2分析谱线选择试验及共存离子干扰试验

试验对被测元素的多条谱线进行了考察，通过绘制了系列标准的轮廓图和工作曲线图，工作曲线的相关系数、信噪比和强度，选择了合适的分析谱线，由于稀土镁硅铁合金及稀土硅铁合金中还含有镁、铁、硅、钛、铝、钙、锰等成分，除硅在氢氟酸冒烟过程中呈四氟化硅形式逸走，其他元素在不分离稀土的情况下均在测定溶液中。为考察相关元素对被测元素测定是否有干扰，用共存离子溶液（Mg:1.1mg/mL,Fe:5mg/mL,Ca:0.3mg/mL,Mn:0.2mg/mL,Ti:0.1mg/mL,Al:0.1mg/mL）对选定的谱线进行轮廓扫描，结果表明所选谱线均无干扰。各元素测定谱线波长见表4。

表4分析谱线

|  |  |  |  |
| --- | --- | --- | --- |
| 测定元素 | 波长  nm | 测定元素 | 波长  nm |
| La | 408.671 | Dy | 353.170 |
| Ce | 418.660 | Ho | 345.600 |
| Pr | 405.654 | Er | 369.265 |
| Nd | 410.946 | Tm | 313.125 |
| Sm | 359.259 | Yb | 328.937 |
| Eu | 381.965 | Lu | 261.542 |
| Gd | 310.050 | Y | 377.433 |
| Tb | 350.914 | — | — |

1.2.3基体效应试验

稀土总量小于10%时，样品中最低稀土含量为0.5%，样品进样浓度为10mg/mL，稀土最高含量10%，样品进样浓度0.5mg/mL，基体浓度差异大；稀土总量大于10%时样品进样浓度为0.25 mg/mL-0.5 mg/mL。考察基体浓度效应对测定影响，吸取标准贮存溶液Ⅲ2mL于3个100mL容量瓶中，按表加入相应铁和镁基体，测定结果如表5所示。

表5　不同进样浓度基体效应影响

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 稀土浓度  μg/mL | 基体进样浓度mg/mL | 铁  mg/mL | 镁  mg/mL | 测定稀土浓度  μg/mL | 回收率  % |
| 100 | 1.0 | 0.50 | 0.11 | 101.21 | 101.21 |
| 100 | 1.5 | 0.75 | 0.165 | 95.81 | 95.81 |
| 100 | 2.0 | 1.0 | 0.22 | 94.75 | 94.75 |

从回收率可以看出，当样品进样浓度低于1.0 mg/mL时，基体效应不影响测定结果，考虑稀土镁硅铁合金样品进样浓度基本大于此浓度。故稀土含量低于10%时，本方法采用分离稀土方式去除基体效应影响。

1.2.4　稀土分离方式选择试验

稀土分离方式一般有氟化分离、氨水沉淀分离等方式，由于稀土硅铁合金及稀土镁硅铁合金中除稀土外主要是镁（11%）和铁（50%）及少量钙锰铝钛等元素，当稀土成氟化稀土沉淀时，可与铁分离，氨水沉淀稀土时与大量镁、钙分离。故试验分别考察这几种分离方式，吸取标准贮存溶液Ⅲ　1.00mL于５个200mL聚四氟乙烯烧杯中，每个烧杯中加入（镁55mg，铁250mg,钙15 mg，锰10 mg，钛、铝各5mg），分别按以下方式分离，测定结果如表6所示：

表6　稀土分离方式选择试验

|  |  |  |  |
| --- | --- | --- | --- |
| 分离方式 | 稀土浓度  μg/mL | 测定稀土浓度  μg/mL | 回收率  % |
| 氟化分离 | 50.00 | 46.68 | 93.36 |
| 氨水沉淀分离 | 50.00 | 19.59 | 39.18 |
| 氟化分离+氨水沉淀分离 | 50.00 | 49.59 | 99.18 |

从表6可看出，氨水沉淀分离时铁未能分离，氟化分离镁未能分离，均影响测定结果。采用氟化分离+氨水沉淀分离的方式可分离铁镁钙等元素，稀土回收率满足检测要求，故方法最终采用此种方式。

1.2.5滤液残留稀土试验

试料经氟化分离和氨水沉淀分离稀土与基体中的镁铁等，考察分离过程中稀土损失在滤液中的情况，分别考察统一样1#、2#、3#、4#、5#氟化分离过滤后的滤液及氨分离过滤后的滤液，统一样5#:准确称量统一样4#0.2500ｇ加入10mgCe，用ICP-MS测定滤液中的稀土含量，测定结果见表7。

表7　滤液残留稀土试验

|  |  |  |  |
| --- | --- | --- | --- |
| 编号 | 氟化分离后滤液 | 氨分离后滤液 | 样品结果 |
| 1# | 0.0074% | 0.00067% | 1.008 |
| 2# | 0.0019% | 0.0033% | 1.062 |
| 3# | 0.0072% | 0.0014% | 2.137 |
| 4# | 0.015% | 0.0046% | 5.429 |
| 5# | 0.030% | 0.0051% | 9.430 |

结果表明，滤液中损失的稀土含量极低，对样品结果影响不大。

1.2.6试液进样浓度试验

标准系列进样浓度100μg/mL，样品测定的稀土浓度在50μg/mL～100μg/mL之间，低于标准系列稀土浓度，试验为了考察测定的准确性，分别吸取标准贮存溶液Ⅲ1.00mL、2.00mL于2个100mL容量瓶中，加入10 mL盐酸（3.3.22），用水定容，混匀，测定，测定结果见表8。

表8　进样浓度试验

|  |  |
| --- | --- |
| 进样浓度 | 测定浓度 |
| 50μg/mL | 50.45μg/mL |
| 100μg/mL | 99.78μg/mL |

从表8可看出，进样浓度在50μg/mL～100μg/mL之间对测定结果没有影响。

1.2.7检出限

试验分别对铈溶液、镧溶液、钇溶液（浓度均为100μg/mL）进行11次平行测定，计算其测定标准偏差见表9，测定标准偏差10倍（δ）均小于0.03%，满足方法测定下限。

表9　检出限试验

|  |  |  |  |
| --- | --- | --- | --- |
| SD　　　　　元素 | La溶液 | Ce溶液 | Y溶液 |
| La | — | 0.000004 | 0.000004 |
| Ce | 0.000011 | — | 0.000019 |
| Pr | 0.000102 | 0.000108 | 0.000076 |
| Nd | 0.000036 | 0.000021 | 0.000021 |
| Sm | 0.000005 | 0.000004 | 0.000006 |
| Eu | 0.000001 | 0.000001 | 0.000001 |
| Gd | 0.000005 | 0.000005 | 0.000007 |
| Tb | 0.000010 | 0.000007 | 0.000006 |
| Dy | 0.000001 | 0.000003 | 0.000003 |
| Ho | 0.000005 | 0.000005 | 0.000005 |
| Er | 0.000004 | 0.000003 | 0.000005 |
| Tm | 0.000002 | 0.000002 | 0.000001 |
| Yb | 0.000000 | 0.000000 | 0.000000 |
| Lu | 0.000000 | 0.000001 | 0.000000 |
| Y | 0.000001 | 0.000001 | — |

1.2.8分析方法的回收率试验

1.2..8.1稀土总量回收率

为了考察方法的准确度，按照表10准确称样于250mL聚四氟乙烯烧杯中，准确加入稀土量，按照分析步骤进行分解和测定，通过本底和加入量计算理论值。回收率数据统计见表10。

表10　稀土总量回收率表

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 编号 | 称样量/g | 本底/mg | 加入量/mg | 测定值/mg | 回收率/% |
| 4# | 0.2500 | 13.573 | Ce：10.00 | 23.575 | 100.02 |

由表10可见回收率在95%～105%之间，满足检测要求。

1.2.8.2十五个稀土元素含量回收率

为了考察方法的准确度，按照表11准确称样于250mL聚四氟乙烯烧杯中，准确加入稀土量，按照分析步骤进行分解和测定，通过本底和加入量计算理论值。回收率数据统计见表11。

表11　方法一十五个稀土元素含量回收率表

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 编号 | 称样量/g | 元素 | 本底/mg | 加入量/mg | 测定值/mg | 回收率/% |
| 1# | 0.5000 | La | 0.990 | 40 | 40.99 | 100.06 |
| 4# | 0.2500 | Ce | 7.868 | 10 | 17.875 | 100.07 |
| 1# | 0.5000 | Y | 2.425 | 40 | 42.315 | 99.73 |
| 4# | 0.2500 | Pr | 0 | 0.10 | 0.108 | 107.50 |
| 0 | 0.30 | 0.325 | 108.34 |
| 0 | 1.00 | 1.065 | 106.50 |
| 4# | 0.2500 | Nd | 0.008 | 0.10 | 0.118 | 109.50 |
| 0.008 | 0.30 | 0.324 | 105.33 |
| 0.008 | 1.00 | 1.009 | 100.10 |
| 4# | 0.2500 | Sm | 0 | 0.10 | 0.105 | 105.00 |
| 0 | 0.30 | 0.310 | 103.33 |
| 0 | 1.00 | 1.021 | 102.10 |
| 4# | 0.2500 | Eu | 0 | 0.10 | 0.104 | 104.00 |
| 0 | 0.30 | 0.317 | 105.67 |
| 0 | 1.00 | 0.994 | 99.40 |
| 4# | 0.2500 | Gd | 0 | 0.10 | 0.103 | 103.00 |
| 0 | 0.30 | 0.306 | 102.00 |
| 0 | 1.00 | 1.026 | 102.60 |
| 4# | 0.2500 | Tb | 0 | 0.10 | 0.101 | 101.00 |
| 0 | 0.30 | 0.306 | 102.00 |
| 0 | 1.00 | 1.020 | 102.00 |
| 4# | 0.2500 | Dy | 0 | 0.10 | 0.104 | 104.00 |
| 0 | 0.30 | 0.302 | 100.67 |
| 0 | 1.00 | 1.04 | 104.00 |
| 4# | 0.2500 | Ho | 0 | 0.10 | 0.110 | 110.00 |
| 0 | 0.30 | 0.301 | 100.33 |
| 0 | 1.00 | 1.025 | 102.50 |
| 4# | 0.2500 | Er | 0 | 0.10 | 0.107 | 107.00 |
| 0 | 0.30 | 0.309 | 103.00 |
| 0 | 1.00 | 1.027 | 102.70 |
| 4# | 0.2500 | Tm | 0 | 0.10 | 0.105 | 105.00 |
| 0 | 0.30 | 0.307 | 102.33 |
| 0 | 1.00 | 0.996 | 99.60 |
| 4# | 0.2500 | Yb | 0 | 0.10 | 0.104 | 104.00 |
| 0 | 0.30 | 0.296 | 98.67 |
| 0 | 1.00 | 0.988 | 98.80 |
| 4# | 0.2500 | Lu | 0 | 0.10 | 0.105 | 105.00 |
| 0 | 0.30 | 0.311 | 103.67 |
| 0 | 1.00 | 1.056 | 105.60 |

1.2.9　分析方法精密度试验

1.2.9.1稀土总量精密度

为了考察本方法稀土总量的精密度，对统一样1#-5#分别进行了11次重复测定。其中统一样5#:准确称量统一样4#0.2500ｇ加入10mgCe；其余统一样按照含量称样计算结果。按照分析步骤进行分解和测定，统计平均值和相对标准偏差，统计结果见表12。

表12　方法一稀土总量精密度试验

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 编号　次数 | 1# | 2# | 3# | 4# | 5# |
| 1 | 1.017 | 1.045 | 2.196 | 5.384 | 9.367 |
| 2 | 1.020 | 1.042 | 2.182 | 5.524 | 9.448 |
| 3 | 1.028 | 1.076 | 2.095 | 5.383 | 9.430 |
| 4 | 1.020 | 1.048 | 2.126 | 5.403 | 9.453 |
| 5 | 0.980 | 1.095 | 2.083 | 5.429 | 9.478 |
| 6 | 0.976 | 1.043 | 2.101 | 5.422 | 9.389 |
| 7 | 1.008 | 1.067 | 2.123 | 5.431 | 9.507 |
| 8 | 0.992 | 1.058 | 2.157 | 5.438 | 9.408 |
| 9 | 1.021 | 1.073 | 2.134 | 5.476 | 9.392 |
| 10 | 1.014 | 1.052 | 2.175 | 5.409 | 9.419 |
| 11 | 1.015 | 1.081 | 2.132 | 5.417 | 9.434 |
| 平均值/% | 1.008 | 1.062 | 2.137 | 5.429 | 9.430 |
| SD | 0.018 | 0.018 | 0.037 | 0.041 | 0.041 |
| RSD/% | 1.742 | 1.668 | 1.724 | 0.756 | 0.435 |
| 基体 | Ｙ | Ｌａ | Ｃｅ | Ｃｅ | Ｃｅ |

数据表明各稀土总量统一样RSD均小于3%，满足方法测定要求。

1.2.9.2十五个稀土元素含量精密度

为了考察本方法十五个稀土元素含量的精密度，对统一样分别进行了11次重复测定。各统一样称样量及配置见表13，各统一样均准确称量，仪器测定时按照含量稀释至50μg/mL～100μg/mL。统计其平均值和相对标准偏差，统计结果见附表1。

表13　十五个稀土元素含量统一样称样及配置表

|  |  |  |  |
| --- | --- | --- | --- |
| 统一样编号 | 称样量/g | 加入量 | 样重/g |
| 1# | 0.5000 | — | 0.5000 |
| 4# | 0.2500 | — | 0.2500 |
| 10# | 称1#0.2500 | Y 20mg | 0.2500 |
| 11# | 称1#0.2500 | La 20mg | 0.2500 |
| 12# | 称4#0.2500 | Ce 10mg | 0.2500 |
| 13# | 称4#0.2500 | 除Y、La、Ce外其他稀土元素各0.1mg | 0.2500 |
| 14# | 称4#0.2500 | 除Y、La、Ce外其他稀土元素各0.3mg | 0.2500 |
| 15# | 称4#0.2500 | 除Y、La、Ce外其他稀土元素各1mg | 0.2500 |

统计结果表明，各稀土元素统一样除14#样品中Dy、Tm、Yb（0.1%）的RSD小于6%，其余均在5%以下，满足方法测定要求。

1.3结论

电感耦合等离子体发射光谱法采用氟化分离和氨分离两种方式将稀土与基体中铁、钙、镁等元素分离，降低基体效应影响，标准系列采用统一进样浓度，不同稀土配分比的方式配置，更符合实际样品中稀土组成特点，样品加标回收率在95%～105%之间，结果准确可靠，RSD除部分元素含量＜0.1 %时小于6 %，其他均小于5 %，适合稀土硅铁合金及镁硅铁合金中稀土总量范围在0.50 % ~10.00 %时的测定。

2.EDTA滴定法条件试验

2.1方法原理

试料经硝酸和氢氟酸分解，以氟化物形式将稀土和钍沉淀，与铁分离，硝酸、高氯酸破坏滤纸，盐酸提取后，调节pH5.5，用六次甲基四胺沉淀钍，以抗坏血酸还原铈、铁，乙酰丙酮掩蔽钛、铝等元素，以二甲酚橙为指示剂，用EDTA标准溶液滴定稀土总量，稀土总量乘以十五个稀土元素配分量为十五个稀土元素含量。

2.2条件试验

2.2.1　标准系列配置试验

方法一采用电感耦合等离子体原子发射光谱法测定，方法二采用滴定法测定，但方法二中平均摩尔质量的计算需用电感耦合等离子体原子发射光谱法测定十五种稀土元素配分量后得出，两方法均需采用电感耦合等离子体原子发射光谱法测定。方法一和方法二稀土成分组成类似，可采用同一标准系列溶液进行仪器测定。稀土镁硅铁合金及稀土硅铁合金中稀土均有钇基、铈基、镧基三种主基体，还有镧铈基（10+90、35+65）等不同比例，稀土组成成分复杂，考虑此种情况，标准系列采用统一进样浓度，不同稀土配分比的方式配置，更符合实际样品中稀土组成特点。最终配置标准系列共8个点，根据样品基体不同选择其中6点。

2.2.2　分析谱线选择试验及共存离子干扰试验

试验对被测元素的多条谱线进行了考察，通过绘制了系列标准的轮廓图和工作曲线图，工作曲线的相关系数、信噪比和强度，选择了合适的分析谱线，由于稀土镁硅铁合金及稀土硅铁合金中还含有镁、铁、硅、钛、铝、钙、锰等成分，除硅在氢氟酸冒烟过程中呈四氟化硅形式逸走，其他元素在不分离稀土的情况下均在测定溶液中。为考察相关元素对被测元素测定是否有干扰，用共存离子溶液（Mg:1.1mg/mL,Fe:5mg/mL,Ca:0.3mg/mL,Mn:0.2mg/mL,Ti:0.1mg/mL,Al:0.1mg/mL）对选定的谱线进行轮廓扫描，结果表明所选谱线均无干扰。各元素测定谱线波长见表4。

2.2.3　基体效应试验

方法二稀土总量大于10%，样品进样浓度为0.25 mg/mL-0.5 mg/mL，当样品进样浓度低于1.0 mg/mL时，基体效应不影响测定结果。

2.2.4　试液进样浓度试验

标准系列进样浓度100μg/mL，样品测定的稀土浓度在50μg/mL～100μg/mL之间，低于标准系列稀土浓度，试验为了考察测定的准确性，分别吸取标准贮存溶液Ⅲ1.00mL、2.00mL于2个100mL容量瓶中，加入10 mL盐酸（1+1），用水定容，混匀，测定，测定结果见表14。

表14　进样浓度试验

|  |  |
| --- | --- |
| 进样浓度 | 测定浓度 |
| 50μg/mL | 50.45μg/mL |
| 100μg/mL | 99.78μg/mL |

从表14可看出，进样浓度在50μg/mL～100μg/mL之间对测定结果没有影响。

2.2.5　检出限

试验分别对铈溶液、镧溶液、钇溶液（浓度均为100μg/mL）进行11次平行测定，计算其测定标准偏差见表15，测定标准偏差10倍（δ）均小于0.05%，满足方法测定下限。

表15　检出限试验

|  |  |  |  |
| --- | --- | --- | --- |
| SD　　　　　元素 | La溶液 | Ce溶液 | Y溶液 |
| La | — | 0.000074 | 0.000074 |
| Ce | 0.000216 | — | 0.000390 |
| Pr | 0.000722 | 0.002152 | 0.001521 |
| Nd | 0.000248 | 0.000417 | 0.000416 |
| Sm | 0.000099 | 0.000085 | 0.000116 |
| Eu | 0.000013 | 0.000023 | 0.000028 |
| Gd | 0.000102 | 0.000108 | 0.000136 |
| Tb | 0.000194 | 0.000149 | 0.000113 |
| Dy | 0.000023 | 0.000059 | 0.000053 |
| Ho | 0.000095 | 0.000098 | 0.000106 |
| Er | 0.000074 | 0.000066 | 0.000091 |
| Tm | 0.000039 | 0.000046 | 0.000029 |
| Yb | 0.000005 | 0.000007 | 0.000008 |
| Lu | 0.000007 | 0.000013 | 0.000009 |
| Y | 0.000019 | 0.000015 | — |

2.2.6　分析方法的回收率试验

2.2.6.1稀土总量回收率

为了考察方法的准确度，按照表16准确称样于250mL聚四氟乙烯烧杯中，准确加入稀土量，按照分析步骤进行分解和测定，通过本底和加入量计算理论值。回收率数据统计见表16。

表16　稀土总量回收率表

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 编号 | 称样量/g | 本底/mg | 加入量/mg | 测定值/mg | 回收率/% |
| 8# | 0.2500 | 64.938 | Y：25.00 | 89.92 | 99.93 |

由表16可见回收率在95%～105%之间，满足检测要求。

2.2.6.2十五个稀土元素含量回收率

为了考察方法的准确度，按照表17准确称样于250mL聚四氟乙烯烧杯中，准确加入稀土量，按照分析步骤进行分解和测定，通过本底和加入量计算理论值。回收率数据统计见表17。

表17　方法二十五个稀土元素含量回收率表

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 编号 | 称样量/g | 元素 | 本底/mg | 加入量/mg | 测定值/mg | 回收率/% |
| 7# | 0.2500 | La | 23.153 | 70.00 | 92.985 | 99.76 |
| 7# | 0.2500 | Ce | 44.068 | 50.00 | 94.025 | 100.07 |
| 7# | 0.2500 | Y | 0.030 | 0.10 | 0.131 | 101.00 |
| 0.030 | 1.00 | 0.981 | 95.10 |
| 0.030 | 4.00 | 3.962 | 98.30 |
| 1# | 0.5000 | 2.330 | 80.00 | 82.310 | 99.98 |
| 8# | 0.2500 | 32.220 | 60.00 | 92.204 | 99.97 |
| 7# | 0.2500 | Pr | 0.050 | 0.10 | 0.154 | 104.00 |
| 0.050 | 1.00 | 1.075 | 102.50 |
| 0.050 | 4.00 | 4.003 | 98.83 |
| 7# | 0.2500 | Nd | 0.013 | 0.10 | 0.114 | 101.00 |
| 0.013 | 1.00 | 1.031 | 101.80 |
| 0.013 | 4.00 | 4.036 | 100.58 |
| 7# | 0.2500 | Sm | 0 | 0.10 | 0.106 | 106.00 |
| 0 | 1.00 | 0.976 | 97.60 |
| 0 | 4.00 | 3.964 | 99.10 |
| 7# | 0.2500 | Eu | 0 | 0.10 | 0.102 | 102.00 |
| 0 | 1.00 | 1.002 | 100.20 |
| 0 | 4.00 | 3.991 | 99.78 |
| 7# | 0.2500 | Gd | 0 | 0.10 | 0.103 | 103.00 |
| 0 | 1.00 | 1.004 | 100.40 |
| 0 | 4.00 | 3.989 | 99.73 |
| 7# | 0.2500 | Tb | 0 | 0.10 | 0.106 | 106.00 |
| 0 | 1.00 | 0.986 | 98.60 |
| 0 | 4.00 | 3.993 | 99.83 |
| 7# | 0.2500 | Dy | 0 | 0.10 | 0.105 | 105.00 |
| 0 | 1.00 | 1.007 | 100.70 |
| 0 | 4.00 | 4.032 | 100.80 |
| 7# | 0.2500 | Ho | 0 | 0.10 | 0.105 | 105.00 |
| 0 | 1.00 | 0.975 | 97.50 |
| 0 | 4.00 | 4.008 | 100.20 |
| 7# | 0.2500 | Er | 0 | 0.10 | 0.105 | 105.00 |
| 0 | 1.00 | 0.996 | 99.60 |
| 0 | 4.00 | 4.023 | 100.58 |
| 7# | 0.2500 | Tm | 0 | 0.10 | 0.104 | 104.00 |
| 0 | 1.00 | 0.958 | 95.80 |
| 0 | 4.00 | 4.008 | 100.20 |
| 7# | 0.2500 | Yb | 0 | 0.10 | 0.105 | 105.00 |
| 0 | 1.00 | 0.974 | 97.40 |
| 0 | 4.00 | 4.042 | 101.05 |
| 7# | 0.2500 | Lu | 0 | 0.10 | 0.101 | 101.00 |
| 0 | 1.00 | 0.983 | 98.30 |
| 0 | 4.00 | 4.018 | 100.45 |

2.2.7　分析方法精密度试验

2.2.7.1稀土总量精密度

为了考察本方法稀土总量的精密度，对统一样6#-9#分别进行了11次重复测定。方法二中的统一样6#：准确称量统一样4#0.3400 g和统一样7#0.1600 g；统一样9#：准确称量统一样8#0.2500 g加入25 mgY；其余统一样按照含量称样计算结果。按照分析步骤进行分解和测定，统计平均值和相对标准偏差，统计结果见表18。

表18　方法二稀土总量精密度试验

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 编号　　次数 | 6# | 7# | 8# | 9# |
| 1 | 12.370 | 26.940 | 25.966 | 35.985 |
| 2 | 12.503 | 26.767 | 25.861 | 36.102 |
| 3 | 12.359 | 27.103 | 25.868 | 35.893 |
| 4 | 12.477 | 27.054 | 25.889 | 35.968 |
| 5 | 12.412 | 26.984 | 25.914 | 36.098 |
| 6 | 12.523 | 26.852 | 25.935 | 36.112 |
| 7 | 12.497 | 26.759 | 25.954 | 35.784 |
| 8 | 12.448 | 26.834 | 26.029 | 35.817 |
| 9 | 12.318 | 26.829 | 25.974 | 36.006 |
| 10 | 12.489 | 26.799 | 26.108 | 35.927 |
| 11 | 12.408 | 26.818 | 26.231 | 35.958 |
| 平均值/% | 12.437 | 26.885 | 25.975 | 35.968 |
| SD | 0.065 | 0.112 | 0.106 | 0.110 |
| RSD/% | 0.520 | 0.416 | 0.408 | 0.306 |
| 基体 | Ｃｅ | Ｃｅ | Ｙ | Ｙ |

数据表明各稀土总量统一样RSD均小于3%，满足方法测定要求。

2.2.7.2十五个稀土元素含量精密度

为了考察本方法十五个稀土元素含量的精密度，对统一样分别进行了11次重复测定。各统一样称样量及配置见表19，各统一样均准确称量，仪器测定时按照含量稀释至50μg/mL～100μg/mL。统计其平均值和相对标准偏差，统计结果见附表2。

表19　十五个稀土元素含量统一样称样及配置表

|  |  |  |  |
| --- | --- | --- | --- |
| 统一样编号 | 称样量/g | 加入量 | 样重/g |
| 7# | 0.2500 | — | 0.2500 |
| 16# | 称7#0.2500 | 除La、Ce外其他稀土元素各0.1mg | 0.2500 |
| 17# | 称7#0.2500 | 除La、Ce外其他稀土元素各1mg | 0.2500 |
| 18# | 称7#0.2500 | 除La、Ce外其他稀土元素各4mg | 0.2500 |
| 19# | 称1#0.5000 | Y 80mg | 0.5000 |
| 20# | 称8#0.2500 | Y 60mg | 0.2500 |
| 21# | 称7#0.2500 | La 70mg | 0.2500 |
| 22# | 称7#0.2500 | Ce 80mg | 0.2500 |

统计结果表明，各稀土元素统一样RSD基本在5%以下，均满足方法测定要求。

2.3结论

试样经硝酸和氢氟酸分解后，以氟化物形式沉淀稀土从而与铁分离，在PH5.5下用EDTA标准溶液滴定稀土，用电感耦合等离子体发射光谱测定稀土配分，以配分值计算出稀土平均摩尔质量，再计算出稀土总量，稀土总量乘以十五个稀土元素配分量为十五个稀土元素含量。EDTA法操作简便，准确度高，精密度好，方法检测下限满足要求，适用于测定稀土硅铁合金及镁硅铁合金中10.00 %~40.00 %的稀土总量和十五个稀土元素含量。

（三）精密度的确定依据

1.试验元素数据统计

试验对各试验室内数据和实验室间均值进行了格拉布斯检验以及实验室间数据等精度检验（柯克伦检验）。试验数据统计过程见附件A-B。实验室编号见表20。

表20　实验室编号表

|  |  |
| --- | --- |
| 实验室编号 | 实验室名称 |
| 1 | 赣研所 |
| 2 | 国合通用 |
| 3 | 北方稀土 |
| 4 | 虔东稀土 |
| 5 | 赣州友力 |
| 6 | 包头宏博特（方法二） |
| 7 | 有研稀土（方法一） |
| 8 | 包头华美（方法二） |
| 9 | 包头稀土院（方法一） |
| 10 | 内蒙古圣泉科利源 |

2.对于岐离和离群数据的分析

考虑试验数据取舍在统计学基础上还应符合化学分析特点，对于岐离和离群数据是否留用，试验采取的判断方式：实验室测定结果与参考值之差|Xmax-μ0|不大于*CD’*（μ0理论上为真值，在无真值的情况下采用试验室内或实验室间平均值，Xmax为最大偏离数据），则数据符合要求留用，否则舍去。*CD’*按照下式计算：

**

式中：δE为相近测试标准规定的实验室之间的允许差。U为测量不确定度，由于试样样品不能提供测量不确定度，U值定义为0。试验数据取舍评价结果见表21。

注：实验室内格拉布斯检验和等精度检验（柯克伦检验）采用的平均值为剔除离群值后的该实验室平均值，实验室间均值格拉布斯检验采用的平均值为剔除离群值后的实验室均值平均值。

表21　数据取舍评价

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 单位名称 | 方法名称 | 水平 | 检验项目 | 检验结果 | Xmax | 剔除离群值后平均值 | |Xmax-μ0| | 推荐Δ | CD’ | 结论 |
| 3 | 方法一 | 1 | RE | 组内歧离(Xmin) | 0.970 | 1.0127 | 0.0427 | 0.20 | 0.1414 | 保留 |
| 5 | 方法一 | 1 | RE | 组间离群(Xmin) | 0.889 | 1.005 | 0.116 | 0.10 | 0.0707 | 舍弃 |
| 2 | 方法一 | 2 | RE | 组内歧离(Xmax) | 1.097 | 1.0358 | 0.0612 | 0.20 | 0.1414 | 保留 |
| 5 | 方法一 | 2 | RE | 组间离群(Xmin) | 0.981 | 1.054 | 0.0733 | 0.20 | 0.1414 | 保留 |
| 2 | 方法一 | 2 | RE | 离群 | 1.041 | 1.046 | 0.0047 | 0.20 | 0.1414 | 保留 |
| 3 | 方法一 | 4 | RE | 离群 | 5.416 | 5.385 | 0.0314 | 0.35 | 0.247 | 保留 |
| 3 | 方法一 | 5 | RE | 组内离群(Xmin) | 9.319 | 9.424 | 0.105 | 0.25 | 0.177 | 保留 |
| 5 | 方法一 | 5 | RE | 组内歧离(Xmax) | 9.412 | 9.222 | 0.190 | 0.25 | 0.177 | 舍弃 |
| 7 | 方法一 | 5 | RE | 组内离群(Xmax) | 9.524 | 9.353 | 0.171 | 0.25 | 0.177 | 保留 |
| 5 | 方法一 | 5 | RE | 歧离 | 9.239 | 9.391 | 0.152 | 0.25 | 0.177 | 保留 |
| 5 | 方法一 | 5 | RE | 组间离群(Xmin) | 0.458 | 0.502 | 0.044 | 0.10 | 0.0707 | 保留 |
| 5 | 方法一 | 1 | La | 组间离群(Xmin) | 0.163 | 0.197 | 0.0336 | 0.035 | 0.0247 | 舍弃 |
| 5 | 方法一 | 11 | La | 组间离群(Xmin) | 7.894 | 8.208 | 0.314 | 0.25 | 0.177 | 舍弃 |
| 9 | 方法一 | 11 | La | 离群 | 8.257 | 8.156 | 0.101 | 0.25 | 0.177 | 保留 |
| 9 | 方法一 | 4 | La | 离群 | 1.420 | 1.418 | 0.0019 | 0.20 | 0.1414 | 保留 |
| 7 | 方法一 | 12 | Ce | 组内离群(Xmax) | 7.313 | 7.131 | 0.182 | 0.25 | 0.177 | 舍弃 |
| 5 | 方法一 | 12 | Ce | 组间歧离(Xmin) | 6.850 | 7.117 | 0.267 | 0.25 | 0.177 | 舍弃 |
| 5 | 方法一 | 12 | Ce | 离群 | 6.850 | 7.117 | 0.267 | 0.25 | 0.177 | 舍弃 |
| 7 | 方法一 | 1 | Y | 组内歧离(Xmin) | 0.473 | 0.488 | 0.0154 | 0.04 | 0.0283 | 保留 |
| 5 | 方法一 | 1 | Y | 组间离群(Xmin) | 0.419 | 0.484 | 0.0646 | 0.04 | 0.0283 | 舍弃 |
| 1 | 方法一 | 10 | Y | 组内离群(Xmin) | 8.414 | 8.468 | 0.0538 | 0.25 | 0.177 | 保留 |
| 5 | 方法一 | 10 | Y | 组间离群(Xmin) | 8.105 | 8.463 | 0.358 | 0.25 | 0.177 | 舍弃 |
| 5 | 方法一 | 10 | Y | 离群 | 8.105 | 8.463 | 0.358 | 0.25 | 0.177 | 舍弃 |
| 5 | 方法一 | 4 | Y | 组间离群(Xmax) | 0.845 | 0.823 | 0.0216 | 0.10 | 0.0707 | 保留 |
| 9 | 方法一 | 4 | Y | 离群 | 0.825 | 0.826 | 0.0013 | 0.10 | 0.0707 | 保留 |
| 5 | 方法一 | 13 | Pr | 组间离群(Xmax) | 0.0504 | 0.0424 | 0.0080 | 0.02 | 0.0141 | 保留 |
| 3 | 方法一 | 14 | Pr | 离群 | 0.120 | 0.127 | 0.0066 | 0.035 | 0.0247 | 保留 |
| 5 | 方法一 | 15 | Pr | 组内歧离(Xmin) | 0.418 | 0.428 | 0.010 | 0.04 | 0.0283 | 保留 |
| 1 | 方法一 | 15 | Nd | 组内歧离(Xmin) | 0.388 | 0.405 | 0.017 | 0.04 | 0.0283 | 保留 |
| 5 | 方法一 | 15 | Nd | 组内离群(Xmin) | 0.346 | 0.368 | 0.022 | 0.04 | 0.0283 | 保留 |
| 5 | 方法一 | 15 | Nd | 组间歧离(Xmin) | 0.366 | 0.404 | 0.038 | 0.04 | 0.0283 | 保留 |
| 2 | 方法一 | 15 | Nd | 歧离 | 0.419 | 0.397 | 0.022 | 0.04 | 0.0283 | 保留 |
| 3 | 方法一 | 13 | Eu | 离群 | 0.0424 | 0.0407 | 0.0017 | 0.008 | 0.0057 | 保留 |
| 1 | 方法一 | 15 | Eu | 离群 | 0.398 | 0.398 | 0.000 | 0.04 | 0.0283 | 保留 |
| 10 | 方法一 | 13 | Gd | 组内歧离(Xmax) | 0.0435 | 0.0411 | 0.0024 | 0.008 | 0.0057 | 舍弃 |
| 9 | 方法一 | 13 | Gd | 组间离群(Xmin) | 0.0392 | 0.0413 | 0.0021 | 0.008 | 0.0057 | 保留 |
| 1 | 方法一 | 13 | Gd | 离群 | 0.0412 | 0.0410 | 0.0002 | 0.008 | 0.0057 | 保留 |
| 2 | 方法一 | 14 | Tb | 组内离群(Xmax) | 0.136 | 0.122 | 0.014 | 0.035 | 0.0247 | 保留 |
| 10 | 方法一 | 15 | Tb | 组内歧离(Xmin) | 0.399 | 0.412 | 0.014 | 0.04 | 0.0283 | 保留 |
| 1 | 方法一 | 13 | Dy | 离群 | 0.0415 | 0.0410 | 0.0005 | 0.008 | 0.0057 | 保留 |
| 5 | 方法一 | 15 | Dy | 组内离群(Xmin) | 0.341 | 0.381 | 0.040 | 0.04 | 0.0283 | 舍弃 |
| 5 | 方法一 | 15 | Dy | 组间歧离(Xmin) | 0.378 | 0.411 | 0.033 | 0.04 | 0.0283 | 舍弃 |
| 5 | 方法一 | 15 | Dy | 离群 | 0.378 | 0.411 | 0.033 | 0.04 | 0.0283 | 舍弃 |
| 7 | 方法一 | 13 | Ho | 组间歧离(Xmin) | 0.0395 | 0.0441 | 0.0046 | 0.008 | 0.0057 | 保留 |
| 1 | 方法一 | 13 | Ho | 离群 | 0.0439 | 0.0434 | 0.0005 | 0.008 | 0.0057 | 保留 |
| 1 | 方法一 | 13 | Er | 离群 | 0.0428 | 0.0426 | 0.0002 | 0.008 | 0.0057 | 保留 |
| 5 | 方法一 | 15 | Er | 组内歧离(Xmin) | 0.349 | 0.378 | 0.002 | 0.04 | 0.0283 | 保留 |
| 5 | 方法一 | 15 | Er | 歧离 | 0.375 | 0.411 | 0.036 | 0.04 | 0.0283 | 舍弃 |
| 1 | 方法一 | 13 | Tm | 歧离 | 0.0419 | 0.0410 | 0.0009 | 0.008 | 0.0057 | 保留 |
| 2 | 方法一 | 14 | Tm | 组内歧离(Xmax) | 0.135 | 0.121 | 0.014 | 0.035 | 0.0247 | 保留 |
| 1 | 方法一 | 15 | Yb | 组内歧离(Xmin) | 0.370 | 0.398 | 0.028 | 0.04 | 0.0283 | 保留 |
| 3 | 方法一 | 15 | Yb | 组内歧离(Xmax) | 0.404 | 0.389 | 0.015 | 0.04 | 0.0283 | 保留 |
| 4 | 方法一 | 15 | Yb | 歧离 | 0.405 | 0.399 | 0.006 | 0.04 | 0.0283 | 保留 |
| 9 | 方法一 | 13 | Lu | 组内歧离(Xmin) | 0.0391 | 0.0402 | 0.0011 | 0.008 | 0.0057 | 保留 |
| 4 | 方法一 | 13 | Lu | 歧离 | 0.0412 | 0.0412 | 0.000 | 0.008 | 0.0057 | 保留 |
| 10 | 方法一 | 14 | Lu | 歧离 | 0.123 | 0.122 | 0.001 | 0.035 | 0.0247 | 保留 |
| 1 | 方法一 | 15 | Lu | 歧离 | 0.423 | 0.421 | 0.002 | 0.04 | 0.0057 | 保留 |
| 4 | 方法二 | 6 | RE | 组内歧离(Xmax) | 12.739 | 12.418 | 0.321 | 0.30 | 0.212 | 舍弃 |
| 5 | 方法二 | 6 | RE | 组间歧离(Xmin) | 12.147 | 12.454 | 0.307 | 0.30 | 0.212 | 舍弃 |
| 10 | 方法二 | 7 | RE | 组内离群(Xmax) | 27.983 | 27.124 | 0.859 | 0.35 | 0.247 | 舍弃 |
| 10 | 方法二 | 7 | RE | 离群 | 27.202 | 26.793 | 0.409 | 0.35 | 0.247 | 舍弃 |
| 5 | 方法二 | 8 | RE | 组间离群(Xmin) | 25.319 | 25.994 | 0.675 | 0.35 | 0.247 | 舍弃 |
| 4 | 方法二 | 8 | RE | 离群 | 26.098 | 25.883 | 0.215 | 0.35 | 0.247 | 保留 |
| 5 | 方法二 | 9 | RE | 组间离群(Xmin) | 35.364 | 35.947 | 0.583 | 0.45 | 0.318 | 舍弃 |
| 8 | 方法二 | 9 | RE | 离群 | 35.917 | 35.867 | 0.050 | 0.45 | 0.318 | 保留 |
| 5 | 方法二 | 19 | La | 组内歧离(Xmax) | 0.198 | 0.189 | 0.009 | 0.035 | 0.0247 | 保留 |
| 8 | 方法二 | 19 | La | 组内歧离(Xmax) | 0.212 | 0.196 | 0.016 | 0.035 | 0.0247 | 保留 |
| 1 | 方法二 | 19 | La | 离群 | 0.200 | 0.196 | 0.004 | 0.035 | 0.0247 | 保留 |
| 1 | 方法二 | 20 | La | 组内歧离(Xmax) | 4.345 | 4.154 | 0.191 | 0.20 | 0.141 | 舍弃 |
| 10 | 方法二 | 21 | La | 组间离群(Xmin) | 37.056 | 37.210 | 0.154 | 0.45 | 0.318 | 保留 |
| 10 | 方法二 | 21 | La | 离群 | 37.056 | 37.210 | 0.154 | 0.45 | 0.318 | 保留 |
| 4 | 方法二 | 7 | La | 组内离群(Xmax) | 9.302 | 9.245 | 0.057 | 0.25 | 0.177 | 保留 |
| 5 | 方法二 | 7 | La | 离群 | 9.130 | 9.249 | 0.119 | 0.25 | 0.177 | 保留 |
| 8 | 方法二 | 19 | Ce | 组内离群(Xmin) | 0.328 | 0.350 | 0.022 | 0.04 | 0.0283 | 保留 |
| 5 | 方法二 | 22 | Ce | 歧离 | 37.309 | 37.645 | 0.336 | 0.45 | 0.318 | 舍弃 |
| 4 | 方法二 | 7 | Ce | 组间离群(Xmax) | 18.496 | 17.608 | 0.888 | 0.30 | 0.212 | 舍弃 |
| 5 | 方法二 | 7 | Ce | 离群 | 17.476 | 17.778 | 0.302 | 0.30 | 0.212 | 舍弃 |
| 5 | 方法二 | 16 | Y | 组内歧离(Xmin) | 0.0487 | 0.0507 | 0.0020 | 0.008 | 0.0057 | 保留 |
| 3 | 方法二 | 17 | Y | 离群 | 0.394 | 0.390 | 0.004 | 0.04 | 0.0283 | 保留 |
| 8 | 方法二 | 18 | Y | 组内离群(Xmax) | 1.591 | 1.583 | 0.0078 | 0.20 | 0.141 | 保留 |
| 5 | 方法二 | 18 | Y | 离群 | 1.568 | 1.584 | 0.016 | 0.20 | 0.141 | 保留 |
| 5 | 方法二 | 19 | Y | 离群 | 16.406 | 16.432 | 0.0257 | 0.30 | 0.212 | 保留 |
| 5 | 方法二 | 20 | Y | 离群 | 36.934 | 36.840 | 0.094 | 0.45 | 0.318 | 保留 |
| 4 | 方法二 | 16 | Pr | 组间歧离(Xmin) | 0.0571 | 0.0614 | 0.0043 | 0.02 | 0.0141 | 保留 |
| 4 | 方法二 | 16 | Pr | 离群 | 0.0571 | 0.0614 | 0.0043 | 0.02 | 0.0141 | 保留 |
| 4 | 方法二 | 18 | Pr | 组间歧离(Xmin) | 1.578 | 1.604 | 0.026 | 0.2 | 0.141 | 保留 |
| 4 | 方法二 | 16 | Nd | 组间离群(Xmin) | 0.0327 | 0.0454 | 0.0127 | 0.008 | 0.0057 | 舍弃 |
| 3 | 方法二 | 17 | Nd | 组内歧离(Xmin) | 0.399 | 0.415 | 0.016 | 0.04 | 0.0282 | 保留 |
| 4 | 方法二 | 18 | Nd | 组间离群(Xmin) | 1.557 | 1.614 | 0.057 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 18 | Nd | 离群 | 1.557 | 1.614 | 0.057 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 16 | Sm | 离群 | 0.0416 | 0.0420 | 0.0004 | 0.008 | 0.0057 | 保留 |
| 4 | 方法二 | 18 | Sm | 组内离群(Xmax) | 1.570 | 1.527 | 0.043 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 18 | Sm | 组间离群(Xmin) | 1.531 | 1.588 | 0.057 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 18 | Sm | 歧离 | 1.531 | 1.588 | 0.057 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 16 | Eu | 离群 | 0.0416 | 0.0416 | 0.000 | 0.008 | 0.0057 | 保留 |
| 4 | 方法二 | 18 | Eu | 组内离群(Xmax) | 1.582 | 1.532 | 0.050 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 18 | Eu | 组间离群(Xmin) | 1.536 | 1.601 | 0.065 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 18 | Eu | 离群 | 1.536 | 1.601 | 0.065 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 16 | Gd | 离群 | 0.0427 | 0.0410 | 0.0017 | 0.008 | 0.0057 | 保留 |
| 8 | 方法二 | 17 | Gd | 组间离群(Xmax) | 0.416 | 0.401 | 0.015 | 0.04 | 0.0283 | 保留 |
| 4 | 方法二 | 18 | Gd | 组间歧离(Xmin) | 1.543 | 1.595 | 0.052 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 18 | Gd | 离群 | 1.543 | 1.595 | 0.052 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 16 | Tb | 离群 | 0.0413 | 0.0420 | 0.0007 | 0.008 | 0.0057 | 保留 |
| 4 | 方法二 | 17 | Tb | 组间离群(Xmin) | 0.375 | 0.397 | 0.022 | 0.04 | 0.0283 | 保留 |
| 4 | 方法二 | 17 | Tb | 歧离 | 0.375 | 0.397 | 0.022 | 0.04 | 0.0283 | 保留 |
| 4 | 方法二 | 18 | Tb | 组间离群(Xmin) | 1.524 | 1.599 | 0.075 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 18 | Tb | 离群 | 1.524 | 1.599 | 0.075 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 16 | Dy | 离群 | 0.0405 | 0.0416 | 0.0011 | 0.008 | 0.0057 | 保留 |
| 5 | 方法二 | 16 | Ho | 组间歧离(Xmin) | 0.0408 | 0.0419 | 0.0011 | 0.008 | 0.0057 | 保留 |
| 4 | 方法二 | 16 | Ho | 离群 | 0.0419 | 0.0417 | 0.0002 | 0.008 | 0.0057 | 保留 |
| 4 | 方法二 | 18 | Ho | 组间离群(Xmin) | 1.544 | 1.607 | 0.063 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 16 | Er | 离群 | 0.0434 | 0.0414 | 0.0020 | 0.008 | 0.0057 | 保留 |
| 4 | 方法二 | 17 | Er | 组间歧离(Xmin) | 0.371 | 0.402 | 0.031 | 0.04 | 0.0282 | 舍弃 |
| 4 | 方法二 | 17 | Er | 离群 | 0.371 | 0.402 | 0.031 | 0.04 | 0.0282 | 舍弃 |
| 4 | 方法二 | 18 | Er | 组间离群(Xmin) | 1.536 | 1.607 | 0.071 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 18 | Er | 歧离 | 1.536 | 1.607 | 0.071 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 16 | Tm | 组间歧离(Xmax) | 0.0446 | 0.0414 | 0.0032 | 0.008 | 0.0057 | 保留 |
| 4 | 方法二 | 16 | Tm | 歧离 | 0.0446 | 0.0414 | 0.0032 | 0.008 | 0.0057 | 保留 |
| 5 | 方法二 | 17 | Tm | 组内离群(Xmin) | 0.367 | 0.391 | 0.024 | 0.04 | 0.0282 | 保留 |
| 4 | 方法二 | 17 | Tm | 歧离 | 0.397 | 0.389 | 0.008 | 0.04 | 0.0282 | 保留 |
| 4 | 方法二 | 18 | Tm | 组间离群(Xmin) | 1.504 | 1.604 | 0.100 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 18 | Yb | 组间离群(Xmin) | 1.543 | 1.615 | 0.072 | 0.20 | 0.141 | 保留 |
| 4 | 方法二 | 16 | Lu | 组间歧离(Xmin) | 0.0381 | 0.0404 | 0.0023 | 0.008 | 0.0057 | 保留 |
| 4 | 方法二 | 16 | Lu | 离群 | 0.0381 | 0.0404 | 0.0023 | 0.008 | 0.0057 | 保留 |
| 1 | 方法二 | 17 | Lu | 组内歧离(Xmin) | 0.368 | 0.396 | 0.028 | 0.04 | 0.0282 | 保留 |
| 4 | 方法二 | 18 | Lu | 组间离群(Xmin) | 1.520 | 1.609 | 0.089 | 0.20 | 0.141 | 保留 |

3．重复性限和再现性限计算

试验对方法一和方法二的稀土硅铁合金及镁硅铁合金23个水平样品所有保留数据进行了重复性限和再现性限计算，计算结果见表22和表23。

表22　方法一 实验室间数据统计结果

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 元素 | 水平 | 结果可接受的实验室数 | 可接受的数据个数 | 平均值 | 重复性标准差 | 再现性标准差 | 重复性限 | 再现性限 |
| RE | 1 | 7 | 77 | 1.005 | 0.013 | 0.014 | 0.037 | 0.038 |
| RE | 2 | 8 | 88 | 1.045 | 0.014 | 0.030 | 0.041 | 0.085 |
| RE | 3 | 8 | 88 | 2.109 | 0.027 | 0.050 | 0.075 | 0.141 |
| RE | 4 | 8 | 88 | 5.389 | 0.034 | 0.060 | 0.095 | 0.169 |
| RE | 5 | 8 | 87 | 9.370 | 0.040 | 0.097 | 0.113 | 0.270 |
| RE | 23 | 8 | 88 | 0.496 | 0.007 | 0.017 | 0.019 | 0.048 |
| La | 1 | 7 | 77 | 0.197 | 0.005 | 0.007 | 0.014 | 0.019 |
| La | 11 | 7 | 77 | 8.208 | 0.043 | 0.047 | 0.120 | 0.131 |
| La | 4 | 7 | 77 | 1.422 | 0.015 | 0.020 | 0.041 | 0.056 |
| Ce | 1 | 8 | 88 | 0.353 | 0.010 | 0.029 | 0.029 | 0.082 |
| Ce | 12 | 7 | 76 | 7.115 | 0.024 | 0.060 | 0.068 | 0.168 |
| Ce | 4 | 8 | 88 | 3.128 | 0.022 | 0.036 | 0.061 | 0.102 |
| Y | 1 | 7 | 77 | 0.484 | 0.008 | 0.009 | 0.023 | 0.026 |
| Y | 10 | 7 | 77 | 8.463 | 0.034 | 0.041 | 0.096 | 0.114 |
| Y | 4 | 8 | 88 | 0.826 | 0.009 | 0.012 | 0.024 | 0.032 |
| Pr | 13 | 8 | 88 | 0.0434 | 0.0011 | 0.0031 | 0.0030 | 0.0087 |
| Pr | 14 | 8 | 88 | 0.126 | 0.005 | 0.006 | 0.013 | 0.016 |
| Pr | 15 | 8 | 88 | 0.423 | 0.011 | 0.013 | 0.029 | 0.037 |
| Nd | 13 | 8 | 88 | 0.0462 | 0.0011 | 0.0020 | 0.0030 | 0.0057 |
| Nd | 14 | 8 | 88 | 0.127 | 0.004 | 0.006 | 0.012 | 0.016 |
| Nd | 15 | 8 | 88 | 0.400 | 0.008 | 0.017 | 0.021 | 0.048 |
| Sm | 13 | 8 | 88 | 0.0412 | 0.0009 | 0.0017 | 0.0025 | 0.0046 |
| Sm | 14 | 8 | 88 | 0.123 | 0.005 | 0.005 | 0.013 | 0.015 |
| Sm | 15 | 8 | 88 | 0.405 | 0.006 | 0.011 | 0.018 | 0.032 |
| Eu | 13 | 8 | 88 | 0.0410 | 0.0010 | 0.0017 | 0.0027 | 0.0048 |
| Eu | 14 | 8 | 88 | 0.124 | 0.005 | 0.006 | 0.014 | 0.018 |
| Eu | 15 | 8 | 88 | 0.398 | 0.007 | 0.011 | 0.020 | 0.030 |
| Gd | 13 | 8 | 87 | 0.0410 | 0.0008 | 0.0011 | 0.0021 | 0.0030 |
| Gd | 14 | 8 | 88 | 0.122 | 0.004 | 0.005 | 0.012 | 0.013 |
| Gd | 15 | 8 | 88 | 0.410 | 0.007 | 0.015 | 0.018 | 0.042 |
| Tb | 13 | 8 | 88 | 0.0405 | 0.0007 | 0.0011 | 0.0021 | 0.0030 |
| Tb | 14 | 8 | 88 | 0.120 | 0.005 | 0.005 | 0.013 | 0.015 |
| Tb | 15 | 8 | 88 | 0.404 | 0.007 | 0.013 | 0.019 | 0.035 |
| Dy | 13 | 8 | 88 | 0.0411 | 0.0008 | 0.0012 | 0.0022 | 0.0035 |
| Dy | 14 | 8 | 88 | 0.119 | 0.005 | 0.006 | 0.014 | 0.016 |
| Dy | 15 | 7 | 77 | 0.411 | 0.006 | 0.009 | 0.016 | 0.024 |
| Ho | 13 | 8 | 88 | 0.0435 | 0.0010 | 0.0021 | 0.0027 | 0.0059 |
| Ho | 14 | 8 | 88 | 0.121 | 0.004 | 0.005 | 0.012 | 0.015 |
| Ho | 15 | 8 | 88 | 0.406 | 0.007 | 0.010 | 0.018 | 0.029 |
| Er | 13 | 8 | 88 | 0.0426 | 0.0009 | 0.0012 | 0.0027 | 0.0035 |
| Er | 14 | 8 | 88 | 0.123 | 0.004 | 0.005 | 0.011 | 0.014 |
| Er | 15 | 7 | 77 | 0.411 | 0.006 | 0.012 | 0.017 | 0.033 |
| Tm | 13 | 8 | 88 | 0.0411 | 0.0007 | 0.0015 | 0.0019 | 0.0042 |
| Tm | 14 | 8 | 88 | 0.123 | 0.005 | 0.005 | 0.014 | 0.015 |
| Tm | 15 | 8 | 88 | 0.403 | 0.008 | 0.013 | 0.021 | 0.036 |
| Yb | 13 | 8 | 88 | 0.0408 | 0.0009 | 0.0013 | 0.0024 | 0.0037 |
| Yb | 14 | 8 | 88 | 0.118 | 0.005 | 0.006 | 0.013 | 0.018 |
| Yb | 15 | 8 | 88 | 0.400 | 0.007 | 0.011 | 0.019 | 0.032 |
| Lu | 13 | 8 | 88 | 0.0412 | 0.0008 | 0.0012 | 0.0023 | 0.0034 |
| Lu | 14 | 8 | 88 | 0.122 | 0.004 | 0.005 | 0.011 | 0.013 |
| Lu | 15 | 8 | 88 | 0.421 | 0.008 | 0.013 | 0.023 | 0.037 |

表23　方法二 实验室间数据统计结果

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 元素 | 水平 | 结果可接受的实验室数 | 可接受的数据个数 | 平均值 | 重复性标准差 | 再现性标准差 | 重复性限 | 再现性限 |
| RE | 6 | 7 | 76 | 12.45 | 0.0784 | 0.100 | 0.219 | 0.279 |
| RE | 7 | 7 | 77 | 26.793 | 0.134 | 0.292 | 0.373 | 0.817 |
| RE | 8 | 7 | 77 | 25.994 | 0.174 | 0.188 | 0.485 | 0.526 |
| RE | 9 | 7 | 73 | 35.946 | 0.131 | 0.145 | 0.371 | 0.396 |
| La | 19 | 7 | 76 | 0.196 | 0.007 | 0.010 | 0.019 | 0.029 |
| La | 20 | 7 | 76 | 4.147 | 0.062 | 0.069 | 0.173 | 0.194 |
| La | 21 | 7 | 77 | 37.188 | 0.108 | 0.119 | 0.302 | 0.334 |
| La | 7 | 7 | 77 | 9.232 | 0.068 | 0.095 | 0.189 | 0.267 |
| Ce | 19 | 7 | 76 | 0.340 | 0.009 | 0.012 | 0.025 | 0.033 |
| Ce | 20 | 7 | 76 | 8.047 | 0.034 | 0.064 | 0.096 | 0.179 |
| Ce | 22 | 6 | 66 | 37.645 | 0.085 | 0.143 | 0.238 | 0.401 |
| Ce | 7 | 5 | 55 | 17.635 | 0.080 | 0.100 | 0.225 | 0.281 |
| Y | 16 | 7 | 77 | 0.0517 | 0.0012 | 0.0015 | 0.0034 | 0.0043 |
| Y | 17 | 7 | 77 | 0.391 | 0.008 | 0.010 | 0.023 | 0.027 |
| Y | 18 | 7 | 77 | 1.582 | 0.012 | 0.014 | 0.034 | 0.039 |
| Y | 19 | 7 | 77 | 16.428 | 0.063 | 0.115 | 0.177 | 0.323 |
| Y | 20 | 7 | 77 | 36.853 | 0.121 | 0.160 | 0.339 | 0.448 |
| Pr | 16 | 7 | 77 | 0.0608 | 0.0014 | 0.0022 | 0.0041 | 0.0062 |
| Pr | 17 | 7 | 77 | 0.429 | 0.007 | 0.012 | 0.020 | 0.034 |
| Pr | 18 | 7 | 77 | 1.600 | 0.012 | 0.016 | 0.035 | 0.045 |
| Nd | 16 | 6 | 66 | 0.0454 | 0.0012 | 0.0014 | 0.0033 | 0.0039 |
| Nd | 17 | 7 | 77 | 0.415 | 0.007 | 0.010 | 0.019 | 0.027 |
| Nd | 18 | 7 | 77 | 1.606 | 0.011 | 0.025 | 0.032 | 0.070 |
| Sm | 16 | 7 | 77 | 0.0419 | 0.0012 | 0.0013 | 0.0033 | 0.0037 |
| Sm | 17 | 7 | 77 | 0.396 | 0.007 | 0.011 | 0.019 | 0.030 |
| Sm | 18 | 7 | 77 | 1.580 | 0.009 | 0.024 | 0.026 | 0.067 |
| Eu | 16 | 7 | 77 | 0.0416 | 0.0011 | 0.0012 | 0.0032 | 0.0033 |
| Eu | 17 | 7 | 77 | 0.399 | 0.007 | 0.012 | 0.020 | 0.033 |
| Eu | 18 | 7 | 77 | 1.592 | 0.009 | 0.026 | 0.026 | 0.074 |
| Gd | 16 | 7 | 77 | 0.0412 | 0.0012 | 0.0015 | 0.0032 | 0.0041 |
| Gd | 17 | 7 | 77 | 0.403 | 0.008 | 0.010 | 0.023 | 0.028 |
| Gd | 18 | 7 | 77 | 1.588 | 0.010 | 0.024 | 0.028 | 0.066 |
| Tb | 16 | 7 | 77 | 0.0419 | 0.0010 | 0.0012 | 0.0028 | 0.0033 |
| Tb | 17 | 7 | 77 | 0.394 | 0.005 | 0.010 | 0.015 | 0.028 |
| Tb | 18 | 7 | 77 | 1.588 | 0.010 | 0.030 | 0.029 | 0.085 |
| Dy | 16 | 7 | 77 | 0.0415 | 0.0010 | 0.0012 | 0.0028 | 0.0034 |
| Dy | 17 | 7 | 77 | 0.407 | 0.006 | 0.007 | 0.018 | 0.021 |
| Dy | 18 | 7 | 77 | 1.606 | 0.012 | 0.017 | 0.033 | 0.049 |
| Ho | 16 | 7 | 77 | 0.0417 | 0.0011 | 0.0012 | 0.0031 | 0.0032 |
| Ho | 17 | 7 | 77 | 0.394 | 0.007 | 0.013 | 0.020 | 0.036 |
| Ho | 18 | 7 | 77 | 1.598 | 0.013 | 0.027 | 0.035 | 0.077 |
| Er | 16 | 7 | 77 | 0.0416 | 0.0009 | 0.0016 | 0.0026 | 0.0045 |
| Er | 17 | 6 | 66 | 0.402 | 0.006 | 0.008 | 0.016 | 0.021 |
| Er | 18 | 7 | 77 | 1.597 | 0.011 | 0.029 | 0.032 | 0.082 |
| Tm | 16 | 7 | 77 | 0.0419 | 0.0010 | 0.0016 | 0.0028 | 0.0046 |
| Tm | 17 | 7 | 77 | 0.390 | 0.008 | 0.010 | 0.021 | 0.028 |
| Tm | 18 | 7 | 77 | 1.590 | 0.013 | 0.040 | 0.037 | 0.112 |
| Yb | 16 | 7 | 77 | 0.0425 | 0.0012 | 0.0020 | 0.0033 | 0.0056 |
| Yb | 17 | 7 | 77 | 0.399 | 0.007 | 0.009 | 0.020 | 0.026 |
| Yb | 18 | 7 | 77 | 1.605 | 0.013 | 0.030 | 0.036 | 0.084 |
| Lu | 16 | 7 | 77 | 0.0401 | 0.0011 | 0.0014 | 0.0030 | 0.0039 |
| Lu | 17 | 7 | 77 | 0.398 | 0.009 | 0.010 | 0.024 | 0.027 |
| Lu | 18 | 7 | 77 | 1.596 | 0.012 | 0.036 | 0.034 | 0.102 |

四、标准中涉及专利的情况

本标准不涉及专利问题。

五、预期达到的社会效益等情况

**（一）项目的必要性简述**

国家标准《稀土硅铁合金及镁硅铁合金化学分析方法 第1部分：稀土总量的测定》（GB/T 16477.1-2010）从2010年发布实施已经13年了，对我国稀土行业的发展起到了积极的推动作用。但随着行业科技进步、行业稀土产品与销售的新要求，现行标准在使用过程逐渐出现了以下问题：

1、现行标准系列中只有稀土总量的测定，不能测定十五个稀土元素的含量。

2、现行标准中，方法1采用电感耦合等离子体原子发射光谱法。该方法对轻稀土铈组合金采用了标准加入法测定，因此GB/T 16477.1-2010的标准配置只适用于轻稀土铈组合金的稀土总量检测，不适用重稀土钇组硅铁合金的检测。

3、现行标准中，方法2采用EDTA滴定法。该方法在分析结果的计算与表述中未说明如何获得用于计算稀土平均摩尔质量，本次修订同时建议新增十五个稀土元素含量的测定，以解决稀土平均摩尔质量计算问题。

4、现行标准中，方法1适用于稀土硅铁合金及镁硅铁合金中稀土总量的测定，测定范围为0.50%-6.00%，不能满足对稀土镁硅铁合金产品稀土总量（0.5%-8.5%）的测定。

此外稀土硅铁合金和稀土镁硅铁合金产品主要有轻稀土铈组、镧组合金和重稀土钇组合金，其产品标准对Ce、La和Y在稀土中的配比均有要求；随着稀土产业的发展及冶金技术的提高，市场中稀土硅铁合金和稀土镁硅铁合金的主体成份、杂质种类及其含量等要求出现了新的变化，通过稀土元素成分的配比添加，目前已制备出各种品种类型的稀土硅铁合金及镁硅铁合金，如镧铈（35+65、10+90）硅铁合金等，不同稀土元素成分的稀土硅铁合金及稀土镁硅铁合金生产工艺和产品的性能不尽相同，因此十五个稀土元素含量分析已成为稀土硅铁合金及稀土镁硅铁合金生产中必不可少的检测项目。

**（二）项目的可行性简述**

本标准用于稀土硅铁合金及镁硅铁合金中稀土总量、十五个稀土元素含量的测定，稀土总量在0.50%～10.00%时采用电感耦合等离子发射光谱法，稀土总量在10.00%～40.00%时采用EDTA滴定法。电感耦合等离子发射光谱法通过稀土配分近似匹配的标准配置方式，实现对各稀土元素含量的测定；EDTA滴定法分离铁等杂质元素后，用EDTA标准溶液滴定稀土。两种方法均是目前稀土检测领域的主要分析方法，在稀土行业中已运用几十年的历史，各项分析技术非常成熟，广泛运用于各稀土化合物、稀土金属、稀土合金等标准中的稀土含量的测定。

**（三）标准的预期作用**

本标准修订过程中，由起草单位对国际、国内标准进行了查阅和调研，制定的方法更能紧密联系实际检测工作，为国家标准《稀土硅铁合金及镁硅铁合金化学分析方法第1部分：稀土总量、十五个稀土元素含量的测定》的修订项目，修订后的分析方法，弥补了原标准的不足，增加了稀土硅铁合金及镁硅铁合金中十五个稀土元素含量的测定，增加了镧基、钇基等产品的测定，具有操作简单、测定结果精密度好、结果准确的优点，可进一步完善稀土硅铁合金及镁硅铁合金化学分析方法的标准体系，促进稀土行业发展，更好的服务于生产企业及市场贸易，为稀土产品市场更好的提供了技术支撑作用。

六、采用国际标准和国外先进标准的情况

经查，未发现相同类型的国际标准和国外先进标准。

七、与现行相关法律、法规、规章及相关标准，特别是强制性国家标准的协调配套情况

本标准与现行相关法律、法规、规章及相关标准和强制性国家标准无冲突。本标准与现行标准及制定中的标准无重复交叉情况。

八、重大分歧意见的处理经过和依据

无。

九、标准性质的建议说明

本标准为方法标准，不是通用性的安全规范或标准，仅是在涉及到的内容上引用相关的安全规范或标准作为本标准的规定，不属安全性标准。根据标准化法和有关规定，建议本标准的性质为推荐性国家标准。

十、贯彻标准的要求和措施建议

本标准修订后增加了十五个稀土元素含量测定，适用于稀土硅铁合金及镁硅铁合金中稀土总量和十五个稀土元素含量的测定，实施日期自发布之日起6个月。建议相关生产和检测单位积极组织本标准的培训和宣贯，可向企业、公司和科研院校推荐本标准。

十一、废止现行相关标准的建议

在本标准发布实施之日起，代替GB/T 16477.1-2010《稀土硅铁合金及镁硅铁合金化学分析方法第1部分：稀土总量、十五个稀土元素含量的测定》。

十二、其他应予说明的事项

无。

赣州有色冶金研究所有限公司

二O二三年九月

**附件A：电感耦合等离子体发射光谱法精密度数据统计**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A.1稀土总量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.1.1各实验室水平1实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 1.017 | 1.02 | 1.028 | 1.02 | 0.98 | 0.976 | 1.008 | 0.992 | 1.021 | 1.014 | 1.015 | 1.008 | 0.0176 | 1.74 | 1.837 | 1.123 | 无异常值 |
| 2 | 0.993 | 0.998 | 1.003 | 0.998 | 0.995 | 0.996 | 0.998 | 1.005 | 0.988 | 0.986 | 1.002 | 0.997 | 0.0059 | 0.59 | 1.786 | 1.432 | 无异常值 |
| 3 | 1.016 | 1.021 | 1.023 | 1.021 | 0.998 | 0.970 | 1.010 | 0.994 | 1.013 | 1.020 | 1.011 | 1.009 | 0.0159 | 1.58 | 2.435 | 0.890 | 歧离(Xmin) |
| 4 | 1.023 | 1.011 | 0.993 | 0.985 | 1.030 | 1.020 | 0.998 | 1.017 | 0.99 | 1.008 | 1.005 | 1.007 | 0.0146 | 1.45 | 1.528 | 1.559 | 无异常值 |
| 5 | 0.906 | 0.894 | 0.898 | 0.894 | 0.881 | 0.871 | 0.899 | 0.887 | 0.867 | 0.897 | 0.888 | 0.889 | 0.0121 | 1.36 | 1.843 | 1.384 | 无异常值 |
| 7 | 1.012 | 1.012 | 0.983 | 1.031 | 1.023 | 1.005 | 1.011 | 0.998 | 1.005 | 1.007 | 1.033 | 1.011 | 0.0144 | 1.42 | 1.939 | 1.535 | 无异常值 |
| 9 | 0.994 | 0.989 | 1.002 | 0.987 | 0.994 | 1.003 | 0.996 | 1.003 | 1.002 | 0.997 | 1.001 | 0.997 | 0.0057 | 0.57 | 1.781 | 1.043 | 无异常值 |
| 10 | 0.997 | 1.018 | 1.016 | 0.986 | 1.012 | 0.994 | 1.011 | 1.013 | 1.018 | 0.989 | 1.017 | 1.006 | 0.0124 | 1.23 | 1.653 | 0.933 | 无异常值 |
| 室间平均 | 1.008 | 0.997 | 1.009 | 1.007 | 0.889 | 1.011 | 0.997 | 1.006 |  |  |  | 0.991 | 0.0413 | 4.17 | 2.454 | 0.492 | 离群(Xmin) |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2289 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.1.2各实验室水平2实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 1.045 | 1.042 | 1.076 | 1.048 | 1.095 | 1.043 | 1.067 | 1.058 | 1.073 | 1.052 | 1.081 | 1.062 | 0.0178 | 1.67 | 1.116 | 1.869 | 无异常值 |
| 2 | 1.033 | 1.023 | 1.045 | 1.022 | 1.063 | 1.022 | 1.021 | 1.036 | 1.097 | 1.059 | 1.034 | 1.041 | 0.0235 | 2.26 | 0.865 | 2.363 | 歧离(Xmax) |
| 3 | 1.047 | 1.042 | 1.044 | 1.048 | 1.066 | 1.043 | 1.067 | 1.047 | 1.033 | 1.046 | 1.041 | 1.048 | 0.0102 | 0.97 | 1.435 | 1.898 | 无异常值 |
| 4 | 1.057 | 1.048 | 1.069 | 1.061 | 1.05 | 1.044 | 1.07 | 1.052 | 1.046 | 1.055 | 1.063 | 1.056 | 0.0089 | 0.85 | 1.331 | 1.575 | 无异常值 |
| 5 | 0.985 | 0.982 | 0.979 | 0.987 | 0.983 | 0.982 | 0.972 | 0.975 | 0.983 | 0.984 | 0.981 | 0.981 | 0.0044 | 0.45 | 2.097 | 1.329 | 无异常值 |
| 7 | 1.042 | 1.072 | 1.073 | 1.067 | 1.078 | 1.05 | 1.064 | 1.063 | 1.04 | 1.055 | 1.04 | 1.059 | 0.0139 | 1.31 | 1.333 | 1.398 | 无异常值 |
| 9 | 1.039 | 1.041 | 1.049 | 1.067 | 1.053 | 1.047 | 1.061 | 1.055 | 1.044 | 1.063 | 1.041 | 1.051 | 0.0097 | 0.92 | 1.233 | 1.666 | 无异常值 |
| 10 | 1.041 | 1.057 | 1.069 | 1.041 | 1.088 | 1.042 | 1.069 | 1.077 | 1.046 | 1.078 | 1.082 | 1.063 | 0.0179 | 1.69 | 1.212 | 1.410 | 无异常值 |
| 室间平均 | 1.062 | 1.041 | 1.048 | 1.056 | 0.981 | 1.059 | 1.051 | 1.063 |  |  |  | 1.045 | 0.0268 | 2.56 | 2.382 | 0.661 | 离群(Xmin) |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3297 柯克伦检验结论：实验室2的数据组离群（高度异常） | | | | | | | | | | | | | | | |
| 表A.1.3各实验室水平3实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 2.196 | 2.182 | 2.095 | 2.126 | 2.083 | 2.101 | 2.123 | 2.157 | 2.134 | 2.175 | 2.132 | 2.137 | 0.0370 | 1.73 | 1.453 | 1.603 | 无异常值 |
| 2 | 2.085 | 2.096 | 2.114 | 2.069 | 2.085 | 2.101 | 2.112 | 2.098 | 2.114 | 2.125 | 2.096 | 2.100 | 0.0161 | 0.77 | 1.892 | 1.577 | 无异常值 |
| 3 | 2.17 | 2.188 | 2.127 | 2.124 | 2.099 | 2.085 | 2.128 | 2.166 | 2.127 | 2.122 | 2.112 | 2.132 | 0.0311 | 1.46 | 1.500 | 1.813 | 无异常值 |
| 4 | 2.117 | 2.172 | 2.126 | 2.163 | 2.154 | 2.147 | 2.135 | 2.14 | 2.15 | 2.142 | 2.128 | 2.143 | 0.0164 | 0.77 | 1.591 | 1.762 | 无异常值 |
| 5 | 2.036 | 2.02 | 2.025 | 2.015 | 2.069 | 2.036 | 2.06 | 2.041 | 2.031 | 2.037 | 2.049 | 2.038 | 0.0163 | 0.80 | 1.417 | 1.897 | 无异常值 |
| 7 | 2.137 | 2.126 | 2.109 | 2.15 | 2.141 | 2.129 | 2.125 | 2.109 | 2.142 | 2.148 | 2.156 | 2.134 | 0.0157 | 0.74 | 1.577 | 1.409 | 无异常值 |
| 9 | 1.999 | 2.001 | 1.997 | 2.098 | 2.065 | 2.057 | 2.047 | 2.089 | 2.054 | 2.037 | 2.085 | 2.048 | 0.0365 | 1.78 | 1.402 | 1.369 | 无异常值 |
| 10 | 2.181 | 2.169 | 2.113 | 2.147 | 2.098 | 2.172 | 2.096 | 2.171 | 2.133 | 2.169 | 2.137 | 2.144 | 0.0311 | 1.45 | 1.548 | 1.183 | 无异常值 |
| 室间平均 | 2.137 | 2.100 | 2.132 | 2.143 | 2.038 | 2.134 | 2.048 | 2.144 |  |  |  | 2.109 | 0.0433 | 2.05 | 1.647 | 0.803 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=00.241 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.1.4各实验室水平4实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 5.384 | 5.524 | 5.383 | 5.403 | 5.429 | 5.422 | 5.431 | 5.438 | 5.476 | 5.409 | 5.417 | 5.429 | 0.0409 | 0.75 | 1.118 | 2.329 | 无异常值 |
| 2 | 5.398 | 5.429 | 5.442 | 5.397 | 5.386 | 5.467 | 5.479 | 5.426 | 5.421 | 5.42 | 5.409 | 5.425 | 0.0288 | 0.53 | 1.349 | 1.876 | 无异常值 |
| 3 | 5.383 | 5.535 | 5.284 | 5.413 | 5.399 | 5.402 | 5.431 | 5.432 | 5.456 | 5.419 | 5.418 | 5.416 | 0.0594 | 1.10 | 2.217 | 2.010 | 无异常值 |
| 4 | 5.383 | 5.418 | 5.449 | 5.376 | 5.422 | 5.39 | 5.405 | 5.413 | 5.426 | 5.439 | 5.431 | 5.414 | 0.0233 | 0.43 | 1.624 | 1.510 | 无异常值 |
| 5 | 5.313 | 5.322 | 5.404 | 5.359 | 5.338 | 5.393 | 5.36 | 5.316 | 5.361 | 5.332 | 5.349 | 5.350 | 0.0297 | 0.56 | 1.235 | 1.825 | 无异常值 |
| 7 | 5.337 | 5.359 | 5.372 | 5.327 | 5.39 | 5.289 | 5.349 | 5.375 | 5.341 | 5.367 | 5.351 | 5.351 | 0.0275 | 0.51 | 2.239 | 1.430 | 无异常值 |
| 9 | 5.266 | 5.315 | 5.287 | 5.279 | 5.294 | 5.309 | 5.298 | 5.276 | 5.285 | 5.306 | 5.311 | 5.293 | 0.0160 | 0.30 | 1.701 | 1.355 | 无异常值 |
| 10 | 5.451 | 5.449 | 5.412 | 5.398 | 5.419 | 5.467 | 5.431 | 5.383 | 5.456 | 5.429 | 5.438 | 5.430 | 0.0257 | 0.47 | 1.841 | 1.431 | 无异常值 |
| 室间平均 | 5.429 | 5.425 | 5.416 | 5.414 | 5.350 | 5.351 | 5.293 | 5.430 |  |  |  | 5.388 | 0.0508 | 0.94 | 1.872 | 0.825 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3861 柯克伦检验结论：实验室3的数据组离群（高度异常） | | | | | | | | | | | | | | | |
| 表A.1.5各实验室水平5实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 9.367 | 9.448 | 9.43 | 9.453 | 9.478 | 9.389 | 9.507 | 9.408 | 9.392 | 9.419 | 9.434 | 9.430 | 0.0410 | 0.43 | 1.526 | 1.890 | 无异常值 |
| 2 | 9.365 | 9.356 | 9.453 | 9.439 | 9.482 | 9.421 | 9.422 | 9.439 | 9.441 | 9.425 | 9.421 | 9.424 | 0.0362 | 0.38 | 1.881 | 1.604 | 无异常值 |
| 3 | 9.38 | 9.442 | 9.432 | 9.443 | 9.438 | 9.319 | 9.427 | 9.418 | 9.4 | 9.429 | 9.435 | 9.415 | 0.0371 | 0.39 | 2.584 | 0.760 | 离群(Xmin) |
| 4 | 9.389 | 9.372 | 9.382 | 9.419 | 9.395 | 9.401 | 9.407 | 9.384 | 9.391 | 9.41 | 9.399 | 9.395 | 0.0137 | 0.15 | 1.710 | 1.730 | 无异常值 |
| 5 | 9.258 | 9.198 | 9.243 | 9.212 | 9.257 | 9.246 | 9.175 | 9.261 | 9.412 | 9.238 | 9.129 | 9.239 | 0.0705 | 0.76 | 1.559 | 2.452 | 歧离(Xmax) |
| 7 | 9.345 | 9.369 | 9.363 | 9.524 | 9.379 | 9.327 | 9.336 | 9.364 | 9.347 | 9.356 | 9.348 | 9.369 | 0.0536 | 0.57 | 0.782 | 2.895 | 离群(Xmax) |
| 9 | 9.127 | 9.311 | 9.226 | 9.215 | 9.304 | 9.271 | 9.219 | 9.231 | 9.227 | 9.296 | 9.215 | 9.240 | 0.0530 | 0.57 | 2.134 | 1.335 | 无异常值 |
| 10 | 9.433 | 9.465 | 9.469 | 9.396 | 9.421 | 9.495 | 9.475 | 9.468 | 9.464 | 9.479 | 9.501 | 9.461 | 0.0317 | 0.33 | 2.039 | 1.278 | 无异常值 |
| 室间平均 | 9.430 | 9.424 | 9.415 | 9.395 | 9.239 | 9.369 | 9.240 | 9.461 |  |  |  | 9.372 | 0.0856 | 0.91 | 1.548 | 1.040 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=00.307 柯克伦检验结论：实验室5为歧离值 | | | | | | | | | | | | | | | |
| 表A.1.6各实验室水平23实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.497 | 0.497 | 0.502 | 0.511 | 0.489 | 0.492 | 0.513 | 0.507 | 0.496 | 0.506 | 0.517 | 0.502 | 0.0091 | 1.80 | 1.485 | 1.606 | 无异常值 |
| 2 | 0.488 | 0.501 | 0.5 | 0.511 | 0.496 | 0.498 | 0.511 | 0.502 | 0.493 | 0.489 | 0.496 | 0.499 | 0.0076 | 1.52 | 1.401 | 1.628 | 无异常值 |
| 3 | 0.495 | 0.502 | 0.505 | 0.496 | 0.504 | 0.5 | 0.503 | 0.496 | 0.505 | 0.507 | 0.507 | 0.502 | 0.0044 | 0.89 | 1.534 | 1.166 | 无异常值 |
| 4 | 0.502 | 0.496 | 0.501 | 0.501 | 0.495 | 0.508 | 0.49 | 0.5 | 0.488 | 0.512 | 0.517 | 0.501 | 0.0088 | 1.76 | 1.463 | 1.823 | 无异常值 |
| 5 | 0.457 | 0.457 | 0.457 | 0.46 | 0.462 | 0.46 | 0.454 | 0.458 | 0.457 | 0.462 | 0.459 | 0.458 | 0.0024 | 0.53 | 1.838 | 1.463 | 无异常值 |
| 7 | 0.5041 | 0.5034 | 0.5019 | 0.4969 | 0.5169 | 0.5105 | 0.5031 | 0.5032 | 0.4985 | 0.5167 | 0.5147 | 0.506 | 0.0071 | 1.41 | 1.323 | 1.476 | 无异常值 |
| 9 | 0.498 | 0.496 | 0.502 | 0.495 | 0.496 | 0.501 | 0.497 | 0.501 | 0.502 | 0.499 | 0.502 | 0.499 | 0.0027 | 0.55 | 1.470 | 1.103 | 无异常值 |
| 10 | 0.5120 | 0.5060 | 0.5110 | 0.4980 | 0.4910 | 0.5010 | 0.5130 | 0.5020 | 0.4970 | 0.5030 | 0.5140 | 0.504 | 0.0075 | 1.49 | 1.779 | 1.283 | 无异常值 |
| 室间平均 | 0.502 | 0.499 | 0.502 | 0.501 | 0.458 | 0.506 | 0.499 | 0.504 |  |  |  | 0.496 | 0.0156 | 3.14 | 2.441 | 0.632 | 离群(Xmin) |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2292 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| A.2十五个稀土元素含量精密度数据统计  A.2.1 镧含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.1.1各实验室水平1实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.202 | 0.199 | 0.201 | 0.204 | 0.208 | 0.205 | 0.191 | 0.192 | 0.19 | 0.192 | 0.193 | 0.198 | 0.0065 | 3.28 | 1.219 | 1.555 | 无异常值 |
| 2 | 0.197 | 0.201 | 0.205 | 0.204 | 0.201 | 0.195 | 0.196 | 0.205 | 0.202 | 0.2 | 0.204 | 0.201 | 0.0036 | 1.79 | 1.646 | 1.139 | 无异常值 |
| 3 | 0.202 | 0.209 | 0.193 | 0.191 | 0.202 | 0.203 | 0.201 | 0.203 | 0.21 | 0.196 | 0.199 | 0.201 | 0.0059 | 2.94 | 1.665 | 1.557 | 无异常值 |
| 4 | 0.196 | 0.198 | 0.203 | 0.201 | 0.21 | 0.195 | 0.197 | 0.202 | 0.195 | 0.192 | 0.194 | 0.198 | 0.0052 | 2.60 | 1.250 | 2.236 | 无异常值 |
| 5 | 0.164 | 0.165 | 0.162 | 0.162 | 0.16 | 0.157 | 0.166 | 0.163 | 0.163 | 0.166 | 0.162 | 0.163 | 0.0026 | 1.63 | 2.162 | 1.235 | 无异常值 |
| 7 | 0.192 | 0.192 | 0.185 | 0.198 | 0.195 | 0.19 | 0.189 | 0.186 | 0.189 | 0.189 | 0.198 | 0.191 | 0.0044 | 2.28 | 1.420 | 1.566 | 无异常值 |
| 9 | 0.185 | 0.19 | 0.195 | 0.188 | 0.184 | 0.185 | 0.187 | 0.187 | 0.184 | 0.194 | 0.186 | 0.188 | 0.0038 | 2.02 | 0.982 | 1.915 | 无异常值 |
| 10 | 0.198 | 0.201 | 0.197 | 0.204 | 0.206 | 0.199 | 0.193 | 0.196 | 0.205 | 0.194 | 0.191 | 0.199 | 0.0050 | 2.52 | 1.507 | 1.489 | 无异常值 |
| 室间平均 | 0.198 | 0.201 | 0.201 | 0.198 | 0.163 | 0.191 | 0.188 | 0.199 |  |  |  | 0.192 | 0.0128 | 6.67 | 2.304 | 0.672 | 离群(Xmin) |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2314 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.1.2各实验室水平11实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 8.202 | 8.125 | 8.246 | 8.235 | 8.145 | 8.147 | 8.222 | 8.236 | 8.187 | 8.192 | 8.245 | 8.198 | 0.0434 | 0.53 | 1.691 | 1.098 | 无异常值 |
| 2 | 8.111 | 8.133 | 8.214 | 8.222 | 8.237 | 8.147 | 8.222 | 8.167 | 8.187 | 8.213 | 8.245 | 8.191 | 0.0450 | 0.55 | 1.771 | 1.206 | 无异常值 |
| 3 | 8.235 | 8.227 | 8.171 | 8.179 | 8.203 | 8.227 | 8.212 | 8.179 | 8.222 | 8.176 | 8.217 | 8.204 | 0.0239 | 0.29 | 1.398 | 1.283 | 无异常值 |
| 4 | 8.152 | 8.173 | 8.202 | 8.227 | 8.213 | 8.165 | 8.177 | 8.199 | 8.204 | 8.184 | 8.227 | 8.193 | 0.0248 | 0.30 | 1.653 | 1.371 | 无异常值 |
| 5 | 7.928 | 7.928 | 7.985 | 7.858 | 7.918 | 7.864 | 7.954 | 7.891 | 7.857 | 7.826 | 7.822 | 7.894 | 0.0531 | 0.67 | 1.352 | 1.720 | 无异常值 |
| 7 | 8.195 | 8.205 | 8.185 | 8.179 | 8.215 | 8.215 | 8.178 | 8.224 | 8.235 | 8.215 | 8.185 | 8.203 | 0.0195 | 0.24 | 1.271 | 1.648 | 无异常值 |
| 9 | 8.164 | 8.181 | 8.249 | 8.222 | 8.357 | 8.204 | 8.177 | 8.345 | 8.367 | 8.202 | 8.354 | 8.257 | 0.0820 | 0.99 | 1.129 | 1.347 | 无异常值 |
| 10 | 8.212 | 8.168 | 8.251 | 8.241 | 8.197 | 8.169 | 8.216 | 8.223 | 8.207 | 8.198 | 8.234 | 8.211 | 0.0268 | 0.33 | 1.587 | 1.509 | 无异常值 |
| 室间平均 | 8.198 | 8.191 | 8.204 | 8.193 | 7.894 | 8.203 | 8.257 | 8.211 |  |  |  | 8.169 | 0.1131 | 1.38 | 2.433 | 0.776 | 离群(Xmin) |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.4273 柯克伦检验结论：实验室9的数据组离群（高度异常） | | | | | | | | | | | | | | | |  |
| 表A.2.1.3各实验室水平4实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 1.466 | 1.42 | 1.42 | 1.433 | 1.426 | 1.439 | 1.428 | 1.416 | 1.435 | 1.447 | 1.428 | 1.433 | 0.0143 | 1.00 | 1.156 | 2.337 | 无异常值 |
| 2 | 1.400 | 1.393 | 1.410 | 1.433 | 1.44 | 1.395 | 1.399 | 1.416 | 1.405 | 1.422 | 1.428 | 1.413 | 0.0161 | 1.14 | 1.228 | 1.684 | 无异常值 |
| 3 | 1.44 | 1.436 | 1.428 | 1.435 | 1.422 | 1.43 | 1.434 | 1.421 | 1.425 | 1.424 | 1.437 | 1.430 | 0.0066 | 0.46 | 1.391 | 1.488 | 无异常值 |
| 4 | 1.428 | 1.44 | 1.423 | 1.419 | 1.42 | 1.429 | 1.428 | 1.425 | 1.43 | 1.428 | 1.441 | 1.428 | 0.0070 | 0.49 | 1.316 | 1.807 | 无异常值 |
| 5 | 1.371 | 1.377 | 1.396 | 1.389 | 1.394 | 1.396 | 1.413 | 1.39 | 1.387 | 1.398 | 1.403 | 1.392 | 0.0116 | 0.83 | 1.831 | 1.800 | 无异常值 |
| 7 | 1.386 | 1.397 | 1.412 | 1.378 | 1.405 | 1.372 | 1.398 | 1.405 | 1.396 | 1.395 | 1.401 | 1.395 | 0.0120 | 0.86 | 1.918 | 1.418 | 无异常值 |
| 9 | 1.451 | 1.391 | 1.416 | 1.393 | 1.429 | 1.412 | 1.457 | 1.414 | 1.397 | 1.461 | 1.403 | 1.420 | 0.0257 | 1.81 | 1.143 | 1.582 | 无异常值 |
| 10 | 1.457 | 1.431 | 1.424 | 1.442 | 1.439 | 1.427 | 1.429 | 1.418 | 1.442 | 1.457 | 1.433 | 1.436 | 0.0126 | 0.88 | 1.447 | 1.642 | 无异常值 |
| 室间平均 | 1.433 | 1.413 | 1.430 | 1.428 | 1.392 | 1.395 | 1.420 | 1.436 |  |  |  | 1.418 | 0.0170 | 1.20 | 1.544 | 1.047 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3984 柯克伦检验结论：实验室9的数据组离群（高度异常） | | | | | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A.2.2 铈含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.2.1各实验室水平1实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.358 | 0.358 | 0.371 | 0.365 | 0.359 | 0.36 | 0.375 | 0.377 | 0.392 | 0.397 | 0.372 | 0.371 | 0.0134 | 3.62 | 0.987 | 1.913 | 无异常值 |
| 2 | 0.359 | 0.358 | 0.358 | 0.371 | 0.361 | 0.375 | 0.368 | 0.359 | 0.366 | 0.371 | 0.362 | 0.364 | 0.0061 | 1.68 | 1.043 | 1.743 | 无异常值 |
| 3 | 0.378 | 0.391 | 0.385 | 0.373 | 0.391 | 0.376 | 0.374 | 0.383 | 0.375 | 0.367 | 0.386 | 0.380 | 0.0078 | 2.06 | 1.652 | 1.419 | 无异常值 |
| 4 | 0.363 | 0.354 | 0.362 | 0.36 | 0.372 | 0.37 | 0.368 | 0.357 | 0.388 | 0.379 | 0.382 | 0.369 | 0.0108 | 2.94 | 1.351 | 1.787 | 无异常值 |
| 5 | 0.303 | 0.296 | 0.301 | 0.306 | 0.303 | 0.302 | 0.301 | 0.295 | 0.281 | 0.291 | 0.287 | 0.297 | 0.0078 | 2.62 | 2.042 | 1.167 | 无异常值 |
| 7 | 0.333 | 0.331 | 0.325 | 0.341 | 0.338 | 0.328 | 0.336 | 0.329 | 0.331 | 0.328 | 0.34 | 0.333 | 0.0053 | 1.60 | 1.450 | 1.552 | 无异常值 |
| 9 | 0.345 | 0.33 | 0.347 | 0.321 | 0.356 | 0.347 | 0.33 | 0.351 | 0.323 | 0.354 | 0.363 | 0.342 | 0.0142 | 4.14 | 1.514 | 1.450 | 无异常值 |
| 10 | 0.351 | 0.369 | 0.359 | 0.364 | 0.357 | 0.358 | 0.381 | 0.369 | 0.389 | 0.387 | 0.378 | 0.369 | 0.0129 | 3.49 | 1.417 | 1.530 | 无异常值 |
| 室间平均 | 0.371 | 0.364 | 0.380 | 0.369 | 0.297 | 0.333 | 0.342 | 0.369 |  |  |  | 0.353 | 0.0277 | 7.84 | 2.033 | 0.965 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2355 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |  |
| 表A.2.2.2各实验室水平12实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 7.104 | 7.167 | 7.164 | 7.164 | 7.16 | 7.145 | 7.158 | 7.198 | 7.096 | 7.159 | 7.133 | 7.150 | 0.0293 | 0.41 | 1.838 | 1.645 | 无异常值 |
| 2 | 7.111 | 7.087 | 7.094 | 7.103 | 7.116 | 7.1 | 7.118 | 7.128 | 7.096 | 7.109 | 7.133 | 7.109 | 0.0144 | 0.20 | 1.506 | 1.696 | 无异常值 |
| 3 | 7.093 | 7.137 | 7.127 | 7.139 | 7.103 | 7.099 | 7.106 | 7.165 | 7.17 | 7.118 | 7.134 | 7.126 | 0.0257 | 0.36 | 1.300 | 1.692 | 无异常值 |
| 4 | 7.122 | 7.139 | 7.124 | 7.143 | 7.153 | 7.155 | 7.148 | 7.159 | 7.132 | 7.177 | 7.163 | 7.147 | 0.0169 | 0.24 | 1.468 | 1.785 | 无异常值 |
| 5 | 6.956 | 6.857 | 6.828 | 6.83 | 6.839 | 6.956 | 6.779 | 6.791 | 6.845 | 6.769 | 6.897 | 6.850 | 0.0639 | 0.93 | 1.263 | 1.663 | 无异常值 |
| 7 | 7.135 | 7.142 | 7.132 | 7.313 | 7.144 | 7.139 | 7.112 | 7.124 | 7.129 | 7.134 | 7.122 | 7.148 | 0.0556 | 0.78 | 0.644 | 2.972 | 离群(Xmax) |
| 9 | 6.951 | 7.003 | 6.994 | 7.045 | 7.003 | 6.978 | 7.014 | 6.913 | 7.026 | 6.989 | 7.024 | 6.995 | 0.0371 | 0.53 | 2.197 | 1.359 | 无异常值 |
| 10 | 7.096 | 7.141 | 7.159 | 7.162 | 7.156 | 7.149 | 7.164 | 7.182 | 7.119 | 7.147 | 7.145 | 7.147 | 0.0232 | 0.32 | 2.208 | 1.496 | 无异常值 |
| 室间平均 | 7.150 | 7.109 | 7.126 | 7.147 | 6.850 | 7.148 | 6.995 | 7.147 |  |  |  | 7.084 | 0.1080 | 1.52 | 2.168 | 0.610 | 歧离(Xmin) |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3679 柯克伦检验结论：实验室5的数据组离群（高度异常） | | | | | | | | | | | | | | | |
| 表A.2.2.3各实验室水平4实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 3.104 | 3.167 | 3.164 | 3.164 | 3.16 | 3.145 | 3.158 | 3.16 | 3.1 | 3.159 | 3.133 | 3.147 | 0.0242 | 0.77 | 1.934 | 0.839 | 无异常值 |
| 2 | 3.165 | 3.171 | 3.103 | 3.192 | 3.144 | 3.098 | 3.142 | 3.095 | 3.111 | 3.145 | 3.142 | 3.137 | 0.0320 | 1.02 | 1.315 | 1.715 | 无异常值 |
| 3 | 3.163 | 3.125 | 3.116 | 3.149 | 3.129 | 3.16 | 3.157 | 3.147 | 3.158 | 3.157 | 3.126 | 3.144 | 0.0170 | 0.54 | 1.667 | 1.104 | 无异常值 |
| 4 | 3.15 | 3.128 | 3.146 | 3.159 | 3.147 | 3.161 | 3.154 | 3.144 | 3.17 | 3.151 | 3.142 | 3.150 | 0.0111 | 0.35 | 2.002 | 1.789 | 无异常值 |
| 5 | 3.069 | 3.073 | 3.116 | 3.076 | 3.057 | 3.107 | 3.063 | 3.047 | 3.09 | 3.057 | 3.062 | 3.074 | 0.0217 | 0.71 | 1.257 | 1.923 | 无异常值 |
| 7 | 3.131 | 3.133 | 3.142 | 3.127 | 3.156 | 3.102 | 3.126 | 3.136 | 3.124 | 3.146 | 3.126 | 3.132 | 0.0140 | 0.45 | 2.129 | 1.738 | 无异常值 |
| 9 | 3.059 | 3.119 | 3.045 | 3.108 | 3.079 | 3.103 | 3.106 | 3.031 | 3.097 | 3.106 | 3.118 | 3.088 | 0.0304 | 0.98 | 1.885 | 1.011 | 无异常值 |
| 10 | 3.161 | 3.149 | 3.157 | 3.161 | 3.158 | 3.156 | 3.149 | 3.162 | 3.121 | 3.147 | 3.135 | 3.151 | 0.0127 | 0.40 | 2.329 | 0.903 | 无异常值 |
| 室间平均 | 3.147 | 3.137 | 3.144 | 3.150 | 3.074 | 3.132 | 3.088 | 3.151 |  |  |  | 3.128 | 0.0297 | 0.95 | 1.805 | 0.763 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2718 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A.2.3 钇含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.3.1各实验室水平1实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.492 | 0.494 | 0.482 | 0.485 | 0.487 | 0.49 | 0.473 | 0.485 | 0.494 | 0.472 | 0.481 | 0.485 | 0.0076 | 1.57 | 1.710 | 1.184 | 无异常值 |
| 2 | 0.472 | 0.496 | 0.503 | 0.515 | 0.494 | 0.474 | 0.495 | 0.482 | 0.488 | 0.485 | 0.491 | 0.490 | 0.0124 | 2.53 | 1.486 | 1.976 | 无异常值 |
| 3 | 0.473 | 0.489 | 0.484 | 0.473 | 0.470 | 0.483 | 0.476 | 0.473 | 0.483 | 0.469 | 0.490 | 0.478 | 0.0076 | 1.58 | 1.249 | 1.526 | 无异常值 |
| 4 | 0.485 | 0.484 | 0.49 | 0.495 | 0.487 | 0.493 | 0.487 | 0.492 | 0.488 | 0.480 | 0.481 | 0.487 | 0.0048 | 0.99 | 1.552 | 1.571 | 无异常值 |
| 5 | 0.429 | 0.423 | 0.425 | 0.417 | 0.407 | 0.403 | 0.421 | 0.418 | 0.413 | 0.430 | 0.428 | 0.419 | 0.0089 | 2.13 | 1.843 | 1.181 | 无异常值 |
| 7 | 0.487 | 0.489 | 0.473 | 0.492 | 0.49 | 0.487 | 0.486 | 0.483 | 0.485 | 0.490 | 0.495 | 0.487 | 0.0057 | 1.18 | 2.445 | 1.397 | 歧离(Xmin) |
| 9 | 0.485 | 0.478 | 0.488 | 0.488 | 0.475 | 0.471 | 0.463 | 0.468 | 0.465 | 0.485 | 0.474 | 0.476 | 0.0091 | 1.92 | 1.461 | 1.272 | 无异常值 |
| 10 | 0.478 | 0.491 | 0.479 | 0.481 | 0.496 | 0.477 | 0.469 | 0.483 | 0.492 | 0.484 | 0.477 | 0.482 | 0.0079 | 1.64 | 1.702 | 1.714 | 无异常值 |
| 室间平均 | 0.485 | 0.490 | 0.478 | 0.487 | 0.419 | 0.487 | 0.476 | 0.482 |  |  |  | 0.476 | 0.0233 | 4.89 | 2.424 | 0.629 | 离群(Xmin) |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=00.28 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.3.2各实验室水平10实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 8.467 | 8.469 | 8.458 | 8.461 | 8.463 | 8.465 | 8.414 | 8.477 | 8.474 | 8.474 | 8.47 | 8.463 | 0.0172 | 0.20 | 2.837 | 0.817 | 离群(Xmin) |
| 2 | 8.433 | 8.396 | 8.458 | 8.411 | 8.465 | 8.477 | 8.398 | 8.375 | 8.411 | 8.433 | 8.452 | 8.428 | 0.0326 | 0.39 | 1.630 | 1.502 | 无异常值 |
| 3 | 8.477 | 8.471 | 8.482 | 8.485 | 8.478 | 8.478 | 8.483 | 8.473 | 8.469 | 8.481 | 8.488 | 8.479 | 0.0059 | 0.07 | 1.628 | 1.582 | 无异常值 |
| 4 | 8.445 | 8.459 | 8.424 | 8.436 | 8.458 | 8.449 | 8.514 | 8.601 | 8.525 | 8.493 | 8.488 | 8.481 | 0.0512 | 0.60 | 1.115 | 2.342 | 无异常值 |
| 5 | 8.129 | 8.068 | 7.928 | 7.924 | 8.263 | 8.249 | 8.16 | 8.119 | 8.159 | 8.075 | 8.077 | 8.105 | 0.1093 | 1.35 | 1.652 | 1.448 | 无异常值 |
| 7 | 8.478 | 8.481 | 8.483 | 8.48 | 8.352 | 8.452 | 8.485 | 8.481 | 8.38 | 8.491 | 8.482 | 8.459 | 0.0472 | 0.56 | 2.258 | 0.685 | 无异常值 |
| 9 | 8.417 | 8.447 | 8.434 | 8.421 | 8.459 | 8.464 | 8.419 | 8.469 | 8.425 | 8.439 | 8.429 | 8.438 | 0.0187 | 0.22 | 1.144 | 1.629 | 无异常值 |
| 10 | 8.496 | 8.471 | 8.469 | 8.473 | 8.511 | 8.447 | 8.533 | 8.542 | 8.571 | 8.491 | 8.445 | 8.495 | 0.0403 | 0.47 | 1.250 | 1.877 | 无异常值 |
| 室间平均 | 8.463 | 8.428 | 8.479 | 8.481 | 8.105 | 8.459 | 8.438 | 8.495 |  |  |  | 8.418 | 0.1287 | 1.53 | 2.438 | 0.597 | 离群(Xmin) |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.5925 柯克伦检验结论：实验室5的数据组离群（高度异常） | | | | | | | | | | | | | | | |
| 表A.2.3.3各实验室水平4实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.840 | 0.824 | 0.825 | 0.811 | 0.821 | 0.824 | 0.827 | 0.829 | 0.818 | 0.821 | 0.823 | 0.824 | 0.0072 | 0.87 | 1.799 | 2.242 | 无异常值 |
| 2 | 0.822 | 0.823 | 0.823 | 0.815 | 0.813 | 0.824 | 0.822 | 0.819 | 0.824 | 0.825 | 0.823 | 0.821 | 0.0039 | 0.47 | 2.101 | 0.981 | 无异常值 |
| 3 | 0.837 | 0.803 | 0.815 | 0.822 | 0.811 | 0.83 | 0.818 | 0.827 | 0.839 | 0.81 | 0.802 | 0.819 | 0.0127 | 1.55 | 1.370 | 1.534 | 无异常值 |
| 4 | 0.834 | 0.82 | 0.828 | 0.821 | 0.837 | 0.835 | 0.821 | 0.826 | 0.833 | 0.824 | 0.82 | 0.827 | 0.0066 | 0.79 | 1.096 | 1.498 | 无异常值 |
| 5 | 0.836 | 0.835 | 0.853 | 0.856 | 0.849 | 0.852 | 0.846 | 0.84 | 0.845 | 0.838 | 0.845 | 0.845 | 0.0071 | 0.84 | 1.406 | 1.546 | 无异常值 |
| 7 | 0.82 | 0.829 | 0.818 | 0.822 | 0.829 | 0.815 | 0.825 | 0.834 | 0.821 | 0.826 | 0.824 | 0.824 | 0.0055 | 0.67 | 1.624 | 1.840 | 无异常值 |
| 9 | 0.823 | 0.814 | 0.848 | 0.849 | 0.817 | 0.816 | 0.811 | 0.81 | 0.821 | 0.819 | 0.843 | 0.825 | 0.0147 | 1.79 | 0.993 | 1.654 | 无异常值 |
| 10 | 0.831 | 0.827 | 0.836 | 0.821 | 0.819 | 0.817 | 0.823 | 0.831 | 0.819 | 0.82 | 0.822 | 0.824 | 0.0062 | 0.75 | 1.166 | 1.918 | 无异常值 |
| 室间平均 | 0.824 | 0.821 | 0.819 | 0.827 | 0.845 | 0.824 | 0.825 | 0.824 |  |  |  | 0.826 | 0.0079 | 0.96 | 0.847 | 2.368 | 离群(Xmax) |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3572 柯克伦检验结论：实验室9的数据组离群（高度异常） | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | |
| A.2.4 镨含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.4.1各实验室水平13实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.0438 | 0.0434 | 0.0427 | 0.044 | 0.0433 | 0.0426 | 0.0423 | 0.0433 | 0.044 | 0.0404 | 0.0405 | 0.0428 | 0.0013 | 2.96 | 1.858 | 0.983 | 无异常值 |
| 2 | 0.0399 | 0.0422 | 0.0419 | 0.0421 | 0.0418 | 0.0419 | 0.0422 | 0.0421 | 0.0422 | 0.0394 | 0.0435 | 0.0417 | 0.0011 | 2.72 | 2.064 | 1.544 | 无异常值 |
| 3 | 0.0419 | 0.0438 | 0.0431 | 0.0414 | 0.0442 | 0.0439 | 0.0436 | 0.0411 | 0.0417 | 0.044 | 0.0443 | 0.0430 | 0.0012 | 2.85 | 1.550 | 1.061 | 无异常值 |
| 4 | 0.0431 | 0.0432 | 0.0427 | 0.0439 | 0.0443 | 0.043 | 0.0433 | 0.0413 | 0.0434 | 0.0424 | 0.0435 | 0.0431 | 0.0008 | 1.84 | 2.271 | 1.514 | 无异常值 |
| 5 | 0.0504 | 0.0491 | 0.0503 | 0.0505 | 0.0501 | 0.0498 | 0.052 | 0.05 | 0.0507 | 0.0511 | 0.0508 | 0.0504 | 0.0007 | 1.48 | 1.785 | 2.088 | 无异常值 |
| 7 | 0.0412 | 0.0419 | 0.0415 | 0.0398 | 0.0395 | 0.0382 | 0.042 | 0.0412 | 0.0408 | 0.0416 | 0.0419 | 0.0409 | 0.0012 | 2.97 | 2.204 | 0.930 | 无异常值 |
| 9 | 0.042 | 0.041 | 0.0421 | 0.0431 | 0.0423 | 0.043 | 0.043 | 0.0429 | 0.0425 | 0.0409 | 0.0417 | 0.0422 | 0.0008 | 1.85 | 1.699 | 1.117 | 无异常值 |
| 10 | 0.044 | 0.043 | 0.043 | 0.045 | 0.043 | 0.042 | 0.045 | 0.0444 | 0.0428 | 0.0417 | 0.0411 | 0.0432 | 0.0013 | 2.97 | 1.612 | 1.513 | 无异常值 |
| 室间平均 | 0.0428 | 0.0417 | 0.0430 | 0.0431 | 0.0504 | 0.0409 | 0.0422 | 0.0432 |  |  |  | 0.0434 | 0.0029 | 6.78 | 0.862 | 2.385 | 离群(Xmax) |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.1761 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.4.2各实验室水平14实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.124 | 0.133 | 0.123 | 0.124 | 0.123 | 0.123 | 0.127 | 0.134 | 0.126 | 0.129 | 0.133 | 0.127 | 0.0044 | 3.44 | 0.955 | 1.558 | 无异常值 |
| 2 | 0.122 | 0.125 | 0.133 | 0.125 | 0.124 | 0.136 | 0.12 | 0.128 | 0.125 | 0.125 | 0.133 | 0.127 | 0.0050 | 3.96 | 1.374 | 1.808 | 无异常值 |
| 3 | 0.11 | 0.132 | 0.118 | 0.115 | 0.117 | 0.124 | 0.112 | 0.112 | 0.122 | 0.13 | 0.127 | 0.120 | 0.0076 | 6.35 | 1.302 | 1.589 | 无异常值 |
| 4 | 0.12 | 0.137 | 0.121 | 0.127 | 0.129 | 0.133 | 0.126 | 0.124 | 0.131 | 0.122 | 0.13 | 0.127 | 0.0053 | 4.19 | 1.364 | 1.825 | 无异常值 |
| 5 | 0.128 | 0.13 | 0.133 | 0.132 | 0.13 | 0.132 | 0.131 | 0.133 | 0.132 | 0.134 | 0.135 | 0.132 | 0.0020 | 1.51 | 1.918 | 1.598 | 无异常值 |
| 7 | 0.125 | 0.126 | 0.128 | 0.132 | 0.124 | 0.121 | 0.119 | 0.123 | 0.126 | 0.122 | 0.118 | 0.124 | 0.0040 | 3.27 | 1.482 | 1.975 | 无异常值 |
| 9 | 0.119 | 0.125 | 0.123 | 0.121 | 0.123 | 0.124 | 0.121 | 0.119 | 0.121 | 0.124 | 0.119 | 0.122 | 0.0022 | 1.80 | 1.242 | 1.491 | 无异常值 |
| 10 | 0.121 | 0.127 | 0.124 | 0.128 | 0.131 | 0.127 | 0.124 | 0.132 | 0.125 | 0.127 | 0.131 | 0.127 | 0.0034 | 2.68 | 1.762 | 1.468 | 无异常值 |
| 室间平均 | 0.127 | 0.127 | 0.120 | 0.127 | 0.132 | 0.124 | 0.122 | 0.127 |  |  |  | 0.126 | 0.0037 | 2.97 | 1.559 | 1.632 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3455 柯克伦检验结论：实验室3的数据组离群（高度异常） | | | | | | | | | | | | | | | |
| 表A.2.4.3各实验室水平15实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.413 | 0.415 | 0.415 | 0.414 | 0.419 | 0.412 | 0.428 | 0.432 | 0.456 | 0.445 | 0.432 | 0.426 | 0.0146 | 3.43 | 0.927 | 2.084 | 无异常值 |
| 2 | 0.408 | 0.415 | 0.433 | 0.424 | 0.408 | 0.409 | 0.425 | 0.433 | 0.441 | 0.412 | 0.413 | 0.420 | 0.0117 | 2.78 | 1.034 | 1.788 | 无异常值 |
| 3 | 0.42 | 0.443 | 0.439 | 0.446 | 0.422 | 0.452 | 0.413 | 0.451 | 0.424 | 0.446 | 0.438 | 0.436 | 0.0137 | 3.14 | 1.670 | 1.184 | 无异常值 |
| 4 | 0.422 | 0.43 | 0.42 | 0.434 | 0.429 | 0.448 | 0.436 | 0.43 | 0.429 | 0.437 | 0.418 | 0.430 | 0.0086 | 1.99 | 1.432 | 2.069 | 无异常值 |
| 5 | 0.418 | 0.424 | 0.426 | 0.426 | 0.428 | 0.428 | 0.432 | 0.428 | 0.429 | 0.43 | 0.43 | 0.427 | 0.0038 | 0.88 | 2.440 | 1.280 | 歧离(Xmin) |
| 7 | 0.408 | 0.413 | 0.416 | 0.405 | 0.395 | 0.408 | 0.411 | 0.402 | 0.425 | 0.419 | 0.426 | 0.412 | 0.0095 | 2.31 | 1.753 | 1.514 | 无异常值 |
| 9 | 0.411 | 0.407 | 0.409 | 0.418 | 0.416 | 0.413 | 0.411 | 0.405 | 0.419 | 0.404 | 0.414 | 0.412 | 0.0050 | 1.22 | 1.501 | 1.483 | 无异常值 |
| 10 | 0.416 | 0.409 | 0.424 | 0.409 | 0.423 | 0.417 | 0.433 | 0.425 | 0.447 | 0.441 | 0.424 | 0.424 | 0.0121 | 2.85 | 1.270 | 1.872 | 无异常值 |
| 室间平均 | 0.426 | 0.420 | 0.436 | 0.430 | 0.427 | 0.412 | 0.412 | 0.424 |  |  |  | 0.423 | 0.0085 | 2.02 | 1.376 | 1.464 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2409 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A.2.5 钕含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.5.1各实验室水平13实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.0459 | 0.0462 | 0.0472 | 0.0474 | 0.0478 | 0.0481 | 0.0456 | 0.0486 | 0.0475 | 0.0483 | 0.0452 | 0.047 | 0.0012 | 2.47 | 1.609 | 1.312 | 无异常值 |
| 2 | 0.0429 | 0.0452 | 0.0449 | 0.0451 | 0.0448 | 0.0449 | 0.0452 | 0.0451 | 0.0452 | 0.0424 | 0.0465 | 0.045 | 0.0011 | 2.54 | 2.064 | 1.544 | 无异常值 |
| 3 | 0.0487 | 0.0453 | 0.0485 | 0.0478 | 0.0484 | 0.0467 | 0.0459 | 0.0482 | 0.0458 | 0.0484 | 0.0481 | 0.047 | 0.0013 | 2.66 | 1.695 | 1.003 | 无异常值 |
| 4 | 0.0469 | 0.0453 | 0.044 | 0.0435 | 0.0469 | 0.0448 | 0.046 | 0.0478 | 0.0481 | 0.0464 | 0.046 | 0.046 | 0.0015 | 3.20 | 1.682 | 1.447 | 无异常值 |
| 5 | 0.0493 | 0.0491 | 0.0492 | 0.0495 | 0.0495 | 0.0491 | 0.0491 | 0.0486 | 0.0484 | 0.0489 | 0.0489 | 0.049 | 0.0003 | 0.70 | 1.916 | 1.304 | 无异常值 |
| 7 | 0.042 | 0.042 | 0.041 | 0.041 | 0.043 | 0.044 | 0.043 | 0.044 | 0.043 | 0.043 | 0.042 | 0.043 | 0.0010 | 2.43 | 1.492 | 1.404 | 无异常值 |
| 9 | 0.0456 | 0.0461 | 0.0457 | 0.0464 | 0.0459 | 0.0456 | 0.0459 | 0.0461 | 0.0463 | 0.0457 | 0.0462 | 0.046 | 0.0003 | 0.62 | 1.248 | 1.568 | 无异常值 |
| 10 | 0.045 | 0.047 | 0.047 | 0.046 | 0.048 | 0.048 | 0.047 | 0.0481 | 0.0472 | 0.0456 | 0.0457 | 0.047 | 0.0011 | 2.39 | 1.519 | 1.251 | 无异常值 |
| 室间平均 | 0.047 | 0.045 | 0.047 | 0.046 | 0.049 | 0.043 | 0.046 | 0.047 |  |  |  | 0.046 | 0.0019 | 4.20 | 1.881 | 1.472 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2423 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.5.2各实验室水平14实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.128 | 0.127 | 0.137 | 0.137 | 0.128 | 0.128 | 0.135 | 0.129 | 0.131 | 0.124 | 0.122 | 0.130 | 0.0049 | 3.81 | 1.544 | 1.489 | 无异常值 |
| 2 | 0.123 | 0.126 | 0.134 | 0.126 | 0.125 | 0.137 | 0.121 | 0.129 | 0.126 | 0.126 | 0.134 | 0.128 | 0.0050 | 3.93 | 1.374 | 1.808 | 无异常值 |
| 3 | 0.124 | 0.118 | 0.12 | 0.12 | 0.116 | 0.12 | 0.131 | 0.125 | 0.122 | 0.127 | 0.116 | 0.122 | 0.0047 | 3.84 | 1.226 | 1.985 | 无异常值 |
| 4 | 0.128 | 0.127 | 0.137 | 0.137 | 0.128 | 0.128 | 0.135 | 0.129 | 0.131 | 0.124 | 0.122 | 0.130 | 0.0049 | 3.81 | 1.544 | 1.489 | 无异常值 |
| 5 | 0.12 | 0.119 | 0.118 | 0.122 | 0.122 | 0.12 | 0.119 | 0.123 | 0.122 | 0.122 | 0.12 | 0.121 | 0.0016 | 1.35 | 1.618 | 1.451 | 无异常值 |
| 7 | 0.129 | 0.132 | 0.128 | 0.136 | 0.135 | 0.126 | 0.121 | 0.126 | 0.126 | 0.123 | 0.129 | 0.128 | 0.0046 | 3.62 | 1.564 | 1.662 | 无异常值 |
| 9 | 0.123 | 0.126 | 0.126 | 0.121 | 0.123 | 0.125 | 0.127 | 0.121 | 0.123 | 0.124 | 0.123 | 0.124 | 0.0020 | 1.61 | 1.416 | 1.598 | 无异常值 |
| 10 | 0.131 | 0.129 | 0.131 | 0.135 | 0.127 | 0.129 | 0.136 | 0.125 | 0.138 | 0.129 | 0.133 | 0.131 | 0.0040 | 3.03 | 1.557 | 1.717 | 无异常值 |
| 室间平均 | 0.130 | 0.128 | 0.122 | 0.130 | 0.121 | 0.128 | 0.124 | 0.131 |  |  |  | 0.127 | 0.0040 | 3.15 | 1.498 | 1.150 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.1806 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.5.3各实验室水平15实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.408 | 0.407 | 0.407 | 0.407 | 0.408 | 0.408 | 0.405 | 0.404 | 0.401 | 0.388 | 0.396 | 0.404 | 0.0063 | 1.57 | 2.450 | 0.702 | 歧离(Xmin) |
| 2 | 0.407 | 0.414 | 0.432 | 0.423 | 0.407 | 0.408 | 0.424 | 0.432 | 0.44 | 0.411 | 0.412 | 0.419 | 0.0117 | 2.79 | 1.034 | 1.788 | 无异常值 |
| 3 | 0.402 | 0.39 | 0.404 | 0.397 | 0.393 | 0.4 | 0.398 | 0.4 | 0.403 | 0.395 | 0.402 | 0.399 | 0.0044 | 1.11 | 1.927 | 1.230 | 无异常值 |
| 4 | 0.404 | 0.393 | 0.398 | 0.401 | 0.403 | 0.405 | 0.4 | 0.394 | 0.401 | 0.393 | 0.39 | 0.398 | 0.0051 | 1.28 | 1.639 | 1.300 | 无异常值 |
| 5 | 0.369 | 0.37 | 0.366 | 0.371 | 0.368 | 0.366 | 0.372 | 0.37 | 0.365 | 0.367 | 0.346 | 0.366 | 0.0071 | 1.94 | 2.861 | 0.792 | 离群(Xmin) |
| 7 | 0.412 | 0.414 | 0.401 | 0.391 | 0.415 | 0.406 | 0.419 | 0.405 | 0.415 | 0.412 | 0.41 | 0.409 | 0.0079 | 1.94 | 2.281 | 1.250 | 无异常值 |
| 9 | 0.398 | 0.379 | 0.403 | 0.381 | 0.405 | 0.399 | 0.401 | 0.399 | 0.404 | 0.398 | 0.401 | 0.397 | 0.0088 | 2.21 | 2.060 | 0.901 | 无异常值 |
| 10 | 0.411 | 0.402 | 0.414 | 0.409 | 0.406 | 0.411 | 0.404 | 0.412 | 0.399 | 0.391 | 0.401 | 0.405 | 0.0069 | 1.70 | 2.098 | 1.240 | 无异常值 |
| 室间平均 | 0.404 | 0.419 | 0.399 | 0.398 | 0.366 | 0.409 | 0.397 | 0.405 |  |  |  | 0.400 | 0.0153 | 3.82 | 2.182 | 1.270 | 歧离(Xmin) |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2966 柯克伦检验结论：实验室2为歧离值 | | | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A.2.6 钐含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.6.1各实验室水平13实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.0410 | 0.0416 | 0.041 | 0.0409 | 0.0409 | 0.0409 | 0.0423 | 0.0433 | 0.044 | 0.0433 | 0.0432 | 0.0420 | 0.0012 | 2.88 | 0.938 | 1.620 | 无异常值 |
| 2 | 0.0422 | 0.0401 | 0.0399 | 0.0402 | 0.0405 | 0.0412 | 0.0422 | 0.0431 | 0.0412 | 0.0413 | 0.0422 | 0.0413 | 0.0010 | 2.53 | 1.321 | 1.739 | 无异常值 |
| 3 | 0.043 | 0.041 | 0.0425 | 0.0432 | 0.0424 | 0.0412 | 0.0437 | 0.0418 | 0.0436 | 0.0426 | 0.0436 | 0.0426 | 0.0009 | 2.22 | 1.692 | 1.163 | 无异常值 |
| 4 | 0.0433 | 0.0424 | 0.0435 | 0.0428 | 0.0419 | 0.042 | 0.0431 | 0.0417 | 0.0437 | 0.0409 | 0.0435 | 0.0426 | 0.0009 | 2.12 | 1.898 | 1.195 | 无异常值 |
| 5 | 0.0402 | 0.04 | 0.0396 | 0.0396 | 0.0408 | 0.0399 | 0.0405 | 0.0406 | 0.0406 | 0.0403 | 0.0414 | 0.0403 | 0.0005 | 1.34 | 1.330 | 2.003 | 无异常值 |
| 7 | 0.0401 | 0.0408 | 0.0406 | 0.0412 | 0.0406 | 0.0418 | 0.0395 | 0.0389 | 0.0412 | 0.0423 | 0.0415 | 0.0408 | 0.0010 | 2.44 | 1.880 | 1.533 | 无异常值 |
| 9 | 0.0381 | 0.0384 | 0.0379 | 0.0386 | 0.0388 | 0.0389 | 0.0382 | 0.0387 | 0.0383 | 0.0384 | 0.0381 | 0.0384 | 0.0003 | 0.83 | 1.566 | 1.566 | 无异常值 |
| 10 | 0.0410 | 0.0420 | 0.0410 | 0.0400 | 0.0410 | 0.0420 | 0.0420 | 0.0431 | 0.0429 | 0.0435 | 0.0419 | 0.0419 | 0.0011 | 2.51 | 1.764 | 1.566 | 无异常值 |
| 室间平均 | 0.0420 | 0.0413 | 0.0426 | 0.0426 | 0.0403 | 0.0408 | 0.0384 | 0.0419 |  |  |  | 0.0412 | 0.0014 | 3.42 | 2.012 | 0.982 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2194 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.6.2各实验室水平14实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.13 | 0.124 | 0.131 | 0.119 | 0.127 | 0.125 | 0.114 | 0.126 | 0.115 | 0.123 | 0.132 | 0.124 | 0.0061 | 4.90 | 1.675 | 1.286 | 无异常值 |
| 2 | 0.114 | 0.125 | 0.133 | 0.124 | 0.124 | 0.128 | 0.119 | 0.119 | 0.125 | 0.118 | 0.125 | 0.123 | 0.0053 | 4.28 | 1.728 | 1.883 | 无异常值 |
| 3 | 0.116 | 0.126 | 0.12 | 0.13 | 0.124 | 0.128 | 0.127 | 0.12 | 0.116 | 0.118 | 0.118 | 0.122 | 0.0051 | 4.15 | 1.202 | 1.560 | 无异常值 |
| 4 | 0.132 | 0.13 | 0.122 | 0.124 | 0.12 | 0.133 | 0.118 | 0.119 | 0.125 | 0.127 | 0.129 | 0.125 | 0.0053 | 4.19 | 1.400 | 1.452 | 无异常值 |
| 5 | 0.117 | 0.119 | 0.118 | 0.118 | 0.117 | 0.116 | 0.119 | 0.118 | 0.118 | 0.12 | 0.121 | 0.118 | 0.0014 | 1.20 | 1.600 | 1.920 | 无异常值 |
| 7 | 0.126 | 0.12 | 0.118 | 0.126 | 0.124 | 0.129 | 0.122 | 0.126 | 0.134 | 0.124 | 0.126 | 0.125 | 0.0043 | 3.45 | 1.623 | 2.087 | 无异常值 |
| 9 | 0.119 | 0.121 | 0.117 | 0.115 | 0.124 | 0.117 | 0.119 | 0.116 | 0.121 | 0.118 | 0.116 | 0.118 | 0.0027 | 2.28 | 1.281 | 2.056 | 无异常值 |
| 10 | 0.127 | 0.130 | 0.129 | 0.118 | 0.132 | 0.128 | 0.123 | 0.119 | 0.125 | 0.117 | 0.133 | 0.126 | 0.0056 | 4.48 | 1.518 | 1.325 | 无异常值 |
| 室间平均 | 0.124 | 0.123 | 0.122 | 0.125 | 0.118 | 0.125 | 0.118 | 0.126 |  |  |  | 0.123 | 0.0029 | 2.40 | 1.519 | 0.948 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2082 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.6.3各实验室水平15实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.407 | 0.405 | 0.401 | 0.401 | 0.401 | 0.401 | 0.417 | 0.409 | 0.417 | 0.422 | 0.413 | 0.409 | 0.0077 | 1.87 | 0.985 | 1.757 | 无异常值 |
| 2 | 0.398 | 0.415 | 0.406 | 0.405 | 0.411 | 0.421 | 0.411 | 0.415 | 0.417 | 0.422 | 0.413 | 0.412 | 0.0071 | 1.73 | 1.990 | 1.378 | 无异常值 |
| 3 | 0.422 | 0.419 | 0.424 | 0.421 | 0.418 | 0.402 | 0.419 | 0.415 | 0.4 | 0.41 | 0.417 | 0.415 | 0.0079 | 1.91 | 1.913 | 1.111 | 无异常值 |
| 4 | 0.411 | 0.413 | 0.418 | 0.402 | 0.407 | 0.4 | 0.413 | 0.415 | 0.407 | 0.399 | 0.414 | 0.409 | 0.0064 | 1.58 | 1.550 | 1.395 | 无异常值 |
| 5 | 0.391 | 0.393 | 0.391 | 0.392 | 0.392 | 0.392 | 0.392 | 0.395 | 0.387 | 0.393 | 0.387 | 0.391 | 0.0024 | 0.62 | 1.803 | 1.503 | 无异常值 |
| 7 | 0.405 | 0.412 | 0.415 | 0.401 | 0.395 | 0.39 | 0.398 | 0.405 | 0.412 | 0.415 | 0.411 | 0.405 | 0.0085 | 2.10 | 1.807 | 1.134 | 无异常值 |
| 9 | 0.389 | 0.391 | 0.387 | 0.394 | 0.388 | 0.389 | 0.392 | 0.394 | 0.387 | 0.389 | 0.393 | 0.390 | 0.0026 | 0.68 | 1.235 | 1.407 | 无异常值 |
| 10 | 0.411 | 0.406 | 0.418 | 0.411 | 0.406 | 0.407 | 0.416 | 0.404 | 0.407 | 0.421 | 0.417 | 0.411 | 0.0058 | 1.42 | 1.247 | 1.668 | 无异常值 |
| 室间平均 | 0.409 | 0.412 | 0.415 | 0.409 | 0.391 | 0.405 | 0.390 | 0.411 |  |  |  | 0.405 | 0.0094 | 2.33 | 1.601 | 1.036 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2169 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A.2.7 铕含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.7.1各实验室水平13实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.0411 | 0.0404 | 0.0401 | 0.0418 | 0.0425 | 0.0404 | 0.0405 | 0.0428 | 0.0436 | 0.0441 | 0.0414 | 0.0417 | 0.0014 | 3.31 | 1.159 | 1.738 | 无异常值 |
| 2 | 0.0415 | 0.0398 | 0.0408 | 0.0402 | 0.0412 | 0.0418 | 0.0427 | 0.0422 | 0.0412 | 0.041 | 0.0402 | 0.0411 | 0.0009 | 2.15 | 1.521 | 1.757 | 无异常值 |
| 3 | 0.0438 | 0.0442 | 0.0428 | 0.0426 | 0.04 | 0.0431 | 0.044 | 0.0435 | 0.04 | 0.0411 | 0.0408 | 0.0424 | 0.0016 | 3.76 | 1.477 | 1.158 | 无异常值 |
| 4 | 0.0418 | 0.041 | 0.0407 | 0.0412 | 0.0422 | 0.0414 | 0.0417 | 0.0408 | 0.0426 | 0.0417 | 0.0414 | 0.0415 | 0.0006 | 1.40 | 1.380 | 1.898 | 无异常值 |
| 5 | 0.0389 | 0.039 | 0.0388 | 0.0388 | 0.0389 | 0.0385 | 0.038 | 0.0391 | 0.0385 | 0.0384 | 0.0387 | 0.0387 | 0.0003 | 0.82 | 2.175 | 1.288 | 无异常值 |
| 7 | 0.0415 | 0.0421 | 0.0419 | 0.0422 | 0.0425 | 0.0411 | 0.0408 | 0.0419 | 0.0426 | 0.0431 | 0.0412 | 0.0419 | 0.0007 | 1.67 | 1.568 | 1.711 | 无异常值 |
| 9 | 0.0384 | 0.0391 | 0.0389 | 0.0384 | 0.0386 | 0.0392 | 0.0384 | 0.0392 | 0.0386 | 0.0389 | 0.0384 | 0.0387 | 0.0003 | 0.86 | 1.012 | 1.394 | 无异常值 |
| 10 | 0.0410 | 0.0400 | 0.0410 | 0.0410 | 0.0420 | 0.0420 | 0.0410 | 0.0423 | 0.0429 | 0.0432 | 0.0409 | 0.0416 | 0.0010 | 2.33 | 1.484 | 1.719 | 无异常值 |
| 室间平均 | 0.0417 | 0.0411 | 0.0424 | 0.0415 | 0.0387 | 0.0419 | 0.0387 | 0.0416 |  |  |  | 0.0410 | 0.0014 | 3.47 | 1.587 | 0.992 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3526 柯克伦检验结论：实验室3的数据组离群（高度异常） | | | | | | | | | | | | | | | |
| 表A.2.7.2各实验室水平14实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.127 | 0.125 | 0.114 | 0.128 | 0.128 | 0.123 | 0.126 | 0.133 | 0.128 | 0.136 | 0.128 | 0.127 | 0.0056 | 4.39 | 2.315 | 1.630 | 无异常值 |
| 2 | 0.118 | 0.129 | 0.122 | 0.125 | 0.127 | 0.124 | 0.115 | 0.119 | 0.131 | 0.125 | 0.128 | 0.124 | 0.0050 | 4.01 | 1.793 | 1.427 | 无异常值 |
| 3 | 0.13 | 0.124 | 0.123 | 0.127 | 0.128 | 0.135 | 0.13 | 0.138 | 0.138 | 0.114 | 0.136 | 0.129 | 0.0073 | 5.67 | 2.094 | 1.177 | 无异常值 |
| 4 | 0.122 | 0.12 | 0.124 | 0.118 | 0.117 | 0.132 | 0.124 | 0.123 | 0.13 | 0.131 | 0.131 | 0.125 | 0.0055 | 4.38 | 1.415 | 1.332 | 无异常值 |
| 5 | 0.115 | 0.116 | 0.116 | 0.114 | 0.114 | 0.117 | 0.117 | 0.117 | 0.116 | 0.117 | 0.118 | 0.116 | 0.0013 | 1.12 | 1.608 | 1.468 | 无异常值 |
| 7 | 0.126 | 0.128 | 0.129 | 0.131 | 0.128 | 0.119 | 0.123 | 0.134 | 0.125 | 0.132 | 0.12 | 0.127 | 0.0048 | 3.78 | 1.631 | 1.499 | 无异常值 |
| 9 | 0.116 | 0.119 | 0.121 | 0.117 | 0.123 | 0.119 | 0.116 | 0.121 | 0.118 | 0.124 | 0.121 | 0.120 | 0.0027 | 2.26 | 1.315 | 1.652 | 无异常值 |
| 10 | 0.117 | 0.121 | 0.119 | 0.127 | 0.131 | 0.118 | 0.121 | 0.131 | 0.124 | 0.129 | 0.119 | 0.123 | 0.0053 | 4.29 | 1.201 | 1.442 | 无异常值 |
| 室间平均 | 0.127 | 0.124 | 0.129 | 0.125 | 0.116 | 0.127 | 0.120 | 0.123 |  |  |  | 0.124 | 0.0043 | 3.46 | 1.810 | 1.290 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=00.27 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.7.3各实验室水平15实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.407 | 0.405 | 0.406 | 0.413 | 0.408 | 0.4 | 0.398 | 0.392 | 0.372 | 0.384 | 0.389 | 0.398 | 0.0123 | 3.09 | 2.086 | 1.250 | 无异常值 |
| 2 | 0.412 | 0.411 | 0.408 | 0.415 | 0.422 | 0.41 | 0.402 | 0.398 | 0.398 | 0.411 | 0.415 | 0.409 | 0.0074 | 1.81 | 1.520 | 1.716 | 无异常值 |
| 3 | 0.39 | 0.394 | 0.399 | 0.392 | 0.402 | 0.391 | 0.407 | 0.401 | 0.404 | 0.398 | 0.39 | 0.397 | 0.0060 | 1.52 | 1.177 | 1.645 | 无异常值 |
| 4 | 0.397 | 0.401 | 0.388 | 0.393 | 0.398 | 0.39 | 0.402 | 0.411 | 0.383 | 0.38 | 0.395 | 0.394 | 0.0089 | 2.26 | 1.609 | 1.864 | 无异常值 |
| 5 | 0.391 | 0.389 | 0.386 | 0.398 | 0.391 | 0.393 | 0.394 | 0.392 | 0.391 | 0.393 | 0.389 | 0.392 | 0.0031 | 0.79 | 1.783 | 2.075 | 无异常值 |
| 7 | 0.416 | 0.408 | 0.401 | 0.402 | 0.406 | 0.398 | 0.395 | 0.402 | 0.411 | 0.401 | 0.405 | 0.404 | 0.0060 | 1.48 | 1.522 | 1.993 | 无异常值 |
| 9 | 0.379 | 0.382 | 0.385 | 0.379 | 0.386 | 0.381 | 0.387 | 0.379 | 0.386 | 0.384 | 0.389 | 0.383 | 0.0036 | 0.93 | 1.227 | 1.584 | 无异常值 |
| 10 | 0.412 | 0.411 | 0.407 | 0.412 | 0.408 | 0.404 | 0.401 | 0.412 | 0.391 | 0.397 | 0.402 | 0.405 | 0.0069 | 1.71 | 2.043 | 0.982 | 无异常值 |
| 室间平均 | 0.398 | 0.409 | 0.397 | 0.394 | 0.392 | 0.404 | 0.383 | 0.405 |  |  |  | 0.398 | 0.0083 | 2.09 | 1.736 | 1.375 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3528 柯克伦检验结论：实验室1的数据组离群（高度异常） | | | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A.2.8 钆含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.8.1各实验室水平13实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.0404 | 0.0404 | 0.0404 | 0.0404 | 0.0404 | 0.0404 | 0.0407 | 0.0415 | 0.0433 | 0.044 | 0.0411 | 0.0412 | 0.0013 | 3.11 | 0.610 | 2.198 | 无异常值 |
| 2 | 0.0414 | 0.0412 | 0.0398 | 0.0405 | 0.0417 | 0.0422 | 0.0405 | 0.0407 | 0.0416 | 0.041 | 0.0411 | 0.0411 | 0.0007 | 1.63 | 1.887 | 1.697 | 无异常值 |
| 3 | 0.0411 | 0.0424 | 0.0404 | 0.0414 | 0.0413 | 0.0404 | 0.0407 | 0.0422 | 0.041 | 0.0421 | 0.0415 | 0.0413 | 0.0007 | 1.68 | 1.323 | 1.559 | 无异常值 |
| 4 | 0.0415 | 0.0411 | 0.0408 | 0.0414 | 0.0424 | 0.042 | 0.0409 | 0.0435 | 0.0422 | 0.0419 | 0.0411 | 0.0417 | 0.0008 | 1.92 | 1.136 | 2.237 | 无异常值 |
| 5 | 0.0408 | 0.0416 | 0.041 | 0.0407 | 0.0405 | 0.0408 | 0.0404 | 0.0416 | 0.0408 | 0.0414 | 0.0411 | 0.0410 | 0.0004 | 1.01 | 1.388 | 1.521 | 无异常值 |
| 7 | 0.0411 | 0.0416 | 0.042 | 0.0425 | 0.0422 | 0.0411 | 0.0408 | 0.0426 | 0.0412 | 0.0411 | 0.0405 | 0.0415 | 0.0007 | 1.71 | 1.438 | 1.527 | 无异常值 |
| 9 | 0.0388 | 0.0394 | 0.0395 | 0.0389 | 0.0391 | 0.0396 | 0.0388 | 0.0391 | 0.0394 | 0.0389 | 0.0393 | 0.0392 | 0.0003 | 0.74 | 1.251 | 1.501 | 无异常值 |
| 10 | 0.042 | 0.041 | 0.040 | 0.042 | 0.041 | 0.040 | 0.041 | 0.0411 | 0.0421 | 0.0435 | 0.0408 | 0.0413 | 0.0009 | 2.16 | 1.161 | 2.424 | 歧离(Xmax) |
| 室间平均 | 0.0412 | 0.0411 | 0.0413 | 0.0417 | 0.0410 | 0.0415 | 0.0392 | 0.0413 |  |  |  | 0.0410 | 0.0008 | 1.93 | 2.361 | 0.854 | 离群(Xmin) |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3447 柯克伦检验结论：实验室1的数据组离群（高度异常） | | | | | | | | | | | | | | | |
| 表A.2.8.2各实验室水平14实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.119 | 0.127 | 0.125 | 0.124 | 0.129 | 0.122 | 0.123 | 0.132 | 0.115 | 0.118 | 0.113 | 0.122 | 0.0058 | 4.77 | 1.620 | 1.635 | 无异常值 |
| 2 | 0.125 | 0.122 | 0.119 | 0.128 | 0.126 | 0.131 | 0.12 | 0.119 | 0.125 | 0.126 | 0.131 | 0.125 | 0.0043 | 3.48 | 1.320 | 1.446 | 无异常值 |
| 3 | 0.117 | 0.126 | 0.116 | 0.119 | 0.115 | 0.115 | 0.114 | 0.114 | 0.117 | 0.121 | 0.125 | 0.118 | 0.0042 | 3.58 | 0.967 | 1.870 | 无异常值 |
| 4 | 0.121 | 0.124 | 0.124 | 0.129 | 0.125 | 0.119 | 0.117 | 0.129 | 0.125 | 0.128 | 0.12 | 0.124 | 0.0041 | 3.29 | 1.650 | 1.293 | 无异常值 |
| 5 | 0.117 | 0.12 | 0.119 | 0.121 | 0.122 | 0.122 | 0.123 | 0.121 | 0.125 | 0.125 | 0.125 | 0.122 | 0.0026 | 2.13 | 1.853 | 1.223 | 无异常值 |
| 7 | 0.123 | 0.118 | 0.119 | 0.126 | 0.129 | 0.121 | 0.117 | 0.114 | 0.125 | 0.12 | 0.122 | 0.121 | 0.0043 | 3.58 | 1.677 | 1.781 | 无异常值 |
| 9 | 0.117 | 0.119 | 0.123 | 0.117 | 0.124 | 0.119 | 0.121 | 0.118 | 0.124 | 0.117 | 0.12 | 0.120 | 0.0027 | 2.28 | 1.063 | 1.495 | 无异常值 |
| 10 | 0.117 | 0.111 | 0.123 | 0.121 | 0.126 | 0.121 | 0.119 | 0.131 | 0.124 | 0.127 | 0.118 | 0.122 | 0.0055 | 4.49 | 1.947 | 1.714 | 无异常值 |
| 室间平均 | 0.122 | 0.125 | 0.118 | 0.124 | 0.122 | 0.121 | 0.120 | 0.122 |  |  |  | 0.122 | 0.0021 | 1.71 | 1.738 | 1.453 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2267 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |  |
| 表A.2.8.3各实验室水平15实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.404 | 0.402 | 0.417 | 0.409 | 0.417 | 0.422 | 0.413 | 0.408 | 0.407 | 0.407 | 0.408 | 0.410 | 0.0061 | 1.50 | 1.363 | 1.896 | 无异常值 |
| 2 | 0.411 | 0.409 | 0.415 | 0.412 | 0.408 | 0.421 | 0.419 | 0.411 | 0.416 | 0.421 | 0.4 | 0.4130 | 0.0063 | 1.52 | 2.066 | 1.271 | 无异常值 |
| 3 | 0.414 | 0.4 | 0.412 | 0.406 | 0.405 | 0.401 | 0.416 | 0.403 | 0.409 | 0.408 | 0.416 | 0.408 | 0.0058 | 1.41 | 1.421 | 1.358 | 无异常值 |
| 4 | 0.405 | 0.415 | 0.411 | 0.409 | 0.412 | 0.402 | 0.423 | 0.418 | 0.405 | 0.401 | 0.399 | 0.409 | 0.0076 | 1.85 | 1.336 | 1.841 | 无异常值 |
| 5 | 0.418 | 0.419 | 0.429 | 0.427 | 0.428 | 0.441 | 0.438 | 0.442 | 0.437 | 0.441 | 0.443 | 0.4330 | 0.0092 | 2.13 | 1.629 | 1.086 | 无异常值 |
| 7 | 0.408 | 0.402 | 0.409 | 0.412 | 0.403 | 0.411 | 0.416 | 0.42 | 0.425 | 0.411 | 0.405 | 0.411 | 0.0070 | 1.71 | 1.290 | 1.973 | 无异常值 |
| 9 | 0.379 | 0.384 | 0.381 | 0.383 | 0.379 | 0.381 | 0.383 | 0.386 | 0.385 | 0.381 | 0.38 | 0.382 | 0.0024 | 0.62 | 1.268 | 1.690 | 无异常值 |
| 10 | 0.409 | 0.407 | 0.411 | 0.413 | 0.421 | 0.414 | 0.417 | 0.406 | 0.401 | 0.411 | 0.415 | 0.411 | 0.0056 | 1.35 | 1.866 | 1.735 | 无异常值 |
| 室间平均 | 0.410 | 0.413 | 0.408 | 0.409 | 0.433 | 0.411 | 0.382 | 0.411 |  |  |  | 0.410 | 0.0138 | 3.36 | 2.015 | 1.687 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2506 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A.2.9 铽含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.9.1各实验室水平13实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.0397 | 0.0398 | 0.0399 | 0.0398 | 0.04 | 0.0399 | 0.0411 | 0.0404 | 0.0401 | 0.0418 | 0.0425 | 0.0405 | 0.0009 | 2.32 | 0.805 | 2.182 | 无异常值 |
| 2 | 0.0405 | 0.0399 | 0.0412 | 0.0418 | 0.0411 | 0.0405 | 0.0406 | 0.0413 | 0.04 | 0.0421 | 0.041 | 0.0409 | 0.0007 | 1.69 | 1.461 | 1.724 | 无异常值 |
| 3 | 0.0402 | 0.0401 | 0.0417 | 0.0421 | 0.0414 | 0.0425 | 0.0406 | 0.0418 | 0.0425 | 0.0419 | 0.0424 | 0.0416 | 0.0009 | 2.14 | 1.648 | 1.054 | 无异常值 |
| 4 | 0.042 | 0.0414 | 0.0411 | 0.0417 | 0.041 | 0.0389 | 0.0421 | 0.0391 | 0.0415 | 0.0408 | 0.04 | 0.0409 | 0.0011 | 2.68 | 1.801 | 1.120 | 无异常值 |
| 5 | 0.041 | 0.0407 | 0.0403 | 0.0403 | 0.0405 | 0.0406 | 0.0407 | 0.0403 | 0.0404 | 0.0405 | 0.0408 | 0.0406 | 0.0002 | 0.57 | 1.109 | 1.940 | 无异常值 |
| 7 | 0.0401 | 0.0398 | 0.0394 | 0.0394 | 0.0386 | 0.0395 | 0.0399 | 0.0384 | 0.0395 | 0.0401 | 0.0403 | 0.0395 | 0.0006 | 1.52 | 1.902 | 1.253 | 无异常值 |
| 9 | 0.0388 | 0.039 | 0.0393 | 0.0388 | 0.0395 | 0.0391 | 0.0389 | 0.0388 | 0.0395 | 0.0396 | 0.0389 | 0.0391 | 0.0003 | 0.80 | 0.993 | 1.577 | 无异常值 |
| 10 | 0.040 | 0.040 | 0.040 | 0.041 | 0.040 | 0.040 | 0.042 | 0.0409 | 0.0411 | 0.0399 | 0.0419 | 0.0406 | 0.0008 | 2.05 | 1.062 | 1.828 | 无异常值 |
| 室间平均 | 0.0405 | 0.0409 | 0.0416 | 0.0409 | 0.0406 | 0.0395 | 0.0391 | 0.0406 |  |  |  | 0.0404 | 0.0008 | 1.93 | 1.715 | 1.427 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=00.264 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |  |  |
| 表A.2.9.2各实验室水平14实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.127 | 0.125 | 0.114 | 0.12 | 0.123 | 0.132 | 0.131 | 0.119 | 0.114 | 0.126 | 0.115 | 0.122 | 0.0065 | 5.30 | 1.290 | 1.486 | 无异常值 |
| 2 | 0.119 | 0.122 | 0.125 | 0.136 | 0.121 | 0.122 | 0.125 | 0.125 | 0.124 | 0.118 | 0.119 | 0.123 | 0.0049 | 4.01 | 1.067 | 2.576 | 离群(Xmax) |
| 3 | 0.114 | 0.127 | 0.121 | 0.124 | 0.115 | 0.124 | 0.123 | 0.124 | 0.127 | 0.121 | 0.126 | 0.122 | 0.0044 | 3.59 | 1.906 | 1.057 | 无异常值 |
| 4 | 0.115 | 0.12 | 0.108 | 0.111 | 0.11 | 0.108 | 0.122 | 0.114 | 0.119 | 0.12 | 0.109 | 0.114 | 0.0053 | 4.66 | 1.161 | 1.468 | 无异常值 |
| 5 | 0.12 | 0.119 | 0.119 | 0.119 | 0.12 | 0.12 | 0.119 | 0.122 | 0.121 | 0.121 | 0.123 | 0.120 | 0.0013 | 1.12 | 0.944 | 2.023 | 无异常值 |
| 7 | 0.124 | 0.118 | 0.115 | 0.116 | 0.113 | 0.121 | 0.125 | 0.116 | 0.11 | 0.112 | 0.108 | 0.116 | 0.0055 | 4.71 | 1.495 | 1.611 | 无异常值 |
| 9 | 0.117 | 0.119 | 0.121 | 0.117 | 0.12 | 0.118 | 0.122 | 0.12 | 0.117 | 0.119 | 0.117 | 0.119 | 0.0018 | 1.50 | 1.022 | 1.789 | 无异常值 |
| 10 | 0.123 | 0.126 | 0.119 | 0.126 | 0.113 | 0.127 | 0.124 | 0.121 | 0.117 | 0.115 | 0.117 | 0.121 | 0.0048 | 4.01 | 1.597 | 1.296 | 无异常值 |
| 室间平均 | 0.122 | 0.123 | 0.122 | 0.114 | 0.120 | 0.116 | 0.119 | 0.121 |  |  |  | 0.120 | 0.0032 | 2.68 | 1.744 | 1.092 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2439 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.9.3各实验室水平15实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.417 | 0.409 | 0.39 | 0.413 | 0.4 | 0.405 | 0.417 | 0.409 | 0.417 | 0.407 | 0.405 | 0.408 | 0.0082 | 2.02 | 2.199 | 1.083 | 无异常值 |
| 2 | 0.408 | 0.409 | 0.41 | 0.407 | 0.412 | 0.422 | 0.431 | 0.421 | 0.399 | 0.399 | 0.405 | 0.411 | 0.0099 | 2.40 | 1.233 | 2.006 | 无异常值 |
| 3 | 0.405 | 0.404 | 0.396 | 0.401 | 0.415 | 0.402 | 0.413 | 0.396 | 0.399 | 0.412 | 0.397 | 0.404 | 0.0069 | 1.72 | 1.102 | 1.639 | 无异常值 |
| 4 | 0.412 | 0.42 | 0.404 | 0.401 | 0.422 | 0.415 | 0.428 | 0.419 | 0.411 | 0.417 | 0.406 | 0.414 | 0.0082 | 1.99 | 1.591 | 1.691 | 无异常值 |
| 5 | 0.394 | 0.392 | 0.396 | 0.397 | 0.396 | 0.396 | 0.397 | 0.4 | 0.389 | 0.393 | 0.392 | 0.395 | 0.0031 | 0.78 | 1.866 | 1.718 | 无异常值 |
| 7 | 0.406 | 0.398 | 0.405 | 0.412 | 0.409 | 0.401 | 0.395 | 0.412 | 0.402 | 0.406 | 0.408 | 0.405 | 0.0055 | 1.35 | 1.812 | 1.297 | 无异常值 |
| 9 | 0.378 | 0.383 | 0.385 | 0.379 | 0.378 | 0.381 | 0.384 | 0.384 | 0.379 | 0.383 | 0.38 | 0.381 | 0.0026 | 0.68 | 1.253 | 1.427 | 无异常值 |
| 10 | 0.411 | 0.413 | 0.409 | 0.413 | 0.399 | 0.416 | 0.413 | 0.409 | 0.418 | 0.412 | 0.411 | 0.411 | 0.0049 | 1.19 | 2.515 | 1.378 | 歧离(Xmin) |
| 室间平均 | 0.408 | 0.411 | 0.404 | 0.414 | 0.395 | 0.405 | 0.381 | 0.411 |  |  |  | 0.404 | 0.0109 | 2.69 | 2.060 | 0.962 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=00.278 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A.2.10 镝含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.10.1各实验室水平13实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.0412 | 0.0417 | 0.0405 | 0.0402 | 0.0409 | 0.0402 | 0.0408 | 0.0408 | 0.0428 | 0.0435 | 0.0436 | 0.0415 | 0.0013 | 3.04 | 1.008 | 1.685 | 无异常值 |
| 2 | 0.0409 | 0.0412 | 0.0409 | 0.0425 | 0.0413 | 0.0416 | 0.0422 | 0.0415 | 0.0421 | 0.0402 | 0.0413 | 0.0414 | 0.0007 | 1.60 | 1.854 | 1.621 | 无异常值 |
| 3 | 0.0415 | 0.0412 | 0.0405 | 0.0426 | 0.0405 | 0.0428 | 0.0406 | 0.0409 | 0.043 | 0.0424 | 0.0404 | 0.0415 | 0.0010 | 2.46 | 1.068 | 1.478 | 无异常值 |
| 4 | 0.0433 | 0.0419 | 0.0425 | 0.0414 | 0.042 | 0.043 | 0.0419 | 0.0425 | 0.0422 | 0.0429 | 0.0418 | 0.0423 | 0.0006 | 1.38 | 1.557 | 1.697 | 无异常值 |
| 5 | 0.0385 | 0.0401 | 0.0385 | 0.0403 | 0.0397 | 0.0399 | 0.0383 | 0.0399 | 0.0396 | 0.0391 | 0.0396 | 0.0394 | 0.0007 | 1.77 | 1.586 | 1.274 | 无异常值 |
| 7 | 0.0398 | 0.0396 | 0.0393 | 0.0401 | 0.0405 | 0.0392 | 0.0408 | 0.0412 | 0.0399 | 0.0391 | 0.0403 | 0.0400 | 0.0007 | 1.69 | 1.304 | 1.801 | 无异常值 |
| 9 | 0.0404 | 0.0406 | 0.0404 | 0.0407 | 0.0411 | 0.0406 | 0.0402 | 0.0409 | 0.0405 | 0.0409 | 0.0404 | 0.0406 | 0.0003 | 0.66 | 1.515 | 1.818 | 无异常值 |
| 10 | 0.0424 | 0.0421 | 0.0419 | 0.0417 | 0.0413 | 0.0409 | 0.0415 | 0.0419 | 0.0417 | 0.0427 | 0.0427 | 0.0419 | 0.0006 | 1.34 | 1.760 | 1.437 | 无异常值 |
| 室间平均 | 0.0415 | 0.0414 | 0.0415 | 0.0423 | 0.0394 | 0.0400 | 0.0406 | 0.0419 |  |  |  | 0.0411 | 0.0010 | 2.41 | 1.685 | 1.250 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3354 柯克伦检验结论：实验室1的数据组离群（高度异常） | | | | | | | | | | | | | | | |  |
| 表A.2.10.2各实验室水平14实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.129 | 0.128 | 0.11 | 0.112 | 0.123 | 0.12 | 0.124 | 0.123 | 0.118 | 0.116 | 0.125 | 0.121 | 0.0062 | 5.12 | 1.735 | 1.338 | 无异常值 |
| 2 | 0.119 | 0.121 | 0.123 | 0.125 | 0.124 | 0.128 | 0.112 | 0.119 | 0.118 | 0.125 | 0.122 | 0.121 | 0.0044 | 3.60 | 2.165 | 1.499 | 无异常值 |
| 3 | 0.11 | 0.123 | 0.11 | 0.127 | 0.129 | 0.12 | 0.116 | 0.125 | 0.127 | 0.122 | 0.117 | 0.121 | 0.0066 | 5.49 | 1.592 | 1.276 | 无异常值 |
| 4 | 0.12 | 0.114 | 0.107 | 0.109 | 0.115 | 0.123 | 0.11 | 0.112 | 0.112 | 0.121 | 0.118 | 0.115 | 0.0053 | 4.59 | 1.452 | 1.590 | 无异常值 |
| 5 | 0.108 | 0.111 | 0.109 | 0.118 | 0.117 | 0.116 | 0.113 | 0.12 | 0.119 | 0.116 | 0.114 | 0.115 | 0.0040 | 3.50 | 1.656 | 1.339 | 无异常值 |
| 7 | 0.123 | 0.127 | 0.118 | 0.123 | 0.129 | 0.117 | 0.125 | 0.135 | 0.123 | 0.114 | 0.116 | 0.123 | 0.0062 | 5.09 | 1.397 | 1.965 | 无异常值 |
| 9 | 0.118 | 0.119 | 0.121 | 0.118 | 0.12 | 0.119 | 0.122 | 0.118 | 0.12 | 0.118 | 0.12 | 0.119 | 0.0014 | 1.14 | 1.001 | 1.936 | 无异常值 |
| 10 | 0.118 | 0.121 | 0.114 | 0.117 | 0.113 | 0.124 | 0.126 | 0.121 | 0.119 | 0.117 | 0.127 | 0.120 | 0.0046 | 3.83 | 1.467 | 1.586 | 无异常值 |
| 室间平均 | 0.121 | 0.121 | 0.121 | 0.115 | 0.115 | 0.123 | 0.119 | 0.120 |  |  |  | 0.119 | 0.0030 | 2.53 | 1.523 | 1.161 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2122 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.10.3各实验室水平15实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.419 | 0.413 | 0.422 | 0.419 | 0.411 | 0.419 | 0.417 | 0.409 | 0.409 | 0.417 | 0.422 | 0.416 | 0.0048 | 1.16 | 1.469 | 1.224 | 无异常值 |
| 2 | 0.408 | 0.412 | 0.415 | 0.416 | 0.412 | 0.418 | 0.422 | 0.41 | 0.401 | 0.403 | 0.422 | 0.413 | 0.0069 | 1.68 | 1.682 | 1.354 | 无异常值 |
| 3 | 0.412 | 0.42 | 0.413 | 0.416 | 0.413 | 0.417 | 0.417 | 0.416 | 0.409 | 0.406 | 0.42 | 0.414 | 0.0044 | 1.05 | 1.936 | 1.270 | 无异常值 |
| 4 | 0.411 | 0.414 | 0.414 | 0.42 | 0.406 | 0.409 | 0.422 | 0.412 | 0.41 | 0.417 | 0.42 | 0.414 | 0.0051 | 1.24 | 1.578 | 1.542 | 无异常值 |
| 5 | 0.381 | 0.385 | 0.377 | 0.381 | 0.373 | 0.377 | 0.393 | 0.391 | 0.376 | 0.38 | 0.341 | 0.378 | 0.0137 | 3.61 | 2.690 | 1.119 | 离群(Xmin) |
| 7 | 0.406 | 0.411 | 0.403 | 0.397 | 0.399 | 0.407 | 0.391 | 0.406 | 0.412 | 0.423 | 0.401 | 0.405 | 0.0085 | 2.11 | 1.648 | 2.095 | 无异常值 |
| 9 | 0.395 | 0.397 | 0.401 | 0.399 | 0.395 | 0.403 | 0.397 | 0.395 | 0.403 | 0.399 | 0.404 | 0.399 | 0.0034 | 0.86 | 1.143 | 1.489 | 无异常值 |
| 10 | 0.414 | 0.416 | 0.418 | 0.421 | 0.423 | 0.413 | 0.419 | 0.411 | 0.421 | 0.419 | 0.425 | 0.418 | 0.0043 | 1.04 | 1.658 | 1.574 | 无异常值 |
| 室间平均 | 0.416 | 0.413 | 0.414 | 0.414 | 0.378 | 0.405 | 0.399 | 0.418 |  |  |  | 0.407 | 0.0135 | 3.31 | 2.183 | 0.819 | 歧离(Xmin) |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.4586 柯克伦检验结论：实验室5的数据组离群（高度异常） | | | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A.2.11 钬含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.11.1各实验室水平13实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.0453 | 0.0449 | 0.0451 | 0.0449 | 0.0452 | 0.0451 | 0.0405 | 0.0428 | 0.0436 | 0.0441 | 0.0414 | 0.0439 | 0.0017 | 3.79 | 2.044 | 0.841 | 无异常值 |
| 2 | 0.0444 | 0.0452 | 0.0462 | 0.0455 | 0.0461 | 0.0441 | 0.0439 | 0.0452 | 0.0463 | 0.0432 | 0.0433 | 0.0449 | 0.0011 | 2.54 | 1.454 | 1.270 | 无异常值 |
| 3 | 0.0448 | 0.0423 | 0.0452 | 0.0436 | 0.0426 | 0.0433 | 0.045 | 0.0425 | 0.0451 | 0.0439 | 0.0422 | 0.0437 | 0.0012 | 2.73 | 1.245 | 1.275 | 无异常值 |
| 4 | 0.0423 | 0.0428 | 0.0435 | 0.0433 | 0.0429 | 0.0438 | 0.044 | 0.0418 | 0.0425 | 0.0434 | 0.044 | 0.0431 | 0.0007 | 1.68 | 1.825 | 1.221 | 无异常值 |
| 5 | 0.0455 | 0.0463 | 0.0457 | 0.0461 | 0.0459 | 0.0457 | 0.046 | 0.0457 | 0.046 | 0.0462 | 0.0459 | 0.0459 | 0.0002 | 0.53 | 1.685 | 1.611 | 无异常值 |
| 7 | 0.0392 | 0.0395 | 0.0384 | 0.0391 | 0.0396 | 0.0403 | 0.0396 | 0.0405 | 0.0392 | 0.0389 | 0.0397 | 0.0395 | 0.0006 | 1.52 | 1.761 | 1.746 | 无异常值 |
| 9 | 0.0428 | 0.0431 | 0.0434 | 0.0428 | 0.043 | 0.0428 | 0.0429 | 0.0431 | 0.0428 | 0.0432 | 0.0429 | 0.0430 | 0.0002 | 0.46 | 0.913 | 2.100 | 无异常值 |
| 10 | 0.0449 | 0.0451 | 0.0451 | 0.0426 | 0.0437 | 0.0444 | 0.0421 | 0.0431 | 0.0429 | 0.0437 | 0.0452 | 0.0439 | 0.0011 | 2.54 | 1.604 | 1.172 | 无异常值 |
| 室间平均 | 0.0439 | 0.0449 | 0.0437 | 0.0431 | 0.0459 | 0.0395 | 0.0430 | 0.0439 |  |  |  | 0.0435 | 0.0019 | 4.33 | 2.137 | 1.295 | 歧离(Xmin) |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3592 柯克伦检验结论：实验室1的数据组离群（高度异常） | | | | | | | | | | | | | | | |
| 表A.2.11.2各实验室水平14实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.125 | 0.11 | 0.112 | 0.123 | 0.125 | 0.124 | 0.123 | 0.118 | 0.119 | 0.123 | 0.123 | 0.120 | 0.0052 | 4.30 | 2.017 | 0.877 | 无异常值 |
| 2 | 0.121 | 0.123 | 0.118 | 0.115 | 0.12 | 0.123 | 0.117 | 0.119 | 0.124 | 0.123 | 0.123 | 0.121 | 0.0030 | 2.47 | 1.862 | 1.160 | 无异常值 |
| 3 | 0.112 | 0.116 | 0.116 | 0.121 | 0.116 | 0.123 | 0.115 | 0.109 | 0.117 | 0.112 | 0.118 | 0.116 | 0.0040 | 3.46 | 1.722 | 1.768 | 无异常值 |
| 4 | 0.118 | 0.127 | 0.12 | 0.113 | 0.125 | 0.125 | 0.121 | 0.118 | 0.115 | 0.114 | 0.113 | 0.119 | 0.0051 | 4.25 | 1.186 | 1.581 | 无异常值 |
| 5 | 0.125 | 0.126 | 0.125 | 0.125 | 0.126 | 0.125 | 0.126 | 0.127 | 0.126 | 0.127 | 0.127 | 0.126 | 0.0008 | 0.66 | 1.094 | 1.312 | 无异常值 |
| 7 | 0.118 | 0.112 | 0.116 | 0.108 | 0.114 | 0.119 | 0.123 | 0.128 | 0.119 | 0.123 | 0.119 | 0.118 | 0.0056 | 4.71 | 1.816 | 1.783 | 无异常值 |
| 9 | 0.122 | 0.12 | 0.124 | 0.122 | 0.119 | 0.117 | 0.119 | 0.121 | 0.119 | 0.117 | 0.121 | 0.120 | 0.0022 | 1.80 | 1.427 | 1.805 | 无异常值 |
| 10 | 0.1230 | 0.1210 | 0.1320 | 0.1340 | 0.1280 | 0.1290 | 0.1210 | 0.1340 | 0.1270 | 0.1250 | 0.1250 | 0.127 | 0.0047 | 3.72 | 1.307 | 1.442 | 无异常值 |
| 室间平均 | 0.120 | 0.121 | 0.116 | 0.119 | 0.126 | 0.118 | 0.120 | 0.127 |  |  |  | 0.121 | 0.0038 | 3.16 | 1.307 | 1.647 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=00.227 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.11.3各实验室水平15实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.415 | 0.395 | 0.398 | 0.419 | 0.407 | 0.403 | 0.419 | 0.413 | 0.422 | 0.417 | 0.406 | 0.410 | 0.0091 | 2.22 | 1.686 | 1.277 | 无异常值 |
| 2 | 0.422 | 0.415 | 0.416 | 0.409 | 0.425 | 0.421 | 0.412 | 0.415 | 0.422 | 0.417 | 0.399 | 0.416 | 0.0073 | 1.76 | 2.289 | 1.269 | 无异常值 |
| 3 | 0.402 | 0.406 | 0.414 | 0.42 | 0.405 | 0.422 | 0.405 | 0.412 | 0.414 | 0.424 | 0.419 | 0.413 | 0.0077 | 1.86 | 1.435 | 1.435 | 无异常值 |
| 4 | 0.401 | 0.413 | 0.411 | 0.397 | 0.399 | 0.414 | 0.418 | 0.408 | 0.4 | 0.407 | 0.406 | 0.407 | 0.0069 | 1.69 | 1.416 | 1.640 | 无异常值 |
| 5 | 0.398 | 0.4 | 0.406 | 0.401 | 0.399 | 0.397 | 0.398 | 0.4 | 0.397 | 0.396 | 0.394 | 0.399 | 0.0031 | 0.79 | 1.509 | 2.321 | 无异常值 |
| 7 | 0.396 | 0.392 | 0.399 | 0.384 | 0.392 | 0.399 | 0.402 | 0.389 | 0.397 | 0.405 | 0.402 | 0.396 | 0.0063 | 1.59 | 1.919 | 1.414 | 无异常值 |
| 9 | 0.391 | 0.397 | 0.395 | 0.399 | 0.393 | 0.394 | 0.396 | 0.391 | 0.392 | 0.399 | 0.397 | 0.395 | 0.0029 | 0.75 | 1.326 | 1.388 | 无异常值 |
| 10 | 0.4190 | 0.4170 | 0.4090 | 0.4180 | 0.4020 | 0.4170 | 0.4050 | 0.4160 | 0.4180 | 0.4050 | 0.4120 | 0.413 | 0.0063 | 1.52 | 1.687 | 1.033 | 无异常值 |
| 室间平均 | 0.410 | 0.416 | 0.413 | 0.407 | 0.399 | 0.396 | 0.395 | 0.413 |  |  |  | 0.406 | 0.0083 | 2.04 | 1.341 | 1.173 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2444 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A.2.12 铒含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.12.1各实验室水平13实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.0421 | 0.042 | 0.0444 | 0.0444 | 0.0451 | 0.0452 | 0.0412 | 0.0417 | 0.0405 | 0.0418 | 0.0425 | 0.0428 | 0.0017 | 3.87 | 1.394 | 1.443 | 无异常值 |
| 2 | 0.0431 | 0.0419 | 0.0431 | 0.0425 | 0.0429 | 0.0431 | 0.0428 | 0.0425 | 0.0433 | 0.0411 | 0.0415 | 0.0425 | 0.0007 | 1.71 | 1.964 | 1.063 | 无异常值 |
| 3 | 0.0415 | 0.0413 | 0.0432 | 0.041 | 0.0412 | 0.0436 | 0.0416 | 0.0409 | 0.0434 | 0.0439 | 0.0435 | 0.0423 | 0.0012 | 2.87 | 1.140 | 1.335 | 无异常值 |
| 4 | 0.043 | 0.0414 | 0.0417 | 0.0428 | 0.0426 | 0.042 | 0.0431 | 0.0415 | 0.0412 | 0.0428 | 0.0424 | 0.0422 | 0.0007 | 1.64 | 1.486 | 1.262 | 无异常值 |
| 5 | 0.0445 | 0.0448 | 0.0444 | 0.0455 | 0.045 | 0.0445 | 0.0444 | 0.044 | 0.0431 | 0.0434 | 0.0431 | 0.0442 | 0.0008 | 1.75 | 1.475 | 1.616 | 无异常值 |
| 7 | 0.0411 | 0.0415 | 0.0403 | 0.0412 | 0.0422 | 0.0417 | 0.0403 | 0.0411 | 0.0419 | 0.0409 | 0.0414 | 0.0412 | 0.0006 | 1.45 | 1.564 | 1.609 | 无异常值 |
| 9 | 0.0428 | 0.0431 | 0.0436 | 0.0429 | 0.0433 | 0.0427 | 0.0431 | 0.0436 | 0.0429 | 0.0434 | 0.0428 | 0.0431 | 0.0003 | 0.75 | 1.263 | 1.516 | 无异常值 |
| 10 | 0.0431 | 0.0423 | 0.0419 | 0.0425 | 0.0431 | 0.0447 | 0.0422 | 0.0419 | 0.0415 | 0.0423 | 0.0437 | 0.0427 | 0.0009 | 2.18 | 1.243 | 2.202 | 无异常值 |
| 室间平均 | 0.0428 | 0.0425 | 0.0423 | 0.0422 | 0.0442 | 0.0412 | 0.0431 | 0.0427 |  |  |  | 0.0426 | 0.0009 | 2.00 | 1.639 | 1.884 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3839 柯克伦检验结论：实验室1的数据组离群（高度异常） | | | | | | | | | | | | | | | |  |
| 表A.2.12.2各实验室水平14实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.122 | 0.122 | 0.124 | 0.124 | 0.125 | 0.125 | 0.121 | 0.128 | 0.132 | 0.118 | 0.119 | 0.124 | 0.0040 | 3.22 | 1.416 | 2.100 | 无异常值 |
| 2 | 0.129 | 0.115 | 0.116 | 0.122 | 0.128 | 0.131 | 0.121 | 0.128 | 0.122 | 0.121 | 0.119 | 0.123 | 0.0054 | 4.37 | 1.471 | 1.505 | 无异常值 |
| 3 | 0.129 | 0.117 | 0.125 | 0.12 | 0.12 | 0.128 | 0.128 | 0.128 | 0.123 | 0.122 | 0.121 | 0.124 | 0.0041 | 3.31 | 1.640 | 1.286 | 无异常值 |
| 4 | 0.118 | 0.118 | 0.12 | 0.114 | 0.115 | 0.109 | 0.111 | 0.124 | 0.129 | 0.116 | 0.117 | 0.117 | 0.0056 | 4.79 | 1.487 | 2.068 | 无异常值 |
| 5 | 0.121 | 0.124 | 0.124 | 0.125 | 0.125 | 0.123 | 0.123 | 0.124 | 0.123 | 0.123 | 0.122 | 0.123 | 0.0012 | 0.98 | 1.960 | 1.357 | 无异常值 |
| 7 | 0.125 | 0.127 | 0.124 | 0.129 | 0.135 | 0.134 | 0.131 | 0.127 | 0.131 | 0.125 | 0.124 | 0.128 | 0.0039 | 3.06 | 1.110 | 1.688 | 无异常值 |
| 9 | 0.12 | 0.123 | 0.119 | 0.124 | 0.121 | 0.119 | 0.117 | 0.121 | 0.12 | 0.124 | 0.121 | 0.121 | 0.0022 | 1.81 | 1.749 | 1.458 | 无异常值 |
| 10 | 0.1240 | 0.1270 | 0.1260 | 0.1190 | 0.1280 | 0.1240 | 0.1250 | 0.1290 | 0.1310 | 0.1270 | 0.1240 | 0.126 | 0.0032 | 2.53 | 2.139 | 1.625 | 无异常值 |
| 室间平均 | 0.124 | 0.123 | 0.124 | 0.117 | 0.123 | 0.128 | 0.121 | 0.126 |  |  |  | 0.123 | 0.0032 | 2.63 | 1.813 | 1.575 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2531 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.12.3各实验室水平15实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.402 | 0.398 | 0.419 | 0.404 | 0.416 | 0.418 | 0.413 | 0.422 | 0.4 | 0.405 | 0.422 | 0.411 | 0.0092 | 2.23 | 1.399 | 1.220 | 无异常值 |
| 2 | 0.405 | 0.416 | 0.408 | 0.411 | 0.421 | 0.422 | 0.408 | 0.406 | 0.405 | 0.411 | 0.421 | 0.412 | 0.0067 | 1.62 | 1.076 | 1.471 | 无异常值 |
| 3 | 0.419 | 0.424 | 0.419 | 0.42 | 0.415 | 0.418 | 0.423 | 0.406 | 0.42 | 0.421 | 0.406 | 0.417 | 0.0061 | 1.46 | 1.862 | 1.087 | 无异常值 |
| 4 | 0.423 | 0.407 | 0.419 | 0.424 | 0.426 | 0.418 | 0.425 | 0.43 | 0.412 | 0.425 | 0.422 | 0.421 | 0.0066 | 1.58 | 2.106 | 1.354 | 无异常值 |
| 5 | 0.387 | 0.385 | 0.383 | 0.383 | 0.376 | 0.372 | 0.38 | 0.377 | 0.371 | 0.366 | 0.349 | 0.375 | 0.0109 | 2.90 | 2.424 | 1.070 | 歧离(Xmin) |
| 7 | 0.405 | 0.412 | 0.411 | 0.414 | 0.415 | 0.417 | 0.422 | 0.408 | 0.409 | 0.412 | 0.406 | 0.412 | 0.0050 | 1.21 | 1.385 | 2.023 | 无异常值 |
| 9 | 0.386 | 0.389 | 0.391 | 0.386 | 0.391 | 0.387 | 0.393 | 0.386 | 0.392 | 0.389 | 0.393 | 0.389 | 0.0028 | 0.72 | 1.200 | 1.297 | 无异常值 |
| 10 | 0.4110 | 0.4070 | 0.4130 | 0.4180 | 0.4090 | 0.4150 | 0.4070 | 0.4160 | 0.4140 | 0.4080 | 0.4230 | 0.413 | 0.0051 | 1.22 | 1.151 | 2.014 | 无异常值 |
| 室间平均 | 0.411 | 0.412 | 0.417 | 0.421 | 0.375 | 0.412 | 0.389 | 0.413 |  |  |  | 0.406 | 0.0156 | 3.85 | 1.982 | 0.937 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3059 柯克伦检验结论：实验室5为歧离值 | | | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A.2.13 铥含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.13.1各实验室水平13实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.0416 | 0.0417 | 0.0412 | 0.0414 | 0.0419 | 0.042 | 0.0404 | 0.0405 | 0.0428 | 0.0432 | 0.0437 | 0.0419 | 0.0010 | 2.48 | 1.399 | 1.775 | 无异常值 |
| 2 | 0.0416 | 0.0422 | 0.0412 | 0.0421 | 0.0423 | 0.0415 | 0.0416 | 0.0412 | 0.0421 | 0.0425 | 0.0419 | 0.0418 | 0.0004 | 1.06 | 1.435 | 1.497 | 无异常值 |
| 3 | 0.0417 | 0.0416 | 0.0417 | 0.0406 | 0.0433 | 0.0428 | 0.0407 | 0.0424 | 0.0408 | 0.042 | 0.0412 | 0.0417 | 0.0009 | 2.09 | 1.270 | 1.821 | 无异常值 |
| 4 | 0.0431 | 0.0433 | 0.0422 | 0.0424 | 0.0417 | 0.041 | 0.0425 | 0.043 | 0.0429 | 0.0424 | 0.0418 | 0.0424 | 0.0007 | 1.63 | 2.014 | 1.316 | 无异常值 |
| 5 | 0.0393 | 0.0394 | 0.0398 | 0.0394 | 0.0399 | 0.0401 | 0.0397 | 0.0397 | 0.0393 | 0.0392 | 0.0393 | 0.0396 | 0.0003 | 0.75 | 1.190 | 1.831 | 无异常值 |
| 7 | 0.0416 | 0.0418 | 0.0423 | 0.0424 | 0.0413 | 0.0411 | 0.0406 | 0.0412 | 0.0402 | 0.0408 | 0.0404 | 0.0412 | 0.0007 | 1.77 | 1.432 | 1.582 | 无异常值 |
| 9 | 0.038 | 0.0387 | 0.0384 | 0.0381 | 0.0389 | 0.0391 | 0.0386 | 0.0382 | 0.0391 | 0.0385 | 0.0382 | 0.0385 | 0.0004 | 1.01 | 1.352 | 1.468 | 无异常值 |
| 10 | 0.0416 | 0.0419 | 0.0421 | 0.0415 | 0.0423 | 0.0427 | 0.0416 | 0.0409 | 0.0418 | 0.0425 | 0.0431 | 0.0420 | 0.0006 | 1.48 | 1.766 | 1.766 | 无异常值 |
| 室间平均 | 0.0419 | 0.0418 | 0.0417 | 0.0424 | 0.0396 | 0.0412 | 0.0385 | 0.0420 |  |  |  | 0.0411 | 0.0014 | 3.31 | 1.919 | 0.919 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2938 柯克伦检验结论：实验室1为歧离值 | | | | | | | | | | | | | | | |
| 表A.2.13.2各实验室水平14实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.124 | 0.124 | 0.12 | 0.122 | 0.127 | 0.12 | 0.11 | 0.112 | 0.123 | 0.132 | 0.135 | 0.123 | 0.0074 | 6.05 | 1.703 | 1.666 | 无异常值 |
| 2 | 0.125 | 0.124 | 0.121 | 0.117 | 0.115 | 0.119 | 0.121 | 0.12 | 0.122 | 0.125 | 0.135 | 0.122 | 0.0053 | 4.33 | 1.358 | 2.424 | 歧离(Xmax) |
| 3 | 0.124 | 0.126 | 0.116 | 0.127 | 0.116 | 0.124 | 0.126 | 0.128 | 0.115 | 0.111 | 0.123 | 0.121 | 0.0058 | 4.81 | 1.791 | 1.121 | 无异常值 |
| 4 | 0.12 | 0.12 | 0.128 | 0.117 | 0.123 | 0.129 | 0.115 | 0.116 | 0.125 | 0.13 | 0.128 | 0.123 | 0.0055 | 4.50 | 1.414 | 1.299 | 无异常值 |
| 5 | 0.122 | 0.125 | 0.124 | 0.125 | 0.121 | 0.12 | 0.128 | 0.126 | 0.125 | 0.13 | 0.131 | 0.125 | 0.0035 | 2.79 | 1.486 | 1.668 | 无异常值 |
| 7 | 0.118 | 0.123 | 0.125 | 0.12 | 0.126 | 0.121 | 0.116 | 0.129 | 0.123 | 0.125 | 0.123 | 0.123 | 0.0037 | 3.04 | 1.783 | 1.710 | 无异常值 |
| 9 | 0.116 | 0.117 | 0.121 | 0.119 | 0.116 | 0.121 | 0.117 | 0.123 | 0.117 | 0.121 | 0.116 | 0.119 | 0.0025 | 2.15 | 1.001 | 1.751 | 无异常值 |
| 10 | 0.1230 | 0.1270 | 0.1210 | 0.1340 | 0.1280 | 0.1250 | 0.1220 | 0.1320 | 0.1260 | 0.1190 | 0.1240 | 0.126 | 0.0045 | 3.62 | 1.440 | 1.859 | 无异常值 |
| 室间平均 | 0.123 | 0.122 | 0.121 | 0.123 | 0.125 | 0.123 | 0.119 | 0.126 |  |  |  | 0.123 | 0.0022 | 1.78 | 1.870 | 1.339 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2742 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.13.3各实验室水平15实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.385 | 0.404 | 0.395 | 0.398 | 0.398 | 0.394 | 0.399 | 0.409 | 0.39 | 0.413 | 0.4 | 0.399 | 0.0080 | 2.01 | 1.704 | 1.795 | 无异常值 |
| 2 | 0.394 | 0.394 | 0.406 | 0.404 | 0.395 | 0.398 | 0.403 | 0.408 | 0.4 | 0.399 | 0.405 | 0.401 | 0.0050 | 1.25 | 1.312 | 1.495 | 无异常值 |
| 3 | 0.413 | 0.406 | 0.404 | 0.391 | 0.394 | 0.387 | 0.406 | 0.389 | 0.387 | 0.392 | 0.407 | 0.398 | 0.0095 | 2.38 | 1.144 | 1.606 | 无异常值 |
| 4 | 0.414 | 0.41 | 0.42 | 0.404 | 0.404 | 0.413 | 0.418 | 0.396 | 0.398 | 0.405 | 0.405 | 0.408 | 0.0078 | 1.90 | 1.534 | 1.557 | 无异常值 |
| 5 | 0.406 | 0.416 | 0.419 | 0.412 | 0.406 | 0.433 | 0.436 | 0.409 | 0.425 | 0.427 | 0.428 | 0.420 | 0.0108 | 2.56 | 1.277 | 1.513 | 无异常值 |
| 7 | 0.409 | 0.413 | 0.416 | 0.421 | 0.416 | 0.415 | 0.418 | 0.413 | 0.406 | 0.413 | 0.417 | 0.414 | 0.0042 | 1.01 | 1.982 | 1.612 | 无异常值 |
| 9 | 0.38 | 0.384 | 0.389 | 0.381 | 0.387 | 0.384 | 0.389 | 0.383 | 0.387 | 0.381 | 0.389 | 0.385 | 0.0034 | 0.90 | 1.424 | 1.186 | 无异常值 |
| 10 | 0.3990 | 0.4101 | 0.3970 | 0.4110 | 0.4020 | 0.3910 | 0.4030 | 0.3890 | 0.3940 | 0.4080 | 0.4110 | 0.401 | 0.0081 | 2.01 | 1.537 | 1.196 | 无异常值 |
| 室间平均 | 0.399 | 0.401 | 0.398 | 0.408 | 0.420 | 0.414 | 0.385 | 0.401 |  |  |  | 0.403 | 0.0108 | 2.67 | 1.693 | 1.539 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2579 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A.2.14 镱含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.14.1各实验室水平13实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.0425 | 0.0428 | 0.0429 | 0.0412 | 0.0428 | 0.0402 | 0.0399 | 0.0402 | 0.0415 | 0.0418 | 0.0416 | 0.0416 | 0.0011 | 2.68 | 1.511 | 1.184 | 无异常值 |
| 2 | 0.0408 | 0.0414 | 0.0421 | 0.0408 | 0.0422 | 0.0415 | 0.0426 | 0.04 | 0.041 | 0.0398 | 0.0415 | 0.0412 | 0.0009 | 2.13 | 1.644 | 1.541 | 无异常值 |
| 3 | 0.0415 | 0.0407 | 0.0417 | 0.0411 | 0.0421 | 0.0423 | 0.0404 | 0.0414 | 0.04 | 0.0401 | 0.0424 | 0.0412 | 0.0009 | 2.08 | 1.451 | 1.345 | 无异常值 |
| 4 | 0.0404 | 0.043 | 0.0405 | 0.0405 | 0.042 | 0.0417 | 0.0412 | 0.042 | 0.0407 | 0.0393 | 0.0426 | 0.0413 | 0.0011 | 2.67 | 1.780 | 1.574 | 无异常值 |
| 5 | 0.0387 | 0.0399 | 0.0399 | 0.0397 | 0.0403 | 0.0395 | 0.0394 | 0.0399 | 0.039 | 0.0391 | 0.0393 | 0.0395 | 0.0005 | 1.20 | 1.722 | 1.646 | 无异常值 |
| 7 | 0.0398 | 0.0403 | 0.0406 | 0.0408 | 0.0401 | 0.0395 | 0.0399 | 0.0402 | 0.0401 | 0.0395 | 0.0398 | 0.0401 | 0.0004 | 1.03 | 1.342 | 1.804 | 无异常值 |
| 9 | 0.0391 | 0.0396 | 0.0394 | 0.0397 | 0.0395 | 0.0392 | 0.0396 | 0.0391 | 0.0399 | 0.0394 | 0.0396 | 0.0395 | 0.0003 | 0.64 | 1.431 | 1.718 | 无异常值 |
| 10 | 0.0429 | 0.0431 | 0.0443 | 0.0438 | 0.0411 | 0.0409 | 0.0435 | 0.0416 | 0.0408 | 0.0419 | 0.0424 | 0.0424 | 0.0012 | 2.88 | 1.303 | 1.564 | 无异常值 |
| 室间平均 | 0.0416 | 0.0412 | 0.0412 | 0.0413 | 0.0395 | 0.0401 | 0.0395 | 0.0424 |  |  |  | 0.0408 | 0.0011 | 2.57 | 1.316 | 1.471 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=00.252 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.14.2各实验室水平14实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.122 | 0.128 | 0.122 | 0.117 | 0.105 | 0.124 | 0.115 | 0.118 | 0.118 | 0.114 | 0.119 | 0.118 | 0.0060 | 5.09 | 2.219 | 1.600 | 无异常值 |
| 2 | 0.119 | 0.118 | 0.12 | 0.125 | 0.119 | 0.117 | 0.122 | 0.125 | 0.116 | 0.113 | 0.119 | 0.119 | 0.0036 | 3.03 | 1.761 | 1.560 | 无异常值 |
| 3 | 0.106 | 0.111 | 0.119 | 0.105 | 0.114 | 0.111 | 0.101 | 0.104 | 0.111 | 0.107 | 0.105 | 0.109 | 0.0052 | 4.78 | 1.456 | 2.017 | 无异常值 |
| 4 | 0.11 | 0.121 | 0.114 | 0.114 | 0.124 | 0.126 | 0.115 | 0.108 | 0.112 | 0.121 | 0.119 | 0.117 | 0.0058 | 5.01 | 1.492 | 1.585 | 无异常值 |
| 5 | 0.117 | 0.122 | 0.116 | 0.116 | 0.116 | 0.12 | 0.12 | 0.119 | 0.118 | 0.121 | 0.122 | 0.119 | 0.0024 | 1.99 | 1.195 | 1.349 | 无异常值 |
| 7 | 0.114 | 0.119 | 0.116 | 0.121 | 0.124 | 0.118 | 0.125 | 0.115 | 0.12 | 0.125 | 0.123 | 0.120 | 0.0040 | 3.31 | 1.509 | 1.258 | 无异常值 |
| 9 | 0.117 | 0.121 | 0.116 | 0.118 | 0.12 | 0.118 | 0.116 | 0.121 | 0.118 | 0.12 | 0.121 | 0.119 | 0.0020 | 1.65 | 1.396 | 1.163 | 无异常值 |
| 10 | 0.1270 | 0.1190 | 0.1210 | 0.1340 | 0.1180 | 0.1250 | 0.1340 | 0.1260 | 0.1230 | 0.1330 | 0.1250 | 0.126 | 0.0057 | 4.54 | 1.383 | 1.415 | 无异常值 |
| 室间平均 | 0.118 | 0.119 | 0.109 | 0.117 | 0.119 | 0.120 | 0.119 | 0.126 |  |  |  | 0.118 | 0.0048 | 4.04 | 2.042 | 1.590 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2155 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |
| 表A.2.14.3各实验室水平15实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.41 | 0.404 | 0.394 | 0.397 | 0.397 | 0.396 | 0.37 | 0.389 | 0.394 | 0.398 | 0.399 | 0.395 | 0.0100 | 2.53 | 2.525 | 1.471 | 歧离(Xmin) |
| 2 | 0.399 | 0.389 | 0.402 | 0.4 | 0.398 | 0.397 | 0.405 | 0.406 | 0.4 | 0.407 | 0.398 | 0.400 | 0.0050 | 1.26 | 2.205 | 1.374 | 无异常值 |
| 3 | 0.388 | 0.387 | 0.389 | 0.389 | 0.39 | 0.384 | 0.398 | 0.388 | 0.387 | 0.404 | 0.389 | 0.390 | 0.0057 | 1.46 | 1.102 | 2.411 | 歧离(Xmax) |
| 4 | 0.39 | 0.394 | 0.411 | 0.418 | 0.406 | 0.406 | 0.389 | 0.394 | 0.408 | 0.419 | 0.415 | 0.405 | 0.0111 | 2.74 | 1.400 | 1.302 | 无异常值 |
| 5 | 0.407 | 0.4 | 0.403 | 0.418 | 0.412 | 0.413 | 0.409 | 0.408 | 0.408 | 0.407 | 0.406 | 0.408 | 0.0049 | 1.19 | 1.702 | 2.002 | 无异常值 |
| 7 | 0.398 | 0.401 | 0.405 | 0.396 | 0.402 | 0.402 | 0.396 | 0.406 | 0.391 | 0.403 | 0.406 | 0.401 | 0.0048 | 1.19 | 1.996 | 1.141 | 无异常值 |
| 9 | 0.383 | 0.381 | 0.389 | 0.385 | 0.381 | 0.387 | 0.389 | 0.384 | 0.389 | 0.381 | 0.386 | 0.385 | 0.0033 | 0.85 | 1.229 | 1.229 | 无异常值 |
| 10 | 0.4080 | 0.4110 | 0.4160 | 0.4280 | 0.4090 | 0.4210 | 0.4110 | 0.4050 | 0.4170 | 0.4060 | 0.4120 | 0.413 | 0.0069 | 1.67 | 1.172 | 2.159 | 无异常值 |
| 室间平均 | 0.395 | 0.400 | 0.390 | 0.405 | 0.408 | 0.401 | 0.385 | 0.413 |  |  |  | 0.400 | 0.0093 | 2.32 | 1.579 | 1.451 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3194 柯克伦检验结论：实验室4为歧离值 | | | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A.2.15 镥含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 表A.2.15.1各实验室水平13实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.0416 | 0.0417 | 0.0412 | 0.0414 | 0.0419 | 0.042 | 0.0404 | 0.0405 | 0.0428 | 0.0432 | 0.0437 | 0.0419 | 0.0010 | 2.48 | 1.399 | 1.775 | 无异常值 |
| 2 | 0.0419 | 0.0417 | 0.0409 | 0.0418 | 0.0422 | 0.0413 | 0.0411 | 0.0425 | 0.0423 | 0.0425 | 0.0428 | 0.0419 | 0.0006 | 1.48 | 1.631 | 1.440 | 无异常值 |
| 3 | 0.0412 | 0.042 | 0.0419 | 0.0422 | 0.0424 | 0.0412 | 0.041 | 0.041 | 0.0408 | 0.0425 | 0.0422 | 0.0417 | 0.0006 | 1.53 | 1.373 | 1.301 | 无异常值 |
| 4 | 0.0407 | 0.0404 | 0.0432 | 0.0424 | 0.0409 | 0.0415 | 0.0415 | 0.0394 | 0.039 | 0.0422 | 0.042 | 0.0412 | 0.0013 | 3.10 | 1.722 | 1.566 | 无异常值 |
| 5 | 0.0398 | 0.0395 | 0.0396 | 0.0394 | 0.041 | 0.0407 | 0.0397 | 0.0415 | 0.0409 | 0.0406 | 0.0415 | 0.0404 | 0.0008 | 1.99 | 1.222 | 1.392 | 无异常值 |
| 7 | 0.0399 | 0.0394 | 0.0401 | 0.0395 | 0.0403 | 0.0402 | 0.0406 | 0.0398 | 0.0401 | 0.0409 | 0.0407 | 0.0401 | 0.0005 | 1.19 | 1.547 | 1.604 | 无异常值 |
| 9 | 0.0401 | 0.0404 | 0.0399 | 0.0403 | 0.0397 | 0.0404 | 0.0404 | 0.0401 | 0.0404 | 0.0399 | 0.0391 | 0.0401 | 0.0004 | 1.01 | 2.390 | 0.834 | 歧离(Xmin) |
| 10 | 0.0412 | 0.0409 | 0.0416 | 0.0426 | 0.0437 | 0.0425 | 0.0419 | 0.0432 | 0.0418 | 0.0428 | 0.0437 | 0.0424 | 0.0010 | 2.26 | 1.521 | 1.407 | 无异常值 |
| 室间平均 | 0.0419 | 0.0419 | 0.0417 | 0.0412 | 0.0404 | 0.0401 | 0.0401 | 0.0424 |  |  |  | 0.0412 | 0.0009 | 2.17 | 1.269 | 1.297 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2995 柯克伦检验结论：实验室4为歧离值 | | | | | | | | | | | | | | | |
| 表A.2.15.2各实验室水平14实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.123 | 0.124 | 0.124 | 0.124 | 0.123 | 0.123 | 0.129 | 0.118 | 0.132 | 0.121 | 0.128 | 0.124 | 0.0039 | 3.12 | 1.663 | 1.944 | 无异常值 |
| 2 | 0.128 | 0.125 | 0.122 | 0.121 | 0.126 | 0.118 | 0.119 | 0.126 | 0.119 | 0.121 | 0.125 | 0.123 | 0.0034 | 2.78 | 1.387 | 1.547 | 无异常值 |
| 3 | 0.118 | 0.129 | 0.123 | 0.129 | 0.128 | 0.123 | 0.121 | 0.124 | 0.128 | 0.119 | 0.127 | 0.124 | 0.0040 | 3.22 | 1.610 | 1.134 | 无异常值 |
| 4 | 0.113 | 0.112 | 0.115 | 0.108 | 0.12 | 0.113 | 0.119 | 0.125 | 0.12 | 0.116 | 0.124 | 0.117 | 0.0053 | 4.51 | 1.674 | 1.553 | 无异常值 |
| 5 | 0.122 | 0.119 | 0.121 | 0.12 | 0.124 | 0.124 | 0.124 | 0.125 | 0.126 | 0.127 | 0.127 | 0.124 | 0.0027 | 2.21 | 1.663 | 1.264 | 无异常值 |
| 7 | 0.118 | 0.123 | 0.12 | 0.123 | 0.119 | 0.124 | 0.124 | 0.118 | 0.123 | 0.118 | 0.117 | 0.121 | 0.0028 | 2.29 | 1.314 | 1.216 | 无异常值 |
| 9 | 0.117 | 0.121 | 0.119 | 0.124 | 0.118 | 0.12 | 0.119 | 0.117 | 0.121 | 0.119 | 0.121 | 0.120 | 0.0021 | 1.72 | 1.278 | 2.116 | 无异常值 |
| 10 | 0.1250 | 0.1210 | 0.1190 | 0.1310 | 0.1280 | 0.1340 | 0.1260 | 0.1180 | 0.1230 | 0.1190 | 0.1140 | 0.123 | 0.0060 | 4.88 | 1.570 | 1.751 | 无异常值 |
| 室间平均 | 0.124 | 0.123 | 0.124 | 0.117 | 0.124 | 0.121 | 0.120 | 0.123 |  |  |  | 0.122 | 0.0027 | 2.22 | 1.900 | 0.919 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2875 柯克伦检验结论：实验室10为歧离值 | | | | | | | | | | | | | | | |
| 表A.2.15.3各实验室水平15实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | |
| 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 |
| 1 | 0.423 | 0.433 | 0.44 | 0.433 | 0.432 | 0.429 | 0.404 | 0.418 | 0.425 | 0.404 | 0.408 | 0.423 | 0.0126 | 2.97 | 1.482 | 1.381 | 无异常值 |
| 2 | 0.411 | 0.425 | 0.426 | 0.427 | 0.432 | 0.433 | 0.436 | 0.425 | 0.422 | 0.421 | 0.433 | 0.426 | 0.0071 | 1.66 | 2.184 | 1.349 | 无异常值 |
| 3 | 0.42 | 0.411 | 0.414 | 0.428 | 0.427 | 0.42 | 0.411 | 0.42 | 0.43 | 0.424 | 0.412 | 0.420 | 0.0070 | 1.67 | 1.247 | 1.467 | 无异常值 |
| 4 | 0.435 | 0.447 | 0.441 | 0.424 | 0.42 | 0.415 | 0.444 | 0.428 | 0.431 | 0.424 | 0.428 | 0.431 | 0.0102 | 2.36 | 1.539 | 1.610 | 无异常值 |
| 5 | 0.431 | 0.423 | 0.432 | 0.435 | 0.435 | 0.434 | 0.437 | 0.448 | 0.446 | 0.453 | 0.438 | 0.437 | 0.0085 | 1.95 | 1.691 | 1.819 | 无异常值 |
| 7 | 0.395 | 0.401 | 0.399 | 0.402 | 0.403 | 0.411 | 0.402 | 0.405 | 0.397 | 0.399 | 0.405 | 0.402 | 0.0044 | 1.09 | 1.535 | 2.115 | 无异常值 |
| 9 | 0.409 | 0.417 | 0.411 | 0.409 | 0.412 | 0.415 | 0.419 | 0.422 | 0.417 | 0.408 | 0.411 | 0.414 | 0.0046 | 1.12 | 1.217 | 1.806 | 无异常值 |
| 10 | 0.4180 | 0.4230 | 0.4260 | 0.4310 | 0.4150 | 0.4090 | 0.4170 | 0.4280 | 0.4130 | 0.4050 | 0.4120 | 0.418 | 0.0082 | 1.97 | 1.567 | 1.589 | 无异常值 |
| 室间平均 | 0.423 | 0.426 | 0.420 | 0.431 | 0.437 | 0.402 | 0.414 | 0.418 |  |  |  | 0.421 | 0.0109 | 2.59 | 1.793 | 1.484 | 无异常值 |
| 柯克伦检验： | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2916 柯克伦检验结论：实验室1为歧离值 | | | | | | | | | | | | | | | |

**附件B：EDTA滴定法精密度数据统计**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  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 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  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 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | B.1稀土总量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.1.1各实验室水平6实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | 1 | | | 2 | | | 3 | | 4 | | 5 | | | 6 | | | 7 | | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | X(Min,Max)离群检验 | | | | 1 | | | 12.37 | | | 12.503 | | | 12.359 | | 12.477 | | 12.412 | | | 12.523 | | | 12.497 | | | | 12.448 | | | 12.318 | | | 12.489 | | | 12.408 | | | 12.437 | | 0.0678 | | 0.55 | | | 1.751 | | | 1.272 | | | 无异常值 | | | | 2 | | | 12.389 | | | 12.256 | | | 12.407 | | 12.289 | | 12.295 | | | 12.355 | | | 12.379 | | | | 12.335 | | | 12.453 | | | 12.335 | | | 12.389 | | | 12.353 | | 0.0581 | | 0.47 | | | 1.669 | | | 1.724 | | | 无异常值 | | | | 3 | | | 12.496 | | | 12.327 | | | 12.423 | | 12.569 | | 12.369 | | | 12.412 | | | 12.581 | | | | 12.482 | | | 12.368 | | | 12.423 | | | 12.511 | | | 12.451 | | 0.0834 | | 0.67 | | | 1.488 | | | 1.560 | | | 无异常值 | | | | 4 | | | 12.272 | | | 12.341 | | | 12.407 | | 12.341 | | 12.739 | | | 12.474 | | | 12.447 | | | | 12.407 | | | 12.54 | | | 12.5 | | | 12.447 | | | 12.447 | | 0.1240 | | 1.00 | | | 1.410 | | | 2.356 | | | 歧离(Xmax) | | | | 5 | | | 12.111 | | | 12.229 | | | 12.054 | | 11.939 | | 12.198 | | | 12.304 | | | 12.096 | | | | 12.254 | | | 12.132 | | | 12.087 | | | 12.216 | | | 12.147 | | 0.1048 | | 0.86 | | | 1.987 | | | 1.496 | | | 无异常值 | | | | 6 | | | 12.424 | | | 12.518 | | | 12.483 | | 12.492 | | 12.389 | | | 12.566 | | | 12.49 | | | | 12.511 | | | 12.46 | | | 12.526 | | | 12.437 | | | 12.481 | | 0.0508 | | 0.41 | | | 1.820 | | | 1.664 | | | 无异常值 | | | | 8 | | | 12.535 | | | 12.378 | | | 12.501 | | 12.745 | | 12.668 | | | 12.567 | | | 12.585 | | | | 12.409 | | | 12.738 | | | 12.462 | | | 12.678 | | | 12.570 | | 0.1268 | | 1.01 | | | 1.511 | | | 1.383 | | | 无异常值 | | | | 10 | | | 12.519 | | | 12.497 | | | 12.489 | | 12.345 | | 12.442 | | | 12.396 | | | 12.483 | | | | 12.456 | | | 12.402 | | | 12.399 | | | 12.431 | | | 12.442 | | 0.0530 | | 0.43 | | | 1.824 | | | 1.457 | | | 无异常值 | | | | 室间平均 | | | 12.437 | | | 12.353 | | | 12.451 | | 12.447 | | 12.147 | | | 12.481 | | | 12.570 | | | | 12.442 | | |  | | |  | | |  | | | 12.416 | | 0.1238 | | 1.00 | | | 2.170 | | | 1.241 | | | 歧离(Xmin) | | | | 柯克伦检验： | | | | | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.2562 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.1.2各实验室水平7实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | 1 | | | 2 | | | 3 | | 4 | | 5 | | | 6 | | | 7 | | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | X(Min,Max)离群检验 | | | | 1 | | | 26.94 | | | 26.767 | | | 27.103 | | 27.054 | | 26.984 | | | 26.852 | | | 26.759 | | | | 26.834 | | | 26.829 | | | 26.799 | | | 26.818 | | | 26.885 | | 0.1172 | | 0.44 | | | 1.078 | | | 1.857 | | | 无异常值 | | | | 2 | | | 26.853 | | | 26.789 | | | 26.831 | | 26.781 | | 26.665 | | | 26.671 | | | 26.689 | | | | 26.793 | | | 26.751 | | | 26.824 | | | 26.831 | | | 26.771 | | 0.0678 | | 0.25 | | | 1.559 | | | 1.213 | | | 无异常值 | | | | 3 | | | 26.811 | | | 27.116 | | | 26.983 | | 27.054 | | 26.826 | | | 27.223 | | | 27.112 | | | | 26.859 | | | 26.829 | | | 27.108 | | | 26.918 | | | 26.985 | | 0.1449 | | 0.54 | | | 1.203 | | | 1.640 | | | 无异常值 | | | | 4 | | | 27.25 | | | 27.196 | | | 27.385 | | 27.115 | | 26.926 | | | 27.25 | | | 27.034 | | | | 27.217 | | | 26.964 | | | 27.034 | | | 27.304 | | | 27.152 | | 0.1478 | | 0.54 | | | 1.531 | | | 1.575 | | | 无异常值 | | | | 5 | | | 26.372 | | | 26.18 | | | 26.404 | | 26.311 | | 26.254 | | | 26.369 | | | 26.324 | | | | 26.517 | | | 26.273 | | | 26.409 | | | 26.153 | | | 26.324 | | 0.1062 | | 0.40 | | | 1.611 | | | 1.815 | | | 无异常值 | | | | 6 | | | 26.683 | | | 26.488 | | | 26.564 | | 26.769 | | 26.53 | | | 27.011 | | | 26.814 | | | | 26.583 | | | 26.558 | | | 26.432 | | | 26.795 | | | 26.657 | | 0.1736 | | 0.65 | | | 1.296 | | | 2.039 | | | 无异常值 | | | | 8 | | | 26.847 | | | 26.556 | | | 26.914 | | 26.728 | | 26.852 | | | 26.932 | | | 26.667 | | | | 26.889 | | | 26.608 | | | 26.943 | | | 26.593 | | | 26.775 | | 0.1480 | | 0.55 | | | 1.482 | | | 1.132 | | | 无异常值 | | | | 10 | | | 27.171 | | | 26.989 | | | 27.124 | | 27.059 | | 27.141 | | | 27.983 | | | 27.131 | | | | 27.206 | | | 27.234 | | | 27.212 | | | 26.977 | | | 27.202 | | 0.2726 | | 1.00 | | | 0.827 | | | 2.863 | | | 离群(Xmax) | | | | 室间平均 | | | 26.885 | | | 26.771 | | | 26.985 | | 27.152 | | 26.324 | | | 26.657 | | | 26.775 | | | | 27.202 | | |  | | |  | | |  | | | 26.844 | | 0.2830 | | 1.05 | | | 1.837 | | | 1.266 | | | 无异常值 | | | | 柯克伦检验： | | | | | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3738 柯克伦检验结论：实验室10的数据组离群（高度异常） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.1.3各实验室水平8实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | 1 | | | 2 | | | 3 | | 4 | | 5 | | | 6 | | | 7 | | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | X(Min,Max)离群检验 | | | | 1 | | | 25.966 | | | 25.861 | | | 25.868 | | 25.889 | | 25.914 | | | 25.935 | | | 25.954 | | | | 26.029 | | | 25.974 | | | 26.108 | | | 26.231 | | | 25.975 | | 0.1113 | | 0.43 | | | 1.028 | | | 2.297 | | | 无异常值 | | | | 2 | | | 25.797 | | | 25.905 | | | 25.915 | | 25.873 | | 25.805 | | | 25.794 | | | 25.913 | | | | 25.947 | | | 25.881 | | | 25.759 | | | 25.915 | | | 25.864 | | 0.0636 | | 0.25 | | | 1.651 | | | 1.305 | | | 无异常值 | | | | 3 | | | 26.156 | | | 25.963 | | | 25.828 | | 26.311 | | 26.159 | | | 25.872 | | | 25.935 | | | | 26.037 | | | 25.996 | | | 25.861 | | | 26.255 | | | 26.034 | | 0.1646 | | 0.63 | | | 1.251 | | | 1.683 | | | 无异常值 | | | | 4 | | | 26.111 | | | 25.868 | | | 25.625 | | 26.067 | | 26.553 | | | 26.023 | | | 25.89 | | | | 26.534 | | | 26.098 | | | 25.979 | | | 26.332 | | | 26.098 | | 0.2815 | | 1.08 | | | 1.681 | | | 1.615 | | | 无异常值 | | | | 5 | | | 25.312 | | | 25.189 | | | 25.406 | | 25.137 | | 25.477 | | | 25.315 | | | 25.384 | | | | 25.152 | | | 25.401 | | | 25.493 | | | 25.247 | | | 25.319 | | 0.1253 | | 0.49 | | | 1.456 | | | 1.386 | | | 无异常值 | | | | 6 | | | 26.157 | | | 26.26 | | | 25.96 | | 25.87 | | 25.968 | | | 26.016 | | | 26.168 | | | | 26.041 | | | 25.591 | | | 26.082 | | | 25.716 | | | 25.984 | | 0.1985 | | 0.76 | | | 1.982 | | | 1.388 | | | 无异常值 | | | | 8 | | | 25.678 | | | 25.913 | | | 25.878 | | 25.598 | | 25.964 | | | 26.15 | | | 26.112 | | | | 26.108 | | | 25.687 | | | 25.786 | | | 26.112 | | | 25.908 | | 0.1996 | | 0.77 | | | 1.552 | | | 1.213 | | | 无异常值 | | | | 10 | | | 26.141 | | | 25.943 | | | 26.129 | | 26.107 | | 25.981 | | | 26.037 | | | 26.116 | | | | 26.214 | | | 26.048 | | | 26.243 | | | 26.097 | | | 26.096 | | 0.0903 | | 0.35 | | | 1.694 | | | 1.627 | | | 无异常值 | | | | 室间平均 | | | 25.975 | | | 25.864 | | | 26.034 | | 26.098 | | 25.319 | | | 25.984 | | | 25.908 | | | | 26.096 | | |  | | |  | | |  | | | 25.910 | | 0.2525 | | 0.97 | | | 2.339 | | | 0.746 | | | 离群(Xmin) | | | | 柯克伦检验： | | | | | | 当实验室数 p =8， n =11 临界值C(0.01)=0.3248 临界C(0.05)=0.2829 统计值C=0.3509 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.1.4各实验室水平9实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | 1 | | | 2 | | | 3 | | 4 | | 5 | | | 6 | | | 7 | | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | X(Min,Max)离群检验 | | | | 1 | | | 35.985 | | | 36.102 | | | 35.893 | | 35.968 | | 36.098 | | | 36.112 | | | 35.784 | | | | 35.817 | | | 36.006 | | | 35.927 | | | 35.958 | | | 35.968 | | 0.1102 | | 0.31 | | | 1.672 | | | 1.305 | | | 无异常值 | | | | 2 | | | 35.849 | | | 35.853 | | | 35.934 | | 35.861 | | 35.766 | | | 35.959 | | | 35.781 | | | | 35.759 | | | 35.854 | | | 35.901 | | | 35.77 | | | 35.844 | | 0.0692 | | 0.19 | | | 1.233 | | | 1.659 | | | 无异常值 | | | | 3 | | | 36.116 | | | 36.058 | | | 35.863 | | 35.915 | | 35.942 | | | 36.107 | | | 35.789 | | | | 35.773 | | | 36.005 | | | 35.916 | | | 35.871 | | | 35.941 | | 0.1181 | | 0.33 | | | 1.425 | | | 1.478 | | | 无异常值 | | | | 4 | | | 36.022 | | | 36.146 | | | 35.938 | | 36.042 | | 35.938 | | | 35.98 | | | 36.042 | | | | 36.031 | | | 35.635 | | | 35.897 | | | 35.772 | | | 35.949 | | 0.1421 | | 0.40 | | | 2.212 | | | 1.384 | | | 无异常值 | | | | 5 | | | 35.328 | | | 35.512 | | | 35.297 | | 35.401 | | 35.308 | | | 35.499 | | | 35.284 | | | | 35.376 | | | 35.435 | | | 35.247 | | | 35.312 | | | 35.364 | | 0.0885 | | 0.25 | | | 1.316 | | | 1.677 | | | 无异常值 | | | | 6 | | | 35.9 | | | 36.062 | | | 35.984 | | 35.769 | | 35.875 | | | 36.089 | | | 35.906 | | | | /// | | | /// | | | /// | | | /// | | | 35.941 | | 0.1120 | | 0.31 | | | 1.533 | | | 1.324 | | | 无异常值 | | | | 8 | | | 35.668 | | | 36.105 | | | 35.704 | | 35.879 | | 35.696 | | | 36.208 | | | 36.114 | | | | 36.197 | | | 35.818 | | | 36.005 | | | 35.691 | | | 35.917 | | 0.2153 | | 0.60 | | | 1.156 | | | 1.352 | | | 无异常值 | | | | 10 | | | 35.9680 | | | 36.1120 | | | 36.1270 | | 35.9740 | | 36.1280 | | | 36.2140 | | | 36.1210 | | | | 35.9370 | | | 36.0740 | | | 35.9690 | | | 36.0770 | | | 36.064 | | 0.0888 | | 0.25 | | | 1.427 | | | 1.692 | | | 无异常值 | | | | 室间平均 | | | 35.968 | | | 35.844 | | | 35.941 | | 35.949 | | 35.364 | | | 35.941 | | | 35.917 | | | | 36.064 | | |  | | |  | | |  | | | 35.873 | | 0.2147 | | 0.60 | | | 2.375 | | | 0.886 | | | 离群(Xmin) | | | | 柯克伦检验： | | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.4096 柯克伦检验结论：实验室8的数据组离群（高度异常） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | B.2十五个稀土元素含量精密度数据统计  B.2.1 镧含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.1.1各实验室水平19实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | 1 | | | 2 | | | 3 | | | 4 | | 5 | | | 6 | | | 7 | | 8 | | 9 | | | 10 | | | 11 | | | 平均值 | | | SD | | | | | | | RSD,% | | | G1值 | | | Gn值 | | X(Min,Max)离群检验 | | | | 1 | | 0.192 | | | 0.189 | | | 0.19 | | | 0.193 | | 0.198 | | | 0.195 | | | 0.195 | | 0.197 | | 0.212 | | | 0.217 | | | 0.222 | | | 0.200 | | | 0.0115 | | | | | | | 5.73 | | | 0.960 | | | 1.919 | | 无异常值 | | | | 2 | | 0.198 | | | 0.203 | | | 0.19 | | | 0.197 | | 0.195 | | | 0.202 | | | 0.19 | | 0.194 | | 0.2 | | | 0.194 | | | 0.19 | | | 0.196 | | | 0.0047 | | | | | | | 2.41 | | | 1.215 | | | 1.543 | | 无异常值 | | | | 3 | | 0.199 | | | 0.195 | | | 0.189 | | | 0.197 | | 0.214 | | | 0.211 | | | 0.213 | | 0.198 | | 0.208 | | | 0.204 | | | 0.205 | | | 0.203 | | | 0.0081 | | | | | | | 3.98 | | | 1.734 | | | 1.362 | | 无异常值 | | | | 4 | | 0.177 | | | 0.179 | | | 0.184 | | | 0.189 | | 0.176 | | | 0.177 | | | 0.193 | | 0.186 | | 0.177 | | | 0.186 | | | 0.181 | | | 0.182 | | | 0.0057 | | | | | | | 3.13 | | | 1.098 | | | 1.878 | | 无异常值 | | | | 5 | | 0.19 | | | 0.19 | | | 0.188 | | | 0.191 | | 0.189 | | | 0.187 | | | 0.198 | | 0.188 | | 0.188 | | | 0.193 | | | 0.19 | | | 0.190 | | | 0.0031 | | | | | | | 1.63 | | | 1.029 | | | 2.528 | | 歧离(Xmax) | | | | 8 | | 0.188 | | | 0.212 | | | 0.191 | | | 0.196 | | 0.196 | | | 0.198 | | | 0.195 | | 0.196 | | 0.197 | | | 0.199 | | | 0.199 | | | 0.197 | | | 0.0060 | | | | | | | 3.04 | | | 1.504 | | | 2.507 | | 歧离(Xmax) | | | | 10 | | 0.201 | | | 0.214 | | | 0.199 | | | 0.202 | | 0.208 | | | 0.208 | | | 0.211 | | 0.207 | | 0.199 | | | 0.209 | | | 0.21 | | | 0.206 | | | 0.0051 | | | | | | | 2.48 | | | 1.404 | | | 1.528 | | 无异常值 | | | | 室间平均 | | 0.200 | | | 0.196 | | | 0.203 | | | 0.182 | | 0.190 | | | 0.197 | | | 0.206 | |  | |  | | |  | | |  | | | 0.196 | | | 0.0081 | | | | | | | 4.11 | | | 1.742 | | | 1.219 | | 无异常值 | | | | 柯克伦检验： | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.4069 柯克伦检验结论：实验室1的数据组离群（高度异常） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.1.2各实验室水平20实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | 1 | | | 2 | | | 3 | | | 4 | | 5 | | | 6 | | | 7 | | 8 | | 9 | | | 10 | | | 11 | | | 平均值 | | | SD | | | | | | | RSD,% | | | G1值 | | | Gn值 | | X(Min,Max)离群检验 | | | | 1 | | 4.136 | | | 4.248 | | | 4.199 | | | 4.178 | | 4.087 | | | 4.151 | | | 4.132 | | 4.114 | | 4.165 | | | 4.133 | | | 4.345 | | | 4.172 | | | 0.0721 | | | | | | | 1.73 | | | 1.174 | | | 2.405 | | 歧离(Xmax) | | | | 2 | | 4.216 | | | 4.238 | | | 4.203 | | | 4.196 | | 4.187 | | | 4.251 | | | 4.232 | | 4.189 | | 4.251 | | | 4.181 | | | 4.145 | | | 4.208 | | | 0.0330 | | | | | | | 0.78 | | | 1.910 | | | 1.299 | | 无异常值 | | | | 3 | | 4.155 | | | 4.231 | | | 4.163 | | | 4.127 | | 4.096 | | | 4.156 | | | 4.277 | | 4.103 | | 4.132 | | | 4.216 | | | 4.269 | | | 4.175 | | | 0.0637 | | | | | | | 1.53 | | | 1.241 | | | 1.602 | | 无异常值 | | | | 4 | | 4.035 | | | 4.086 | | | 4.161 | | | 4.113 | | 4.1 | | | 4.144 | | | 4.11 | | 4.134 | | 4.018 | | | 4.154 | | | 4.066 | | | 4.102 | | | 0.0472 | | | | | | | 1.15 | | | 1.779 | | | 1.252 | | 无异常值 | | | | 5 | | 4.095 | | | 4.161 | | | 4.177 | | | 4.186 | | 4.223 | | | 4.134 | | | 4.161 | | 4.072 | | 4.036 | | | 4.045 | | | 4.089 | | | 4.125 | | | 0.0617 | | | | | | | 1.49 | | | 1.449 | | | 1.583 | | 无异常值 | | | | 8 | | 4.006 | | | 4.015 | | | 4.216 | | | 4.018 | | 4.137 | | | 4.258 | | | 4.008 | | 4.165 | | 4.169 | | | 4.171 | | | 4.184 | | | 4.122 | | | 0.0930 | | | | | | | 2.26 | | | 1.252 | | | 1.457 | | 无异常值 | | | | 10 | | 4.041 | | | 4.111 | | | 4.202 | | | 4.198 | | 4.223 | | | 4.117 | | | 4.056 | | 4.119 | | 4.233 | | | 4.201 | | | 4.089 | | | 4.145 | | | 0.0689 | | | | | | | 1.66 | | | 1.502 | | | 1.283 | | 无异常值 | | | | 室间平均 | | 4.172 | | | 4.208 | | | 4.175 | | | 4.102 | | 4.125 | | | 4.122 | | | 4.145 | |  | |  | | |  | | |  | | | 4.150 | | | 0.0369 | | | | | | | 0.89 | | | 1.299 | | | 1.578 | | 无异常值 | | | | 柯克伦检验： | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.2907 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.1.3各实验室水平21实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | 1 | | | 2 | | | 3 | | | 4 | | 5 | | | 6 | | | 7 | | 8 | | 9 | | | 10 | | | 11 | | | 平均值 | | | SD | | | | | | | RSD,% | | | G1值 | | | Gn值 | | X(Min,Max)离群检验 | | | | 1 | | 37.177 | | | 37.247 | | | 37.217 | | | 37.236 | | 37.366 | | | 37.146 | | | 37.25 | | 37.24 | | 37.042 | | | 37.089 | | | 37.125 | | | 37.194 | | | 0.0902 | | | | | | | 0.24 | | | 1.686 | | | 1.905 | | 无异常值 | | | | 2 | | 37.258 | | | 37.174 | | | 37.222 | | | 37.238 | | 37.197 | | | 37.306 | | | 37.191 | | 37.209 | | 37.255 | | | 37.197 | | | 37.208 | | | 37.223 | | | 0.0382 | | | | | | | 0.10 | | | 1.289 | | | 2.170 | | 无异常值 | | | | 3 | | 37.236 | | | 37.125 | | | 37.321 | | | 37.236 | | 37.117 | | | 37.113 | | | 37.164 | | 37.215 | | 37.138 | | | 37.152 | | | 37.169 | | | 37.181 | | | 0.0646 | | | | | | | 0.17 | | | 1.045 | | | 2.173 | | 无异常值 | | | | 4 | | 37.178 | | | 37.219 | | | 37.253 | | | 37.161 | | 37.144 | | | 37.246 | | | 37.263 | | 37.195 | | 37.229 | | | 37.232 | | | 37.208 | | | 37.212 | | | 0.0385 | | | | | | | 0.10 | | | 1.755 | | | 1.332 | | 无异常值 | | | | 5 | | 37.218 | | | 37.202 | | | 37.079 | | | 37.069 | | 37.079 | | | 37.398 | | | 37.268 | | 37.17 | | 37.512 | | | 37.196 | | | 37.325 | | | 37.229 | | | 0.1398 | | | | | | | 0.38 | | | 1.143 | | | 2.026 | | 无异常值 | | | | 8 | | 37.07 | | | 37.356 | | | 37.36 | | | 37.369 | | 37.245 | | | 37.252 | | | 37.248 | | 37.088 | | 37.139 | | | 37.056 | | | 37.244 | | | 37.221 | | | 0.1169 | | | | | | | 0.31 | | | 1.408 | | | 1.269 | | 无异常值 | | | | 10 | | 36.97 | | | 37.211 | | | 36.898 | | | 37.045 | | 37.223 | | | 36.998 | | | 37.266 | | 37.298 | | 37.119 | | | 36.812 | | | 36.779 | | | 37.056 | | | 0.1818 | | | | | | | 0.49 | | | 1.525 | | | 1.329 | | 无异常值 | | | | 室间平均 | | 37.194 | | | 37.223 | | | 37.181 | | | 37.212 | | 37.229 | | | 37.221 | | | 37.056 | |  | |  | | |  | | |  | | | 37.188 | | | 0.0605 | | | | | | | 0.16 | | | 2.175 | | | 0.675 | | 离群(Xmin) | | | | 柯克伦检验： | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.4055 柯克伦检验结论：实验室10的数据组离群（高度异常） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.1.4各实验室水平7实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | 1 | | | 2 | | | 3 | | | 4 | | 5 | | | 6 | | | 7 | | 8 | | 9 | | | 10 | | | 11 | | | 平均值 | | | SD | | | | | | | RSD,% | | | G1值 | | | Gn值 | | X(Min,Max)离群检验 | | | | 1 | | 9.177 | | | 9.247 | | | 9.217 | | | 9.236 | | 9.366 | | | 9.146 | | | 9.285 | | 9.324 | | 9.273 | | | 9.264 | | | 9.341 | | | 9.261 | | | 0.0672 | | | | | | | 0.73 | | | 1.718 | | | 1.556 | | 无异常值 | | | | 2 | | 9.218 | | | 9.218 | | | 9.334 | | | 9.219 | | 9.134 | | | 9.144 | | | 9.185 | | 9.233 | | 9.253 | | | 9.248 | | | 9.237 | | | 9.220 | | | 0.0545 | | | | | | | 0.59 | | | 1.582 | | | 2.086 | | 无异常值 | | | | 3 | | 9.168 | | | 9.239 | | | 9.265 | | | 9.258 | | 9.317 | | | 9.156 | | | 9.288 | | 9.339 | | 9.335 | | | 9.243 | | | 9.317 | | | 9.266 | | | 0.0623 | | | | | | | 0.67 | | | 1.764 | | | 1.173 | | 无异常值 | | | | 4 | | 9.25 | | | 9.225 | | | 9.247 | | | 9.302 | | 9.264 | | | 9.245 | | | 9.236 | | 9.248 | | 9.237 | | | 9.247 | | | 9.252 | | | 9.250 | | | 0.0198 | | | | | | | 0.21 | | | 1.273 | | | 2.606 | | 离群(Xmax) | | | | 5 | | 9.116 | | | 8.946 | | | 9.107 | | | 9.023 | | 9.184 | | | 9.024 | | | 9.034 | | 9.18 | | 9.335 | | | 9.302 | | | 9.175 | | | 9.130 | | | 0.1206 | | | | | | | 1.32 | | | 1.522 | | | 1.702 | | 无异常值 | | | | 8 | | 9.102 | | | 9.114 | | | 9.138 | | | 9.218 | | 9.109 | | | 9.115 | | | 9.148 | | 9.168 | | 9.235 | | | 9.149 | | | 9.268 | | | 9.160 | | | 0.0562 | | | | | | | 0.61 | | | 1.039 | | | 1.916 | | 无异常值 | | | | 10 | | 9.401 | | | 9.328 | | | 9.381 | | | 9.366 | | 9.281 | | | 9.233 | | | 9.378 | | 9.345 | | 9.312 | | | 9.371 | | | 9.332 | | | 9.339 | | | 0.0494 | | | | | | | 0.53 | | | 2.143 | | | 1.257 | | 无异常值 | | | | 室间平均 | | 9.261 | | | 9.220 | | | 9.266 | | | 9.250 | | 9.130 | | | 9.160 | | | 9.339 | |  | |  | | |  | | |  | | | 9.232 | | | 0.0702 | | | | | | | 0.76 | | | 1.465 | | | 1.518 | | 无异常值 | | | | 柯克伦检验： | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=00.456 柯克伦检验结论：实验室5的数据组离群（高度异常） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | B.2.2 铈含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.2.1各实验室水平19实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | | 1 | | | 2 | | | 3 | | | 4 | | | 5 | | | 6 | | | | 7 | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | | X(Min,Max)离群检验 | | | | 1 | | | | 0.341 | | | 0.345 | | | 0.342 | | | 0.346 | | | 0.342 | | | 0.342 | | | | 0.325 | | | 0.328 | | | 0.332 | | | 0.352 | | | 0.351 | | | 0.341 | | 0.0088 | | 2.57 | | | 1.773 | | | 1.306 | | | | 无异常值 | | | | 2 | | | | 0.345 | | | 0.341 | | | 0.344 | | | 0.328 | | | 0.329 | | | 0.333 | | | | 0.334 | | | 0.336 | | | 0.327 | | | 0.33 | | | 0.334 | | | 0.335 | | 0.0063 | | 1.88 | | | 1.213 | | | 1.646 | | | | 无异常值 | | | | 3 | | | | 0.355 | | | 0.321 | | | 0.336 | | | 0.358 | | | 0.327 | | | 0.334 | | | | 0.348 | | | 0.356 | | | 0.339 | | | 0.347 | | | 0.337 | | | 0.342 | | 0.0122 | | 3.56 | | | 1.696 | | | 1.345 | | | | 无异常值 | | | | 4 | | | | 0.361 | | | 0.355 | | | 0.348 | | | 0.348 | | | 0.344 | | | 0.361 | | | | 0.36 | | | 0.352 | | | 0.339 | | | 0.344 | | | 0.347 | | | 0.351 | | 0.0076 | | 2.16 | | | 1.560 | | | 1.344 | | | | 无异常值 | | | | 5 | | | | 0.335 | | | 0.346 | | | 0.32 | | | 0.332 | | | 0.32 | | | 0.318 | | | | 0.331 | | | 0.324 | | | 0.32 | | | 0.34 | | | 0.321 | | | 0.328 | | 0.0095 | | 2.89 | | | 1.045 | | | 1.908 | | | | 无异常值 | | | | 8 | | | | 0.341 | | | 0.328 | | | 0.348 | | | 0.353 | | | 0.351 | | | 0.352 | | | | 0.351 | | | 0.351 | | | 0.352 | | | 0.351 | | | 0.353 | | | 0.348 | | 0.0075 | | 2.16 | | | 2.694 | | | 0.628 | | | | 离群(Xmin) | | | | 10 | | | | 0.322 | | | 0.334 | | | 0.3581 | | | 0.332 | | | 0.323 | | | 0.344 | | | | 0.338 | | | 0.331 | | | 0.341 | | | 0.337 | | | 0.329 | | | 0.335 | | 0.0102 | | 3.04 | | | 1.313 | | | 2.232 | | | | 无异常值 | | | | 室间平均 | | | | 0.341 | | | 0.335 | | | 0.342 | | | 0.351 | | | 0.328 | | | 0.348 | | | | 0.335 | | |  | | |  | | |  | | |  | | | 0.340 | | 0.0080 | | 2.36 | | | 1.496 | | | 1.365 | | | | 无异常值 | | | | 柯克伦检验： | | | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.2588 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.2.2各实验室水平20实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | | 1 | | | 2 | | | 3 | | | 4 | | | 5 | | | 6 | | | | 7 | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | | X(Min,Max)离群检验 | | | | 1 | | | | 8.009 | | | 8.009 | | | 8.01 | | | 7.95 | | | 8.009 | | | 7.983 | | | | 8.025 | | | 8.094 | | | 8.034 | | | 8.036 | | | 8.004 | | | 8.015 | | 0.0356 | | 0.44 | | | 1.823 | | | 2.227 | | | | 无异常值 | | | | 2 | | | | 8.158 | | | 8.135 | | | 8.149 | | | 8.133 | | | 8.138 | | | 8.155 | | | | 8.144 | | | 8.174 | | | 8.152 | | | 8.109 | | | 8.161 | | | 8.146 | | 0.0173 | | 0.21 | | | 2.145 | | | 1.605 | | | | 无异常值 | | | | 3 | | | | 8.018 | | | 8.045 | | | 7.982 | | | 8.03 | | | 7.957 | | | 7.994 | | | | 8.037 | | | 8.074 | | | 8.062 | | | 8.005 | | | 8.044 | | | 8.023 | | 0.0354 | | 0.44 | | | 1.853 | | | 1.454 | | | | 无异常值 | | | | 4 | | | | 8.082 | | | 8.102 | | | 8.108 | | | 8.069 | | | 8.04 | | | 8.004 | | | | 8.095 | | | 8.115 | | | 8.102 | | | 8.063 | | | 8.05 | | | 8.075 | | 0.0342 | | 0.42 | | | 2.092 | | | 1.158 | | | | 无异常值 | | | | 5 | | | | 7.906 | | | 7.952 | | | 8.016 | | | 7.97 | | | 8.028 | | | 7.928 | | | | 7.952 | | | 8.05 | | | 8.008 | | | 7.982 | | | 7.945 | | | 7.976 | | 0.0449 | | 0.56 | | | 1.560 | | | 1.645 | | | | 无异常值 | | | | 8 | | | | 8.033 | | | 8.031 | | | 8.012 | | | 8.011 | | | 8.002 | | | 8.056 | | | | 8.034 | | | 8.025 | | | 8.041 | | | 8.021 | | | 8.032 | | | 8.027 | | 0.0152 | | 0.19 | | | 1.651 | | | 1.903 | | | | 无异常值 | | | | 10 | | | | 8.011 | | | 8.098 | | | 8.102 | | | 8.033 | | | 8.075 | | | 8.085 | | | | 7.988 | | | 8.011 | | | 8.101 | | | 8.087 | | | 8.11 | | | 8.064 | | 0.0442 | | 0.55 | | | 1.714 | | | 1.047 | | | | 无异常值 | | | | 室间平均 | | | | 8.015 | | | 8.146 | | | 8.023 | | | 8.075 | | | 7.976 | | | 8.027 | | | | 8.064 | | |  | | |  | | |  | | |  | | | 8.047 | | 0.0547 | | 0.68 | | | 1.287 | | | 1.820 | | | | 无异常值 | | | | 柯克伦检验： | | | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.2467 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.2.3各实验室水平22实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | | 1 | | | 2 | | | 3 | | | 4 | | | 5 | | | 6 | | | | 7 | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | | X(Min,Max)离群检验 | | | | 1 | | | | 37.637 | | | 37.686 | | | 37.479 | | | 37.529 | | | 37.726 | | | 37.686 | | | | 37.46 | | | 37.5 | | | 37.7 | | | 37.64 | | | 37.67 | | | 37.610 | | 0.0983 | | 0.26 | | | 1.528 | | | 1.177 | | | | 无异常值 | | | | 2 | | | | 37.582 | | | 37.549 | | | 37.562 | | | 37.575 | | | 37.543 | | | 37.602 | | | | 37.546 | | | 37.588 | | | 37.581 | | | 37.575 | | | 37.554 | | | 37.569 | | 0.0193 | | 0.05 | | | 1.340 | | | 1.722 | | | | 无异常值 | | | | 3 | | | | 37.485 | | | 37.562 | | | 37.492 | | | 37.713 | | | 37.682 | | | 37.499 | | | | 37.518 | | | 37.701 | | | 37.662 | | | 37.749 | | | 37.428 | | | 37.590 | | 0.1129 | | 0.30 | | | 1.435 | | | 1.407 | | | | 无异常值 | | | | 4 | | | | 37.813 | | | 37.944 | | | 37.781 | | | 37.735 | | | 37.976 | | | 37.817 | | | | 37.95 | | | 37.924 | | | 37.859 | | | 37.849 | | | 38.048 | | | 37.881 | | 0.0944 | | 0.25 | | | 1.552 | | | 1.765 | | | | 无异常值 | | | | 5 | | | | 37.495 | | | 37.096 | | | 37.567 | | | 37.335 | | | 37.064 | | | 37.27 | | | | 37.311 | | | 37.35 | | | 37.412 | | | 37.225 | | | 37.271 | | | 37.309 | | 0.1515 | | 0.41 | | | 1.615 | | | 1.705 | | | | 无异常值 | | | | 8 | | | | 37.56 | | | 37.625 | | | 37.72 | | | 37.584 | | | 37.635 | | | 37.589 | | | | 37.645 | | | 37.731 | | | 37.564 | | | 37.638 | | | 37.729 | | | 37.638 | | 0.0638 | | 0.17 | | | 1.225 | | | 1.454 | | | | 无异常值 | | | | 10 | | | | 37.612 | | | 37.521 | | | 37.669 | | | 37.488 | | | 37.563 | | | 37.772 | | | | 37.565 | | | 37.496 | | | 37.556 | | | 37.667 | | | 37.514 | | | 37.584 | | 0.0881 | | 0.23 | | | 1.088 | | | 2.134 | | | | 无异常值 | | | | 室间平均 | | | | 37.610 | | | 37.569 | | | 37.590 | | | 37.881 | | | 37.309 | | | 37.638 | | | | 37.584 | | |  | | |  | | |  | | |  | | | 37.597 | | 0.1668 | | 0.44 | | | 1.731 | | | 1.703 | | | | 无异常值 | | | | 柯克伦检验： | | | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.3452 柯克伦检验结论：实验室5为歧离值 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.2.4各实验室水平7实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | | 1 | | | 2 | | | 3 | | | 4 | | | 5 | | | 6 | | | | 7 | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | | X(Min,Max)离群检验 | | | | 1 | | | | 17.664 | | | 17.587 | | | 17.62 | | | 17.6 | | | 17.463 | | | 17.691 | | | | 17.52 | | | 17.57 | | | 17.72 | | | 17.71 | | | 17.75 | | | 17.627 | | 0.0895 | | 0.51 | | | 1.830 | | | 1.376 | | | | 无异常值 | | | | 2 | | | | 17.568 | | | 17.589 | | | 17.552 | | | 17.498 | | | 17.505 | | | 17.533 | | | | 17.598 | | | 17.606 | | | 17.528 | | | 17.525 | | | 17.581 | | | 17.553 | | 0.0378 | | 0.22 | | | 1.456 | | | 1.403 | | | | 无异常值 | | | | 3 | | | | 17.595 | | | 17.652 | | | 17.492 | | | 17.565 | | | 17.691 | | | 17.524 | | | | 17.638 | | | 17.649 | | | 17.698 | | | 17.722 | | | 17.574 | | | 17.618 | | 0.0742 | | 0.42 | | | 1.701 | | | 1.399 | | | | 无异常值 | | | | 4 | | | | 18.535 | | | 18.519 | | | 18.522 | | | 18.415 | | | 18.535 | | | 18.483 | | | | 18.503 | | | 18.487 | | | 18.444 | | | 18.503 | | | 18.509 | | | 18.496 | | 0.0375 | | 0.20 | | | 2.160 | | | 1.044 | | | | 无异常值 | | | | 5 | | | | 17.54 | | | 17.519 | | | 17.579 | | | 17.569 | | | 17.347 | | | 17.628 | | | | 17.57 | | | 17.618 | | | 17.222 | | | 17.385 | | | 17.259 | | | 17.476 | | 0.1462 | | 0.84 | | | 1.737 | | | 1.039 | | | | 无异常值 | | | | 8 | | | | 17.59 | | | 17.627 | | | 17.74 | | | 17.659 | | | 17.564 | | | 17.642 | | | | 17.652 | | | 17.735 | | | 17.637 | | | 17.566 | | | 17.662 | | | 17.643 | | 0.0582 | | 0.33 | | | 1.360 | | | 1.666 | | | | 无异常值 | | | | 10 | | | | 17.971 | | | 17.834 | | | 17.691 | | | 17.882 | | | 17.665 | | | 17.741 | | | | 17.652 | | | 17.745 | | | 17.669 | | | 17.568 | | | 17.661 | | | 17.734 | | 0.1178 | | 0.66 | | | 1.413 | | | 2.009 | | | | 无异常值 | | | | 室间平均 | | | | 17.627 | | | 17.553 | | | 17.618 | | | 18.496 | | | 17.476 | | | 17.643 | | | | 17.734 | | |  | | |  | | |  | | |  | | | 17.735 | | 0.3447 | | 1.94 | | | 0.752 | | | 2.206 | | | | 离群(Xmax) | | | | 柯克伦检验： | | | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.3889 柯克伦检验结论：实验室5的数据组离群（高度异常） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | B.2.3 钇含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.3.1各实验室水平16实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | | 1 | | | 2 | | | 3 | | | 4 | | | 5 | | | 6 | | | | 7 | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | | X(Min,Max)离群检验 | | | | 1 | | | | 0.0517 | | | 0.0519 | | | 0.0529 | | | 0.0528 | | | 0.0519 | | | 0.0518 | | | | 0.0545 | | | 0.0497 | | | 0.0523 | | | 0.0545 | | | 0.0513 | | | 0.0523 | | 0.0014 | | 2.63 | | | 1.887 | | | 1.597 | | | | 无异常值 | | | | 2 | | | | 0.0515 | | | 0.052 | | | 0.0515 | | | 0.0522 | | | 0.0509 | | | 0.0518 | | | | 0.0517 | | | 0.0508 | | | 0.0511 | | | 0.0519 | | | 0.0513 | | | 0.0515 | | 0.0005 | | 0.88 | | | 1.576 | | | 1.496 | | | | 无异常值 | | | | 3 | | | | 0.0495 | | | 0.0512 | | | 0.0499 | | | 0.0507 | | | 0.0536 | | | 0.0524 | | | | 0.0559 | | | 0.0538 | | | 0.0538 | | | 0.0522 | | | 0.0547 | | | 0.0525 | | 0.0020 | | 3.89 | | | 1.477 | | | 1.655 | | | | 无异常值 | | | | 4 | | | | 0.0479 | | | 0.0488 | | | 0.051 | | | 0.0507 | | | 0.0501 | | | 0.051 | | | | 0.0507 | | | 0.051 | | | 0.0517 | | | 0.0507 | | | 0.0507 | | | 0.0504 | | 0.0011 | | 2.18 | | | 2.271 | | | 1.194 | | | | 无异常值 | | | | 5 | | | | 0.0508 | | | 0.0503 | | | 0.0508 | | | 0.05 | | | 0.0503 | | | 0.0507 | | | | 0.0515 | | | 0.0508 | | | 0.0507 | | | 0.0487 | | | 0.051 | | | 0.0505 | | 0.0007 | | 1.42 | | | 2.516 | | | 1.378 | | | | 歧离(Xmin) | | | | 8 | | | | 0.051 | | | 0.0511 | | | 0.053 | | | 0.0528 | | | 0.0552 | | | 0.0547 | | | | 0.0532 | | | 0.0547 | | | 0.0538 | | | 0.0526 | | | 0.0518 | | | 0.0531 | | 0.0014 | | 2.70 | | | 1.455 | | | 1.480 | | | | 无异常值 | | | | 10 | | | | 0.0522 | | | 0.0517 | | | 0.0508 | | | 0.0518 | | | 0.0514 | | | 0.0522 | | | | 0.0517 | | | 0.0508 | | | 0.0521 | | | 0.0519 | | | 0.0522 | | | 0.0517 | | 0.0005 | | 1.00 | | | 1.760 | | | 0.950 | | | | 无异常值 | | | | 室间平均 | | | | 0.0523 | | | 0.0515 | | | 0.0525 | | | 0.0504 | | | 0.0505 | | | 0.0531 | | | | 0.0517 | | |  | | |  | | |  | | |  | | | 0.052 | | 0.0010 | | 1.95 | | | 1.316 | | | 1.352 | | | | 无异常值 | | | | 柯克伦检验： | | | | | | | 当实验室数 p =4，n =11 临界值C(0.01)=0.5536 临界C(0.05)=0.4884 统计量C=0.4479 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.3.2各实验室水平17实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | | 1 | | | 2 | | | 3 | | | 4 | | | 5 | | | 6 | | | | 7 | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | | X(Min,Max)离群检验 | | | | 1 | | | | 0.396 | | | 0.395 | | | 0.396 | | | 0.395 | | | 0.395 | | | 0.395 | | | | 0.375 | | | 0.377 | | | 0.392 | | | 0.397 | | | 0.402 | | | 0.392 | | 0.0084 | | 2.14 | | | 2.055 | | | 1.158 | | | | 无异常值 | | | | 2 | | | | 0.404 | | | 0.396 | | | 0.398 | | | 0.399 | | | 0.405 | | | 0.407 | | | | 0.407 | | | 0.394 | | | 0.399 | | | 0.401 | | | 0.402 | | | 0.401 | | 0.0043 | | 1.08 | | | 1.631 | | | 1.360 | | | | 无异常值 | | | | 3 | | | | 0.377 | | | 0.385 | | | 0.393 | | | 0.388 | | | 0.397 | | | 0.405 | | | | 0.371 | | | 0.388 | | | 0.391 | | | 0.418 | | | 0.422 | | | 0.394 | | 0.0157 | | 3.99 | | | 1.469 | | | 1.775 | | | | 无异常值 | | | | 4 | | | | 0.387 | | | 0.391 | | | 0.397 | | | 0.384 | | | 0.394 | | | 0.384 | | | | 0.391 | | | 0.4 | | | 0.397 | | | 0.384 | | | 0.397 | | | 0.391 | | 0.0060 | | 1.53 | | | 1.245 | | | 1.427 | | | | 无异常值 | | | | 5 | | | | 0.386 | | | 0.391 | | | 0.388 | | | 0.391 | | | 0.391 | | | 0.382 | | | | 0.379 | | | 0.379 | | | 0.388 | | | 0.38 | | | 0.389 | | | 0.386 | | 0.0049 | | 1.27 | | | 1.387 | | | 1.054 | | | | 无异常值 | | | | 8 | | | | 0.378 | | | 0.382 | | | 0.385 | | | 0.384 | | | 0.386 | | | 0.387 | | | | 0.398 | | | 0.388 | | | 0.395 | | | 0.376 | | | 0.384 | | | 0.386 | | 0.0065 | | 1.68 | | | 1.504 | | | 1.898 | | | | 无异常值 | | | | 10 | | | | 0.399 | | | 0.386 | | | 0.379 | | | 0.391 | | | 0.387 | | | 0.399 | | | | 0.383 | | | 0.379 | | | 0.391 | | | 0.385 | | | 0.378 | | | 0.387 | | 0.0074 | | 1.92 | | | 1.214 | | | 1.618 | | | | 无异常值 | | | | 室间平均 | | | | 0.392 | | | 0.401 | | | 0.394 | | | 0.391 | | | 0.386 | | | 0.386 | | | | 0.387 | | |  | | |  | | |  | | |  | | | 0.391 | | 0.0055 | | 1.42 | | | 0.964 | | | 1.811 | | | | 无异常值 | | | | 柯克伦检验： | | | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.5007 柯克伦检验结论：实验室3的数据组离群（高度异常） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.3.3各实验室水平18实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | | 1 | | | 2 | | | 3 | | | 4 | | | 5 | | | 6 | | | | 7 | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | | X(Min,Max)离群检验 | | | | 1 | | | | 1.579 | | | 1.579 | | | 1.58 | | | 1.579 | | | 1.579 | | | 1.579 | | | | 1.595 | | | 1.578 | | | 1.604 | | | 1.606 | | | 1.574 | | | 1.585 | | 0.0113 | | 0.71 | | | 0.950 | | | 1.883 | | | | 无异常值 | | | | 2 | | | | 1.598 | | | 1.601 | | | 1.595 | | | 1.612 | | | 1.589 | | | 1.582 | | | | 1.605 | | | 1.584 | | | 1.594 | | | 1.585 | | | 1.592 | | | 1.594 | | 0.0093 | | 0.58 | | | 1.320 | | | 1.907 | | | | 无异常值 | | | | 3 | | | | 1.568 | | | 1.579 | | | 1.578 | | | 1.578 | | | 1.568 | | | 1.582 | | | | 1.587 | | | 1.563 | | | 1.594 | | | 1.568 | | | 1.585 | | | 1.577 | | 0.0096 | | 0.61 | | | 1.486 | | | 1.742 | | | | 无异常值 | | | | 4 | | | | 1.572 | | | 1.578 | | | 1.581 | | | 1.575 | | | 1.581 | | | 1.609 | | | | 1.556 | | | 1.591 | | | 1.594 | | | 1.597 | | | 1.594 | | | 1.584 | | 0.0145 | | 0.92 | | | 1.955 | | | 1.698 | | | | 无异常值 | | | | 5 | | | | 1.561 | | | 1.566 | | | 1.553 | | | 1.573 | | | 1.58 | | | 1.58 | | | | 1.581 | | | 1.551 | | | 1.582 | | | 1.598 | | | 1.521 | | | 1.568 | | 0.0209 | | 1.33 | | | 2.244 | | | 1.447 | | | | 无异常值 | | | | 8 | | | | 1.582 | | | 1.586 | | | 1.582 | | | 1.583 | | | 1.582 | | | 1.584 | | | | 1.591 | | | 1.584 | | | 1.582 | | | 1.584 | | | 1.583 | | | 1.584 | | 0.0027 | | 0.17 | | | 0.717 | | | 2.663 | | | | 离群(Xmax) | | | | 10 | | | | 1.581 | | | 1.577 | | | 1.589 | | | 1.569 | | | 1.5811 | | | 1.588 | | | | 1.576 | | | 1.569 | | | 1.583 | | | 1.573 | | | 1.589 | | | 1.580 | | 0.0074 | | 0.47 | | | 1.422 | | | 1.272 | | | | 无异常值 | | | | 室间平均 | | | | 1.585 | | | 1.594 | | | 1.577 | | | 1.584 | | | 1.568 | | | 1.584 | | | | 1.580 | | |  | | |  | | |  | | |  | | | 1.582 | | 0.0081 | | 0.51 | | | 1.709 | | | 1.547 | | | | 无异常值 | | | | 柯克伦检验： | | | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.4292 柯克伦检验结论：实验室5的数据组离群（高度异常） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.3.4各实验室水平19实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | | 1 | | | 2 | | | 3 | | | 4 | | | 5 | | | 6 | | | | 7 | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | | X(Min,Max)离群检验 | | | | 1 | | | | 16.467 | | | 16.469 | | | 16.458 | | | 16.461 | | | 16.463 | | | 16.465 | | | | 16.38 | | | 16.35 | | | 16.58 | | | 16.52 | | | 16.47 | | | 16.462 | | 0.0606 | | 0.37 | | | 1.850 | | | 1.946 | | | | 无异常值 | | | | 2 | | | | 16.334 | | | 16.309 | | | 16.325 | | | 16.311 | | | 16.307 | | | 16.327 | | | | 16.315 | | | 16.311 | | | 16.323 | | | 16.311 | | | 16.318 | | | 16.317 | | 0.0087 | | 0.05 | | | 1.185 | | | 1.903 | | | | 无异常值 | | | | 3 | | | | 16.357 | | | 16.482 | | | 16.392 | | | 16.471 | | | 16.399 | | | 16.493 | | | | 16.504 | | | 16.374 | | | 16.525 | | | 16.517 | | | 16.504 | | | 16.456 | | 0.0626 | | 0.38 | | | 1.584 | | | 1.099 | | | | 无异常值 | | | | 4 | | | | 16.28 | | | 16.224 | | | 16.307 | | | 16.293 | | | 16.365 | | | 16.239 | | | | 16.293 | | | 16.307 | | | 16.293 | | | 16.353 | | | 16.239 | | | 16.290 | | 0.0446 | | 0.27 | | | 1.487 | | | 1.677 | | | | 无异常值 | | | | 5 | | | | 16.367 | | | 16.444 | | | 16.548 | | | 16.462 | | | 16.471 | | | 16.296 | | | | 16.355 | | | 16.276 | | | 16.556 | | | 16.235 | | | 16.452 | | | 16.406 | | 0.1077 | | 0.66 | | | 1.585 | | | 1.396 | | | | 无异常值 | | | | 8 | | | | 16.49 | | | 16.458 | | | 16.48 | | | 16.525 | | | 16.535 | | | 16.486 | | | | 16.506 | | | 16.492 | | | 16.488 | | | 16.487 | | | 16.536 | | | 16.498 | | 0.0245 | | 0.15 | | | 1.653 | | | 1.534 | | | | 无异常值 | | | | 10 | | | | 16.521 | | | 16.452 | | | 16.534 | | | 16.487 | | | 16.511 | | | 16.58 | | | | 16.633 | | | 16.611 | | | 16.701 | | | 16.665 | | | 16.541 | | | 16.567 | | 0.0779 | | 0.47 | | | 1.475 | | | 1.722 | | | | 无异常值 | | | | 室间平均 | | | | 16.462 | | | 16.317 | | | 16.456 | | | 16.290 | | | 16.406 | | | 16.498 | | | | 16.567 | | |  | | |  | | |  | | |  | | | 16.428 | | 0.0983 | | 0.60 | | | 1.403 | | | 1.412 | | | | 无异常值 | | | | 柯克伦检验： | | | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.4153 柯克伦检验结论：实验室5的数据组离群（高度异常） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.3.5各实验室水平20实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | | 1 | | | 2 | | | 3 | | | 4 | | | 5 | | | 6 | | | | 7 | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | | X(Min,Max)离群检验 | | | | 1 | | | | 36.917 | | | 36.91 | | | 36.759 | | | 36.769 | | | 37.006 | | | 36.966 | | | | 36.74 | | | 36.78 | | | 36.98 | | | 36.92 | | | 36.95 | | | 36.882 | | 0.0993 | | 0.27 | | | 1.426 | | | 1.253 | | | | 无异常值 | | | | 2 | | | | 36.959 | | | 37.015 | | | 37.122 | | | 36.978 | | | 37.106 | | | 36.966 | | | | 37.015 | | | 37.006 | | | 36.973 | | | 36.959 | | | 37.015 | | | 37.010 | | 0.0560 | | 0.15 | | | 0.917 | | | 1.993 | | | | 无异常值 | | | | 3 | | | | 36.748 | | | 36.819 | | | 36.922 | | | 36.755 | | | 37.008 | | | 36.883 | | | | 36.794 | | | 36.939 | | | 37.004 | | | 36.926 | | | 36.741 | | | 36.867 | | 0.1004 | | 0.27 | | | 1.257 | | | 1.403 | | | | 无异常值 | | | | 4 | | | | 36.63 | | | 36.598 | | | 36.756 | | | 36.787 | | | 36.661 | | | 36.693 | | | | 36.756 | | | 36.787 | | | 36.819 | | | 36.85 | | | 36.819 | | | 36.741 | | 0.0838 | | 0.23 | | | 1.712 | | | 1.295 | | | | 无异常值 | | | | 5 | | | | 36.851 | | | 36.841 | | | 36.496 | | | 36.855 | | | 36.908 | | | 36.903 | | | | 37.093 | | | 37.048 | | | 36.875 | | | 36.95 | | | 37.452 | | | 36.934 | | 0.2293 | | 0.62 | | | 1.910 | | | 2.260 | | | | 无异常值 | | | | 8 | | | | 36.79 | | | 36.828 | | | 36.89 | | | 36.902 | | | 36.795 | | | 36.856 | | | | 36.955 | | | 36.864 | | | 36.826 | | | 36.845 | | | 36.879 | | | 36.857 | | 0.0485 | | 0.13 | | | 1.387 | | | 2.015 | | | | 无异常值 | | | | 10 | | | | 36.897 | | | 36.773 | | | 36.589 | | | 36.563 | | | 36.892 | | | 36.512 | | | | 36.598 | | | 36.665 | | | 36.775 | | | 36.653 | | | 36.599 | | | 36.683 | | 0.1319 | | 0.36 | | | 1.298 | | | 1.620 | | | | 无异常值 | | | | 室间平均 | | | | 36.882 | | | 37.010 | | | 36.867 | | | 36.741 | | | 36.934 | | | 36.857 | | | | 36.683 | | |  | | |  | | |  | | |  | | | 36.854 | | 0.1107 | | 0.30 | | | 1.538 | | | 1.416 | | | | 无异常值 | | | | 柯克伦检验： | | | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.5132 柯克伦检验结论：实验室5的数据组离群（高度异常） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | B.2.4 镨含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.4.1各实验室水平16实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | | 1 | | | 2 | | | 3 | | | 4 | | | 5 | | | 6 | | | | 7 | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | | X(Min,Max)离群检验 | | | | 1 | | | | 0.0611 | | | 0.0621 | | | 0.0598 | | | 0.0625 | | | 0.0604 | | | 0.0608 | | | | 0.0623 | | | 0.0633 | | | 0.064 | | | 0.0604 | | | 0.0605 | | | 0.0616 | | 0.0014 | | 2.20 | | | 1.300 | | | 1.796 | | | | 无异常值 | | | | 2 | | | | 0.0616 | | | 0.0621 | | | 0.0605 | | | 0.06 | | | 0.0611 | | | 0.0615 | | | | 0.0607 | | | 0.0622 | | | 0.0618 | | | 0.0604 | | | 0.0601 | | | 0.0611 | | 0.0008 | | 1.30 | | | 1.371 | | | 1.394 | | | | 无异常值 | | | | 3 | | | | 0.0611 | | | 0.0612 | | | 0.0593 | | | 0.0632 | | | 0.0618 | | | 0.0635 | | | | 0.0645 | | | 0.0614 | | | 0.0634 | | | 0.0627 | | | 0.0651 | | | 0.0625 | | 0.0017 | | 2.71 | | | 1.873 | | | 1.551 | | | | 无异常值 | | | | 4 | | | | 0.056 | | | 0.0603 | | | 0.055 | | | 0.0616 | | | 0.055 | | | 0.0576 | | | | 0.0543 | | | 0.055 | | | 0.0576 | | | 0.0599 | | | 0.056 | | | 0.0571 | | 0.0025 | | 4.37 | | | 1.129 | | | 1.795 | | | | 无异常值 | | | | 5 | | | | 0.0604 | | | 0.0595 | | | 0.0603 | | | 0.0628 | | | 0.0586 | | | 0.0614 | | | | 0.0607 | | | 0.0605 | | | 0.0613 | | | 0.0607 | | | 0.0631 | | | 0.0608 | | 0.0013 | | 2.14 | | | 1.726 | | | 1.733 | | | | 无异常值 | | | | 8 | | | | 0.061 | | | 0.0612 | | | 0.061 | | | 0.0638 | | | 0.0612 | | | 0.0606 | | | | 0.0623 | | | 0.0625 | | | 0.0609 | | | 0.0623 | | | 0.0614 | | | 0.0617 | | 0.0010 | | 1.55 | | | 1.101 | | | 2.241 | | | | 无异常值 | | | | 10 | | | | 0.0607 | | | 0.0601 | | | 0.0617 | | | 0.0612 | | | 0.0608 | | | 0.0611 | | | | 0.0609 | | | 0.0601 | | | 0.0612 | | | 0.0601 | | | 0.0606 | | | 0.0608 | | 0.0005 | | 0.86 | | | 1.285 | | | 1.771 | | | | 无异常值 | | | | 室间平均 | | | | 0.0616 | | | 0.0611 | | | 0.0625 | | | 0.0571 | | | 0.0608 | | | 0.0617 | | | | 0.0608 | | |  | | |  | | |  | | |  | | | 0.061 | | 0.0017 | | 2.83 | | | 2.134 | | | 0.979 | | | | 歧离(Xmin) | | | | 柯克伦检验： | | | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=00.431 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.4.2各实验室水平17实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | | 1 | | | 2 | | | 3 | | | 4 | | | 5 | | | 6 | | | | 7 | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | | X(Min,Max)离群检验 | | | | 1 | | | | 0.433 | | | 0.445 | | | 0.434 | | | 0.432 | | | 0.421 | | | 0.428 | | | | 0.423 | | | 0.424 | | | 0.424 | | | 0.434 | | | 0.431 | | | 0.430 | | 0.0069 | | 1.61 | | | 1.290 | | | 2.185 | | | | 无异常值 | | | | 2 | | | | 0.411 | | | 0.428 | | | 0.429 | | | 0.413 | | | 0.425 | | | 0.419 | | | | 0.424 | | | 0.409 | | | 0.424 | | | 0.419 | | | 0.411 | | | 0.419 | | 0.0073 | | 1.74 | | | 1.411 | | | 1.336 | | | | 无异常值 | | | | 3 | | | | 0.442 | | | 0.438 | | | 0.441 | | | 0.433 | | | 0.425 | | | 0.436 | | | | 0.422 | | | 0.437 | | | 0.431 | | | 0.429 | | | 0.432 | | | 0.433 | | 0.0063 | | 1.46 | | | 1.782 | | | 1.380 | | | | 无异常值 | | | | 4 | | | | 0.397 | | | 0.411 | | | 0.404 | | | 0.417 | | | 0.411 | | | 0.417 | | | | 0.424 | | | 0.414 | | | 0.42 | | | 0.417 | | | 0.404 | | | 0.412 | | 0.0080 | | 1.94 | | | 1.920 | | | 1.454 | | | | 无异常值 | | | | 5 | | | | 0.429 | | | 0.449 | | | 0.431 | | | 0.433 | | | 0.431 | | | 0.423 | | | | 0.43 | | | 0.432 | | | 0.45 | | | 0.446 | | | 0.432 | | | 0.435 | | 0.0089 | | 2.06 | | | 1.351 | | | 1.666 | | | | 无异常值 | | | | 8 | | | | 0.431 | | | 0.428 | | | 0.436 | | | 0.427 | | | 0.435 | | | 0.436 | | | | 0.435 | | | 0.436 | | | 0.431 | | | 0.432 | | | 0.436 | | | 0.433 | | 0.0034 | | 0.78 | | | 1.777 | | | 0.889 | | | | 无异常值 | | | | 10 | | | | 0.428 | | | 0.441 | | | 0.442 | | | 0.437 | | | 0.433 | | | 0.445 | | | | 0.451 | | | 0.456 | | | 0.438 | | | 0.445 | | | 0.442 | | | 0.442 | | 0.0078 | | 1.77 | | | 1.742 | | | 1.835 | | | | 无异常值 | | | | 室间平均 | | | | 0.430 | | | 0.419 | | | 0.433 | | | 0.412 | | | 0.435 | | | 0.433 | | | | 0.442 | | |  | | |  | | |  | | |  | | | 0.429 | | 0.0100 | | 2.34 | | | 1.682 | | | 1.239 | | | | 无异常值 | | | | 柯克伦检验： | | | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=00.224 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 表B.2.4.3各实验室水平18实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 单位名称 | | | | 1 | | | 2 | | | 3 | | | 4 | | | 5 | | | 6 | | | | 7 | | | 8 | | | 9 | | | 10 | | | 11 | | | 平均值 | | SD | | RSD,% | | | G1值 | | | Gn值 | | | | X(Min,Max)离群检验 | | | | 1 | | | | 1.596 | | | 1.605 | | | 1.608 | | | 1.605 | | | 1.608 | | | 1.585 | | | | 1.597 | | | 1.597 | | | 1.584 | | | 1.595 | | | 1.632 | | | 1.601 | | 0.0131 | | 0.82 | | | 1.300 | | | 2.351 | | | | 无异常值 | | | | 2 | | | | 1.605 | | | 1.601 | | | 1.598 | | | 1.592 | | | 1.598 | | | 1.601 | | | | 1.612 | | | 1.594 | | | 1.588 | | | 1.599 | | | 1.601 | | | 1.599 | | 0.0064 | | 0.40 | | | 1.710 | | | 2.020 | | | | 无异常值 | | | | 3 | | | | 1.596 | | | 1.625 | | | 1.633 | | | 1.617 | | | 1.597 | | | 1.583 | | | | 1.624 | | | 1.631 | | | 1.607 | | | 1.595 | | | 1.592 | | | 1.609 | | 0.0176 | | 1.09 | | | 1.486 | | | 1.362 | | | | 无异常值 | | | | 4 | | | | 1.559 | | | 1.589 | | | 1.573 | | | 1.559 | | | 1.596 | | | 1.573 | | | | 1.563 | | | 1.576 | | | 1.579 | | | 1.586 | | | 1.606 | | | 1.578 | | 0.0151 | | 0.96 | | | 1.260 | | | 1.842 | | | | 无异常值 | | | | 5 | | | | 1.598 | | | 1.605 | | | 1.591 | | | 1.601 | | | 1.591 | | | 1.595 | | | | 1.599 | | | 1.61 | | | 1.62 | | | 1.589 | | | 1.607 | | | 1.601 | | 0.0094 | | 0.59 | | | 1.227 | | | 2.068 | | | | 无异常值 | | | | 8 | | | | 1.599 | | | 1.598 | | | 1.602 | | | 1.605 | | | 1.588 | | | 1.612 | | | | 1.597 | | | 1.598 | | | 1.599 | | | 1.588 | | | 1.626 | | | 1.601 | | 0.0107 | | 0.67 | | | 1.225 | | | 2.330 | | | | 无异常值 | | | | 10 | | | | 1.591 | | | 1.612 | | | 1.609 | | | 1.622 | | | 1.608 | | | 1.611 | | | | 1.623 | | | 1.601 | | | 1.623 | | | 1.599 | | | 1.625 | | | 1.611 | | 0.0112 | | 0.70 | | | 1.804 | | | 1.222 | | | | 无异常值 | | | | 室间平均 | | | | 1.601 | | | 1.599 | | | 1.609 | | | 1.578 | | | 1.601 | | | 1.601 | | | | 1.611 | | |  | | |  | | |  | | |  | | | 1.600 | | 0.0108 | | 0.67 | | | 2.040 | | | 1.046 | | | | 歧离(Xmin) | | | | 柯克伦检验： | | | | | | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.2852 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | B.2.5 钕含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 表B.2.5.1各实验室水平16实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.0456 | 0.0446 | 0.0462 | 0.0449 | 0.0449 | 0.0446 | 0.0485 | 0.0437 | 0.0463 | 0.0485 | 0.0453 | 0.0457 | 0.0016 | 3.40 | 1.311 | 1.779 | 无异常值 | | 2 | 0.044 | 0.0438 | 0.0435 | 0.0445 | 0.0449 | 0.0429 | 0.044 | 0.0435 | 0.0433 | 0.0445 | 0.0431 | 0.0438 | 0.0006 | 1.44 | 1.452 | 1.711 | 无异常值 | | 3 | 0.0456 | 0.0446 | 0.0462 | 0.0449 | 0.0449 | 0.0446 | 0.0475 | 0.0437 | 0.0463 | 0.0475 | 0.0453 | 0.0456 | 0.0012 | 2.66 | 1.528 | 1.603 | 无异常值 | | 4 | 0.0343 | 0.0336 | 0.0337 | 0.0312 | 0.0329 | 0.0302 | 0.0346 | 0.0322 | 0.0329 | 0.0322 | 0.0322 | 0.0327 | 0.0013 | 4.02 | 1.921 | 1.424 | 无异常值 | | 5 | 0.0445 | 0.0461 | 0.0452 | 0.045 | 0.0466 | 0.0462 | 0.0457 | 0.0476 | 0.046 | 0.0455 | 0.0454 | 0.0458 | 0.0008 | 1.84 | 1.541 | 2.133 | 无异常值 | | 8 | 0.046 | 0.0458 | 0.047 | 0.0482 | 0.0458 | 0.0457 | 0.0482 | 0.0465 | 0.0435 | 0.0466 | 0.0452 | 0.0462 | 0.0013 | 2.88 | 2.045 | 1.479 | 无异常值 | | 10 | 0.0449 | 0.0437 | 0.0469 | 0.0457 | 0.0438 | 0.0439 | 0.0469 | 0.0441 | 0.0472 | 0.0456 | 0.0457 | 0.0453 | 0.0013 | 2.92 | 1.216 | 1.429 | 无异常值 | | 室间平均 | 0.0457 | 0.0438 | 0.0456 | 0.0327 | 0.0458 | 0.0462 | 0.0453 |  |  |  |  | 0.044 | 0.0049 | 11.13 | 2.240 | 0.542 | 离群(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.2354 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |  | | 表B.2.5.2各实验室水平17实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.416 | 0.415 | 0.416 | 0.415 | 0.415 | 0.415 | 0.395 | 0.397 | 0.412 | 0.417 | 0.422 | 0.412 | 0.0084 | 2.04 | 2.055 | 1.158 | 无异常值 | | 2 | 0.412 | 0.413 | 0.398 | 0.405 | 0.408 | 0.401 | 0.395 | 0.397 | 0.412 | 0.417 | 0.402 | 0.405 | 0.0074 | 1.83 | 1.409 | 1.556 | 无异常值 | | 3 | 0.418 | 0.413 | 0.415 | 0.411 | 0.399 | 0.411 | 0.41 | 0.415 | 0.416 | 0.418 | 0.421 | 0.413 | 0.0059 | 1.42 | 2.454 | 1.305 | 歧离(Xmin) | | 4 | 0.422 | 0.418 | 0.415 | 0.425 | 0.442 | 0.432 | 0.408 | 0.418 | 0.415 | 0.418 | 0.415 | 0.421 | 0.0094 | 2.23 | 1.355 | 2.265 | 无异常值 | | 5 | 0.405 | 0.406 | 0.41 | 0.414 | 0.409 | 0.412 | 0.406 | 0.405 | 0.41 | 0.415 | 0.408 | 0.409 | 0.0035 | 0.86 | 1.167 | 1.685 | 无异常值 | | 8 | 0.417 | 0.418 | 0.418 | 0.421 | 0.422 | 0.419 | 0.416 | 0.425 | 0.431 | 0.429 | 0.418 | 0.421 | 0.0050 | 1.19 | 1.050 | 1.937 | 无异常值 | | 10 | 0.421 | 0.432 | 0.431 | 0.429 | 0.422 | 0.419 | 0.418 | 0.425 | 0.419 | 0.429 | 0.422 | 0.424 | 0.0052 | 1.22 | 1.216 | 1.498 | 无异常值 | | 室间平均 | 0.412 | 0.405 | 0.413 | 0.421 | 0.409 | 0.421 | 0.424 |  |  |  |  | 0.415 | 0.0070 | 1.69 | 1.393 | 1.295 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.2825 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |  | | 表B.2.5.3各实验室水平18实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 1.609 | 1.609 | 1.61 | 1.609 | 1.609 | 1.609 | 1.625 | 1.608 | 1.634 | 1.636 | 1.604 | 1.615 | 0.0113 | 0.70 | 0.950 | 1.883 | 无异常值 | | 2 | 1.609 | 1.595 | 1.598 | 1.601 | 1.605 | 1.593 | 1.599 | 1.601 | 1.611 | 1.597 | 1.604 | 1.601 | 0.0056 | 0.35 | 1.452 | 1.742 | 无异常值 | | 3 | 1.602 | 1.623 | 1.617 | 1.622 | 1.608 | 1.615 | 1.619 | 1.62 | 1.637 | 1.628 | 1.604 | 1.618 | 0.0103 | 0.64 | 1.522 | 1.865 | 无异常值 | | 4 | 1.547 | 1.567 | 1.564 | 1.581 | 1.598 | 1.55 | 1.536 | 1.54 | 1.547 | 1.55 | 1.547 | 1.557 | 0.0188 | 1.21 | 1.117 | 2.181 | 无异常值 | | 5 | 1.602 | 1.595 | 1.614 | 1.605 | 1.618 | 1.625 | 1.628 | 1.614 | 1.626 | 1.601 | 1.612 | 1.613 | 0.0110 | 0.68 | 1.606 | 1.384 | 无异常值 | | 8 | 1.612 | 1.613 | 1.615 | 1.614 | 1.625 | 1.618 | 1.636 | 1.628 | 1.618 | 1.634 | 1.636 | 1.623 | 0.0095 | 0.59 | 1.120 | 1.407 | 无异常值 | | 10 | 1.611 | 1.621 | 1.611 | 1.632 | 1.609 | 1.622 | 1.618 | 1.607 | 1.622 | 1.607 | 1.611 | 1.616 | 0.0080 | 0.50 | 1.068 | 2.056 | 无异常值 | | 室间平均 | 1.615 | 1.601 | 1.618 | 1.557 | 1.613 | 1.623 | 1.616 |  |  |  |  | 1.606 | 0.0226 | 1.40 | 2.170 | 0.741 | 离群(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.3945 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | B.2.6 钐含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 表B.2.6.1各实验室水平16实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.0413 | 0.0415 | 0.0415 | 0.0414 | 0.0419 | 0.0412 | 0.0428 | 0.0432 | 0.0456 | 0.0445 | 0.0432 | 0.0426 | 0.0015 | 3.43 | 0.927 | 2.084 | 无异常值 | | 2 | 0.0418 | 0.0409 | 0.0412 | 0.0424 | 0.041 | 0.0408 | 0.0418 | 0.0413 | 0.0421 | 0.0425 | 0.0422 | 0.0416 | 0.0006 | 1.49 | 1.345 | 1.389 | 无异常值 | | 3 | 0.0421 | 0.0411 | 0.0409 | 0.0425 | 0.0417 | 0.0427 | 0.0396 | 0.0422 | 0.0418 | 0.0412 | 0.0396 | 0.0414 | 0.0011 | 2.55 | 1.705 | 1.232 | 无异常值 | | 4 | 0.0428 | 0.039 | 0.0417 | 0.0376 | 0.0421 | 0.0435 | 0.0404 | 0.0421 | 0.0428 | 0.0421 | 0.0435 | 0.0416 | 0.0019 | 4.50 | 2.136 | 1.015 | 无异常值 | | 5 | 0.0411 | 0.0412 | 0.0416 | 0.0415 | 0.0417 | 0.0417 | 0.0413 | 0.0406 | 0.0411 | 0.0418 | 0.0411 | 0.0413 | 0.0004 | 0.87 | 2.038 | 1.283 | 无异常值 | | 8 | 0.042 | 0.0425 | 0.043 | 0.0424 | 0.0428 | 0.0422 | 0.0436 | 0.0444 | 0.0454 | 0.0442 | 0.0442 | 0.0433 | 0.0011 | 2.53 | 1.220 | 1.883 | 无异常值 | | 10 | 0.041 | 0.0425 | 0.0411 | 0.0407 | 0.0411 | 0.0423 | 0.0416 | 0.0422 | 0.0429 | 0.0431 | 0.0417 | 0.0418 | 0.0008 | 1.95 | 1.392 | 1.548 | 无异常值 | | 室间平均 | 0.0426 | 0.0416 | 0.0414 | 0.0416 | 0.0413 | 0.0433 | 0.0418 |  |  |  |  | 0.042 | 0.0007 | 1.74 | 0.850 | 1.889 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.3836 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | |  | | 表B.2.6.2各实验室水平17实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.391 | 0.395 | 0.392 | 0.396 | 0.392 | 0.392 | 0.375 | 0.378 | 0.382 | 0.402 | 0.401 | 0.391 | 0.0088 | 2.24 | 1.773 | 1.306 | 无异常值 | | 2 | 0.4 | 0.398 | 0.389 | 0.412 | 0.404 | 0.411 | 0.408 | 0.398 | 0.387 | 0.402 | 0.395 | 0.400 | 0.0082 | 2.05 | 1.632 | 1.421 | 无异常值 | | 3 | 0.393 | 0.393 | 0.395 | 0.397 | 0.395 | 0.392 | 0.387 | 0.387 | 0.379 | 0.401 | 0.401 | 0.393 | 0.0065 | 1.65 | 2.118 | 1.276 | 无异常值 | | 4 | 0.411 | 0.417 | 0.4 | 0.404 | 0.397 | 0.404 | 0.421 | 0.414 | 0.411 | 0.397 | 0.407 | 0.408 | 0.0080 | 1.96 | 1.317 | 1.681 | 无异常值 | | 5 | 0.383 | 0.387 | 0.375 | 0.376 | 0.379 | 0.379 | 0.38 | 0.376 | 0.384 | 0.388 | 0.379 | 0.381 | 0.0044 | 1.16 | 1.257 | 1.689 | 无异常值 | | 8 | 0.405 | 0.405 | 0.406 | 0.403 | 0.402 | 0.398 | 0.395 | 0.402 | 0.408 | 0.396 | 0.394 | 0.401 | 0.0048 | 1.20 | 1.516 | 1.402 | 无异常值 | | 10 | 0.401 | 0.398 | 0.396 | 0.401 | 0.395 | 0.391 | 0.388 | 0.399 | 0.391 | 0.398 | 0.387 | 0.395 | 0.0050 | 1.27 | 1.594 | 1.195 | 无异常值 | | 室间平均 | 0.391 | 0.400 | 0.393 | 0.408 | 0.381 | 0.401 | 0.395 |  |  |  |  | 0.395 | 0.0087 | 2.21 | 1.703 | 1.387 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=00.242 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | | 表B.2.6.3各实验室水平18实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 1.572 | 1.575 | 1.586 | 1.588 | 1.572 | 1.588 | 1.588 | 1.59 | 1.591 | 1.595 | 1.598 | 1.586 | 0.0089 | 0.56 | 1.544 | 1.381 | 无异常值 | | 2 | 1.599 | 1.585 | 1.602 | 1.593 | 1.605 | 1.6 | 1.591 | 1.596 | 1.591 | 1.605 | 1.598 | 1.597 | 0.0063 | 0.40 | 1.869 | 1.294 | 无异常值 | | 3 | 1.589 | 1.593 | 1.578 | 1.584 | 1.581 | 1.59 | 1.587 | 1.578 | 1.591 | 1.596 | 1.588 | 1.587 | 0.0059 | 0.37 | 1.483 | 1.544 | 无异常值 | | 4 | 1.528 | 1.539 | 1.528 | 1.57 | 1.521 | 1.525 | 1.521 | 1.521 | 1.525 | 1.528 | 1.532 | 1.531 | 0.0141 | 0.92 | 0.691 | 2.788 | 离群(Xmax) | | 5 | 1.56 | 1.582 | 1.575 | 1.573 | 1.573 | 1.587 | 1.588 | 1.595 | 1.594 | 1.562 | 1.595 | 1.580 | 0.0127 | 0.80 | 1.606 | 1.154 | 无异常值 | | 8 | 1.582 | 1.585 | 1.586 | 1.589 | 1.582 | 1.599 | 1.592 | 1.592 | 1.592 | 1.602 | 1.602 | 1.591 | 0.0073 | 0.46 | 1.255 | 1.478 | 无异常值 | | 10 | 1.591 | 1.588 | 1.579 | 1.592 | 1.581 | 1.579 | 1.592 | 1.584 | 1.583 | 1.591 | 1.588 | 1.586 | 0.0052 | 0.32 | 1.393 | 1.129 | 无异常值 | | 室间平均 | 1.586 | 1.597 | 1.587 | 1.531 | 1.580 | 1.591 | 1.586 |  |  |  |  | 1.580 | 0.0222 | 1.40 | 2.207 | 0.772 | 离群(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.3342 柯克伦检验结论：实验室4为歧离值 | | | | | | | | | | | | | | | |  | |  | | | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | B.2.7 铕含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 表B.2.7.1各实验室水平16实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.0413 | 0.0415 | 0.0415 | 0.0414 | 0.0419 | 0.0412 | 0.0428 | 0.0432 | 0.0456 | 0.0445 | 0.0432 | 0.0426 | 0.0015 | 3.43 | 0.927 | 2.084 | 无异常值 | | 2 | 0.0418 | 0.0409 | 0.0412 | 0.0424 | 0.041 | 0.0408 | 0.0418 | 0.0413 | 0.0421 | 0.0425 | 0.0422 | 0.0416 | 0.0006 | 1.49 | 1.345 | 1.389 | 无异常值 | | 3 | 0.0421 | 0.0411 | 0.0409 | 0.0425 | 0.0417 | 0.0427 | 0.0396 | 0.0422 | 0.0418 | 0.0412 | 0.0396 | 0.0414 | 0.0011 | 2.55 | 1.705 | 1.232 | 无异常值 | | 4 | 0.0428 | 0.039 | 0.0417 | 0.0376 | 0.0421 | 0.0435 | 0.0404 | 0.0421 | 0.0428 | 0.0421 | 0.0435 | 0.0416 | 0.0019 | 4.50 | 2.136 | 1.015 | 无异常值 | | 5 | 0.0411 | 0.0412 | 0.0416 | 0.0415 | 0.0417 | 0.0417 | 0.0413 | 0.0406 | 0.0411 | 0.0418 | 0.0411 | 0.0413 | 0.0004 | 0.87 | 2.038 | 1.283 | 无异常值 | | 8 | 0.04 | 0.0401 | 0.041 | 0.0415 | 0.0425 | 0.0431 | 0.0421 | 0.0425 | 0.0418 | 0.0426 | 0.0428 | 0.0418 | 0.0011 | 2.54 | 1.714 | 1.208 | 无异常值 | | 10 | 0.0403 | 0.0401 | 0.0407 | 0.0413 | 0.0414 | 0.0417 | 0.0406 | 0.0421 | 0.0415 | 0.0417 | 0.0409 | 0.0411 | 0.0006 | 1.56 | 1.591 | 1.534 | 无异常值 | | 室间平均 | 0.0426 | 0.0416 | 0.0414 | 0.0416 | 0.0413 | 0.0418 | 0.0411 |  |  |  |  | 0.042 | 0.0005 | 1.11 | 1.120 | 1.976 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.3981 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | | | 表B.2.7.2各实验室水平17实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.402 | 0.401 | 0.405 | 0.412 | 0.385 | 0.395 | 0.388 | 0.402 | 0.404 | 0.412 | 0.404 | 0.401 | 0.0086 | 2.14 | 1.851 | 1.290 | 无异常值 | | 2 | 0.397 | 0.401 | 0.405 | 0.395 | 0.399 | 0.395 | 0.401 | 0.402 | 0.404 | 0.395 | 0.404 | 0.400 | 0.0038 | 0.96 | 1.254 | 1.349 | 无异常值 | | 3 | 0.392 | 0.417 | 0.401 | 0.385 | 0.399 | 0.408 | 0.411 | 0.406 | 0.403 | 0.408 | 0.394 | 0.402 | 0.0093 | 2.30 | 1.855 | 1.600 | 无异常值 | | 4 | 0.373 | 0.401 | 0.377 | 0.377 | 0.383 | 0.387 | 0.383 | 0.383 | 0.404 | 0.401 | 0.383 | 0.387 | 0.0107 | 2.76 | 1.269 | 1.636 | 无异常值 | | 5 | 0.388 | 0.394 | 0.385 | 0.387 | 0.383 | 0.381 | 0.384 | 0.383 | 0.387 | 0.391 | 0.391 | 0.387 | 0.0040 | 1.04 | 1.422 | 1.806 | 无异常值 | | 8 | 0.408 | 0.406 | 0.407 | 0.412 | 0.415 | 0.418 | 0.421 | 0.411 | 0.419 | 0.418 | 0.417 | 0.414 | 0.0053 | 1.27 | 1.484 | 1.363 | 无异常值 | | 10 | 0.403 | 0.407 | 0.391 | 0.409 | 0.397 | 0.407 | 0.409 | 0.401 | 0.401 | 0.398 | 0.411 | 0.403 | 0.0062 | 1.53 | 1.959 | 1.281 | 无异常值 | | 室间平均 | 0.401 | 0.400 | 0.402 | 0.387 | 0.387 | 0.414 | 0.403 |  |  |  |  | 0.399 | 0.0096 | 2.41 | 1.295 | 1.537 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.3075 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | | 表B.2.7.3各实验室水平18实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 1.605 | 1.595 | 1.604 | 1.608 | 1.595 | 1.595 | 1.585 | 1.589 | 1.604 | 1.584 | 1.598 | 1.597 | 0.0082 | 0.51 | 1.532 | 1.399 | 无异常值 | | 2 | 1.595 | 1.595 | 1.587 | 1.605 | 1.603 | 1.612 | 1.593 | 1.598 | 1.605 | 1.612 | 1.598 | 1.600 | 0.0079 | 0.49 | 1.683 | 1.487 | 无异常值 | | 3 | 1.592 | 1.607 | 1.586 | 1.597 | 1.604 | 1.593 | 1.589 | 1.594 | 1.602 | 1.593 | 1.595 | 1.596 | 0.0064 | 0.40 | 1.508 | 1.778 | 无异常值 | | 4 | 1.523 | 1.548 | 1.53 | 1.537 | 1.523 | 1.541 | 1.523 | 1.53 | 1.527 | 1.582 | 1.534 | 1.536 | 0.0172 | 1.12 | 0.768 | 2.668 | 离群(Xmax) | | 5 | 1.591 | 1.601 | 1.6 | 1.6 | 1.593 | 1.603 | 1.608 | 1.616 | 1.603 | 1.605 | 1.602 | 1.602 | 0.0067 | 0.42 | 1.633 | 2.078 | 无异常值 | | 8 | 1.615 | 1.605 | 1.604 | 1.608 | 1.605 | 1.602 | 1.612 | 1.614 | 1.618 | 1.608 | 1.618 | 1.610 | 0.0058 | 0.36 | 1.375 | 1.407 | 无异常值 | | 10 | 1.601 | 1.611 | 1.597 | 1.589 | 1.604 | 1.607 | 1.596 | 1.591 | 1.603 | 1.609 | 1.593 | 1.600 | 0.0074 | 0.46 | 1.492 | 1.467 | 无异常值 | | 室间平均 | 1.597 | 1.600 | 1.596 | 1.536 | 1.602 | 1.610 | 1.600 |  |  |  |  | 1.592 | 0.0248 | 1.56 | 2.228 | 0.740 | 离群(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.4925 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | B.2.8 钆含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 表B.2.8.1各实验室水平16实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.0404 | 0.0404 | 0.0408 | 0.0408 | 0.0407 | 0.0411 | 0.0421 | 0.0398 | 0.0387 | 0.0431 | 0.0432 | 0.0410 | 0.0013 | 3.28 | 1.717 | 1.629 | 无异常值 | | 2 | 0.0409 | 0.0404 | 0.0408 | 0.0408 | 0.0407 | 0.0411 | 0.0401 | 0.0398 | 0.0401 | 0.0411 | 0.0399 | 0.0405 | 0.0005 | 1.18 | 1.505 | 1.219 | 无异常值 | | 3 | 0.0395 | 0.0421 | 0.0399 | 0.0414 | 0.0428 | 0.0426 | 0.0394 | 0.0419 | 0.0432 | 0.0411 | 0.0426 | 0.0415 | 0.0014 | 3.29 | 1.537 | 1.244 | 无异常值 | | 4 | 0.0472 | 0.0429 | 0.0444 | 0.0423 | 0.043 | 0.0403 | 0.0423 | 0.043 | 0.0392 | 0.0437 | 0.0413 | 0.0427 | 0.0021 | 4.95 | 1.652 | 2.134 | 无异常值 | | 5 | 0.0395 | 0.0397 | 0.0396 | 0.0399 | 0.0399 | 0.0397 | 0.0397 | 0.0394 | 0.0391 | 0.0395 | 0.0395 | 0.0396 | 0.0002 | 0.58 | 2.134 | 1.344 | 无异常值 | | 8 | 0.041 | 0.0414 | 0.042 | 0.0415 | 0.0416 | 0.0412 | 0.0425 | 0.0423 | 0.0422 | 0.0412 | 0.0425 | 0.0418 | 0.0006 | 1.33 | 1.379 | 1.330 | 无异常值 | | 10 | 0.0417 | 0.0411 | 0.0403 | 0.0415 | 0.0409 | 0.0404 | 0.0413 | 0.0411 | 0.0421 | 0.0429 | 0.0408 | 0.0413 | 0.0008 | 1.83 | 1.301 | 2.144 | 无异常值 | | 室间平均 | 0.0410 | 0.0405 | 0.0415 | 0.0427 | 0.0396 | 0.0418 | 0.0413 |  |  |  |  | 0.041 | 0.0010 | 2.37 | 1.640 | 1.533 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.4803 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | | | 表B.2.8.2各实验室水平17实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.405 | 0.404 | 0.401 | 0.388 | 0.396 | 0.403 | 0.415 | 0.404 | 0.407 | 0.412 | 0.382 | 0.402 | 0.0097 | 2.42 | 2.013 | 1.386 | 无异常值 | | 2 | 0.399 | 0.404 | 0.401 | 0.404 | 0.395 | 0.403 | 0.415 | 0.404 | 0.407 | 0.412 | 0.401 | 0.404 | 0.0056 | 1.40 | 1.610 | 1.932 | 无异常值 | | 3 | 0.402 | 0.402 | 0.401 | 0.385 | 0.392 | 0.406 | 0.405 | 0.401 | 0.401 | 0.408 | 0.392 | 0.400 | 0.0070 | 1.75 | 2.085 | 1.212 | 无异常值 | | 4 | 0.392 | 0.399 | 0.403 | 0.378 | 0.382 | 0.406 | 0.413 | 0.406 | 0.41 | 0.403 | 0.396 | 0.399 | 0.0111 | 2.79 | 1.882 | 1.268 | 无异常值 | | 5 | 0.392 | 0.411 | 0.401 | 0.403 | 0.405 | 0.401 | 0.394 | 0.395 | 0.401 | 0.401 | 0.4 | 0.400 | 0.0053 | 1.33 | 1.573 | 2.001 | 无异常值 | | 8 | 0.415 | 0.406 | 0.408 | 0.417 | 0.408 | 0.417 | 0.418 | 0.416 | 0.425 | 0.432 | 0.417 | 0.416 | 0.0076 | 1.82 | 1.358 | 2.079 | 无异常值 | | 10 | 0.409 | 0.412 | 0.401 | 0.417 | 0.396 | 0.391 | 0.411 | 0.389 | 0.415 | 0.393 | 0.402 | 0.403 | 0.0101 | 2.50 | 1.417 | 1.363 | 无异常值 | | 室间平均 | 0.402 | 0.404 | 0.400 | 0.399 | 0.400 | 0.416 | 0.403 |  |  |  |  | 0.403 | 0.0060 | 1.48 | 0.757 | 2.151 | 离群(Xmax) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.2545 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | |  | | 表B.2.8.3各实验室水平18实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 1.584 | 1.596 | 1.595 | 1.593 | 1.595 | 1.596 | 1.605 | 1.608 | 1.585 | 1.589 | 1.604 | 1.595 | 0.0078 | 0.49 | 1.466 | 1.605 | 无异常值 | | 2 | 1.601 | 1.596 | 1.601 | 1.599 | 1.595 | 1.596 | 1.6 | 1.589 | 1.605 | 1.601 | 1.604 | 1.599 | 0.0046 | 0.29 | 2.155 | 1.357 | 无异常值 | | 3 | 1.592 | 1.592 | 1.588 | 1.589 | 1.592 | 1.592 | 1.605 | 1.605 | 1.589 | 1.592 | 1.605 | 1.595 | 0.0068 | 0.43 | 0.974 | 1.521 | 无异常值 | | 4 | 1.524 | 1.551 | 1.548 | 1.565 | 1.583 | 1.534 | 1.555 | 1.524 | 1.53 | 1.534 | 1.53 | 1.543 | 0.0188 | 1.22 | 1.034 | 2.103 | 无异常值 | | 5 | 1.581 | 1.57 | 1.579 | 1.585 | 1.578 | 1.56 | 1.583 | 1.58 | 1.573 | 1.572 | 1.584 | 1.577 | 0.0075 | 0.47 | 2.252 | 1.096 | 无异常值 | | 8 | 1.594 | 1.598 | 1.603 | 1.612 | 1.605 | 1.597 | 1.596 | 1.604 | 1.608 | 1.623 | 1.622 | 1.606 | 0.0099 | 0.62 | 1.172 | 1.748 | 无异常值 | | 10 | 1.596 | 1.602 | 1.589 | 1.591 | 1.607 | 1.612 | 1.595 | 1.591 | 1.597 | 1.608 | 1.587 | 1.598 | 0.0084 | 0.53 | 1.277 | 1.698 | 无异常值 | | 室间平均 | 1.595 | 1.599 | 1.595 | 1.543 | 1.577 | 1.606 | 1.598 |  |  |  |  | 1.588 | 0.0213 | 1.34 | 2.065 | 0.850 | 歧离(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.5002 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | B.2.9 铽含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 表B.2.9.1各实验室水平16实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.0423 | 0.0433 | 0.044 | 0.0433 | 0.0432 | 0.0429 | 0.0404 | 0.0418 | 0.0425 | 0.0404 | 0.0408 | 0.0423 | 0.0013 | 2.97 | 1.482 | 1.381 | 无异常值 | | 2 | 0.0395 | 0.0398 | 0.0397 | 0.0414 | 0.0404 | 0.0418 | 0.0404 | 0.0407 | 0.0412 | 0.0404 | 0.0408 | 0.0406 | 0.0007 | 1.79 | 1.456 | 1.719 | 无异常值 | | 3 | 0.0413 | 0.0413 | 0.0433 | 0.0432 | 0.0432 | 0.0418 | 0.0415 | 0.0418 | 0.0415 | 0.0413 | 0.0405 | 0.0419 | 0.0009 | 2.23 | 1.480 | 1.519 | 无异常值 | | 4 | 0.0394 | 0.0415 | 0.0442 | 0.0411 | 0.0405 | 0.0391 | 0.0415 | 0.0418 | 0.0432 | 0.0394 | 0.0422 | 0.0413 | 0.0016 | 3.90 | 1.345 | 1.825 | 无异常值 | | 5 | 0.0425 | 0.0423 | 0.0424 | 0.0428 | 0.0425 | 0.0425 | 0.0421 | 0.0425 | 0.0423 | 0.0426 | 0.0427 | 0.0425 | 0.0002 | 0.46 | 1.907 | 1.675 | 无异常值 | | 8 | 0.044 | 0.0432 | 0.043 | 0.0431 | 0.0433 | 0.0428 | 0.0425 | 0.0418 | 0.0416 | 0.0418 | 0.0417 | 0.0426 | 0.0008 | 1.87 | 1.277 | 1.733 | 无异常值 | | 10 | 0.0418 | 0.0422 | 0.0412 | 0.0428 | 0.0435 | 0.0415 | 0.0424 | 0.0419 | 0.0411 | 0.0432 | 0.0417 | 0.0421 | 0.0008 | 1.87 | 1.291 | 1.753 | 无异常值 | | 室间平均 | 0.0423 | 0.0406 | 0.0419 | 0.0413 | 0.0425 | 0.0426 | 0.0421 |  |  |  |  | 0.042 | 0.0007 | 1.75 | 1.807 | 1.003 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.3773 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | |  | | 表B.2.9.2各实验室水平17实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.393 | 0.394 | 0.394 | 0.394 | 0.393 | 0.393 | 0.399 | 0.388 | 0.402 | 0.391 | 0.398 | 0.394 | 0.0039 | 0.98 | 1.663 | 1.944 | 无异常值 | | 2 | 0.398 | 0.397 | 0.398 | 0.401 | 0.405 | 0.404 | 0.399 | 0.391 | 0.402 | 0.391 | 0.401 | 0.399 | 0.0046 | 1.15 | 1.699 | 1.344 | 无异常值 | | 3 | 0.385 | 0.397 | 0.391 | 0.402 | 0.405 | 0.399 | 0.389 | 0.401 | 0.402 | 0.396 | 0.398 | 0.397 | 0.0062 | 1.55 | 1.918 | 1.328 | 无异常值 | | 4 | 0.367 | 0.371 | 0.377 | 0.381 | 0.394 | 0.377 | 0.364 | 0.371 | 0.367 | 0.377 | 0.377 | 0.375 | 0.0083 | 2.22 | 1.299 | 2.303 | 无异常值 | | 5 | 0.39 | 0.398 | 0.395 | 0.399 | 0.391 | 0.397 | 0.391 | 0.386 | 0.398 | 0.398 | 0.4 | 0.395 | 0.0046 | 1.16 | 1.926 | 1.132 | 无异常值 | | 8 | 0.396 | 0.395 | 0.398 | 0.395 | 0.394 | 0.396 | 0.398 | 0.401 | 0.395 | 0.398 | 0.402 | 0.397 | 0.0026 | 0.65 | 1.195 | 1.898 | 无异常值 | | 10 | 0.403 | 0.391 | 0.402 | 0.389 | 0.401 | 0.398 | 0.391 | 0.395 | 0.402 | 0.399 | 0.407 | 0.398 | 0.0058 | 1.46 | 1.553 | 1.553 | 无异常值 | | 室间平均 | 0.394 | 0.399 | 0.397 | 0.375 | 0.395 | 0.397 | 0.398 |  |  |  |  | 0.394 | 0.0084 | 2.14 | 2.228 | 0.627 | 离群(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.3387 柯克伦检验结论：实验室4为歧离值 | | | | | | | | | | | | | | | | | 表B.2.9.3各实验室水平18实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 1.597 | 1.597 | 1.584 | 1.596 | 1.597 | 1.597 | 1.608 | 1.595 | 1.605 | 1.608 | 1.585 | 1.597 | 0.0079 | 0.49 | 1.669 | 1.370 | 无异常值 | | 2 | 1.595 | 1.602 | 1.605 | 1.596 | 1.597 | 1.597 | 1.601 | 1.597 | 1.605 | 1.594 | 1.605 | 1.599 | 0.0043 | 0.27 | 1.283 | 1.304 | 无异常值 | | 3 | 1.582 | 1.593 | 1.589 | 1.602 | 1.594 | 1.598 | 1.609 | 1.604 | 1.607 | 1.599 | 1.601 | 1.598 | 0.0080 | 0.50 | 1.997 | 1.373 | 无异常值 | | 4 | 1.547 | 1.479 | 1.524 | 1.507 | 1.537 | 1.558 | 1.51 | 1.527 | 1.524 | 1.541 | 1.513 | 1.524 | 0.0219 | 1.43 | 2.070 | 1.542 | 无异常值 | | 5 | 1.6 | 1.616 | 1.611 | 1.593 | 1.61 | 1.604 | 1.616 | 1.608 | 1.61 | 1.6 | 1.609 | 1.607 | 0.0071 | 0.44 | 1.972 | 1.268 | 无异常值 | | 8 | 1.598 | 1.598 | 1.602 | 1.605 | 1.603 | 1.598 | 1.596 | 1.594 | 1.592 | 1.596 | 1.601 | 1.598 | 0.0040 | 0.25 | 1.630 | 1.653 | 无异常值 | | 10 | 1.596 | 1.589 | 1.601 | 1.592 | 1.597 | 1.607 | 1.591 | 1.587 | 1.606 | 1.601 | 1.589 | 1.596 | 0.0070 | 0.44 | 1.283 | 1.568 | 无异常值 | | 室间平均 | 1.597 | 1.599 | 1.598 | 1.524 | 1.607 | 1.598 | 1.596 |  |  |  |  | 1.589 | 0.0286 | 1.80 | 2.250 | 0.643 | 离群(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.6479 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | B.2.10 镝含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 表B.2.10.1各实验室水平16实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.0407 | 0.0406 | 0.0418 | 0.0425 | 0.0404 | 0.0405 | 0.0428 | 0.0436 | 0.0441 | 0.0414 | 0.0425 | 0.0419 | 0.0013 | 3.10 | 1.155 | 1.694 | 无异常值 | | 2 | 0.041 | 0.0406 | 0.0411 | 0.0395 | 0.0404 | 0.0405 | 0.0398 | 0.0421 | 0.0395 | 0.0401 | 0.0414 | 0.0405 | 0.0008 | 2.01 | 1.284 | 1.910 | 无异常值 | | 3 | 0.0409 | 0.0418 | 0.0421 | 0.0428 | 0.0425 | 0.0417 | 0.0432 | 0.0415 | 0.0416 | 0.0428 | 0.0417 | 0.0421 | 0.0007 | 1.65 | 1.669 | 1.656 | 无异常值 | | 4 | 0.038 | 0.039 | 0.0422 | 0.0399 | 0.0394 | 0.0415 | 0.038 | 0.0401 | 0.0411 | 0.0432 | 0.0432 | 0.0405 | 0.0019 | 4.64 | 1.335 | 1.432 | 无异常值 | | 5 | 0.0415 | 0.0415 | 0.0412 | 0.0413 | 0.0412 | 0.0411 | 0.0412 | 0.0416 | 0.0416 | 0.0413 | 0.0415 | 0.0414 | 0.0002 | 0.44 | 1.461 | 1.310 | 无异常值 | | 8 | 0.042 | 0.0416 | 0.042 | 0.0425 | 0.0414 | 0.0415 | 0.0428 | 0.0436 | 0.0431 | 0.0416 | 0.0428 | 0.0423 | 0.0007 | 1.75 | 1.168 | 1.808 | 无异常值 | | 10 | 0.0414 | 0.0422 | 0.0417 | 0.0411 | 0.0413 | 0.0409 | 0.0416 | 0.0409 | 0.0417 | 0.0421 | 0.0425 | 0.0416 | 0.0005 | 1.27 | 1.289 | 1.736 | 无异常值 | | 室间平均 | 0.0419 | 0.0405 | 0.0421 | 0.0405 | 0.0414 | 0.0423 | 0.0416 |  |  |  |  | 0.041 | 0.0007 | 1.69 | 1.354 | 1.145 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.4892 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | | | 表B.2.10.2各实验室水平17实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.412 | 0.413 | 0.401 | 0.401 | 0.404 | 0.401 | 0.404 | 0.404 | 0.403 | 0.395 | 0.394 | 0.403 | 0.0058 | 1.45 | 1.526 | 1.728 | 无异常值 | | 2 | 0.405 | 0.413 | 0.401 | 0.401 | 0.404 | 0.407 | 0.411 | 0.404 | 0.398 | 0.403 | 0.411 | 0.405 | 0.0048 | 1.17 | 1.529 | 1.625 | 无异常值 | | 3 | 0.397 | 0.405 | 0.414 | 0.408 | 0.401 | 0.416 | 0.409 | 0.405 | 0.402 | 0.397 | 0.411 | 0.406 | 0.0064 | 1.57 | 1.397 | 1.582 | 无异常值 | | 4 | 0.383 | 0.401 | 0.408 | 0.411 | 0.404 | 0.411 | 0.408 | 0.404 | 0.404 | 0.39 | 0.415 | 0.404 | 0.0095 | 2.34 | 2.172 | 1.211 | 无异常值 | | 5 | 0.411 | 0.42 | 0.413 | 0.413 | 0.414 | 0.41 | 0.408 | 0.402 | 0.405 | 0.405 | 0.417 | 0.411 | 0.0054 | 1.33 | 1.604 | 1.704 | 无异常值 | | 8 | 0.421 | 0.413 | 0.411 | 0.412 | 0.406 | 0.421 | 0.413 | 0.405 | 0.422 | 0.415 | 0.416 | 0.414 | 0.0057 | 1.38 | 1.590 | 1.383 | 无异常值 | | 10 | 0.409 | 0.411 | 0.398 | 0.402 | 0.397 | 0.411 | 0.395 | 0.407 | 0.403 | 0.396 | 0.401 | 0.403 | 0.0060 | 1.49 | 1.291 | 1.382 | 无异常值 | | 室间平均 | 0.403 | 0.405 | 0.406 | 0.404 | 0.411 | 0.414 | 0.403 |  |  |  |  | 0.406 | 0.0043 | 1.07 | 0.858 | 1.758 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.3139 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | | 表B.2.10.3各实验室水平18实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 1.632 | 1.595 | 1.608 | 1.617 | 1.595 | 1.632 | 1.615 | 1.605 | 1.608 | 1.595 | 1.638 | 1.613 | 0.0157 | 0.97 | 1.132 | 1.614 | 无异常值 | | 2 | 1.599 | 1.595 | 1.608 | 1.611 | 1.598 | 1.612 | 1.615 | 1.605 | 1.595 | 1.608 | 1.595 | 1.604 | 0.0076 | 0.47 | 1.156 | 1.493 | 无异常值 | | 3 | 1.592 | 1.607 | 1.638 | 1.624 | 1.598 | 1.612 | 1.606 | 1.625 | 1.615 | 1.612 | 1.627 | 1.614 | 0.0135 | 0.84 | 1.641 | 1.762 | 无异常值 | | 4 | 1.575 | 1.561 | 1.565 | 1.572 | 1.575 | 1.572 | 1.593 | 1.589 | 1.607 | 1.589 | 1.586 | 1.580 | 0.0136 | 0.86 | 1.420 | 1.954 | 无异常值 | | 5 | 1.594 | 1.619 | 1.582 | 1.599 | 1.601 | 1.593 | 1.61 | 1.61 | 1.588 | 1.597 | 1.6 | 1.599 | 0.0106 | 0.66 | 1.640 | 1.855 | 无异常值 | | 8 | 1.632 | 1.631 | 1.612 | 1.608 | 1.622 | 1.615 | 1.609 | 1.615 | 1.614 | 1.632 | 1.627 | 1.620 | 0.0094 | 0.58 | 1.253 | 1.311 | 无异常值 | | 10 | 1.622 | 1.617 | 1.608 | 1.611 | 1.598 | 1.629 | 1.602 | 1.597 | 1.605 | 1.611 | 1.604 | 1.609 | 0.0100 | 0.62 | 1.249 | 1.960 | 无异常值 | | 室间平均 | 1.613 | 1.604 | 1.614 | 1.580 | 1.599 | 1.620 | 1.609 |  |  |  |  | 1.606 | 0.0130 | 0.81 | 1.941 | 1.081 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.2528 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | B.2.11 钬含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 表B.2.11.1各实验室水平16实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.0407 | 0.0415 | 0.0433 | 0.044 | 0.0411 | 0.0406 | 0.0408 | 0.0408 | 0.0428 | 0.0435 | 0.0436 | 0.0421 | 0.0014 | 3.25 | 1.071 | 1.417 | 无异常值 | | 2 | 0.0407 | 0.0422 | 0.0433 | 0.0418 | 0.0411 | 0.0406 | 0.0408 | 0.0417 | 0.0428 | 0.0422 | 0.0436 | 0.0419 | 0.0010 | 2.49 | 1.238 | 1.639 | 无异常值 | | 3 | 0.0408 | 0.0425 | 0.0427 | 0.0416 | 0.0429 | 0.0429 | 0.0406 | 0.0422 | 0.0424 | 0.0416 | 0.0424 | 0.0421 | 0.0008 | 1.90 | 1.817 | 1.056 | 无异常值 | | 4 | 0.0398 | 0.0461 | 0.0395 | 0.0433 | 0.0428 | 0.0426 | 0.0433 | 0.0395 | 0.0398 | 0.0416 | 0.0426 | 0.0419 | 0.0021 | 4.99 | 1.147 | 2.007 | 无异常值 | | 5 | 0.0406 | 0.0407 | 0.0409 | 0.0411 | 0.0409 | 0.0412 | 0.0405 | 0.0407 | 0.0408 | 0.0407 | 0.0408 | 0.0408 | 0.0002 | 0.51 | 1.492 | 1.887 | 无异常值 | | 8 | 0.042 | 0.0416 | 0.041 | 0.0425 | 0.0408 | 0.0416 | 0.0424 | 0.0417 | 0.0416 | 0.0412 | 0.0408 | 0.0416 | 0.0006 | 1.40 | 1.309 | 1.605 | 无异常值 | | 10 | 0.0419 | 0.0411 | 0.0421 | 0.0416 | 0.0407 | 0.0424 | 0.0421 | 0.0411 | 0.0419 | 0.0407 | 0.0422 | 0.0416 | 0.0006 | 1.48 | 1.490 | 1.269 | 无异常值 | | 室间平均 | 0.0421 | 0.0419 | 0.0421 | 0.0419 | 0.0408 | 0.0416 | 0.0416 |  |  |  |  | 0.042 | 0.0004 | 1.05 | 2.032 | 0.829 | 歧离(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.5011 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | | | 表B.2.11.2各实验室水平17实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.398 | 0.392 | 0.372 | 0.384 | 0.389 | 0.391 | 0.394 | 0.395 | 0.402 | 0.384 | 0.388 | 0.390 | 0.0081 | 2.08 | 2.213 | 1.494 | 无异常值 | | 2 | 0.404 | 0.392 | 0.411 | 0.398 | 0.389 | 0.391 | 0.394 | 0.395 | 0.402 | 0.401 | 0.411 | 0.399 | 0.0076 | 1.91 | 1.300 | 1.586 | 无异常值 | | 3 | 0.384 | 0.382 | 0.396 | 0.388 | 0.401 | 0.399 | 0.397 | 0.392 | 0.401 | 0.389 | 0.393 | 0.393 | 0.0066 | 1.67 | 1.658 | 1.230 | 无异常值 | | 4 | 0.37 | 0.37 | 0.363 | 0.356 | 0.381 | 0.388 | 0.384 | 0.37 | 0.367 | 0.377 | 0.381 | 0.373 | 0.0097 | 2.60 | 1.790 | 1.509 | 无异常值 | | 5 | 0.396 | 0.403 | 0.397 | 0.398 | 0.394 | 0.393 | 0.397 | 0.392 | 0.403 | 0.402 | 0.399 | 0.398 | 0.0039 | 0.97 | 1.462 | 1.392 | 无异常值 | | 8 | 0.401 | 0.402 | 0.401 | 0.412 | 0.403 | 0.402 | 0.412 | 0.413 | 0.408 | 0.416 | 0.421 | 0.408 | 0.0070 | 1.70 | 1.045 | 1.829 | 无异常值 | | 10 | 0.399 | 0.397 | 0.392 | 0.392 | 0.398 | 0.401 | 0.403 | 0.399 | 0.391 | 0.384 | 0.402 | 0.396 | 0.0058 | 1.46 | 2.109 | 1.180 | 无异常值 | | 室间平均 | 0.390 | 0.399 | 0.393 | 0.373 | 0.398 | 0.408 | 0.396 |  |  |  |  | 0.394 | 0.0107 | 2.72 | 1.914 | 1.342 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=00.263 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | | 表B.2.11.3各实验室水平18实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 1.578 | 1.596 | 1.585 | 1.588 | 1.604 | 1.607 | 1.632 | 1.634 | 1.602 | 1.604 | 1.605 | 1.603 | 0.0175 | 1.09 | 1.442 | 1.765 | 无异常值 | | 2 | 1.603 | 1.596 | 1.585 | 1.588 | 1.604 | 1.607 | 1.612 | 1.605 | 1.602 | 1.604 | 1.605 | 1.601 | 0.0081 | 0.51 | 1.966 | 1.352 | 无异常值 | | 3 | 1.595 | 1.629 | 1.588 | 1.634 | 1.607 | 1.621 | 1.619 | 1.618 | 1.608 | 1.625 | 1.635 | 1.616 | 0.0153 | 0.95 | 1.847 | 1.224 | 无异常值 | | 4 | 1.516 | 1.536 | 1.533 | 1.54 | 1.543 | 1.54 | 1.533 | 1.561 | 1.557 | 1.568 | 1.557 | 1.544 | 0.0153 | 0.99 | 1.836 | 1.574 | 无异常值 | | 5 | 1.604 | 1.61 | 1.602 | 1.611 | 1.604 | 1.611 | 1.609 | 1.605 | 1.59 | 1.603 | 1.597 | 1.604 | 0.0064 | 0.40 | 2.216 | 1.065 | 无异常值 | | 8 | 1.612 | 1.605 | 1.608 | 1.597 | 1.624 | 1.626 | 1.628 | 1.624 | 1.617 | 1.628 | 1.604 | 1.616 | 0.0111 | 0.68 | 1.694 | 1.110 | 无异常值 | | 10 | 1.589 | 1.593 | 1.607 | 1.602 | 1.611 | 1.608 | 1.581 | 1.603 | 1.595 | 1.597 | 1.612 | 1.600 | 0.0098 | 0.61 | 1.925 | 1.246 | 无异常值 | | 室间平均 | 1.603 | 1.601 | 1.616 | 1.544 | 1.604 | 1.616 | 1.600 |  |  |  |  | 1.598 | 0.0246 | 1.54 | 2.182 | 0.752 | 离群(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.2779 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | B.2.12 铒含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 表B.2.12.1各实验室水平16实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.0416 | 0.0417 | 0.0412 | 0.0414 | 0.0419 | 0.042 | 0.0404 | 0.0405 | 0.0428 | 0.0432 | 0.0437 | 0.0419 | 0.0010 | 2.48 | 1.399 | 1.775 | 无异常值 | | 2 | 0.0411 | 0.0417 | 0.0412 | 0.0414 | 0.0422 | 0.0401 | 0.0404 | 0.0405 | 0.0408 | 0.0412 | 0.0413 | 0.0411 | 0.0006 | 1.47 | 1.624 | 1.849 | 无异常值 | | 3 | 0.0419 | 0.0416 | 0.0425 | 0.0417 | 0.0429 | 0.0416 | 0.0398 | 0.0422 | 0.0425 | 0.0398 | 0.0424 | 0.0417 | 0.0010 | 2.48 | 1.851 | 1.141 | 无异常值 | | 4 | 0.0392 | 0.043 | 0.0434 | 0.0434 | 0.0455 | 0.0444 | 0.0413 | 0.0441 | 0.0434 | 0.0451 | 0.0444 | 0.0434 | 0.0018 | 4.12 | 2.338 | 1.184 | 无异常值 | | 5 | 0.0413 | 0.0417 | 0.0402 | 0.0404 | 0.0405 | 0.0419 | 0.041 | 0.0408 | 0.0407 | 0.0406 | 0.041 | 0.0409 | 0.0005 | 1.31 | 1.344 | 1.837 | 无异常值 | | 8 | 0.0392 | 0.0395 | 0.0384 | 0.0391 | 0.0396 | 0.0403 | 0.0396 | 0.0405 | 0.0392 | 0.0389 | 0.0397 | 0.0395 | 0.0006 | 1.52 | 1.761 | 1.746 | 无异常值 | | 10 | 0.0428 | 0.0431 | 0.0434 | 0.0428 | 0.043 | 0.0428 | 0.0429 | 0.0431 | 0.0428 | 0.0432 | 0.0429 | 0.0430 | 0.0002 | 0.46 | 0.913 | 2.100 | 无异常值 | | 室间平均 | 0.0419 | 0.0411 | 0.0417 | 0.0434 | 0.0409 | 0.0395 | 0.0430 |  |  |  |  | 0.0416 | 0.0013 | 3.18 | 1.643 | 1.327 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.4997 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | |  | | 表B.2.12.2各实验室水平17实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.402 | 0.408 | 0.402 | 0.397 | 0.385 | 0.404 | 0.395 | 0.398 | 0.398 | 0.394 | 0.399 | 0.398 | 0.0060 | 1.51 | 2.219 | 1.600 | 无异常值 | | 2 | 0.398 | 0.408 | 0.402 | 0.388 | 0.401 | 0.412 | 0.395 | 0.398 | 0.398 | 0.411 | 0.399 | 0.401 | 0.0071 | 1.78 | 1.813 | 1.558 | 无异常值 | | 3 | 0.386 | 0.41 | 0.405 | 0.392 | 0.399 | 0.407 | 0.402 | 0.408 | 0.396 | 0.394 | 0.403 | 0.400 | 0.0075 | 1.88 | 1.889 | 1.308 | 无异常值 | | 4 | 0.381 | 0.353 | 0.371 | 0.364 | 0.367 | 0.381 | 0.385 | 0.388 | 0.357 | 0.364 | 0.367 | 0.371 | 0.0116 | 3.12 | 1.535 | 1.495 | 无异常值 | | 5 | 0.402 | 0.408 | 0.4 | 0.403 | 0.4 | 0.412 | 0.404 | 0.41 | 0.399 | 0.409 | 0.405 | 0.405 | 0.0045 | 1.10 | 1.287 | 1.634 | 无异常值 | | 8 | 0.415 | 0.413 | 0.408 | 0.412 | 0.417 | 0.408 | 0.416 | 0.405 | 0.407 | 0.421 | 0.406 | 0.412 | 0.0052 | 1.27 | 1.271 | 1.794 | 无异常值 | | 10 | 0.399 | 0.402 | 0.401 | 0.398 | 0.391 | 0.402 | 0.404 | 0.399 | 0.398 | 0.401 | 0.395 | 0.399 | 0.0036 | 0.91 | 2.219 | 1.347 | 无异常值 | | 室间平均 | 0.398 | 0.401 | 0.400 | 0.371 | 0.405 | 0.412 | 0.399 |  |  |  |  | 0.398 | 0.0128 | 3.23 | 2.120 | 1.066 | 歧离(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.3958 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | | | 表B.2.12.3各实验室水平18实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 1.609 | 1.595 | 1.594 | 1.598 | 1.596 | 1.597 | 1.624 | 1.616 | 1.615 | 1.624 | 1.632 | 1.609 | 0.0139 | 0.86 | 1.089 | 1.654 | 无异常值 | | 2 | 1.609 | 1.595 | 1.601 | 1.588 | 1.596 | 1.597 | 1.604 | 1.616 | 1.615 | 1.594 | 1.592 | 1.601 | 0.0093 | 0.58 | 1.356 | 1.649 | 无异常值 | | 3 | 1.596 | 1.625 | 1.607 | 1.624 | 1.598 | 1.592 | 1.624 | 1.615 | 1.607 | 1.608 | 1.592 | 1.608 | 0.0127 | 0.79 | 1.262 | 1.341 | 无异常值 | | 4 | 1.497 | 1.518 | 1.543 | 1.55 | 1.546 | 1.532 | 1.553 | 1.55 | 1.522 | 1.543 | 1.539 | 1.536 | 0.0172 | 1.12 | 2.257 | 1.007 | 无异常值 | | 5 | 1.59 | 1.612 | 1.613 | 1.602 | 1.605 | 1.612 | 1.611 | 1.603 | 1.605 | 1.612 | 1.595 | 1.605 | 0.0076 | 0.48 | 2.025 | 0.988 | 无异常值 | | 8 | 1.615 | 1.609 | 1.614 | 1.608 | 1.621 | 1.605 | 1.614 | 1.622 | 1.621 | 1.609 | 1.614 | 1.614 | 0.0057 | 0.36 | 1.536 | 1.425 | 无异常值 | | 10 | 1.611 | 1.598 | 1.609 | 1.617 | 1.596 | 1.62 | 1.613 | 1.589 | 1.607 | 1.602 | 1.611 | 1.607 | 0.0094 | 0.59 | 1.869 | 1.416 | 无异常值 | | 室间平均 | 1.609 | 1.601 | 1.608 | 1.536 | 1.605 | 1.614 | 1.607 |  |  |  |  | 1.597 | 0.0273 | 1.71 | 2.244 | 0.613 | 离群(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=00.322 柯克伦检验结论：实验室4为歧离值 | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | B.2.13 铥含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 表B.2.13.1各实验室水平16实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.0401 | 0.0402 | 0.0419 | 0.042 | 0.0402 | 0.0402 | 0.0436 | 0.0441 | 0.0432 | 0.0415 | 0.0412 | 0.0417 | 0.0015 | 3.51 | 1.064 | 1.675 | 无异常值 | | 2 | 0.0403 | 0.0402 | 0.0419 | 0.0402 | 0.0402 | 0.0402 | 0.0416 | 0.0421 | 0.0402 | 0.0415 | 0.0412 | 0.0409 | 0.0008 | 1.92 | 0.856 | 1.561 | 无异常值 | | 3 | 0.0415 | 0.0408 | 0.0426 | 0.0417 | 0.0428 | 0.0429 | 0.0426 | 0.0417 | 0.0421 | 0.0418 | 0.043 | 0.0421 | 0.0007 | 1.66 | 1.912 | 1.236 | 无异常值 | | 4 | 0.0431 | 0.0441 | 0.0459 | 0.0448 | 0.0424 | 0.0434 | 0.0459 | 0.0469 | 0.0466 | 0.0434 | 0.0441 | 0.0446 | 0.0015 | 3.41 | 1.445 | 1.511 | 无异常值 | | 5 | 0.0397 | 0.0413 | 0.04 | 0.0402 | 0.0411 | 0.0408 | 0.0406 | 0.0403 | 0.0405 | 0.0402 | 0.0399 | 0.0404 | 0.0005 | 1.24 | 1.437 | 1.765 | 无异常值 | | 8 | 0.041 | 0.0411 | 0.042 | 0.0413 | 0.0415 | 0.0412 | 0.0432 | 0.0414 | 0.0418 | 0.0416 | 0.0426 | 0.0417 | 0.0007 | 1.62 | 1.037 | 2.221 | 无异常值 | | 10 | 0.0406 | 0.0417 | 0.0427 | 0.0418 | 0.0426 | 0.0417 | 0.0416 | 0.0409 | 0.0422 | 0.0425 | 0.0417 | 0.0418 | 0.0007 | 1.59 | 1.833 | 1.327 | 无异常值 | | 室间平均 | 0.0417 | 0.0409 | 0.0421 | 0.0446 | 0.0404 | 0.0417 | 0.0418 |  |  |  |  | 0.042 | 0.0013 | 3.19 | 1.099 | 2.032 | 歧离(Xmax) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.3457 柯克伦检验结论：实验室4为歧离值 | | | | | | | | | | | | | | | | | 表B.2.13.2各实验室水平17实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.384 | 0.385 | 0.383 | 0.381 | 0.395 | 0.394 | 0.375 | 0.378 | 0.375 | 0.384 | 0.383 | 0.383 | 0.0065 | 1.70 | 1.281 | 1.782 | 无异常值 | | 2 | 0.398 | 0.405 | 0.406 | 0.394 | 0.395 | 0.394 | 0.405 | 0.398 | 0.401 | 0.394 | 0.399 | 0.399 | 0.0047 | 1.17 | 1.071 | 1.499 | 无异常值 | | 3 | 0.391 | 0.382 | 0.395 | 0.402 | 0.388 | 0.39 | 0.385 | 0.382 | 0.396 | 0.381 | 0.406 | 0.391 | 0.0083 | 2.13 | 1.167 | 1.833 | 无异常值 | | 4 | 0.389 | 0.41 | 0.392 | 0.389 | 0.424 | 0.382 | 0.389 | 0.406 | 0.396 | 0.399 | 0.396 | 0.397 | 0.0119 | 3.00 | 1.295 | 2.224 | 无异常值 | | 5 | 0.384 | 0.367 | 0.389 | 0.389 | 0.393 | 0.391 | 0.398 | 0.39 | 0.398 | 0.392 | 0.388 | 0.389 | 0.0084 | 2.15 | 2.626 | 1.074 | 离群(Xmin) | | 8 | 0.378 | 0.378 | 0.386 | 0.379 | 0.385 | 0.376 | 0.378 | 0.379 | 0.371 | 0.387 | 0.382 | 0.380 | 0.0047 | 1.25 | 1.879 | 1.495 | 无异常值 | | 10 | 0.397 | 0.391 | 0.389 | 0.387 | 0.381 | 0.391 | 0.399 | 0.3820.379 | 0.391 | 0.398 | 0.389 | 0.391 | 0.0055 | 1.41 | 1.873 | 1.400 | 无异常值 | | 室间平均 | 0.383 | 0.399 | 0.391 | 0.397 | 0.389 | 0.380 | 0.391 |  |  |  |  | 0.390 | 0.0069 | 1.77 | 1.478 | 1.289 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.3568 柯克伦检验结论：实验室4为歧离值 | | | | | | | | | | | | | | | | | 表B.2.13.3各实验室水平18实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 1.624 | 1.616 | 1.598 | 1.584 | 1.597 | 1.595 | 1.622 | 1.584 | 1.604 | 1.606 | 1.607 | 1.603 | 0.0136 | 0.85 | 1.427 | 1.520 | 无异常值 | | 2 | 1.582 | 1.616 | 1.598 | 1.604 | 1.588 | 1.595 | 1.612 | 1.614 | 1.604 | 1.606 | 1.589 | 1.601 | 0.0113 | 0.71 | 1.658 | 1.352 | 无异常值 | | 3 | 1.593 | 1.608 | 1.589 | 1.617 | 1.624 | 1.593 | 1.617 | 1.627 | 1.604 | 1.599 | 1.607 | 1.607 | 0.0130 | 0.81 | 1.396 | 1.537 | 无异常值 | | 4 | 1.475 | 1.506 | 1.51 | 1.513 | 1.51 | 1.538 | 1.496 | 1.52 | 1.506 | 1.478 | 1.492 | 1.504 | 0.0182 | 1.21 | 1.597 | 1.872 | 无异常值 | | 5 | 1.608 | 1.6 | 1.618 | 1.613 | 1.59 | 1.599 | 1.611 | 1.614 | 1.608 | 1.617 | 1.595 | 1.607 | 0.0093 | 0.58 | 1.785 | 1.219 | 无异常值 | | 8 | 1.599 | 1.589 | 1.587 | 1.612 | 1.589 | 1.614 | 1.596 | 1.594 | 1.621 | 1.624 | 1.622 | 1.604 | 0.0145 | 0.90 | 1.191 | 1.360 | 无异常值 | | 10 | 1.592 | 1.611 | 1.591 | 1.609 | 1.621 | 1.602 | 1.596 | 1.611 | 1.587 | 1.601 | 1.593 | 1.601 | 0.0106 | 0.66 | 1.343 | 1.856 | 无异常值 | | 室间平均 | 1.603 | 1.601 | 1.607 | 1.504 | 1.607 | 1.604 | 1.601 |  |  |  |  | 1.590 | 0.0378 | 2.38 | 2.263 | 0.462 | 离群(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.2704 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | B.2.14 镱含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 表B.2.14.1各实验室水平16实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.0442 | 0.0418 | 0.0435 | 0.0425 | 0.0428 | 0.0429 | 0.0412 | 0.0428 | 0.0402 | 0.0399 | 0.0395 | 0.0419 | 0.0015 | 3.69 | 1.574 | 1.462 | 无异常值 | | 2 | 0.0418 | 0.0404 | 0.0399 | 0.0406 | 0.0401 | 0.04 | 0.0406 | 0.0414 | 0.04 | 0.0399 | 0.0411 | 0.0405 | 0.0007 | 1.61 | 0.961 | 1.950 | 无异常值 | | 3 | 0.0398 | 0.0425 | 0.0394 | 0.0416 | 0.0428 | 0.0423 | 0.0429 | 0.0392 | 0.0415 | 0.039 | 0.0385 | 0.0409 | 0.0017 | 4.14 | 1.396 | 1.202 | 无异常值 | | 4 | 0.046 | 0.0453 | 0.0478 | 0.0467 | 0.0443 | 0.0439 | 0.0425 | 0.0464 | 0.0471 | 0.0467 | 0.0436 | 0.0455 | 0.0017 | 3.71 | 1.768 | 1.375 | 无异常值 | | 5 | 0.0426 | 0.043 | 0.0427 | 0.043 | 0.0429 | 0.0428 | 0.0425 | 0.0427 | 0.043 | 0.0426 | 0.0428 | 0.0428 | 0.0002 | 0.42 | 1.584 | 1.227 | 无异常值 | | 8 | 0.043 | 0.0432 | 0.044 | 0.0425 | 0.0415 | 0.0431 | 0.0422 | 0.0436 | 0.0438 | 0.0441 | 0.0438 | 0.0432 | 0.0008 | 1.90 | 2.026 | 1.140 | 无异常值 | | 10 | 0.0421 | 0.0429 | 0.0433 | 0.0438 | 0.0411 | 0.0419 | 0.0431 | 0.0426 | 0.0418 | 0.0419 | 0.0424 | 0.0424 | 0.0008 | 1.85 | 1.713 | 1.725 | 无异常值 | | 室间平均 | 0.0419 | 0.0405 | 0.0409 | 0.0455 | 0.0428 | 0.0432 | 0.0424 |  |  |  |  | 0.042 | 0.0016 | 3.88 | 1.171 | 1.836 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=00.291 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | | 表B.2.14.2各实验室水平17实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.402 | 0.385 | 0.384 | 0.385 | 0.395 | 0.396 | 0.387 | 0.394 | 0.395 | 0.387 | 0.375 | 0.390 | 0.0076 | 1.94 | 1.922 | 1.646 | 无异常值 | | 2 | 0.411 | 0.404 | 0.398 | 0.397 | 0.399 | 0.408 | 0.414 | 0.394 | 0.4 | 0.395 | 0.411 | 0.403 | 0.0071 | 1.77 | 1.240 | 1.573 | 无异常值 | | 3 | 0.385 | 0.392 | 0.401 | 0.397 | 0.396 | 0.389 | 0.402 | 0.398 | 0.391 | 0.388 | 0.395 | 0.394 | 0.0055 | 1.39 | 1.649 | 1.465 | 无异常值 | | 4 | 0.39 | 0.404 | 0.411 | 0.415 | 0.407 | 0.415 | 0.411 | 0.411 | 0.407 | 0.393 | 0.418 | 0.407 | 0.0089 | 2.18 | 1.965 | 1.187 | 无异常值 | | 5 | 0.401 | 0.414 | 0.403 | 0.405 | 0.4 | 0.404 | 0.401 | 0.397 | 0.416 | 0.405 | 0.403 | 0.404 | 0.0057 | 1.42 | 1.300 | 2.014 | 无异常值 | | 8 | 0.407 | 0.405 | 0.401 | 0.398 | 0.395 | 0.405 | 0.407 | 0.396 | 0.399 | 0.412 | 0.412 | 0.403 | 0.0060 | 1.48 | 1.397 | 1.442 | 无异常值 | | 10 | 0.405 | 0.397 | 0.385 | 0.391 | 0.388 | 0.401 | 0.381 | 0.396 | 0.395 | 0.402 | 0.388 | 0.394 | 0.0076 | 1.93 | 1.652 | 1.508 | 无异常值 | | 室间平均 | 0.390 | 0.403 | 0.394 | 0.407 | 0.404 | 0.403 | 0.394 |  |  |  |  | 0.399 | 0.0068 | 1.71 | 1.434 | 1.196 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=00.23 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | | 表B.2.14.3各实验室水平18实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 1.644 | 1.643 | 1.628 | 1.596 | 1.595 | 1.606 | 1.615 | 1.619 | 1.626 | 1.617 | 1.598 | 1.617 | 0.0174 | 1.08 | 1.266 | 1.553 | 无异常值 | | 2 | 1.615 | 1.605 | 1.598 | 1.596 | 1.606 | 1.616 | 1.607 | 1.617 | 1.606 | 1.605 | 1.605 | 1.607 | 0.0068 | 0.42 | 1.607 | 1.486 | 无异常值 | | 3 | 1.589 | 1.625 | 1.617 | 1.596 | 1.604 | 1.622 | 1.634 | 1.625 | 1.631 | 1.628 | 1.607 | 1.616 | 0.0150 | 0.93 | 1.814 | 1.189 | 无异常值 | | 4 | 1.567 | 1.518 | 1.528 | 1.525 | 1.549 | 1.556 | 1.553 | 1.539 | 1.528 | 1.549 | 1.56 | 1.543 | 0.0162 | 1.05 | 1.539 | 1.488 | 无异常值 | | 5 | 1.607 | 1.617 | 1.625 | 1.626 | 1.627 | 1.612 | 1.622 | 1.618 | 1.612 | 1.616 | 1.604 | 1.617 | 0.0077 | 0.48 | 1.679 | 1.313 | 无异常值 | | 8 | 1.603 | 1.605 | 1.625 | 1.624 | 1.631 | 1.628 | 1.617 | 1.625 | 1.635 | 1.626 | 1.608 | 1.621 | 0.0108 | 0.67 | 1.627 | 1.325 | 无异常值 | | 10 | 1.599 | 1.628 | 1.625 | 1.623 | 1.596 | 1.608 | 1.617 | 1.597 | 1.604 | 1.611 | 1.622 | 1.612 | 0.0118 | 0.73 | 1.336 | 1.367 | 无异常值 | | 室间平均 | 1.617 | 1.607 | 1.616 | 1.543 | 1.617 | 1.621 | 1.612 |  |  |  |  | 1.605 | 0.0276 | 1.72 | 2.239 | 0.581 | 离群(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.2624 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | B.2.15 镥含量精密度数据统计  各实验室实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 表B.2.15.1各实验室水平16实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.0389 | 0.0384 | 0.0395 | 0.0399 | 0.0397 | 0.0399 | 0.0402 | 0.0415 | 0.0418 | 0.0416 | 0.0421 | 0.0403 | 0.0012 | 3.09 | 1.540 | 1.430 | 无异常值 | | 2 | 0.0405 | 0.0412 | 0.04 | 0.0399 | 0.0397 | 0.0395 | 0.0402 | 0.0404 | 0.0412 | 0.0405 | 0.0395 | 0.0402 | 0.0006 | 1.48 | 1.233 | 1.614 | 无异常值 | | 3 | 0.0419 | 0.0387 | 0.0405 | 0.0416 | 0.0389 | 0.0397 | 0.0403 | 0.0421 | 0.0417 | 0.0396 | 0.0416 | 0.0406 | 0.0012 | 3.07 | 1.523 | 1.203 | 无异常值 | | 4 | 0.0409 | 0.0394 | 0.0387 | 0.0352 | 0.0362 | 0.0401 | 0.0359 | 0.0389 | 0.0366 | 0.039 | 0.0378 | 0.0381 | 0.0019 | 4.88 | 1.541 | 1.526 | 无异常值 | | 5 | 0.0394 | 0.0399 | 0.0406 | 0.0392 | 0.0397 | 0.04 | 0.0391 | 0.0397 | 0.0397 | 0.0393 | 0.0394 | 0.0396 | 0.0004 | 1.08 | 1.249 | 2.243 | 无异常值 | | 8 | 0.041 | 0.0415 | 0.041 | 0.0403 | 0.0418 | 0.0415 | 0.0407 | 0.0416 | 0.0418 | 0.0408 | 0.0406 | 0.0411 | 0.0005 | 1.26 | 1.631 | 1.263 | 无异常值 | | 10 | 0.0417 | 0.0401 | 0.0406 | 0.0396 | 0.0407 | 0.0415 | 0.0411 | 0.0402 | 0.0408 | 0.0391 | 0.0397 | 0.0405 | 0.0008 | 2.01 | 1.680 | 1.524 | 无异常值 | | 室间平均 | 0.0403 | 0.0402 | 0.0406 | 0.0381 | 0.0396 | 0.0411 | 0.0405 |  |  |  |  | 0.040 | 0.0010 | 2.47 | 2.020 | 1.089 | 歧离(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=00.43 柯克伦检验结论：实验室4的数据组离群（高度异常） | | | | | | | | | | | | | | | | | 表B.2.15.2各实验室水平17实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 0.408 | 0.402 | 0.392 | 0.395 | 0.395 | 0.394 | 0.368 | 0.387 | 0.392 | 0.396 | 0.397 | 0.393 | 0.0100 | 2.55 | 2.525 | 1.471 | 歧离(Xmin) | | 2 | 0.405 | 0.398 | 0.399 | 0.395 | 0.397 | 0.404 | 0.407 | 0.397 | 0.398 | 0.406 | 0.397 | 0.400 | 0.0043 | 1.08 | 1.222 | 1.559 | 无异常值 | | 3 | 0.402 | 0.378 | 0.395 | 0.418 | 0.402 | 0.389 | 0.375 | 0.382 | 0.394 | 0.398 | 0.403 | 0.394 | 0.0126 | 3.20 | 1.522 | 1.890 | 无异常值 | | 4 | 0.383 | 0.408 | 0.383 | 0.383 | 0.397 | 0.394 | 0.39 | 0.397 | 0.412 | 0.408 | 0.39 | 0.395 | 0.0106 | 2.68 | 1.135 | 1.608 | 无异常值 | | 5 | 0.404 | 0.391 | 0.404 | 0.4 | 0.402 | 0.406 | 0.402 | 0.402 | 0.398 | 0.407 | 0.392 | 0.401 | 0.0052 | 1.30 | 1.864 | 1.202 | 无异常值 | | 8 | 0.402 | 0.405 | 0.406 | 0.402 | 0.405 | 0.402 | 0.406 | 0.418 | 0.417 | 0.409 | 0.408 | 0.407 | 0.0056 | 1.37 | 0.947 | 1.926 | 无异常值 | | 10 | 0.406 | 0.401 | 0.394 | 0.389 | 0.393 | 0.387 | 0.399 | 0.402 | 0.381 | 0.385 | 0.399 | 0.394 | 0.0079 | 2.02 | 1.659 | 1.487 | 无异常值 | | 室间平均 | 0.393 | 0.400 | 0.394 | 0.395 | 0.401 | 0.407 | 0.394 |  |  |  |  | 0.398 | 0.0051 | 1.29 | 0.888 | 1.832 | 无异常值 | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.3108 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | | 表B.2.15.3各实验室水平18实验数据、一致性和离群值的检查 | | | | | | | | | | | | | | | | | | | 单位名称 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 平均值 | SD | RSD,% | G1值 | Gn值 | X(Min,Max)离群检验 | | 1 | 1.591 | 1.595 | 1.634 | 1.632 | 1.622 | 1.595 | 1.604 | 1.608 | 1.607 | 1.599 | 1.593 | 1.607 | 0.0155 | 0.96 | 1.052 | 1.728 | 无异常值 | | 2 | 1.605 | 1.589 | 1.612 | 1.595 | 1.605 | 1.6 | 1.593 | 1.598 | 1.611 | 1.589 | 1.607 | 1.600 | 0.0083 | 0.52 | 1.375 | 1.408 | 无异常值 | | 3 | 1.628 | 1.617 | 1.598 | 1.624 | 1.614 | 1.603 | 1.608 | 1.612 | 1.604 | 1.611 | 1.596 | 1.610 | 0.0101 | 0.63 | 1.434 | 1.740 | 无异常值 | | 4 | 1.509 | 1.495 | 1.516 | 1.52 | 1.516 | 1.544 | 1.502 | 1.527 | 1.513 | 1.523 | 1.555 | 1.520 | 0.0173 | 1.14 | 1.441 | 2.017 | 无异常值 | | 5 | 1.592 | 1.609 | 1.616 | 1.611 | 1.591 | 1.614 | 1.595 | 1.599 | 1.619 | 1.607 | 1.594 | 1.604 | 0.0103 | 0.64 | 1.283 | 1.424 | 无异常值 | | 8 | 1.615 | 1.625 | 1.615 | 1.616 | 1.624 | 1.636 | 1.625 | 1.618 | 1.628 | 1.634 | 1.619 | 1.623 | 0.0074 | 0.45 | 1.112 | 1.742 | 无异常值 | | 10 | 1.601 | 1.592 | 1.622 | 1.618 | 1.629 | 1.614 | 1.623 | 1.603 | 1.621 | 1.597 | 1.595 | 1.610 | 0.0131 | 0.81 | 1.407 | 1.414 | 无异常值 | | 室间平均 | 1.607 | 1.600 | 1.610 | 1.520 | 1.604 | 1.623 | 1.610 |  |  |  |  | 1.597 | 0.0345 | 2.16 | 2.219 | 0.771 | 离群(Xmin) | | 柯克伦检验： | | 当实验室数 p =7， n =11 临界值C(0.01)=0.3616 临界C(0.05)=0.3154 统计值C=0.2885 柯克伦检验结论：无异常值 | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | |