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锆及锆合金化学分析方法

第26部分：合金及杂质元素的测定

电感耦合等离子体原子发射光谱法

**Methods for chemical analysis of zirconium and zirconium alloys—**

**Part 26: Determination of alloying and impurity elements content—**

**Inductively coupled plasma atomic emission spectrometry**

（讨论稿）

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中华人民共和国国家标准

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国家市场监督管理总局

国家标准化管理委员会

发布

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前 言

本文件按照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》的规定起草。

本文件是GB/T 13747《锆及锆合金化学分析方法》的第26部分。GB/T 13747已经发布了以下部分：

——第1部分：锡量的测定 碘酸钾滴定法和苯基荧光酮-聚乙二醇辛基苯基醚分光光度法；

——第2部分：铁量的测定 1,10-二氮杂菲分光光度法和电感耦合等离子体原子发射光谱法；

——第3部分：镍量的测定 丁二酮肟分光光度法和电感耦合等离子体原子发射光谱法；

——第4部分：铬量的测定 二苯卡巴肼分光光度法和电感耦合等离子体原子发射光谱法；

——第5部分：铝量的测定 铬天青S－氯化十四烷基吡啶分光光度法；

——第6部分：铜量的测定 2,9-二甲基-1,10-二氮杂菲分光光度法；

——第7部分：锰量的测定 高碘酸钾分光光度法和电感耦合等离子体原子发射光谱法；

——第8部分：钴量的测定 亚硝基R盐分光光度法；

——第9部分：镁量的测定 火焰原子吸收光谱法和电感耦合等离子体原子发射光谱法；

——第10部分：钨量的测定 硫氰酸盐分光光度法和电感耦合等离子体原子发射光谱法；

——第11部分：钼量的测定 硫氰酸盐分光光度法；

——第12部分：硅量的测定 钼蓝分光光度法；

——第13部分：铅量的测定 极谱法；

——第14部分：铀量的测定 极谱法；

——第15部分：硼量的测定 姜黄素分光光度法；

——第16部分：氯量的测定 氯化银浊度法和离子选择性电极法；

——第17部分：镉量的测定 极谱法；

——第18部分：钒量的测定 苯基酰苯基羟胺分光光度法和电感耦合等离子体原子发射光谱法；

——第19部分：钛量的测定 二安替比林甲烷分光光度法和电感耦合等离子体原子发射光谱法；

——第20部分：铪量的测定 电感耦合等离子体原子发射光谱法；

——第21部分：氢量的测定 惰气熔融红外吸收法/热导法；

——第22部分：氧量和氮量的测定 惰气熔融-红外吸收/热导法；

——第23部分：氮量的测定 蒸馏分离-奈斯勒试剂分光光度法；

——第24部分：碳量的测定 高频燃烧红外吸收法；

——第25部分：铌量的测定 5-Br-PADAP分光光度法和电感耦合等离子体原子发射光谱法；

——第26部分：合金及杂质元素的测定 电感耦合等离子体原子发射光谱法；

——第27部分：痕量杂质元素的测定 电感耦合等离子体质谱法；

请注意本文件的某些内容可能涉及专利。本文件的发布机构不承担识别专利的责任。

本文件由中国有色金属工业协会提出。

本文件由全国有色金属标准化技术委员会（SAC/TC 243）归口。

本文件起草单位：××。

本文件主要起草人：××。

引 言

锆及锆合金以其较低的原子热中子吸收截面，良好的抗腐蚀性，对核燃料有良好相容性等优点，广泛应用于核电、航空航天、化工、轻工、电力、制药、纺织、机械、石油化工等领域。随着锆及锆合金的广泛应用，其用量也日益扩大。电感耦合等离子体原子发射光谱法（ICP-AES）以其灵敏度高、精密度好、线性范围宽、可同时进行多种元素分析、检测效率高等优点，已广泛应用于锆及锆合金中元素含量的测定。GB/T 13747旨在通过实验研究建立一整套切实可行的锆及锆合金化学分析方法标准，拟由二十七部分组成。

——第1部分：锡量的测定 目的在于修订碘酸钾滴定法和苯基荧光酮-聚乙二醇辛基苯基醚分光光度法测定锆及锆合金中锡量的方法；

——第2部分：铁量的测定 目的在于修订1,10-二氮杂菲分光光度法和建立电感耦合等离子体原子发射光谱法测定锆及锆合金中铁量的方法；

——第3部分：镍量的测定 目的在于修订丁二酮肟分光光度法和建立电感耦合等离子体原子发射光谱法测定锆及锆合金中镍量的方法；

——第4部分：铬量的测定 目的在于修订二苯卡巴肼分光光度法和建立电感耦合等离子体原子发射光谱法测定锆及锆合金中铬量的方法；

——第5部分：铝量的测定 目的在于修订铬天青S－氯化十四烷基吡啶分光光度法测定锆及锆合金中铝量的方法；

——第6部分：铜量的测定 目的在于修订 2,9-二甲基-1,10-二氮杂菲分光光度法测定锆及锆合金中铜量的方法；

——第7部分：锰量的测定 目的在于修订高碘酸钾分光光度法和建立电感耦合等离子体原子发射光谱法测定锆及锆合金中锰量的方法；

——第8部分： 钴量的测定 目的在于修订亚硝基R盐分光光度法测定锆及锆合金中钴量的方法；

——第9部分：镁量的测定 目的在于修订火焰原子吸收光谱法和建立电感耦合等离子体原子发射光谱法测定锆及锆合金中镁量的方法；

——第10部分：钨量的测定 目的在于修订硫氰酸盐分光光度法和建立电感耦合等离子体原子发射光谱法测定锆及锆合金中钨量的方法；

——第11部分：钼量的测定 目的在于修订硫氰酸盐分光光度法测定锆及锆合金中钼量的方法；

——第12部分：硅量的测定 目的在于修订钼蓝分光光度法测定锆及锆合金中硅量的方法；

——第13部分：铅量的测定 目的在于修订极谱法测定锆及锆合金中铅量的方法；

——第14部分：铀量的测定 目的在于修订极谱法测定锆及锆合金中铀量的方法；

——第15部分：硼量的测定 目的在于修订姜黄素分光光度法测定锆及锆合金中硼量的方法；

——第16部分：氯量的测定 目的在于修订氯化银浊度法和建立离子选择性电极法测定锆及锆合金中氯量的方法；

——第17部分：镉量的测定 目的在于修订极谱法测定锆及锆合金中镉量的方法；

——第18部分：钒量的测定 目的在于修订苯基酰苯基羟胺分光光度法和建立电感耦合等离子体原子发射光谱法测定锆及锆合金中钒量的方法；

——第19部分：钛量的测定 目的在于修订二安替比林甲烷分光光度法和建立电感耦合等离子体原子发射光谱法测定锆及锆合金中钛量的方法；

——第20部分：铪量的测定 目的在于建立电感耦合等离子体原子发射光谱法测定锆及锆合金中铪量的方法；

——第21部分：氢量的测定 目的在于修订惰气熔融红外吸收法/热导法；

——第22部分：氧量和氮量的测定 目的在于修订惰气熔融-红外吸收/热导法；

——第23部分：氮量的测定 目的在于修订蒸馏分离-奈斯勒试剂分光光度法；

——第24部分：碳量的测定 目的在于修订高频燃烧红外吸收法；

——第25部分：铌量的测定 目的在于修订5-Br-PADAP分光光度法和建立电感耦合等离子体原子发射光谱法测定锆及锆合金中铌量的方法；

——第26部分：合金及杂质元素的测定 目的在于建立电感耦合等离子体原子发射光谱法测定锆及锆合金中合金及杂质元素量的方法；

——第27部分：痕量杂质元素的测定 目的在于建立电感耦合等离子体质谱法测定锆及锆合金中痕量杂质元素量的方法；

本文件完善了锆及锆合金的生产产业链，提高了锆及锆合金产品质量、扩大应用领域、开拓产品市场具有重要意义。

锆及锆合金化学分析方法

第26部分：合金及杂质元素的测定

电感耦合等离子体原子发射光谱法

1 范围

本文件规定了海绵锆、锆及锆合金中铝、钴、铜、铬、铁、铪、镁、锰、钼、铌、镍、铅、硅、锡、钛、钒、钨、钽、钙、锌、钠含量的测定方法。

本文件适用于海绵锆、锆及锆合金中铝、钴、铜、铬、铁、铪、镁、锰、钼、铌、镍、铅、硅、锡、钛、钒、钨、钽、钙、锌、钠含量的测定。各元素测定范围见表1。

表1 各元素的测定范围

|  |  |  |  |
| --- | --- | --- | --- |
| 元素 | 质量分数/ % | 元素 | 质量分数/ % |
| Al | 0.0020~0.10 | Nb | 0.0050~35.00 |
| Co | 0.0010~0.10 | Ni | 0.0010~0.15 |
| Cu | 0.0020~0.10 | Pb | 0.0020～0.10 |
| Cr | 0.0010~0.50 | Si | 0.0020～0.10 |
| Fe | 0.0050~0.50 | Sn | 0.0050～4.00 |
| Hf | 0.0020~5.00 | Ti | 0.0020～0.10 |
| Mn | 0.0010~0.10 | V | 0.0020～0.10 |
| Mg | 0.0010~0.10 | W | 0.0020～0.10 |
| Mo | 0.0020~0.10 | Na | 0.0010～0.10 |
| Ta | 0.0020~0.10 | Ca | 0.0020～0.10 |
| Zn | 0.0010~0.10 | / | / |

2 规范性引用文件

下列文件中的内容通过文中的规范性引用而构成本文件必不可少的条款。其中，注日期的引用文件，仅该日期对应的版本适用于本文件；不注日期的引用文件，其最新版本（包括所有的修改单）适用于本文件。

GB/T 6682 分析实验室用水规格和试验方法

GB/T 8170 数值修约规则与极限数值的表示和判定

3 术语和定义

本文件没有需要界定的术语和定义。

4 原理

试料以硝酸和氢氟酸溶解，用电感耦合等离子体发射光谱法进行测定，于各元素选定的波长处测量其发射强度。采用工作曲线法计算各元素的质量浓度，以质量分数表示测定结果。

5 试剂或材料

除非另有说明，在分析中仅使用确认为优级纯的试剂和符合GB/T 6682要求的实验室二级水。

5.1 盐酸（*ρ*=1.19 g/mL）。

5.2 氢氟酸（*ρ=*1.13 g/mL）。

5.3 硝酸（*ρ=*1.42 g/mL）。

5.4 盐酸（1+1）。

5.5 硝酸（1+1）。

5.6 锆基体（金属锆、氧化锆、氯氧化锆）（质量分数≥99.99 %，且铝、钴、铜、铬、镁、锰、钼、镍、钛、钒、铅、钨元素的质量分数≤0.0001 %，铁、铪、铌、硅、锡元素的质量分数≤0.001 %）。

5.7 锆及锆合金有证系列实物标准样品。

5.8 铝标准贮存溶液：称取1.0000 g金属铝（*w*Al≥99.99 %）于500 mL烧杯中，加入100 mL盐酸（5.4），低温加热溶解，冷却，移入1000 mL容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0 mg铝。

5.9 钴标准贮存溶液：称取1.0000 g金属钴（*w*Co≥99.99 %）于250 mL烧杯中，加入50 mL硝酸（5.5），加热溶解，冷却，移入1000 mL容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0 mg钴。

5.10 铜标准贮存溶液：称取1.0000 g金属铜（*w*Cu≥99.99 %）于250 mL烧杯中，加入50 mL硝酸（5.5），加热溶解，冷却，移入1000 mL容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0 mg铜。

5.11 铬标准贮存溶液：称取1.0000 g金属铬（*w*Cr≥99.99 %）于500 mL烧杯中，加入50 mL盐酸（5.4），加热溶解，冷却，移入1000 mL容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0 mg铬。

5.12 铁标准贮存溶液：称取1.0000 g金属铁（*w*Fe≥99.99 %）于150 mL烧杯中，加入50 mL盐酸（5.1），加热溶解，冷却，移入1000 mL容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0 mg铁。

5.13 铪标准贮存溶液：称取1.0000 g金属铪（*w*Hf≥99.95 %）于150 mL聚四氟乙烯烧杯中，加入20 mL盐酸（5.1），再分次加入5 mL氢氟酸（5.2）使其溶解，冷却，移入100 mL聚乙烯容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含10.0 mg铪。

5.14 锰标准贮存溶液：称取1.0000 g金属锰（*w*Mn≥99.95 %）于500 mL烧杯中，加入100 mL硝酸（5.5），低温加热溶解，冷却，移入1000 mL容量瓶中，加入50 mL硝酸（5.3），用水稀释至刻度，混匀。此溶液1 mL含1.0 mg锰。

5.15 镁标准贮存溶液：称取1.0000 g金属镁（*w*Mg≥99.99 %）于250 mL烧杯中，加入50 mL盐酸（5.4），加热溶解，冷却，移入1000 mL容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0 mg镁。

5.16 钼标准贮存溶液：称取1.0000 g金属钼（*w*Mo≥99.95 %）于500 mL烧杯中，加入50 mL混合酸（HCl＋HNO3＋H2O=3+2+1），低温加热溶解，冷却，移入1000mL容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0 mg钼。

5.17 铌标准贮存溶液：称取1.0000 g金属铌（*w*Nb≥99.95 %）于100 mL聚四氟乙烯烧杯中，加入10 mL硝酸（5.5），再分次加入5 mL氢氟酸（5.2），盖上聚四氟乙烯表面皿，低温加热溶解，冷却，移入100 mL聚乙烯容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含10.0mg铌。

5.18 镍标准贮存溶液：称取1.0000 g金属镍（*w*Ni≥99.99 %）于500 mL烧杯中，加入100 mL硝酸（5.5），低温加热溶解，继续加热到无棕色烟雾产生，冷却，移入1000 mL容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0 mg镍。

5.19 铅标准贮存溶液：称取1.0000 g金属铅（*w*Pb≥99.99 %）于150 mL烧杯中，加入50mL硝酸（5.5），低温加热溶解，继续加热到无棕色烟雾产生，冷却，移入1000 mL容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0 mg铅。

5.20 硅标准贮存溶液：称取6.3431 g六氟硅酸铵（*w*(NH4)2SiF6≥99.99 %）(预先在105℃烘1h，并在干燥器中冷至室温)于250 mL聚四氟乙烯烧杯中，加入50 mL水，使其溶解，移入1000 mL塑料容量瓶中，用水稀释至刻度，混匀。储存在塑料瓶中。此溶液1 mL含1.0 mg硅。

5.21 锡标准贮存溶液：称取1.0000 g金属锡（*w*Sn≥99.99 %）于500 mL烧杯中，加入50 mL盐酸（5.1），低温溶解，冷却，移入100 mL容量瓶中，补加20 mL盐酸（5.1），用水稀释至刻度，混匀。此溶液1 mL含10.0 mg锡。

5.22 钛标准贮存溶液：称取1.0000 g金属钛（*w*Ti≥99.99 %）于100 mL聚四氟乙烯烧杯中，加入5mL硝酸（5.3），加入5mL氢氟酸（5.2），盖上聚四氟乙烯表面皿，低温加热溶解，冷却，移入1000 mL塑料容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0 mg钛。

5.23 钒标准贮存溶液：称取1.7852 g五氧化二钒（*w*V2O5≥99.99 %）于500 mL烧杯中，加入50 mL盐酸（5.1），低温（≤75℃）加热溶解，冷却，移入1000 mL容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0 mg钒。

5.24 钨标准贮存溶液：称取1.7942 g钨酸钠（*w*Na2WO4·2H2O≥99.90 %）于150 mL烧杯中，加入50 mL水，加热溶解，冷却，移入1000 mL容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0 mg钨。

5.25 钽标准贮存溶液：称取1.0000 g金属钽（*w*Ta≥99.95%）于100 mL聚四氟乙烯烧杯中，加入5 mL硝酸（5.3），加入5 mL氢氟酸（5.2），盖上聚四氟乙烯表面皿，低温加热溶解，冷却，移入1000 mL塑料容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0 mg钽。

5.26 锌标准贮存溶液：称取1.0000 g金属锌（*w*Zn≥99.99%）于250 mL烧杯中，加入30 mL盐酸（5.4），使其溶解完全，冷却，移入1000 mL容量瓶中，补加80 mL盐酸（5.4），用水稀释至刻度，混匀。此溶液1 mL含1.0 mg锌。

5.27 钠标准贮存溶液：称取2.5400 g氯化钠（wNaCl≥99.95%）（500～600℃灼烧至恒重）于500 mL烧杯中，加入200 mL水，使其溶解，移入1000 mL容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0mg钠。

5.28 钙标准贮存溶液：称取2.4970 g碳酸钙（w CaCO3≥99.99%）(预先在105℃烘1h，并在干燥器中冷至室温)于250 mL烧杯中，加入30 mL水、15 mL盐酸（5.1），置电炉上加热至完全溶解，煮沸驱除二氧化碳，冷却后移入1000 mL容量瓶中，用水稀释至刻度，混匀。此溶液1 mL含1.0 mg钙。

注：上述标准贮存溶液均可根据需要，逐级稀释至一定浓度后使用，稀释后的标准溶液要保持与贮存溶液一致的酸度；也可以使用有证标准溶液。

5.29 氩气（体积分数≥99.99 %）。

6 仪器设备

6.1 电感耦合等离子体发射光谱仪,分辨率小于0.007 nm(200 nm处)，具备耐氢氟酸进样系统。

6.2 推荐分析谱线见表2。

表2 元素分析谱线

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 元素 | 分析谱线/nm | 可能的干扰元素 | 元素 | 分析谱线/nm | 可能的干扰元素 |
| Al | 394.401 | Nb | Ni | 231.604 | Zr |
| 167.078 | / | 221.648 | Zr Nb |
| Co | 230.786 | Zr Nb | Nb | 269.706 | Zr |
| 238.892 | Zr Fe | 309.418 | / |
| Cr | 205.618 | Zr | 316.340 | / |
| 267.716 | Zr Nb | Si | 251.611 | Nb |
| Cu | 324.752 | Nb | 212.412 | Nb |
| 224.700 | Nb | Sn | 242.170 | Zr |
| Fe | 238.204 | / | 189.927 | Zr |
| 259.939 | Nb | 175.790 | Nb |
| Hf | 264.141 | / | Ti | 336.121 | Zr Nb |
| 232.247 | / | 334.940 | Zr Nb Hf |
| Mg | 280.271 | / | V | 309.310 | Nb |
| 279.553 | / | 290.880 | Nb |
| Mn | 257.610 | Zr Nb | W | 207.912 | Nb Hf |
| 259.372 | Nb | Pb | 220.353 | Zr Nb |
| Mo | 202.031 | Zr Nb | 168.215 | Zr Nb |
| 202.095 | Nb | Ca | 393.366 | Zr |
| Zn | 213.856 | Zr | 317.933 | / |
| 206.200 | / | Ta | 240.063 | Hf |
| 202.613 | / | Na | 589.592 | Zr |

7 样品

样品厚度不大于5 mm的碎屑。

8 试验步骤

8.1 试料

按表3称取样品（7），精确至0.0001g。

表3 称样量

|  |  |
| --- | --- |
| 质量分数/% | 试料量/g |
| 0.0010～5.00 | 0.50 |
| ＞5.00～35.00 | 0.10 |

8.2 空白试验

称取与试料质量相当的锆基体（5.6），随同试料做空白试验；当合金成分影响待测元素测定结果，则同时进行基体和合金成分匹配，随同试料做空白试验。

8.3 分析试液的制备

将试料（8.1）置于250 mL聚四氟乙烯烧杯中，加入5 mL～10 mL水，分次加入2 mL氢氟酸（5.2），待溶解反应停止，滴加1 mL～2 mL硝酸（5.3）至试料溶解完全且溶液清亮；若部分试料溶解不完全，可以采用低温加热(≤70 ℃)溶解，冷却，移入100 mL聚乙烯容量瓶中，用水稀释至刻度，混匀。

8.4 工作曲线的绘制

8.4.1 配制标准工作曲线溶液

8.4.1.1 称取一系列与试料质量相当的锆基体（5.6），若合金成分影响待测元素测定结果，则在锆基体里加入与试料合金成分质量相当的标准溶液进行完全合金匹配并按照8.3步骤进行溶解，冷却，分别转入100mL容量瓶中。

8.4.1.2 根据试料（8.1）中待测元素的种类及质量分数范围，确定每一种待测元素合适的校准点，各元素校准点见表4（推荐）及表5（推荐）。依据各元素校准点在试液（8.3）中对应的质量浓度并结合试液体积和各元素标准溶液的浓度，按公式（1）计算各元素对应标准溶液加入的体积，单位为毫升（mL）。

································(1)

式中：

*V*0*——*标准溶液加入体积，单位为毫升（mL）；

*ρ*1*——*各元素校准点在试液（8.3）中对应的质量浓度，单位为微克每毫升（μg/mL）；

*V*1*——*试液（8.3）体积，单位为毫升（mL）；

*ρ*0*——*标准溶液中元素的质量浓度，单位为微克每毫升（μg/mL）

8.4.1.3 向8.4.1.1的一系列容量瓶中分别加入计算体积（8.4.1.2）的各元素标准溶液；可以将多种元素加入到同一个工作曲线溶液中，制成多元素混合工作曲线溶液，但要确保各元素之间不存在影响和干扰；用水稀释至刻度，混匀。

8.4.1.4 工作曲线Ⅰ—待测元素质量分数为0.0010%~5.00%，校准点见表4。

表4 工作曲线Ⅰ溶液浓度 质量分数 %

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 校准点 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Al | 0 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.040 | 0.060 | 0.080 | 0.10 | — | — |
| Co | 0 | 0.0010 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.040 | 0.060 | 0.080 | 0.10 | — |
| Cu | 0 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.040 | 0.060 | 0.080 | 0.10 | — | — |
| Cr | 0 | 0.0010 | 0.0020 | 0.0050 | 0.010 | 0.030 | 0.050 | 0.10 | 0.30 | 0.50 | — |
| Fe | 0 | 0.0050 | 0.010 | 0.030 | 0.050 | 0.10 | 0.30 | 0.50 | — | — | — |
| Hf | 0 | 0.0020 | 0.0050 | 0.010 | 0.050 | 0.10 | 0.20 | 0.50 | 1.00 | 3.00 | 5.00 |
| Mn | 0 | 0.0010 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.040 | 0.060 | 0.080 | 0.10 | — |
| Mg | 0 | 0.0010 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.040 | 0.060 | 0.080 | 0.10 | — |
| Mo | 0 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.040 | 0.060 | 0.080 | 0.10 | — | — |
| Nb | 0 | 0.0050 | 0.010 | 0.050 | 0.10 | 0.20 | 0.50 | 1.00 | 3.00 | 5.00 | — |
| Ni | 0 | 0.0010 | 0.0020 | 0.0050 | 0.010 | 0.050 | 0.10 | 0.15 | — | — | — |
| Pb | 0 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.040 | 0.060 | 0.080 | 0.10 | — | — |
| Si | 0 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.050 | 0.10 | — | — | — | — |
| Sn | 0 | 0.0050 | 0.010 | 0.050 | 0.10 | 0.50 | 1.00 | 2.00 | 4.00 | — | — |
| Ti | 0 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.040 | 0.060 | 0.080 | 0.10 | — | — |
| V | 0 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.040 | 0.060 | 0.080 | 0.10 | — | — |
| W | 0 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.040 | 0.060 | 0.080 | 0.10 | — | — |
| Na | 0 | 0.0010 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.040 | 0.060 | 0.080 | 0.10 | — |
| Ta | 0 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.040 | 0.060 | 0.080 | 0.10 | — | — |
| Ca | 0 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.040 | 0.060 | 0.080 | 0.10 | — | — |
| Zn | 0 | 0.0010 | 0.0020 | 0.0050 | 0.010 | 0.020 | 0.040 | 0.060 | 0.080 | 0.10 | — |

8.4.1.5 工作曲线Ⅱ—待测元素质量分数为5.00%~35.00%，校准点见表5。

表5 工作曲线Ⅱ溶液浓度 质量分数 %

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 校准点 | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Nb | 0 | 5.00 | 10.00 | 15.00 | 20.00 | 25.00 | 35.00 |

8.4.2 制备实物标准样品系列溶液

选择与试料基体一致、待测元素质量分数呈梯度变化的一系列有证实物标准样品（5.7），称取与试料相当的量，随同试料制备实物标准样品系列溶液。

8.5 测定

8.5.1 根据试液（8.3）中待测元素的种类及含量范围，选择与待测元素含量相近的系列工作曲线溶液（8.4.1），保证每种元素包括零点在内不少于4个的校准点进行工作曲线拟合。于电感耦合等离子体原子发射光谱仪上，按表2推荐的波长处测定系列校准溶液（8.4.1）中各元素的发射强度，以浓度为横坐标，发射强度为纵坐标，绘制工作曲线，确保各元素工作曲线线性相关系数*r*≥0.996。

8.5.2 在8.4.1绘制好的工作曲线下，进行空白溶液（8.2）和试液（8.3）的测定，检查各待测元素谱线的背景并在适当的位置进行背景校正，软件自动计算得到各待测元素的质量浓度。

9 试验数据处理

各元素含量以各元素的质量分数*w*x计，按公式（2）计算：

……………………………（2）

式中：

*ρ*2——试液中元素的质量浓度，单位为微克每毫升（μg/mL）；

*ρ*3——空白溶液的质量浓度，单位为微克每毫升（μg/mL）；

*V*——测试试液的体积，单位为毫升（mL）；

*m*——试料的质量，单位为克（g）。

当测定结果小于0.10 %时，结果保留两位有效数字；当测定结果不小于0.10 %时，保留至小数点后两位。数字修约执行GB/T 8170。

10 精密度

10.1 重复性

在重复性条件下获得的两次独立测试结果的测定值，在以下给出的平均值范围内，这两个测试结果的绝对差值不超过重复性限（*r*），超过重复性限（*r*）情况不超过5 %。重复性限（*r*）按表6数据采用线性内插法或外延法求得。

表6 重复性限

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 元素 | 质量分数/% | 重复性限/% | 元素 | 质量分数/% | 重复性限/% |
| Hf | 0.0044 | 0.00037 | Zn | 0.0020 | 0.00010 |
| 0.053 | 0.0023 | 0.010 | 0.0008 |
| 0.50 | 0.020 | 0.050 | 0.0020 |
| 2.04 | 0.094 | 0.080 | 0.0026 |
| 4.68 | 0.128 | Al | 0.0040 | 0.00040 |
| Nb | 0.010 | 0.0010 | 0.020 | 0.0012 |
| 0.20 | 0.012 | 0.050 | 0.0019 |
| 1.02 | 0.047 | 0.080 | 0.0022 |
| 2.04 | 0.070 | Cu | 0.0040 | 0.00036 |
| 15.00 | 0.455 | 0.020 | 0.0013 |
| 30.30 | 0.644 | 0.050 | 0.0020 |
| Sn | 0.010 | 0.0013 | 0.080 | 0.0028 |
| 0.20 | 0.010 | Mo | 0.0040 | 0.00019 |
| 1.44 | 0.030 | 0.020 | 0.0013 |
| 3.46 | 0.075 | 0.050 | 0.0018 |
| Fe | 0.030 | 0.0017 | 0.080 | 0.0022 |
| 0.091 | 0.0022 | Ta | 0.0040 | 0.00056 |
| 0.14 | 0.007 | 0.020 | 0.0014 |
| 0.44 | 0.016 | 0.050 | 0.0019 |
| Cr | 0.0020 | 0.0002 | 0.080 | 0.0023 |
| 0.0090 | 0.0004 | Pb | 0.0040 | 0.00034 |
| 0.093 | 0.0028 | 0.020 | 0.0014 |
| 0.45 | 0.018 | 0.050 | 0.0019 |
| Ni | 0.0020 | 0.0002 | 0.080 | 0.0021 |
| 0.010 | 0.0006 | Ti | 0.0040 | 0.00020 |
| 0.052 | 0.0019 | 0.020 | 0.0011 |
| 0.15 | 0.010 | 0.050 | 0.0025 |
| Co | 0.0020 | 0.00020 | 0.080 | 0.0027 |
| 0.010 | 0.0008 | V | 0.0040 | 0.00030 |
| 0.050 | 0.0021 | 0.020 | 0.0014 |
| 0.080 | 0.0028 | 0.050 | 0.0022 |
| Mg | 0.0020 | 0.00011 | 0.080 | 0.0031 |
| 0.010 | 0.0008 | W | 0.0040 | 0.00040 |
| 0.050 | 0.0021 | 0.020 | 0.0011 |
| 0.080 | 0.0030 | 0.050 | 0.0021 |
| Mn | 0.0020 | 0.00016 | 0.080 | 0.0030 |
| 0.010 | 0.0008 | Ca | 0.0040 | 0.00020 |
| 0.050 | 0.0021 | 0.020 | 0.0012 |
| 0.080 | 0.0027 | 0.050 | 0.0020 |
| Na | 0.0020 | 0.00020 | 0.080 | 0.0029 |
| 0.010 | 0.0010 | Si | 0.010 | 0.0010 |
| 0.050 | 0.0019 | 0.030 | 0.0016 |
| 0.080 | 0.0025 | 0.050 | 0.0018 |
| / | / | 0.080 | 0.0029 |

10.2 再现性

在再现性条件下获得的两次独立测试结果的测定值，在以下给出的平均值范围内，这两个测试结果的绝对差值不超过再现性限（R），超过再现性限（R）的情况不超过5 %，再现性限（R）按表7数据采用线性内插法或外延法求得。

表7 再现性限

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 元素 | 质量分数/% | 再现性限/% | 元素 | 质量分数/% | 再现性限/% |
| Hf | 0.0044 | 0.00069 | Zn | 0.0020 | 0.00020 |
| 0.053 | 0.0071 | 0.010 | 0.0009 |
| 0.50 | 0.027 | 0.050 | 0.0027 |
| 2.04 | 0.180 | 0.080 | 0.0032 |
| 4.68 | 0.247 | Al | 0.0040 | 0.00080 |
| Nb | 0.010 | 0.0024 | 0.020 | 0.0014 |
| 0.20 | 0.018 | 0.050 | 0.0025 |
| 1.02 | 0.082 | 0.080 | 0.0027 |
| 2.04 | 0.186 | Cu | 0.0040 | 0.00045 |
| 15.00 | 0.611 | 0.020 | 0.0014 |
| 30.30 | 0.792 | 0.050 | 0.0026 |
| Sn | 0.010 | 0.0035 | 0.080 | 0.0037 |
| 0.20 | 0.027 | Mo | 0.0040 | 0.00032 |
| 1.44 | 0.108 | 0.020 | 0.0013 |
| 3.46 | 0.208 | 0.050 | 0.0026 |
| Fe | 0.030 | 0.0026 | 0.080 | 0.0034 |
| 0.091 | 0.0073 | Ta | 0.0040 | 0.00060 |
| 0.14 | 0.017 | 0.020 | 0.0024 |
| 0.44 | 0.029 | 0.050 | 0.0028 |
| Cr | 0.0020 | 0.00030 | 0.080 | 0.0033 |
| 0.0090 | 0.00320 | Pb | 0.0040 | 0.00038 |
| 0.093 | 0.0101 | 0.020 | 0.0020 |
| 0.45 | 0.029 | 0.050 | 0.0034 |
| Ni | 0.0020 | 0.00040 | 0.080 | 0.0040 |
| 0.010 | 0.0009 | Ti | 0.0040 | 0.00030 |
| 0.052 | 0.0061 | 0.020 | 0.0014 |
| 0.15 | 0.014 | 0.050 | 0.0027 |
| Co | 0.0020 | 0.00030 | 0.080 | 0.0042 |
| 0.010 | 0.0009 | V | 0.0040 | 0.00060 |
| 0.050 | 0.0029 | 0.020 | 0.0021 |
| 0.080 | 0.0034 | 0.050 | 0.0036 |
| Mg | 0.0020 | 0.00020 | 0.080 | 0.0048 |
| 0.010 | 0.0009 | W | 0.0040 | 0.00050 |
| 0.050 | 0.0031 | 0.020 | 0.0015 |
| 0.080 | 0.0044 | 0.050 | 0.0032 |
| Mn | 0.0020 | 0.00023 | 0.080 | 0.0038 |
| 0.010 | 0.0012 | Ca | 0.0040 | 0.00040 |
| 0.050 | 0.0030 | 0.020 | 0.0019 |
| 0.080 | 0.0034 | 0.050 | 0.0030 |
| Na | 0.0020 | 0.00040 | 0.080 | 0.0037 |
| 0.010 | 0.0010 | Si | 0.010 | 0.0015 |
| 0.050 | 0.0021 | 0.030 | 0.0028 |
| 0.080 | 0.0034 | 0.050 | 0.0030 |
| / | / | 0.080 | 0.0036 |

11 试验报告

试验报告应至少包括下列内容：

——试样；

——使用的标准（包括发布或出版年号）；

——分析结果及其表示；

——与基本分析步骤的差异；

——测定中观察到的异常现象；

——试验日期。

附录A

(资料性)

精密度试验原始数据

精密度试验原始数据是2021年由9家实验室分别对锆及锆合金中铌的6个不同水平，铪的5个不同水平，铝、钴、铜、铬、铁、镁、锰、钼、镍、铅、硅、锡、钛、钒、钨、钽、钙、锌、钠的4个不同水平样品进行共同试验确定。每个实验室分别对每个水平的铝、钴、铜、铬、铁、铪、镁、锰、钼、铌、镍、铅、硅、锡、钛、钒、钨、钽、钙、锌、钠的含量在重复性条件下独立测定11次。测量原始数据见表A。

表A精密度试验原始数据

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 元素 | | | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | 2 | | | | 3 | | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | 8 | | | | 9 | | | 10 | 11 |
| Hf | | | 1 | | | 1 | | | 0.0043 | | | | | | 0.0045 | | | | 0.0044 | | | | | 0.0046 | | | | | 0.0044 | | | | | 0.0045 | | | | | 0.0045 | | | | 0.0045 | | | | 0.0043 | | | 0.0045 | 0.0047 |
| 2 | | | 0.054 | | | | | | 0.055 | | | | 0.056 | | | | | 0.057 | | | | | 0.055 | | | | | 0.055 | | | | | 0.055 | | | | 0.055 | | | | 0.056 | | | 0.056 | 0.055 |
| 3 | | | 0.50 | | | | | | 0.50 | | | | 0.50 | | | | | 0.51 | | | | | 0.51 | | | | | 0.51 | | | | | 0.49 | | | | 0.50 | | | | 0.50 | | | 0.50 | 0.51 |
| 4 | | | 2.01 | | | | | | 2.10 | | | | 2.00 | | | | | 1.99 | | | | | 2.04 | | | | | 2.09 | | | | | 2.04 | | | | 2.05 | | | | 1.95 | | | 1.98 | 2.04 |
| 5 | | | 4.62 | | | | | | 4.62 | | | | 4.67 | | | | | 4.65 | | | | | 4.60 | | | | | 4.67 | | | | | 4.59 | | | | 4.67 | | | | 4.67 | | | 4.64 | 4.68 |
| 2 | | | 1 | | | 0.0047 | | | | | | 0.0047 | | | | 0.0046 | | | | | 0.0045 | | | | | 0.0044 | | | | | 0.0046 | | | | | 0.0047 | | | | 0.0047 | | | | 0.0045 | | | 0.0046 | 0.0046 |
| 2 | | | 0.057 | | | | | | 0.056 | | | | 0.056 | | | | | 0.056 | | | | | 0.056 | | | | | 0.055 | | | | | 0.055 | | | | 0.056 | | | | 0.056 | | | 0.055 | 0.055 |
| 3 | | | 0.50 | | | | | | 0.50 | | | | 0.51 | | | | | 0.51 | | | | | 0.50 | | | | | 0.50 | | | | | 0.49 | | | | 0.49 | | | | 0.50 | | | 0.50 | 0.51 |
| 4 | | | 2.06 | | | | | | 1.98 | | | | 2.03 | | | | | 1.99 | | | | | 1.99 | | | | | 2.00 | | | | | 2.06 | | | | 2.02 | | | | 2.03 | | | 2.06 | 1.96 |
| 5 | | | 4.58 | | | | | | 4.63 | | | | 4.69 | | | | | 4.47 | | | | | 4.63 | | | | | 4.67 | | | | | 4.65 | | | | 4.65 | | | | 4.64 | | | 4.52 | 4.61 |
| 3 | | | 1 | | | 0.0043 | | | | | | 0.0042 | | | | 0.0043 | | | | | 0.0041 | | | | | 0.0042 | | | | | 0.0043 | | | | | 0.0042 | | | | 0.0041 | | | | 0.0043 | | | 0.0041 | 0.0043 |
| 2 | | | 0.053 | | | | | | 0.054 | | | | 0.054 | | | | | 0.054 | | | | | 0.055 | | | | | 0.055 | | | | | 0.054 | | | | 0.053 | | | | 0.055 | | | 0.055 | 0.054 |
| 3 | | | 0.50 | | | | | | 0.51 | | | | 0.51 | | | | | 0.50 | | | | | 0.51 | | | | | 0.50 | | | | | 0.49 | | | | 0.50 | | | | 0.51 | | | 0.51 | 0.51 |
| 4 | | | 1.99 | | | | | | 1.98 | | | | 2.00 | | | | | 1.97 | | | | | 1.99 | | | | | 2.00 | | | | | 2.02 | | | | 2.01 | | | | 1.98 | | | 2.00 | 1.95 |
| 5 | | | 4.78 | | | | | | 4.81 | | | | 4.77 | | | | | 4.81 | | | | | 4.79 | | | | | 4.84 | | | | | 4.69 | | | | 4.82 | | | | 4.82 | | | 4.79 | 4.83 |
| 4 | | | 1 | | | 0.0044 | | | | | | 0.0044 | | | | 0.0042 | | | | | 0.0040 | | | | | 0.0046 | | | | | 0.0040 | | | | | 0.0048 | | | | 0.0043 | | | | 0.0043 | | | 0.0044 | 0.0045 |
| 2 | | | 0.050 | | | | | | 0.051 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | 0.050 | | | 0.050 | 0.050 |
| 3 | | | 0.52 | | | | | | 0.52 | | | | 0.52 | | | | | 0.52 | | | | | 0.52 | | | | | 0.52 | | | | | 0.51 | | | | 0.51 | | | | 0.51 | | | 0.52 | 0.52 |
| 4 | | | 1.99 | | | | | | 1.98 | | | | 2.00 | | | | | 1.97 | | | | | 1.99 | | | | | 2.00 | | | | | 2.02 | | | | 2.01 | | | | 1.98 | | | 2.00 | 1.95 |
| 5 | | | 4.57 | | | | | | 4.56 | | | | 4.57 | | | | | 4.59 | | | | | 4.55 | | | | | 4.57 | | | | | 4.59 | | | | 4.55 | | | | 4.58 | | | 4.62 | 4.54 |
| 5 | | | 1 | | | 0.0047 | | | | | | 0.0047 | | | | 0.0046 | | | | | 0.0046 | | | | | 0.0044 | | | | | 0.0046 | | | | | 0.0045 | | | | 0.0045 | | | | 0.0045 | | | 0.0044 | 0.0044 |
| 2 | | | 0.055 | | | | | | 0.054 | | | | 0.054 | | | | | 0.055 | | | | | 0.056 | | | | | 0.056 | | | | | 0.056 | | | | 0.055 | | | | 0.056 | | | 0.055 | 0.057 |
| 3 | | | 0.49 | | | | | | 0.51 | | | | 0.51 | | | | | 0.51 | | | | | 0.51 | | | | | 0.51 | | | | | 0.49 | | | | 0.49 | | | | 0.49 | | | 0.51 | 0.51 |
| 4 | | | 2.07 | | | | | | 2.08 | | | | 2.08 | | | | | 2.13 | | | | | 2.05 | | | | | 2.07 | | | | | 2.08 | | | | 2.07 | | | | 2.11 | | | 2.10 | 2.07 |
| 5 | | | 4.68 | | | | | | 4.71 | | | | 4.72 | | | | | 4.74 | | | | | 4.76 | | | | | 4.76 | | | | | 4.71 | | | | 4.68 | | | | 4.69 | | | 4.68 | 4.68 |
| 6 | | | 1 | | | 0.0046 | | | | | | 0.0046 | | | | 0.0046 | | | | | 0.0046 | | | | | 0.0044 | | | | | 0.0046 | | | | | 0.0047 | | | | 0.0047 | | | | 0.0047 | | | 0.0047 | 0.0046 |
| 2 | | | 0.055 | | | | | | 0.056 | | | | 0.055 | | | | | 0.056 | | | | | 0.056 | | | | | 0.056 | | | | | 0.055 | | | | 0.056 | | | | 0.054 | | | 0.054 | 0.056 |
| 3 | | | 0.50 | | | | | | 0.50 | | | | 0.50 | | | | | 0.51 | | | | | 0.50 | | | | | 0.51 | | | | | 0.50 | | | | 0.50 | | | | 0.50 | | | 0.50 | 0.50 |
| 4 | | | 2.10 | | | | | | 2.11 | | | | 2.09 | | | | | 2.20 | | | | | 2.09 | | | | | 2.14 | | | | | 2.01 | | | | 2.09 | | | | 2.20 | | | 2.15 | 2.20 |
| 元素 | | | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | 2 | | | | 3 | | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | 8 | | | | 9 | | | 10 | 11 |
| Hf | | | 6 | | | 5 | | | 4.75 | | | | | | 4.77 | | | | 4.76 | | | | | 4.78 | | | | | 4.76 | | | | | 4.77 | | | | | 4.79 | | | | 4.77 | | | | 4.83 | | | 4.68 | 4.85 |
| 7 | | | 1 | | | 0.0040 | | | | | | 0.0039 | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0040 | | | | | 0.0041 | | | | 0.0040 | | | | 0.0040 | | | 0.0040 | 0.0041 |
| 2 | | | 0.054 | | | | | | 0.054 | | | | 0.054 | | | | | 0.054 | | | | | 0.054 | | | | | 0.053 | | | | | 0.054 | | | | 0.054 | | | | 0.054 | | | 0.054 | 0.053 |
| 3 | | | 0.50 | | | | | | 0.50 | | | | 0.50 | | | | | 0.50 | | | | | 0.50 | | | | | 0.50 | | | | | 0.49 | | | | 0.50 | | | | 0.50 | | | 0.50 | 0.50 |
| 4 | | | 2.10 | | | | | | 2.10 | | | | 2.09 | | | | | 2.09 | | | | | 2.10 | | | | | 2.10 | | | | | 2.09 | | | | 2.09 | | | | 2.10 | | | 2.09 | 2.09 |
| 5 | | | 4.63 | | | | | | 4.65 | | | | 4.65 | | | | | 4.64 | | | | | 4.64 | | | | | 4.64 | | | | | 4.64 | | | | 4.63 | | | | 4.63 | | | 4.64 | 4.64 |
| 8 | | | 1 | | | / | | | | | | / | | | | / | | | | | / | | | | | / | | | | | / | | | | | / | | | | / | | | | / | | | / | / |
| 2 | | | 0.050 | | | | | | 0.048 | | | | 0.051 | | | | | 0.051 | | | | | 0.049 | | | | | 0.048 | | | | | 0.049 | | | | 0.049 | | | | 0.050 | | | 0.048 | 0.048 |
| 3 | | | 0.49 | | | | | | 0.48 | | | | 0.50 | | | | | 0.50 | | | | | 0.49 | | | | | 0.50 | | | | | 0.50 | | | | 0.49 | | | | 0.49 | | | 0.50 | 0.51 |
| 4 | | | 2.10 | | | | | | 2.07 | | | | 2.05 | | | | | 2.05 | | | | | 2.01 | | | | | 2.08 | | | | | 2.08 | | | | 2.08 | | | | 2.05 | | | 2.05 | 2.06 |
| 5 | | | 4.76 | | | | | | 4.73 | | | | 4.72 | | | | | 4.71 | | | | | 4.79 | | | | | 4.71 | | | | | 4.78 | | | | 4.73 | | | | 4.76 | | | 4.78 | 4.71 |
| 9 | | | 1 | | | / | | | | | | / | | | | / | | | | | / | | | | | / | | | | | / | | | | | / | | | | / | | | | / | | | / | / |
| 2 | | | 0.054 | | | | | | 0.054 | | | | 0.054 | | | | | 0.054 | | | | | 0.052 | | | | | 0.051 | | | | | 0.052 | | | | 0.051 | | | | 0.051 | | | 0.051 | 0.051 |
| 3 | | | 0.50 | | | | | | 0.50 | | | | 0.49 | | | | | 0.50 | | | | | 0.49 | | | | | 0.50 | | | | | 0.50 | | | | 0.49 | | | | 0.50 | | | 0.48 | 0.48 |
| 4 | | | 1.98 | | | | | | 1.94 | | | | 1.96 | | | | | 2.01 | | | | | 1.95 | | | | | 1.95 | | | | | 1.97 | | | | 1.92 | | | | 1.94 | | | 1.92 | 1.90 |
| 5 | | | 4.53 | | | | | | 4.62 | | | | 4.73 | | | | | 4.79 | | | | | 4.61 | | | | | 4.64 | | | | | 4.60 | | | | 4.68 | | | | 4.78 | | | 4.73 | 4.72 |
| Nb | | | 1 | | | 1 | | | 0.010 | | | | | | 0.010 | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | 0.010 | 0.010 |
| 2 | | | 0.20 | | | | | | 0.21 | | | | 0.20 | | | | | 0.19 | | | | | 0.20 | | | | | 0.20 | | | | | 0.19 | | | | 0.20 | | | | 0.20 | | | 0.20 | 0.20 |
| 3 | | | 1.00 | | | | | | 0.97 | | | | 0.97 | | | | | 1.02 | | | | | 1.04 | | | | | 0.99 | | | | | 1.03 | | | | 0.99 | | | | 1.04 | | | 0.99 | 1.05 |
| 4 | | | 1.99 | | | | | | 1.96 | | | | 2.01 | | | | | 2.02 | | | | | 1.98 | | | | | 1.97 | | | | | 2.00 | | | | 2.04 | | | | 2.06 | | | 2.01 | 2.03 |
| 5 | | | 15.02 | | | | | | 14.95 | | | | 14.96 | | | | | 15.10 | | | | | 14.99 | | | | | 14.79 | | | | | 14.92 | | | | 14.87 | | | | 15.10 | | | 15.24 | 15.24 |
| 6 | | | 30.26 | | | | | | 30.32 | | | | 30.14 | | | | | 30.43 | | | | | 30.07 | | | | | 30.89 | | | | | 30.15 | | | | 30.06 | | | | 30.10 | | | 30.92 | 30.42 |
| 2 | | | 1 | | | 0.010 | | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | 0.011 | 0.010 |
| 2 | | | 0.20 | | | | | | 0.20 | | | | 0.20 | | | | | 0.20 | | | | | 0.20 | | | | | 0.21 | | | | | 0.20 | | | | 0.20 | | | | 0.20 | | | 0.20 | 0.20 |
| 3 | | | 1.03 | | | | | | 1.01 | | | | 1.04 | | | | | 1.05 | | | | | 1.01 | | | | | 1.03 | | | | | 1.03 | | | | 1.04 | | | | 1.03 | | | 1.02 | 1.04 |
| 4 | | | 2.10 | | | | | | 2.12 | | | | 2.11 | | | | | 2.08 | | | | | 2.13 | | | | | 2.04 | | | | | 2.09 | | | | 2.09 | | | | 2.11 | | | 2.01 | 2.12 |
| 5 | | | 14.77 | | | | | | 15.14 | | | | 15.23 | | | | | 14.93 | | | | | 15.05 | | | | | 14.81 | | | | | 14.97 | | | | 15.18 | | | | 15.01 | | | 15.19 | 15.06 |
| 6 | | | 29.62 | | | | | | 30.48 | | | | 30.60 | | | | | 29.54 | | | | | 30.86 | | | | | 29.61 | | | | | 30.60 | | | | 30.57 | | | | 29.77 | | | 30.63 | 30.84 |
| 3 | | | 1 | | | 0.010 | | | | | | 0.011 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | 0.010 | 0.010 |
| 2 | | | 0.19 | | | | | | 0.19 | | | | 0.21 | | | | | 0.20 | | | | | 0.21 | | | | | 0.19 | | | | | 0.20 | | | | 0.20 | | | | 0.20 | | | 0.20 | 0.20 |
| 3 | | | 1.01 | | | | | | 1.06 | | | | 1.02 | | | | | 1.01 | | | | | 1.01 | | | | | 1.01 | | | | | 1.01 | | | | 1.01 | | | | 1.01 | | | 1.00 | 1.00 |
| 4 | | | 2.03 | | | | | | 2.00 | | | | 2.01 | | | | | 1.97 | | | | | 2.00 | | | | | 2.03 | | | | | 2.01 | | | | 2.00 | | | | 2.00 | | | 1.96 | 1.99 |
| 5 | | | 14.97 | | | | | | 15.01 | | | | 14.95 | | | | | 14.93 | | | | | 15.08 | | | | | 15.12 | | | | | 14.93 | | | | 14.92 | | | | 14.94 | | | 15.06 | 14.96 |
| 6 | | | 30.58 | | | | | | 30.11 | | | | 30.37 | | | | | 30.45 | | | | | 30.25 | | | | | 30.98 | | | | | 30.94 | | | | 30.96 | | | | 30.71 | | | 30.22 | 30.62 |
| 4 | | | 1 | | | 0.012 | | | | | | 0.012 | | | | 0.012 | | | | | 0.013 | | | | | 0.013 | | | | | 0.013 | | | | | 0.013 | | | | 0.013 | | | | 0.013 | | | 0.013 | 0.012 |
| 2 | | | 0.19 | | | | | | 0.19 | | | | 0.19 | | | | | 0.19 | | | | | 0.19 | | | | | 0.19 | | | | | 0.19 | | | | 0.19 | | | | 0.19 | | | 0.20 | 0.19 |
| 3 | | | 1.00 | | | | | | 0.99 | | | | 0.99 | | | | | 1.00 | | | | | 1.00 | | | | | 0.99 | | | | | 1.00 | | | | 1.00 | | | | 1.00 | | | 0.99 | 1.00 |
| 4 | | | 2.12 | | | | | | 2.11 | | | | 2.14 | | | | | 2.12 | | | | | 2.13 | | | | | 2.11 | | | | | 2.13 | | | | 2.12 | | | | 2.09 | | | 2.12 | 2.13 |
| 元素 | | | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | 2 | | | | 3 | | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | 8 | | | | 9 | | | 10 | 11 |
| Nb | | | 4 | | | 5 | | | 15.23 | | | | | | 15.17 | | | | 15.23 | | | | | 15.27 | | | | | 15.14 | | | | | 15.21 | | | | | 15.28 | | | | 15.14 | | | | 15.24 | | | 15.40 | 15.13 |
| 6 | | | 30.07 | | | | | | 30.50 | | | | 30.28 | | | | | 30.64 | | | | | 30.36 | | | | | 30.12 | | | | | 30.58 | | | | 30.16 | | | | 30.95 | | | 30.53 | 30.37 |
| 5 | | | 1 | | | 0.010 | | | | | | 0.010 | | | | 0.010 | | | | | 0.011 | | | | | 0.011 | | | | | 0.010 | | | | | 0.011 | | | | 0.011 | | | | 0.010 | | | 0.011 | 0.010 |
| 2 | | | 0.21 | | | | | | 0.21 | | | | 0.20 | | | | | 0.20 | | | | | 0.19 | | | | | 0.20 | | | | | 0.20 | | | | 0.19 | | | | 0.20 | | | 0.19 | 0.19 |
| 3 | | | 1.01 | | | | | | 1.03 | | | | 1.02 | | | | | 1.01 | | | | | 1.01 | | | | | 1.01 | | | | | 1.01 | | | | 1.01 | | | | 1.02 | | | 1.02 | 1.03 |
| 4 | | | 2.06 | | | | | | 2.05 | | | | 2.05 | | | | | 2.05 | | | | | 2.02 | | | | | 2.01 | | | | | 2.02 | | | | 2.02 | | | | 2.03 | | | 2.03 | 2.04 |
| 5 | | | 14.98 | | | | | | 14.98 | | | | 14.99 | | | | | 14.91 | | | | | 14.99 | | | | | 15.00 | | | | | 14.98 | | | | 15.01 | | | | 15.09 | | | 15.13 | 15.14 |
| 6 | | | 30.21 | | | | | | 30.13 | | | | 30.03 | | | | | 31.10 | | | | | 30.03 | | | | | 30.13 | | | | | 30.34 | | | | 30.22 | | | | 30.29 | | | 30.35 | 30.41 |
| 6 | | | 1 | | | 0.011 | | | | | | 0.011 | | | | 0.011 | | | | | 0.011 | | | | | 0.011 | | | | | 0.011 | | | | | 0.010 | | | | 0.011 | | | | 0.011 | | | 0.011 | 0.010 |
| 2 | | | 0.21 | | | | | | 0.20 | | | | 0.20 | | | | | 0.21 | | | | | 0.21 | | | | | 0.21 | | | | | 0.20 | | | | 0.21 | | | | 0.20 | | | 0.21 | 0.21 |
| 3 | | | 1.01 | | | | | | 1.00 | | | | 1.00 | | | | | 1.00 | | | | | 1.02 | | | | | 1.05 | | | | | 1.00 | | | | 0.99 | | | | 1.01 | | | 1.02 | 1.06 |
| 4 | | | 2.07 | | | | | | 2.07 | | | | 2.07 | | | | | 2.07 | | | | | 2.07 | | | | | 2.07 | | | | | 2.07 | | | | 2.08 | | | | 2.08 | | | 2.07 | 2.08 |
| 5 | | | 15.11 | | | | | | 14.79 | | | | 15.08 | | | | | 15.17 | | | | | 15.10 | | | | | 15.24 | | | | | 15.12 | | | | 15.08 | | | | 15.15 | | | 15.13 | 15.03 |
| 6 | | | 30.32 | | | | | | 30.99 | | | | 30.76 | | | | | 30.34 | | | | | 30.00 | | | | | 30.89 | | | | | 30.05 | | | | 30.56 | | | | 30.69 | | | 30.86 | 30.46 |
| 7 | | | 1 | | | 0.011 | | | | | | 0.011 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | 0.011 | 0.010 |
| 2 | | | 0.20 | | | | | | 0.20 | | | | 0.20 | | | | | 0.20 | | | | | 0.20 | | | | | 0.20 | | | | | 0.20 | | | | 0.20 | | | | 0.20 | | | 0.20 | 0.20 |
| 3 | | | 1.03 | | | | | | 1.01 | | | | 1.03 | | | | | 1.01 | | | | | 1.01 | | | | | 1.01 | | | | | 1.03 | | | | 1.01 | | | | 1.01 | | | 1.01 | 1.02 |
| 4 | | | 2.06 | | | | | | 2.07 | | | | 2.05 | | | | | 2.04 | | | | | 2.04 | | | | | 2.06 | | | | | 2.05 | | | | 2.05 | | | | 2.05 | | | 2.06 | 2.05 |
| 5 | | | 14.93 | | | | | | 15.06 | | | | 14.98 | | | | | 15.04 | | | | | 15.01 | | | | | 15.03 | | | | | 15.00 | | | | 15.01 | | | | 15.03 | | | 15.03 | 15.01 |
| 6 | | | 30.90 | | | | | | 30.87 | | | | 31.01 | | | | | 30.87 | | | | | 30.95 | | | | | 30.88 | | | | | 30.80 | | | | 30.94 | | | | 30.86 | | | 31.00 | 30.94 |
| 8 | | | 1 | | | 0.010 | | | | | | 0.011 | | | | 0.011 | | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | 0.010 | | | | 0.011 | | | 0.010 | 0.010 |
| 2 | | | 0.19 | | | | | | 0.19 | | | | 0.19 | | | | | 0.20 | | | | | 0.20 | | | | | 0.19 | | | | | 0.19 | | | | 0.19 | | | | 0.18 | | | 0.19 | 0.19 |
| 3 | | | 1.07 | | | | | | 1.09 | | | | 1.05 | | | | | 1.05 | | | | | 1.08 | | | | | 1.09 | | | | | 1.05 | | | | 1.08 | | | | 1.04 | | | 1.10 | 1.09 |
| 4 | | | 2.04 | | | | | | 2.11 | | | | 2.11 | | | | | 2.10 | | | | | 2.06 | | | | | 2.13 | | | | | 2.14 | | | | 2.14 | | | | 2.11 | | | 2.10 | 2.01 |
| 5 | | | 15.02 | | | | | | 15.64 | | | | 15.08 | | | | | 15.15 | | | | | 15.14 | | | | | 14.49 | | | | | 15.17 | | | | 14.46 | | | | 14.99 | | | 14.58 | 14.51 |
| 6 | | | 30.52 | | | | | | 30.33 | | | | 30.19 | | | | | 30.06 | | | | | 30.53 | | | | | 30.89 | | | | | 30.42 | | | | 30.27 | | | | 30.32 | | | 30.87 | 30.13 |
| 9 | | | 1 | | | 0.010 | | | | | | 0.010 | | | | 0.011 | | | | | 0.010 | | | | | 0.011 | | | | | 0.010 | | | | | 0.011 | | | | 0.011 | | | | 0.011 | | | 0.010 | 0.011 |
| 2 | | | 0.21 | | | | | | 0.21 | | | | 0.20 | | | | | 0.21 | | | | | 0.20 | | | | | 0.20 | | | | | 0.20 | | | | 0.20 | | | | 0.20 | | | 0.20 | 0.20 |
| 3 | | | 0.99 | | | | | | 0.99 | | | | 1.01 | | | | | 0.98 | | | | | 0.98 | | | | | 0.99 | | | | | 0.99 | | | | 0.96 | | | | 0.98 | | | 1.01 | 0.98 |
| 4 | | | 1.95 | | | | | | 1.90 | | | | 1.93 | | | | | 1.97 | | | | | 1.92 | | | | | 1.93 | | | | | 1.94 | | | | 1.89 | | | | 1.92 | | | 1.91 | 1.90 |
| 5 | | | 14.79 | | | | | | 14.72 | | | | 14.73 | | | | | 14.80 | | | | | 14.73 | | | | | 14.59 | | | | | 14.74 | | | | 14.60 | | | | 14.64 | | | 14.36 | 14.48 |
| 6 | | | 30.18 | | | | | | 30.97 | | | | 30.18 | | | | | 30.42 | | | | | 30.05 | | | | | 30.29 | | | | | 30.81 | | | | 30.30 | | | | 30.51 | | | 30.27 | 30.13 |
| Sn | | | 1 | | | 1 | | | 0.010 | | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | 0.010 | 0.010 |
| 2 | | | 0.20 | | | | | | 0.21 | | | | 0.20 | | | | | 0.20 | | | | | 0.20 | | | | | 0.20 | | | | | 0.21 | | | | 0.20 | | | | 0.20 | | | 0.20 | 0.20 |
| 3 | | | 1.39 | | | | | | 1.40 | | | | 1.39 | | | | | 1.39 | | | | | 1.40 | | | | | 1.41 | | | | | 1.40 | | | | 1.39 | | | | 1.39 | | | 1.40 | 1.41 |
| 4 | | | 3.40 | | | | | | 3.43 | | | | 3.40 | | | | | 3.39 | | | | | 3.41 | | | | | 3.41 | | | | | 3.40 | | | | 3.40 | | | | 3.41 | | | 3.40 | 3.39 |
| 2 | | | 1 | | | 0.011 | | | | | | 0.011 | | | | 0.010 | | | | | 0.011 | | | | | 0.011 | | | | | 0.011 | | | | | 0.011 | | | | 0.011 | | | | 0.010 | | | 0.011 | 0.011 |
| 元素 | | | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | 2 | | | | 3 | | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | 8 | | | | 9 | | | 10 | 11 |
| Sn | | | 2 | | | 2 | | | 0.21 | | | | | | 0.20 | | | | 0.20 | | | | | 0.20 | | | | | 0.20 | | | | | 0.20 | | | | | 0.20 | | | | 0.20 | | | | 0.20 | | | 0.20 | 0.20 |
| 3 | | | 1.40 | | | | | | 1.42 | | | | 1.44 | | | | | 1.44 | | | | | 1.44 | | | | | 1.44 | | | | | 1.42 | | | | 1.43 | | | | 1.42 | | | 1.44 | 1.43 |
| 4 | | | 3.45 | | | | | | 3.48 | | | | 3.46 | | | | | 3.47 | | | | | 3.49 | | | | | 3.40 | | | | | 3.44 | | | | 3.50 | | | | 3.47 | | | 3.45 | 3.36 |
| 3 | | | 1 | | | 0.010 | | | | | | 0.011 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | 0.010 | 0.010 |
| 2 | | | 0.21 | | | | | | 0.20 | | | | 0.21 | | | | | 0.21 | | | | | 0.20 | | | | | 0.20 | | | | | 0.20 | | | | 0.20 | | | | 0.20 | | | 0.20 | 0.20 |
| 3 | | | 1.39 | | | | | | 1.41 | | | | 1.39 | | | | | 1.40 | | | | | 1.40 | | | | | 1.40 | | | | | 1.41 | | | | 1.39 | | | | 1.39 | | | 1.40 | 1.39 |
| 4 | | | 3.41 | | | | | | 3.42 | | | | 3.39 | | | | | 3.40 | | | | | 3.40 | | | | | 3.41 | | | | | 3.41 | | | | 3.38 | | | | 3.40 | | | 3.40 | 3.40 |
| 4 | | | 1 | | | 0.012 | | | | | | 0.011 | | | | 0.012 | | | | | 0.010 | | | | | 0.012 | | | | | 0.012 | | | | | 0.011 | | | | 0.011 | | | | 0.012 | | | 0.012 | 0.011 |
| 2 | | | 0.22 | | | | | | 0.22 | | | | 0.23 | | | | | 0.22 | | | | | 0.22 | | | | | 0.22 | | | | | 0.22 | | | | 0.22 | | | | 0.22 | | | 0.22 | 0.22 |
| 3 | | | 1.50 | | | | | | 1.47 | | | | 1.50 | | | | | 1.51 | | | | | 1.51 | | | | | 1.49 | | | | | 1.51 | | | | 1.49 | | | | 1.49 | | | 1.51 | 1.50 |
| 4 | | | 3.50 | | | | | | 3.49 | | | | 3.52 | | | | | 3.50 | | | | | 3.51 | | | | | 3.49 | | | | | 3.51 | | | | 3.50 | | | | 3.47 | | | 3.50 | 3.51 |
| 5 | | | 1 | | | 0.010 | | | | | | 0.011 | | | | 0.011 | | | | | 0.011 | | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | 0.011 | | | | 0.010 | | | 0.010 | 0.010 |
| 2 | | | 0.21 | | | | | | 0.20 | | | | 0.20 | | | | | 0.21 | | | | | 0.21 | | | | | 0.21 | | | | | 0.21 | | | | 0.20 | | | | 0.20 | | | 0.21 | 0.21 |
| 3 | | | 1.40 | | | | | | 1.40 | | | | 1.39 | | | | | 1.40 | | | | | 1.41 | | | | | 1.41 | | | | | 1.40 | | | | 1.40 | | | | 1.40 | | | 1.39 | 1.40 |
| 4 | | | 3.41 | | | | | | 3.42 | | | | 3.42 | | | | | 3.41 | | | | | 3.41 | | | | | 3.41 | | | | | 3.41 | | | | 3.40 | | | | 3.41 | | | 3.40 | 3.39 |
| 6 | | | 1 | | | 0.010 | | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | 0.011 | | | | 0.011 | | | 0.010 | 0.011 |
| 2 | | | 0.20 | | | | | | 0.20 | | | | 0.20 | | | | | 0.21 | | | | | 0.20 | | | | | 0.21 | | | | | 0.20 | | | | 0.20 | | | | 0.20 | | | 0.20 | 0.20 |
| 3 | | | 1.45 | | | | | | 1.46 | | | | 1.48 | | | | | 1.46 | | | | | 1.46 | | | | | 1.45 | | | | | 1.46 | | | | 1.47 | | | | 1.47 | | | 1.47 | 1.46 |
| 4 | | | 3.58 | | | | | | 3.58 | | | | 3.58 | | | | | 3.62 | | | | | 3.52 | | | | | 3.59 | | | | | 3.63 | | | | 3.56 | | | | 3.57 | | | 3.64 | 3.61 |
| 7 | | | 1 | | | 0.010 | | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | 0.010 | 0.010 |
| 2 | | | 0.20 | | | | | | 0.20 | | | | 0.20 | | | | | 0.20 | | | | | 0.20 | | | | | 0.20 | | | | | 0.20 | | | | 0.20 | | | | 0.20 | | | 0.20 | 0.20 |
| 3 | | | 1.42 | | | | | | 1.43 | | | | 1.42 | | | | | 1.42 | | | | | 1.44 | | | | | 1.44 | | | | | 1.43 | | | | 1.43 | | | | 1.43 | | | 1.43 | 1.44 |
| 4 | | | 3.42 | | | | | | 3.43 | | | | 3.43 | | | | | 3.43 | | | | | 3.43 | | | | | 3.42 | | | | | 3.43 | | | | 3.43 | | | | 3.43 | | | 3.43 | 3.44 |
| 8 | | | 1 | | | 0.010 | | | | | | 0.011 | | | | 0.011 | | | | | 0.012 | | | | | 0.012 | | | | | 0.012 | | | | | 0.012 | | | | 0.011 | | | | 0.011 | | | 0.011 | 0.011 |
| 2 | | | 0.20 | | | | | | 0.21 | | | | 0.21 | | | | | 0.22 | | | | | 0.21 | | | | | 0.21 | | | | | 0.21 | | | | 0.20 | | | | 0.21 | | | 0.20 | 0.21 |
| 3 | | | 1.46 | | | | | | 1.45 | | | | 1.44 | | | | | 1.43 | | | | | 1.44 | | | | | 1.43 | | | | | 1.46 | | | | 1.48 | | | | 1.47 | | | 1.46 | 1.46 |
| 4 | | | 3.55 | | | | | | 3.54 | | | | 3.52 | | | | | 3.55 | | | | | 3.44 | | | | | 3.54 | | | | | 3.55 | | | | 3.43 | | | | 3.45 | | | 3.46 | 3.52 |
| 9 | | | 1 | | | 0.010 | | | | | | 0.008 | | | | 0.007 | | | | | 0.009 | | | | | 0.010 | | | | | 0.009 | | | | | 0.010 | | | | 0.011 | | | | 0.010 | | | 0.009 | 0.010 |
| 2 | | | 0.23 | | | | | | 0.23 | | | | 0.23 | | | | | 0.23 | | | | | 0.22 | | | | | 0.22 | | | | | 0.22 | | | | 0.22 | | | | 0.23 | | | 0.22 | 0.23 |
| 3 | | | 1.49 | | | | | | 1.49 | | | | 1.48 | | | | | 1.47 | | | | | 1.46 | | | | | 1.51 | | | | | 1.47 | | | | 1.49 | | | | 1.46 | | | 1.48 | 1.47 |
| 4 | | | / | | | | | | / | | | | / | | | | | / | | | | | / | | | | | / | | | | | / | | | | / | | | | / | | | / | / |
| Fe | | | 1 | | | 1 | | | 0.030 | | | | | | 0.029 | | | | 0.030 | | | | | 0.030 | | | | | 0.029 | | | | | 0.030 | | | | | 0.031 | | | | 0.030 | | | | 0.030 | | | 0.030 | 0.030 |
| 2 | | | 0.090 | | | | | | 0.090 | | | | 0.090 | | | | | 0.088 | | | | | 0.090 | | | | | 0.090 | | | | | 0.090 | | | | 0.090 | | | | 0.090 | | | 0.090 | 0.090 |
| 3 | | | 0.14 | | | | | | 0.14 | | | | 0.14 | | | | | 0.14 | | | | | 0.13 | | | | | 0.14 | | | | | 0.13 | | | | 0.13 | | | | 0.14 | | | 0.13 | 0.13 |
| 4 | | | 0.44 | | | | | | 0.44 | | | | 0.44 | | | | | 0.44 | | | | | 0.45 | | | | | 0.44 | | | | | 0.43 | | | | 0.44 | | | | 0.44 | | | 0.44 | 0.45 |
| 2 | | | 1 | | | 0.031 | | | | | | 0.031 | | | | 0.031 | | | | | 0.031 | | | | | 0.031 | | | | | 0.031 | | | | | 0.031 | | | | 0.031 | | | | 0.031 | | | 0.031 | 0.031 |
| 元素 | 实验室 | | | | 水平数 | | | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | 2 | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | | 8 | | | | 9 | | | | 10 | | 11 |
| Fe | 2 | | | | 2 | | | | | 0.091 | | | | 0.090 | | | 0.091 | | | | 0.090 | | | | | 0.092 | | | | | 0.091 | | | | | 0.093 | | | | | 0.092 | | | | 0.092 | | | | 0.092 | | 0.093 |
| 3 | | | | | 0.15 | | | | 0.15 | | | 0.14 | | | | 0.15 | | | | | 0.15 | | | | | 0.14 | | | | | 0.15 | | | | | 0.15 | | | | 0.15 | | | | 0.15 | | 0.15 |
| 4 | | | | | 0.45 | | | | 0.43 | | | 0.44 | | | | 0.45 | | | | | 0.44 | | | | | 0.46 | | | | | 0.45 | | | | | 0.45 | | | | 0.44 | | | | 0.44 | | 0.46 |
| 3 | | | | 1 | | | | | 0.030 | | | | 0.030 | | | 0.031 | | | | 0.031 | | | | | 0.030 | | | | | 0.029 | | | | | 0.031 | | | | | 0.030 | | | | 0.030 | | | | 0.030 | | 0.031 |
| 2 | | | | | 0.090 | | | | 0.091 | | | 0.091 | | | | 0.090 | | | | | 0.090 | | | | | 0.091 | | | | | 0.090 | | | | | 0.089 | | | | 0.090 | | | | 0.091 | | 0.091 |
| 3 | | | | | 0.14 | | | | 0.14 | | | 0.14 | | | | 0.14 | | | | | 0.14 | | | | | 0.14 | | | | | 0.14 | | | | | 0.14 | | | | 0.14 | | | | 0.14 | | 0.14 |
| 4 | | | | | 0.44 | | | | 0.44 | | | 0.44 | | | | 0.44 | | | | | 0.44 | | | | | 0.45 | | | | | 0.43 | | | | | 0.44 | | | | 0.44 | | | | 0.45 | | 0.44 |
| 4 | | | | 1 | | | | | 0.031 | | | | 0.031 | | | 0.031 | | | | 0.031 | | | | | 0.031 | | | | | 0.030 | | | | | 0.031 | | | | | 0.031 | | | | 0.031 | | | | 0.030 | | 0.031 |
| 2 | | | | | 0.087 | | | | 0.087 | | | 0.087 | | | | 0.086 | | | | | 0.086 | | | | | 0.086 | | | | | 0.086 | | | | | 0.085 | | | | 0.086 | | | | 0.087 | | 0.086 |
| 3 | | | | | 0.13 | | | | 0.13 | | | 0.13 | | | | 0.13 | | | | | 0.13 | | | | | 0.13 | | | | | 0.13 | | | | | 0.13 | | | | 0.13 | | | | 0.13 | | 0.13 |
| 4 | | | | | 0.43 | | | | 0.42 | | | 0.42 | | | | 0.42 | | | | | 0.43 | | | | | 0.42 | | | | | 0.42 | | | | | 0.42 | | | | 0.42 | | | | 0.42 | | 0.43 |
| 5 | | | | 1 | | | | | 0.029 | | | | 0.029 | | | 0.029 | | | | 0.029 | | | | | 0.029 | | | | | 0.029 | | | | | 0.030 | | | | | 0.030 | | | | 0.029 | | | | 0.030 | | 0.030 |
| 2 | | | | | 0.092 | | | | 0.092 | | | 0.091 | | | | 0.091 | | | | | 0.091 | | | | | 0.091 | | | | | 0.090 | | | | | 0.091 | | | | 0.091 | | | | 0.090 | | 0.091 |
| 3 | | | | | 0.14 | | | | 0.14 | | | 0.14 | | | | 0.14 | | | | | 0.14 | | | | | 0.14 | | | | | 0.14 | | | | | 0.14 | | | | 0.14 | | | | 0.13 | | 0.13 |
| 4 | | | | | 0.43 | | | | 0.44 | | | 0.43 | | | | 0.43 | | | | | 0.44 | | | | | 0.43 | | | | | 0.44 | | | | | 0.44 | | | | 0.44 | | | | 0.44 | | 0.45 |
| 6 | | | | 1 | | | | | 0.090 | | | | 0.090 | | | 0.090 | | | | 0.091 | | | | | 0.090 | | | | | 0.091 | | | | | 0.090 | | | | | 0.090 | | | | 0.090 | | | | 0.090 | | 0.091 |
| 2 | | | | | 0.14 | | | | 0.14 | | | 0.14 | | | | 0.14 | | | | | 0.14 | | | | | 0.15 | | | | | 0.14 | | | | | 0.15 | | | | 0.14 | | | | 0.14 | | 0.14 |
| 3 | | | | | 0.45 | | | | 0.45 | | | 0.45 | | | | 0.45 | | | | | 0.45 | | | | | 0.45 | | | | | 0.45 | | | | | 0.46 | | | | 0.45 | | | | 0.45 | | 0.45 |
| 4 | | | | | 0.030 | | | | 0.030 | | | 0.030 | | | | 0.030 | | | | | 0.030 | | | | | 0.030 | | | | | 0.031 | | | | | 0.030 | | | | 0.030 | | | | 0.030 | | 0.030 |
| 7 | | | | 1 | | | | | 0.092 | | | | 0.092 | | | 0.092 | | | | 0.091 | | | | | 0.092 | | | | | 0.092 | | | | | 0.092 | | | | | 0.092 | | | | 0.092 | | | | 0.093 | | 0.092 |
| 2 | | | | | 0.14 | | | | 0.14 | | | 0.14 | | | | 0.14 | | | | | 0.14 | | | | | 0.14 | | | | | 0.14 | | | | | 0.14 | | | | 0.14 | | | | 0.14 | | 0.14 |
| 3 | | | | | 0.45 | | | | 0.44 | | | 0.44 | | | | 0.44 | | | | | 0.44 | | | | | 0.44 | | | | | 0.44 | | | | | 0.44 | | | | 0.45 | | | | 0.45 | | 0.44 |
| 4 | | | | | 0.029 | | | | 0.029 | | | 0.031 | | | | 0.031 | | | | | 0.029 | | | | | 0.029 | | | | | 0.030 | | | | | 0.029 | | | | 0.028 | | | | 0.029 | | 0.028 |
| 8 | | | | 1 | | | | | 0.092 | | | | 0.094 | | | 0.092 | | | | 0.094 | | | | | 0.094 | | | | | 0.094 | | | | | 0.092 | | | | | 0.094 | | | | 0.094 | | | | 0.090 | | 0.091 |
| 2 | | | | | 0.14 | | | | 0.14 | | | 0.14 | | | | 0.15 | | | | | 0.15 | | | | | 0.14 | | | | | 0.15 | | | | | 0.15 | | | | 0.14 | | | | 0.14 | | 0.14 |
| 3 | | | | | 0.44 | | | | 0.46 | | | 0.44 | | | | 0.45 | | | | | 0.45 | | | | | 0.43 | | | | | 0.45 | | | | | 0.45 | | | | 0.43 | | | | 0.45 | | 0.45 |
| 4 | | | | | 0.033 | | | | 0.031 | | | 0.030 | | | | 0.031 | | | | | 0.030 | | | | | 0.031 | | | | | 0.032 | | | | | 0.032 | | | | 0.033 | | | | 0.033 | | 0.032 |
| 9 | | | | 1 | | | | | 0.092 | | | | 0.092 | | | 0.093 | | | | 0.093 | | | | | 0.093 | | | | | 0.095 | | | | | 0.094 | | | | | 0.092 | | | | 0.094 | | | | 0.094 | | 0.092 |
| 2 | | | | | 0.13 | | | | 0.13 | | | 0.13 | | | | 0.13 | | | | | 0.13 | | | | | 0.13 | | | | | 0.12 | | | | | 0.13 | | | | 0.13 | | | | 0.13 | | 0.13 |
| 3 | | | | | / | | | | / | | | / | | | | / | | | | | / | | | | | / | | | | | / | | | | | / | | | | / | | | | / | | / |
| 4 | | | | | 0.0021 | | | | 0.0020 | | | 0.0020 | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0019 | | | | | 0.0020 | | | | | 0.0021 | | | | 0.0019 | | | | 0.0020 | | 0.0019 |
| Cr | 1 | | | | 1 | | | | | 0.0085 | | | | 0.0086 | | | 0.0086 | | | | 0.0085 | | | | | 0.0086 | | | | | 0.0085 | | | | | 0.0085 | | | | | 0.0084 | | | | 0.0084 | | | | 0.0084 | | 0.0084 |
| 2 | | | | | 0.090 | | | | 0.091 | | | 0.089 | | | | 0.091 | | | | | 0.090 | | | | | 0.090 | | | | | 0.091 | | | | | 0.091 | | | | 0.090 | | | | 0.090 | | 0.090 |
| 3 | | | | | 0.44 | | | | 0.43 | | | 0.43 | | | | 0.44 | | | | | 0.44 | | | | | 0.44 | | | | | 0.44 | | | | | 0.44 | | | | 0.44 | | | | 0.44 | | 0.44 |
| 4 | | | | | 0.0020 | | | | 0.0020 | | | 0.0021 | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0019 | | | | 0.0021 | | | | 0.0021 | | 0.0020 |
| 元素 | 实验室 | | | | 水平数 | | | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | 2 | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | | 8 | | | | 9 | | | | 10 | | 11 |
| Cr | 2 | | | | 1 | | | | | 0.0105 | | | | 0.0105 | | | 0.0108 | | | | 0.0106 | | | | | 0.0107 | | | | | 0.0109 | | | | | 0.0106 | | | | | 0.0108 | | | | 0.0109 | | | | 0.0107 | | 0.0107 |
| 2 | | | | | 0.097 | | | | 0.095 | | | 0.095 | | | | 0.098 | | | | | 0.096 | | | | | 0.098 | | | | | 0.096 | | | | | 0.096 | | | | 0.096 | | | | 0.097 | | 0.097 |
| 3 | | | | | 0.45 | | | | 0.44 | | | 0.46 | | | | 0.45 | | | | | 0.46 | | | | | 0.45 | | | | | 0.45 | | | | | 0.44 | | | | 0.44 | | | | 0.45 | | 0.45 |
| 4 | | | | | 0.0021 | | | | 0.0020 | | | 0.0020 | | | | 0.0020 | | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0019 | | | | 0.0020 | | 0.0020 |
| 3 | | | | 1 | | | | | 0.0085 | | | | 0.0084 | | | 0.0085 | | | | 0.0086 | | | | | 0.0086 | | | | | 0.0087 | | | | | 0.0086 | | | | | 0.0085 | | | | 0.0085 | | | | 0.0087 | | 0.0084 |
| 2 | | | | | 0.091 | | | | 0.090 | | | 0.089 | | | | 0.089 | | | | | 0.089 | | | | | 0.091 | | | | | 0.090 | | | | | 0.090 | | | | 0.090 | | | | 0.088 | | 0.091 |
| 3 | | | | | 0.45 | | | | 0.44 | | | 0.44 | | | | 0.44 | | | | | 0.44 | | | | | 0.45 | | | | | 0.45 | | | | | 0.44 | | | | 0.45 | | | | 0.45 | | 0.46 |
| 4 | | | | | 0.0019 | | | | 0.0022 | | | 0.0020 | | | | 0.0020 | | | | | 0.0019 | | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0019 | | | | 0.0020 | | | | 0.0023 | | 0.0022 |
| 4 | | | | 1 | | | | | 0.0080 | | | | 0.0080 | | | 0.0083 | | | | 0.0085 | | | | | 0.0081 | | | | | 0.0083 | | | | | 0.0084 | | | | | 0.0083 | | | | 0.0080 | | | | 0.0081 | | 0.0085 |
| 2 | | | | | 0.094 | | | | 0.093 | | | 0.094 | | | | 0.094 | | | | | 0.094 | | | | | 0.094 | | | | | 0.094 | | | | | 0.093 | | | | 0.093 | | | | 0.094 | | 0.090 |
| 3 | | | | | 0.45 | | | | 0.44 | | | 0.44 | | | | 0.44 | | | | | 0.45 | | | | | 0.44 | | | | | 0.45 | | | | | 0.44 | | | | 0.44 | | | | 0.44 | | 0.45 |
| 4 | | | | | 0.0021 | | | | 0.0021 | | | 0.0020 | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0019 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0020 | | | | 0.0021 | | 0.0020 |
| 5 | | | | 1 | | | | | 0.0083 | | | | 0.0085 | | | 0.0088 | | | | 0.0085 | | | | | 0.0084 | | | | | 0.0084 | | | | | 0.0083 | | | | | 0.0083 | | | | 0.0084 | | | | 0.0083 | | 0.0083 |
| 2 | | | | | 0.092 | | | | 0.092 | | | 0.091 | | | | 0.092 | | | | | 0.091 | | | | | 0.091 | | | | | 0.091 | | | | | 0.092 | | | | 0.091 | | | | 0.091 | | 0.091 |
| 3 | | | | | 0.45 | | | | 0.45 | | | 0.44 | | | | 0.45 | | | | | 0.44 | | | | | 0.45 | | | | | 0.45 | | | | | 0.44 | | | | 0.45 | | | | 0.45 | | 0.44 |
| 4 | | | | | 0.0020 | | | | 0.0020 | | | 0.0021 | | | | 0.0020 | | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0021 | | | | | 0.0021 | | | | 0.0020 | | | | 0.0020 | | 0.0020 |
| 6 | | | | 1 | | | | | 0.0101 | | | | 0.0102 | | | 0.0099 | | | | 0.0100 | | | | | 0.0103 | | | | | 0.0102 | | | | | 0.0098 | | | | | 0.0102 | | | | 0.0100 | | | | 0.0101 | | 0.0098 |
| 2 | | | | | 0.099 | | | | 0.099 | | | 0.097 | | | | 0.099 | | | | | 0.100 | | | | | 0.101 | | | | | 0.099 | | | | | 0.099 | | | | 0.098 | | | | 0.099 | | 0.099 |
| 3 | | | | | 0.090 | | | | 0.090 | | | 0.090 | | | | 0.091 | | | | | 0.090 | | | | | 0.091 | | | | | 0.090 | | | | | 0.090 | | | | 0.090 | | | | 0.090 | | 0.091 |
| 4 | | | | | 0.030 | | | | 0.031 | | | 0.032 | | | | 0.032 | | | | | 0.031 | | | | | 0.032 | | | | | 0.030 | | | | | 0.031 | | | | 0.032 | | | | 0.032 | | 0.032 |
| 7 | | | | 1 | | | | | 0.090 | | | | 0.090 | | | 0.090 | | | | 0.091 | | | | | 0.090 | | | | | 0.091 | | | | | 0.090 | | | | | 0.090 | | | | 0.090 | | | | 0.090 | | 0.091 |
| 2 | | | | | 0.14 | | | | 0.14 | | | 0.14 | | | | 0.14 | | | | | 0.14 | | | | | 0.15 | | | | | 0.14 | | | | | 0.15 | | | | 0.14 | | | | 0.14 | | 0.14 |
| 3 | | | | | 0.45 | | | | 0.45 | | | 0.45 | | | | 0.45 | | | | | 0.45 | | | | | 0.45 | | | | | 0.45 | | | | | 0.46 | | | | 0.45 | | | | 0.45 | | 0.45 |
| 4 | | | | | 0.030 | | | | 0.030 | | | 0.030 | | | | 0.030 | | | | | 0.030 | | | | | 0.030 | | | | | 0.031 | | | | | 0.030 | | | | 0.030 | | | | 0.030 | | 0.030 |
| 8 | | | | 1 | | | | | 0.092 | | | | 0.092 | | | 0.092 | | | | 0.091 | | | | | 0.092 | | | | | 0.092 | | | | | 0.092 | | | | | 0.092 | | | | 0.092 | | | | 0.093 | | 0.092 |
| 2 | | | | | 0.14 | | | | 0.14 | | | 0.14 | | | | 0.14 | | | | | 0.14 | | | | | 0.14 | | | | | 0.14 | | | | | 0.14 | | | | 0.14 | | | | 0.14 | | 0.14 |
| 3 | | | | | 0.45 | | | | 0.44 | | | 0.44 | | | | 0.44 | | | | | 0.44 | | | | | 0.44 | | | | | 0.44 | | | | | 0.44 | | | | 0.45 | | | | 0.45 | | 0.44 |
| 4 | | | | | 0.029 | | | | 0.029 | | | 0.031 | | | | 0.031 | | | | | 0.029 | | | | | 0.029 | | | | | 0.030 | | | | | 0.029 | | | | 0.028 | | | | 0.029 | | 0.028 |
| 9 | | | | 1 | | | | | 0.092 | | | | 0.094 | | | 0.092 | | | | 0.094 | | | | | 0.094 | | | | | 0.094 | | | | | 0.092 | | | | | 0.094 | | | | 0.094 | | | | 0.090 | | 0.091 |
| 2 | | | | | 0.14 | | | | 0.14 | | | 0.14 | | | | 0.15 | | | | | 0.15 | | | | | 0.14 | | | | | 0.15 | | | | | 0.15 | | | | 0.14 | | | | 0.14 | | 0.14 |
| 3 | | | | | 0.44 | | | | 0.46 | | | 0.44 | | | | 0.45 | | | | | 0.45 | | | | | 0.43 | | | | | 0.45 | | | | | 0.45 | | | | 0.43 | | | | 0.45 | | 0.45 |
| 4 | | | | | 0.45 | | | | 0.44 | | | 0.44 | | | | 0.44 | | | | | 0.45 | | | | | 0.44 | | | | | 0.45 | | | | | 0.45 | | | | 0.44 | | | | 0.45 | | 0.45 |
| Ni | 1 | | | | 1 | | | | | 0.0020 | | | | 0.0020 | | | 0.0020 | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0019 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0020 | | | | 0.0020 | | 0.0020 |
| 2 | | | | | 0.0088 | | | | 0.0089 | | | 0.0088 | | | | 0.0089 | | | | | 0.0088 | | | | | 0.0089 | | | | | 0.0090 | | | | | 0.0089 | | | | 0.0089 | | | | 0.0089 | | 0.0089 |
| 3 | | | | | 0.095 | | | | 0.095 | | | 0.094 | | | | 0.094 | | | | | 0.094 | | | | | 0.094 | | | | | 0.095 | | | | | 0.094 | | | | 0.094 | | | | 0.094 | | 0.094 |
| 元素 | | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | 2 | | | | | 3 | | | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | 8 | | | | 9 | | | | 10 | 11 |
| Ni | | 1 | | | 4 | | | 0.44 | | | | 0.45 | | | | | 0.45 | | | | | | 0.45 | | | | | 0.44 | | | | | 0.45 | | | | | 0.44 | | | | 0.45 | | | | 0.45 | | | | 0.45 | 0.45 |
| 2 | | | 1 | | | 0.0020 | | | | 0.0019 | | | | | 0.0018 | | | | | | 0.0018 | | | | | 0.0017 | | | | | 0.0019 | | | | | 0.0018 | | | | 0.0018 | | | | 0.0020 | | | | 0.0020 | 0.0020 |
| 2 | | | 0.0084 | | | | 0.0083 | | | | | 0.0084 | | | | | | 0.0083 | | | | | 0.0084 | | | | | 0.0084 | | | | | 0.0084 | | | | 0.0085 | | | | 0.0085 | | | | 0.0086 | 0.0086 |
| 3 | | | 0.088 | | | | 0.089 | | | | | 0.089 | | | | | | 0.090 | | | | | 0.090 | | | | | 0.089 | | | | | 0.089 | | | | 0.087 | | | | 0.090 | | | | 0.086 | 0.088 |
| 4 | | | 0.43 | | | | 0.42 | | | | | 0.43 | | | | | | 0.45 | | | | | 0.44 | | | | | 0.41 | | | | | 0.42 | | | | 0.45 | | | | 0.44 | | | | 0.43 | 0.42 |
| 3 | | | 1 | | | 0.0022 | | | | 0.0021 | | | | | 0.0022 | | | | | | 0.0021 | | | | | 0.0022 | | | | | 0.0022 | | | | | 0.0022 | | | | 0.0021 | | | | 0.0022 | | | | 0.0022 | 0.0020 |
| 2 | | | 0.011 | | | | 0.011 | | | | | 0.011 | | | | | | 0.012 | | | | | 0.011 | | | | | 0.011 | | | | | 0.011 | | | | 0.011 | | | | 0.011 | | | | 0.011 | 0.011 |
| 3 | | | 0.096 | | | | 0.096 | | | | | 0.095 | | | | | | 0.095 | | | | | 0.095 | | | | | 0.095 | | | | | 0.092 | | | | 0.098 | | | | 0.094 | | | | 0.093 | 0.095 |
| 4 | | | 0.44 | | | | 0.42 | | | | | 0.42 | | | | | | 0.42 | | | | | 0.44 | | | | | 0.41 | | | | | 0.42 | | | | 0.41 | | | | 0.42 | | | | 0.42 | 0.44 |
| 4 | | | 1 | | | 0.0021 | | | | 0.0021 | | | | | 0.0020 | | | | | | 0.0020 | | | | | 0.0019 | | | | | 0.0019 | | | | | 0.0020 | | | | 0.0021 | | | | 0.0019 | | | | 0.0020 | 0.0020 |
| 2 | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | 0.010 |
| 3 | | | 0.051 | | | | 0.050 | | | | | 0.049 | | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | 0.050 | | | | 0.050 | 0.051 |
| 4 | | | 0.15 | | | | 0.15 | | | | | 0.15 | | | | | | 0.15 | | | | | 0.15 | | | | | 0.15 | | | | | 0.15 | | | | 0.15 | | | | 0.15 | | | | 0.15 | 0.15 |
| 5 | | | 1 | | | 0.0020 | | | | 0.0022 | | | | | 0.0020 | | | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0020 | | | | 0.0021 | | | | 0.0021 | | | | 0.0021 | 0.0021 |
| 2 | | | 0.011 | | | | 0.011 | | | | | 0.011 | | | | | | 0.011 | | | | | 0.011 | | | | | 0.011 | | | | | 0.011 | | | | 0.011 | | | | 0.011 | | | | 0.011 | 0.011 |
| 3 | | | 0.053 | | | | 0.052 | | | | | 0.052 | | | | | | 0.052 | | | | | 0.052 | | | | | 0.052 | | | | | 0.052 | | | | 0.052 | | | | 0.054 | | | | 0.052 | 0.050 |
| 4 | | | 0.16 | | | | 0.16 | | | | | 0.16 | | | | | | 0.16 | | | | | 0.16 | | | | | 0.16 | | | | | 0.16 | | | | 0.16 | | | | 0.16 | | | | 0.16 | 0.16 |
| 6 | | | 1 | | | 0.0021 | | | | 0.0020 | | | | | 0.0020 | | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0021 | | | | 0.0020 | | | | 0.0020 | | | | 0.0021 | 0.0021 |
| 2 | | | 0.010 | | | | 0.011 | | | | | 0.011 | | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.011 | | | | 0.010 | 0.010 |
| 3 | | | 0.050 | | | | 0.051 | | | | | 0.050 | | | | | | 0.049 | | | | | 0.049 | | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | 0.051 | | | | 0.050 | 0.050 |
| 4 | | | 0.15 | | | | 0.15 | | | | | 0.15 | | | | | | 0.15 | | | | | 0.15 | | | | | 0.15 | | | | | 0.15 | | | | 0.15 | | | | 0.15 | | | | 0.15 | 0.15 |
| 7 | | | 1 | | | 0.0019 | | | | 0.0022 | | | | | 0.0020 | | | | | | 0.0020 | | | | | 0.0019 | | | | | 0.0021 | | | | | 0.0020 | | | | 0.0019 | | | | 0.0020 | | | | 0.0023 | 0.0022 |
| 2 | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | 0.010 |
| 3 | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | | 0.051 | | | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | | 0.050 | 0.050 |
| 4 | | | 0.15 | | | | 0.15 | | | | | 0.15 | | | | | | 0.15 | | | | | 0.15 | | | | | 0.15 | | | | | 0.15 | | | | 0.15 | | | | 0.15 | | | | 0.15 | 0.15 |
| 8 | | | 1 | | | 0.0018 | | | | 0.0018 | | | | | 0.0018 | | | | | | 0.0019 | | | | | 0.0018 | | | | | 0.0019 | | | | | 0.0019 | | | | 0.0020 | | | | 0.0019 | | | | 0.0018 | 0.0019 |
| 2 | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | | 0.011 | | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | 0.010 |
| 3 | | | 0.054 | | | | 0.053 | | | | | 0.052 | | | | | | 0.053 | | | | | 0.053 | | | | | 0.055 | | | | | 0.055 | | | | 0.052 | | | | 0.052 | | | | 0.055 | 0.054 |
| 4 | | | 0.16 | | | | 0.16 | | | | | 0.16 | | | | | | 0.16 | | | | | 0.16 | | | | | 0.15 | | | | | 0.16 | | | | 0.16 | | | | 0.16 | | | | 0.16 | 0.16 |
| 9 | | | 1 | | | 0.0017 | | | | 0.0017 | | | | | 0.0018 | | | | | | 0.0018 | | | | | 0.0017 | | | | | 0.0018 | | | | | 0.0017 | | | | 0.0018 | | | | 0.0017 | | | | 0.0017 | 0.0017 |
| 2 | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | 0.010 |
| 3 | | | 0.053 | | | | 0.053 | | | | | 0.054 | | | | | | 0.053 | | | | | 0.052 | | | | | 0.054 | | | | | 0.053 | | | | 0.054 | | | | 0.053 | | | | 0.053 | 0.053 |
| 4 | | | 0.16 | | | | 0.16 | | | | | 0.15 | | | | | | 0.16 | | | | | 0.15 | | | | | 0.16 | | | | | 0.16 | | | | 0.15 | | | | 0.16 | | | | 0.16 | 0.16 |
| Co | | 1 | | | 1 | | | 0.0020 | | | | 0.0021 | | | | | 0.0020 | | | | | | 0.0022 | | | | | 0.0020 | | | | | 0.0021 | | | | | 0.0019 | | | | 0.0022 | | | | 0.0021 | | | | 0.0020 | 0.0020 |
| 元素 | | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | 2 | | | | | 3 | | | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | 8 | | | | 9 | | | | 10 | 11 |
| Co | | 1 | | | 2 | | | 0.010 | | | | 0.010 | | | | | 0.011 | | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.011 | | | | 0.011 | | | | 0.010 | 0.010 |
| 3 | | | 0.051 | | | | 0.050 | | | | | 0.050 | | | | | | 0.050 | | | | | 0.051 | | | | | 0.049 | | | | | 0.050 | | | | 0.051 | | | | 0.050 | | | | 0.050 | 0.051 |
| 4 | | | 0.080 | | | | 0.082 | | | | | 0.079 | | | | | | 0.079 | | | | | 0.079 | | | | | 0.081 | | | | | 0.080 | | | | 0.081 | | | | 0.079 | | | | 0.079 | 0.080 |
| 2 | | | 1 | | | 0.0020 | | | | 0.0019 | | | | | 0.0019 | | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0019 | | | | 0.0019 | | | | 0.0020 | | | | 0.0019 | 0.0020 |
| 2 | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | 0.010 |
| 3 | | | 0.050 | | | | 0.051 | | | | | 0.050 | | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.051 | | | | 0.051 | 0.049 |
| 4 | | | 0.080 | | | | 0.080 | | | | | 0.079 | | | | | | 0.081 | | | | | 0.080 | | | | | 0.081 | | | | | 0.081 | | | | 0.079 | | | | 0.080 | | | | 0.080 | 0.080 |
| 3 | | | 1 | | | 0.0020 | | | | 0.0019 | | | | | 0.0019 | | | | | | 0.0020 | | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0020 | | | | 0.0021 | | | | 0.0021 | | | | 0.0020 | 0.0020 |
| 2 | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | 0.009 | | | | 0.010 | | | | 0.010 | 0.010 |
| 3 | | | 0.050 | | | | 0.049 | | | | | 0.051 | | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | 0.049 | | | | 0.050 | 0.050 |
| 4 | | | 0.081 | | | | 0.080 | | | | | 0.080 | | | | | | 0.080 | | | | | 0.079 | | | | | 0.080 | | | | | 0.081 | | | | 0.080 | | | | 0.081 | | | | 0.079 | 0.081 |
| 4 | | | 1 | | | 0.0022 | | | | 0.0022 | | | | | 0.0023 | | | | | | 0.0024 | | | | | 0.0022 | | | | | 0.0023 | | | | | 0.0022 | | | | 0.0021 | | | | 0.0022 | | | | 0.0022 | 0.0023 |
| 2 | | | 0.011 | | | | 0.010 | | | | | 0.011 | | | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | 0.011 |
| 3 | | | 0.051 | | | | 0.049 | | | | | 0.049 | | | | | | 0.049 | | | | | 0.049 | | | | | 0.049 | | | | | 0.050 | | | | 0.050 | | | | 0.049 | | | | 0.049 | 0.050 |
| 4 | | | 0.078 | | | | 0.078 | | | | | 0.078 | | | | | | 0.079 | | | | | 0.079 | | | | | 0.079 | | | | | 0.079 | | | | 0.079 | | | | 0.079 | | | | 0.079 | 0.079 |
| 5 | | | 1 | | | 0.0020 | | | | 0.0021 | | | | | 0.0021 | | | | | | 0.0020 | | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0021 | | | | 0.0020 | | | | 0.0021 | | | | 0.0021 | 0.0021 |
| 2 | | | 0.010 | | | | 0.011 | | | | | 0.010 | | | | | | 0.010 | | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | 0.010 |
| 3 | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | | 0.050 | | | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | 0.051 | | | | 0.051 | | | | 0.051 | 0.050 |
| 4 | | | 0.080 | | | | 0.081 | | | | | 0.080 | | | | | | 0.080 | | | | | 0.079 | | | | | 0.080 | | | | | 0.079 | | | | 0.080 | | | | 0.080 | | | | 0.079 | 0.080 |
| 6 | | | 1 | | | 0.0020 | | | | 0.0020 | | | | | 0.0020 | | | | | | 0.0020 | | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0020 | | | | 0.0021 | | | | 0.0021 | | | | 0.0021 | 0.0020 |
| 2 | | | 0.010 | | | | 0.011 | | | | | 0.010 | | | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.011 | | | | 0.011 | 0.011 |
| 3 | | | 0.052 | | | | 0.049 | | | | | 0.052 | | | | | | 0.052 | | | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | 0.050 | | | | 0.049 | | | | 0.050 | 0.048 |
| 4 | | | 0.080 | | | | 0.083 | | | | | 0.079 | | | | | | 0.082 | | | | | 0.083 | | | | | 0.079 | | | | | 0.083 | | | | 0.082 | | | | 0.080 | | | | 0.079 | 0.080 |
| 7 | | | 1 | | | 0.0021 | | | | 0.0019 | | | | | 0.0020 | | | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0020 | | | | 0.0021 | | | | 0.0020 | 0.0020 |
| 2 | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | 0.010 |
| 3 | | | 0.051 | | | | 0.051 | | | | | 0.051 | | | | | | 0.052 | | | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | 0.050 | | | | 0.051 | | | | 0.051 | 0.050 |
| 4 | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | | 0.080 | | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | 0.080 | | | | 0.080 | | | | 0.080 | 0.081 |
| 8 | | | 1 | | | 0.0019 | | | | 0.0020 | | | | | 0.0019 | | | | | | 0.0018 | | | | | 0.0019 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0018 | | | | 0.0019 | | | | 0.0019 | 0.0020 |
| 2 | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | 0.010 |
| 3 | | | 0.048 | | | | 0.049 | | | | | 0.048 | | | | | | 0.048 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.049 | | | | 0.048 | | | | 0.049 | 0.050 |
| 4 | | | 0.080 | | | | 0.080 | | | | | 0.078 | | | | | | 0.079 | | | | | 0.080 | | | | | 0.078 | | | | | 0.078 | | | | 0.077 | | | | 0.079 | | | | 0.078 | 0.078 |
| 9 | | | 1 | | | 0.0022 | | | | 0.0021 | | | | | 0.0021 | | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0019 | | | | | 0.0019 | | | | 0.0021 | | | | 0.0020 | | | | 0.0018 | 0.0018 |
| 2 | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | 0.010 |
| 元素 | | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | 2 | | | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | 8 | | | | 9 | | | | 10 | | 11 |
| Co | | 9 | | | 3 | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | 0.052 | | | | | 0.051 | | | | | 0.051 | | | | | 0.053 | | | | 0.053 | | | | 0.051 | | | | 0.052 | | 0.051 |
| 4 | | | 0.079 | | | | | 0.078 | | | | | 0.078 | | | | 0.078 | | | | | 0.077 | | | | | 0.079 | | | | | 0.080 | | | | 0.082 | | | | 0.083 | | | | 0.080 | | 0.083 |
| Mg | | 1 | | | 1 | | | 0.0021 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0022 | | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0022 | | | | 0.0020 | | | | 0.0020 | | | | 0.0020 | | 0.0021 |
| 2 | | | 0.011 | | | | | 0.010 | | | | | 0.0094 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.011 | | 0.010 |
| 3 | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | 0.051 | | | | | 0.050 | | | | | 0.052 | | | | | 0.050 | | | | 0.049 | | | | 0.051 | | | | 0.051 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.079 | | | | | 0.081 | | | | 0.082 | | | | | 0.081 | | | | | 0.080 | | | | | 0.079 | | | | 0.081 | | | | 0.079 | | | | 0.081 | | 0.081 |
| 2 | | | 1 | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0021 | | | | 0.0020 | | | | 0.0020 | | 0.0019 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.0099 |
| 3 | | | 0.049 | | | | | 0.049 | | | | | 0.051 | | | | 0.049 | | | | | 0.049 | | | | | 0.049 | | | | | 0.049 | | | | 0.050 | | | | 0.050 | | | | 0.049 | | 0.051 |
| 4 | | | 0.081 | | | | | 0.078 | | | | | 0.080 | | | | 0.081 | | | | | 0.080 | | | | | 0.077 | | | | | 0.078 | | | | 0.079 | | | | 0.079 | | | | 0.078 | | 0.081 |
| 3 | | | 1 | | | 0.0019 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0019 | | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0019 | | | | 0.0020 | | | | 0.0021 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | 0.011 | | | | 0.010 | | | | 0.011 | | 0.010 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | 0.051 | | | | | 0.049 | | | | | 0.049 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | | 0.051 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.080 | | | | | 0.079 | | | | 0.080 | | | | | 0.082 | | | | | 0.080 | | | | | 0.080 | | | | 0.081 | | | | 0.081 | | | | 0.080 | | 0.080 |
| 4 | | | 1 | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0020 | | | | 0.0020 | | | | 0.0020 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.051 | | | | | 0.052 | | | | | 0.052 | | | | 0.052 | | | | | 0.051 | | | | | 0.052 | | | | | 0.052 | | | | 0.051 | | | | 0.052 | | | | 0.052 | | 0.052 |
| 4 | | | 0.082 | | | | | 0.083 | | | | | 0.082 | | | | 0.083 | | | | | 0.082 | | | | | 0.083 | | | | | 0.081 | | | | 0.083 | | | | 0.083 | | | | 0.083 | | 0.084 |
| 5 | | | 1 | | | 0.0020 | | | | | 0.0021 | | | | | 0.0021 | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0021 | | | | 0.0021 | | | | 0.0020 | | | | 0.0021 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.011 | | | | | 0.010 | | | | 0.010 | | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.011 | | 0.011 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | 0.051 | | | | 0.050 | | 0.051 |
| 4 | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | 0.081 | | | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | 0.081 | | | | 0.080 | | | | 0.081 | | 0.081 |
| 6 | | | 1 | | | 0.0021 | | | | | 0.0021 | | | | | 0.0019 | | | | 0.0020 | | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0021 | | | | 0.0020 | | | | 0.0019 | | | | 0.0020 | | 0.0021 |
| 2 | | | 0.011 | | | | | 0.011 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.011 | | | | 0.010 | | 0.010 |
| 3 | | | 0.050 | | | | | 0.051 | | | | | 0.051 | | | | 0.052 | | | | | 0.050 | | | | | 0.051 | | | | | 0.049 | | | | 0.048 | | | | 0.050 | | | | 0.052 | | 0.048 |
| 4 | | | 0.082 | | | | | 0.082 | | | | | 0.079 | | | | 0.082 | | | | | 0.081 | | | | | 0.079 | | | | | 0.083 | | | | 0.081 | | | | 0.079 | | | | 0.083 | | 0.082 |
| 7 | | | 1 | | | 0.0021 | | | | | 0.0021 | | | | | 0.0022 | | | | 0.0022 | | | | | 0.0021 | | | | | 0.0022 | | | | | 0.0022 | | | | 0.0021 | | | | 0.0021 | | | | 0.0021 | | 0.0022 |
| 2 | | | 0.011 | | | | | 0.011 | | | | | 0.010 | | | | 0.010 | | | | | 0.011 | | | | | 0.011 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.011 |
| 3 | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | 0.050 | | | | | 0.051 | | | | | 0.051 | | | | | 0.050 | | | | 0.051 | | | | 0.051 | | | | 0.051 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.081 | | | | 0.080 | | | | 0.080 | | 0.080 |
| 8 | | | 1 | | | 0.0019 | | | | | 0.0019 | | | | | 0.0019 | | | | 0.0019 | | | | | 0.0019 | | | | | 0.0019 | | | | | 0.0019 | | | | 0.0019 | | | | 0.0019 | | | | 0.0021 | | 0.0021 |
| 2 | | | 0.010 | | | | | 0.011 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.011 | | | | 0.011 | | | | 0.010 | | 0.010 |
| 元素 | | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | 2 | | | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | 8 | | | | 9 | | | | 10 | | 11 |
| Mg | | 8 | | | 3 | | | 0.049 | | | | | 0.048 | | | | | 0.049 | | | | 0.049 | | | | | 0.048 | | | | | 0.048 | | | | | 0.049 | | | | 0.050 | | | | 0.049 | | | | 0.048 | | 0.048 |
| 4 | | | 0.081 | | | | | 0.079 | | | | | 0.078 | | | | 0.079 | | | | | 0.080 | | | | | 0.078 | | | | | 0.078 | | | | 0.078 | | | | 0.080 | | | | 0.079 | | 0.078 |
| 9 | | | 1 | | | 0.0022 | | | | | 0.0022 | | | | | 0.0022 | | | | 0.0021 | | | | | 0.0022 | | | | | 0.0022 | | | | | 0.0022 | | | | 0.0021 | | | | 0.0022 | | | | 0.0021 | | 0.0022 |
| 2 | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.051 | | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.053 | | | | 0.051 | | | | 0.052 | | 0.052 |
| 4 | | | 0.078 | | | | | 0.078 | | | | | 0.077 | | | | 0.076 | | | | | 0.079 | | | | | 0.077 | | | | | 0.080 | | | | 0.080 | | | | 0.081 | | | | 0.080 | | 0.081 |
| Mn | | 1 | | | 1 | | | 0.0020 | | | | | 0.0019 | | | | | 0.0021 | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0020 | | | | 0.0021 | | | | 0.0019 | | 0.0021 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.0094 | | | | 0.011 | | 0.010 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | 0.050 | | | | 0.049 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.082 | | | | | 0.081 | | | | 0.081 | | | | | 0.080 | | | | | 0.079 | | | | | 0.080 | | | | 0.078 | | | | 0.081 | | | | 0.080 | | 0.079 |
| 2 | | | 1 | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0020 | | | | 0.0021 | | | | 0.0020 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | 0.051 | | | | 0.050 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.079 | | | | | 0.079 | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | 0.081 | | | | 0.080 | | | | 0.080 | | 0.081 |
| 3 | | | 1 | | | 0.0019 | | | | | 0.0021 | | | | | 0.0020 | | | | 0.0019 | | | | | 0.0020 | | | | | 0.0021 | | | | | 0.0020 | | | | 0.0020 | | | | 0.0021 | | | | 0.0020 | | 0.0020 |
| 2 | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.011 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | | 0.050 | | 0.050 |
| 4 | | | 0.081 | | | | | 0.081 | | | | | 0.080 | | | | 0.081 | | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | 0.081 | | | | 0.080 | | | | 0.079 | | 0.080 |
| 4 | | | 1 | | | 0.0022 | | | | | 0.0021 | | | | | 0.0021 | | | | 0.0021 | | | | | 0.0022 | | | | | 0.0021 | | | | | 0.0022 | | | | 0.0021 | | | | 0.0021 | | | | 0.0021 | | 0.0022 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.051 | | | | | 0.052 | | | | | 0.051 | | | | 0.052 | | | | | 0.051 | | | | | 0.052 | | | | | 0.051 | | | | 0.051 | | | | 0.052 | | | | 0.052 | | 0.051 |
| 4 | | | 0.082 | | | | | 0.082 | | | | | 0.082 | | | | 0.082 | | | | | 0.081 | | | | | 0.083 | | | | | 0.081 | | | | 0.083 | | | | 0.083 | | | | 0.082 | | 0.082 |
| 5 | | | 1 | | | 0.0021 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0020 | | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0021 | | | | 0.0021 | | | | 0.0020 | | | | 0.0020 | | 0.0020 |
| 2 | | | 0.011 | | | | | 0.010 | | | | | 0.011 | | | | 0.011 | | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.051 | | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | 0.051 | | | | 0.050 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | 0.081 | | | | | 0.081 | | | | | 0.080 | | | | | 0.081 | | | | 0.080 | | | | 0.081 | | | | 0.081 | | 0.080 |
| 6 | | | 1 | | | 0.0021 | | | | | 0.0020 | | | | | 0.0021 | | | | 0.0020 | | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0020 | | | | 0.0020 | | | | 0.0020 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | 0.011 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.049 | | | | | 0.050 | | | | | 0.052 | | | | 0.052 | | | | | 0.052 | | | | | 0.050 | | | | | 0.048 | | | | 0.052 | | | | 0.052 | | | | 0.050 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.079 | | | | | 0.079 | | | | 0.079 | | | | | 0.081 | | | | | 0.082 | | | | | 0.082 | | | | 0.079 | | | | 0.082 | | | | 0.080 | | 0.081 |
| 7 | | | 1 | | | 0.0020 | | | | | 0.0021 | | | | | 0.0020 | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0021 | | | | 0.0020 | | | | 0.0021 | | | | 0.0020 | | 0.0021 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | | 0.050 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.081 | | | | 0.080 | | 0.080 |
| 8 | | | 1 | | | 0.0020 | | | | | 0.0019 | | | | | 0.0018 | | | | 0.0020 | | | | | 0.0021 | | | | | 0.0019 | | | | | 0.0019 | | | | 0.0020 | | | | 0.0022 | | | | 0.0021 | | 0.0022 |
| 2 | | | 0.011 | | | | | 0.011 | | | | | 0.011 | | | | 0.011 | | | | | 0.011 | | | | | 0.011 | | | | | 0.011 | | | | 0.012 | | | | 0.011 | | | | 0.011 | | 0.011 |
| 3 | | | 0.053 | | | | | 0.051 | | | | | 0.053 | | | | 0.052 | | | | | 0.051 | | | | | 0.050 | | | | | 0.052 | | | | 0.053 | | | | 0.051 | | | | 0.051 | | 0.051 |
| 4 | | | 0.081 | | | | | 0.081 | | | | | 0.079 | | | | 0.080 | | | | | 0.080 | | | | | 0.079 | | | | | 0.078 | | | | 0.078 | | | | 0.080 | | | | 0.079 | | 0.079 |
| 元素 | | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | 2 | | | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | 8 | | | | 9 | | | | 10 | | 11 |
| Mn | | 9 | | | 1 | | | 0.0023 | | | | | 0.0021 | | | | | 0.0022 | | | | 0.0022 | | | | | 0.0021 | | | | | 0.0022 | | | | | 0.0022 | | | | 0.0021 | | | | 0.0022 | | | | 0.0021 | | 0.0022 |
| 2 | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.011 |
| 3 | | | 0.052 | | | | | 0.052 | | | | | 0.051 | | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | 0.053 | | | | 0.052 | | | | 0.053 | | 0.052 |
| 4 | | | 0.080 | | | | | 0.079 | | | | | 0.079 | | | | 0.078 | | | | | 0.078 | | | | | 0.078 | | | | | 0.082 | | | | 0.082 | | | | 0.083 | | | | 0.082 | | 0.083 |
| Na | | 1 | | | 1 | | | 0.0019 | | | | | 0.0021 | | | | | 0.0020 | | | | 0.0020 | | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0021 | | | | 0.0020 | | | | 0.0021 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.011 | | | | 0.011 | | | | 0.010 | | 0.010 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.049 | | | | 0.050 | | | | 0.050 | | 0.050 |
| 4 | | | 0.079 | | | | | 0.082 | | | | | 0.080 | | | | 0.081 | | | | | 0.079 | | | | | 0.079 | | | | | 0.080 | | | | 0.081 | | | | 0.079 | | | | 0.082 | | 0.080 |
| 2 | | | 1 | | | 0.0020 | | | | | 0.0020 | | | | | 0.0021 | | | | 0.0020 | | | | | 0.0019 | | | | | 0.0020 | | | | | 0.0021 | | | | 0.0019 | | | | 0.0021 | | | | 0.0019 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.0093 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | | 0.050 | | | | | 0.051 | | | | | 0.051 | | | | 0.050 | | | | 0.051 | | | | 0.051 | | 0.049 |
| 4 | | | 0.079 | | | | | 0.080 | | | | | 0.081 | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | 0.081 | | | | 0.082 | | | | 0.080 | | 0.079 |
| 3 | | | 1 | | | 0.0020 | | | | | 0.0020 | | | | | 0.0021 | | | | 0.0019 | | | | | 0.0019 | | | | | 0.0021 | | | | | 0.0021 | | | | 0.0019 | | | | 0.0021 | | | | 0.0020 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | | 0.011 | | | | 0.010 | | | | 0.010 | | | | 0.011 | | 0.010 |
| 3 | | | 0.050 | | | | | 0.049 | | | | | 0.051 | | | | 0.051 | | | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | 0.051 | | | | 0.050 | | | | 0.049 | | 0.051 |
| 4 | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.081 | | | | 0.081 | | | | 0.079 | | | | 0.080 | | 0.079 |
| 4 | | | 1 | | | 0.0025 | | | | | 0.0021 | | | | | 0.0025 | | | | 0.0025 | | | | | 0.0025 | | | | | 0.0019 | | | | | 0.0024 | | | | 0.0023 | | | | 0.0024 | | | | 0.0023 | | 0.0025 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.0093 | | | | | 0.011 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.049 | | | | | 0.050 | | | | | 0.049 | | | | 0.049 | | | | | 0.049 | | | | | 0.050 | | | | | 0.049 | | | | 0.049 | | | | 0.050 | | | | 0.050 | | 0.050 |
| 4 | | | 0.077 | | | | | 0.078 | | | | | 0.077 | | | | 0.078 | | | | | 0.077 | | | | | 0.079 | | | | | 0.077 | | | | 0.078 | | | | 0.078 | | | | 0.078 | | 0.080 |
| 5 | | | 1 | | | 0.0020 | | | | | 0.0021 | | | | | 0.0021 | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0021 | | | | 0.0021 | | | | 0.0021 | | | | 0.0020 | | 0.0021 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.011 | | | | 0.010 | | 0.010 |
| 3 | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | | 0.050 | | 0.051 |
| 4 | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | 0.081 | | | | 0.080 | | | | 0.081 | | 0.080 |
| 6 | | | 1 | | | 0.0020 | | | | | 0.0019 | | | | | 0.0020 | | | | 0.0019 | | | | | 0.0021 | | | | | 0.0019 | | | | | 0.0021 | | | | 0.0020 | | | | 0.0020 | | | | 0.0020 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.011 | | | | | 0.010 | | | | 0.010 | | | | | 0.011 | | | | | 0.011 | | | | | 0.011 | | | | 0.011 | | | | 0.010 | | | | 0.010 | | 0.011 |
| 3 | | | 0.050 | | | | | 0.051 | | | | | 0.051 | | | | 0.050 | | | | | 0.050 | | | | | 0.048 | | | | | 0.050 | | | | 0.049 | | | | 0.050 | | | | 0.050 | | 0.051 |
| 4 | | | 0.079 | | | | | 0.079 | | | | | 0.080 | | | | 0.081 | | | | | 0.082 | | | | | 0.079 | | | | | 0.079 | | | | 0.079 | | | | 0.079 | | | | 0.082 | | 0.079 |
| 7 | | | 1 | | | 0.0020 | | | | | 0.0021 | | | | | 0.0020 | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0021 | | | | 0.0021 | | | | 0.0020 | | | | 0.0021 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | | 0.050 | | 0.049 |
| 4 | | | 0.080 | | | | | 0.080 | | | | | 0.079 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.080 | | | | 0.079 | | 0.080 |
| 8 | | | 1 | | | 0.0019 | | | | | 0.0019 | | | | | 0.0018 | | | | 0.0018 | | | | | 0.0020 | | | | | 0.0018 | | | | | 0.0019 | | | | 0.0018 | | | | 0.0020 | | | | 0.0019 | | 0.0019 |
| 2 | | | 0.010 | | | | | 0.011 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | | 0.011 | | | | 0.011 | | | | 0.011 | | | | 0.010 | | 0.010 |
| 3 | | | 0.049 | | | | | 0.049 | | | | | 0.048 | | | | 0.050 | | | | | 0.049 | | | | | 0.049 | | | | | 0.050 | | | | 0.049 | | | | 0.051 | | | | 0.050 | | 0.051 |
| 4 | | | 0.080 | | | | | 0.078 | | | | | 0.080 | | | | 0.080 | | | | | 0.077 | | | | | 0.080 | | | | | 0.077 | | | | 0.079 | | | | 0.078 | | | | 0.079 | | 0.078 |
| 9 | | | 1 | | | / | | | | | / | | | | | / | | | | / | | | | | / | | | | | / | | | | | / | | | | / | | | | / | | | | / | | / |
| 2 | | | / | | | | | / | | | | | / | | | | / | | | | | / | | | | | / | | | | | / | | | | / | | | | / | | | | / | | / |
| 元素 | | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | 2 | | | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | 8 | | | | 9 | | | | 10 | | 11 |
| Na | | 9 | | | 3 | | | / | | | | | / | | | | | / | | | | / | | | | | / | | | | | / | | | | | / | | | | / | | | | / | | | | / | | / |
| 4 | | | / | | | | | / | | | | | / | | | | / | | | | | / | | | | | / | | | | | / | | | | / | | | | / | | | | / | | / |
| Zn | | 1 | | | 1 | | | 0.0020 | | | | | 0.0021 | | | | | 0.0019 | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0019 | | | | 0.0020 | | | | 0.0021 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.009 | | | | | 0.011 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.011 | | | | 0.010 | | | | 0.010 | | 0.0092 |
| 3 | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | | 0.049 | | | | 0.049 | | | | 0.051 | | | | 0.050 | | 0.051 |
| 4 | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | 0.079 | | | | | 0.079 | | | | | 0.079 | | | | | 0.081 | | | | 0.082 | | | | 0.080 | | | | 0.081 | | 0.081 |
| 2 | | | 1 | | | 0.0020 | | | | | 0.0019 | | | | | 0.0021 | | | | 0.0020 | | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0020 | | | | 0.0021 | | | | 0.0021 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.051 | | | | | 0.049 | | | | | 0.049 | | | | 0.050 | | | | 0.050 | | | | 0.051 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.079 | | | | | 0.080 | | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.080 | | | | 0.080 | | 0.080 |
| 3 | | | 1 | | | 0.0019 | | | | | 0.0020 | | | | | 0.0021 | | | | 0.0019 | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0021 | | | | 0.0019 | | | | 0.0020 | | | | 0.0021 | | 0.0019 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | 0.009 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.050 | | | | | 0.049 | | | | | 0.051 | | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | | 0.049 | | 0.049 |
| 4 | | | 0.080 | | | | | 0.079 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.079 | | | | 0.081 | | 0.080 |
| 4 | | | 1 | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0020 | | | | 0.0020 | | | | 0.0020 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.051 | | | | | 0.051 | | | | | 0.050 | | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | 0.051 | | | | 0.050 | | | | 0.051 | | 0.051 |
| 4 | | | 0.081 | | | | | 0.081 | | | | | 0.081 | | | | 0.082 | | | | | 0.081 | | | | | 0.082 | | | | | 0.082 | | | | 0.082 | | | | 0.081 | | | | 0.082 | | 0.081 |
| 5 | | | 1 | | | 0.0020 | | | | | 0.0020 | | | | | 0.0020 | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0021 | | | | 0.0020 | | | | 0.0020 | | | | 0.0020 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.011 | | | | | 0.011 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | 0.051 | | | | 0.050 | | 0.051 |
| 4 | | | 0.080 | | | | | 0.081 | | | | | 0.081 | | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.081 | | | | 0.081 | | | | 0.080 | | 0.080 |
| 6 | | | 1 | | | 0.0020 | | | | | 0.0019 | | | | | 0.0019 | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0021 | | | | 0.0021 | | | | 0.0021 | | | | 0.0021 | | 0.0019 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | 0.010 | | | | 0.010 | | | | 0.011 | | 0.010 |
| 3 | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | 0.052 | | | | | 0.049 | | | | | 0.052 | | | | | 0.050 | | | | 0.051 | | | | 0.049 | | | | 0.049 | | 0.051 |
| 4 | | | 0.079 | | | | | 0.081 | | | | | 0.079 | | | | 0.079 | | | | | 0.081 | | | | | 0.079 | | | | | 0.079 | | | | 0.080 | | | | 0.079 | | | | 0.079 | | 0.079 |
| 7 | | | 1 | | | 0.0020 | | | | | 0.0021 | | | | | 0.0021 | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0021 | | | | 0.0021 | | | | 0.0020 | | | | 0.0021 | | 0.0021 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.049 | | | | | 0.050 | | | | | 0.049 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.049 | | | | 0.050 | | | | 0.049 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.079 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.080 | | | | 0.079 | | 0.080 |
| 8 | | | 1 | | | 0.0020 | | | | | 0.0019 | | | | | 0.0019 | | | | 0.0020 | | | | | 0.0020 | | | | | 0.0019 | | | | | 0.0019 | | | | 0.0019 | | | | 0.0020 | | | | 0.0020 | | 0.0020 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | | 0.011 | | | | 0.011 | | | | 0.011 | | | | 0.010 | | 0.010 |
| 3 | | | 0.049 | | | | | 0.048 | | | | | 0.049 | | | | 0.049 | | | | | 0.048 | | | | | 0.047 | | | | | 0.049 | | | | 0.050 | | | | 0.049 | | | | 0.048 | | 0.048 |
| 4 | | | 0.081 | | | | | 0.079 | | | | | 0.078 | | | | 0.079 | | | | | 0.079 | | | | | 0.079 | | | | | 0.078 | | | | 0.077 | | | | 0.080 | | | | 0.079 | | 0.079 |
| 9 | | | 1 | | | 0.0021 | | | | | 0.0021 | | | | | 0.0021 | | | | 0.0021 | | | | | 0.0021 | | | | | 0.0020 | | | | | 0.0021 | | | | 0.0021 | | | | 0.0021 | | | | 0.0021 | | 0.0021 |
| 2 | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | | 0.010 | | 0.010 |
| 3 | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | | 0.052 | | | | 0.052 | | | | 0.050 | | | | 0.051 | | 0.050 |
| 4 | | | 0.078 | | | | | 0.077 | | | | | 0.077 | | | | 0.077 | | | | | 0.079 | | | | | 0.077 | | | | | 0.079 | | | | 0.081 | | | | 0.082 | | | | 0.080 | | 0.082 |
| 元素 | | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | 2 | | | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | 8 | | | | 9 | | | | 10 | | 11 |
| Al | | 1 | | | 1 | | | 0.0040 | | | | | 0.0041 | | | | | 0.0039 | | | | 0.0041 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0040 | | | | 0.0042 | | | | 0.0039 | | 0.0041 |
| 2 | | | 0.021 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.019 | | | | | 0.021 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | | 0.020 | | 0.020 |
| 3 | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | | 0.049 | | | | | 0.051 | | | | | 0.051 | | | | 0.050 | | | | 0.051 | | | | 0.050 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.079 | | | | | 0.079 | | | | 0.080 | | | | | 0.081 | | | | | 0.079 | | | | | 0.081 | | | | 0.079 | | | | 0.081 | | | | 0.081 | | 0.079 |
| 2 | | | 1 | | | 0.0039 | | | | | 0.0039 | | | | | 0.0039 | | | | 0.0039 | | | | | 0.0042 | | | | | 0.0038 | | | | | 0.0039 | | | | 0.0039 | | | | 0.0040 | | | | 0.0041 | | 0.0041 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | | 0.020 | | 0.020 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.051 | | | | | 0.051 | | | | | 0.050 | | | | 0.051 | | | | 0.050 | | | | 0.050 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.080 | | | | | 0.081 | | | | 0.080 | | | | | 0.079 | | | | | 0.080 | | | | | 0.081 | | | | 0.079 | | | | 0.079 | | | | 0.080 | | 0.079 |
| 3 | | | 1 | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0039 | | | | | 0.0040 | | | | 0.0041 | | | | 0.0040 | | | | 0.0041 | | 0.0041 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | | 0.020 | | 0.021 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | 0.052 | | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | 0.051 | | | | 0.051 | | 0.052 |
| 4 | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | 0.081 | | | | 0.080 | | | | 0.080 | | 0.080 |
| 4 | | | 1 | | | 0.0044 | | | | | 0.0044 | | | | | 0.0045 | | | | 0.0044 | | | | | 0.0049 | | | | | 0.0048 | | | | | 0.0046 | | | | 0.0044 | | | | 0.0044 | | | | 0.0045 | | 0.0045 |
| 2 | | | 0.021 | | | | | 0.021 | | | | | 0.021 | | | | 0.021 | | | | | 0.021 | | | | | 0.021 | | | | | 0.021 | | | | 0.021 | | | | 0.021 | | | | 0.020 | | 0.020 |
| 3 | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.051 | | | | 0.051 | | 0.050 |
| 4 | | | 0.081 | | | | | 0.080 | | | | | 0.081 | | | | 0.081 | | | | | 0.081 | | | | | 0.081 | | | | | 0.081 | | | | 0.081 | | | | 0.082 | | | | 0.080 | | 0.080 |
| 5 | | | 1 | | | 0.0041 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0041 | | | | 0.0041 | | | | 0.0041 | | 0.0040 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.021 | | | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | 0.021 | | | | 0.021 | | | | 0.020 | | 0.020 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | 0.051 | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.051 | | | | 0.051 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.079 | | | | | 0.079 | | | | 0.079 | | | | | 0.080 | | | | | 0.080 | | | | | 0.081 | | | | 0.081 | | | | 0.082 | | | | 0.081 | | 0.080 |
| 6 | | | 1 | | | 0.0042 | | | | | 0.0042 | | | | | 0.0040 | | | | 0.0039 | | | | | 0.0039 | | | | | 0.0041 | | | | | 0.0041 | | | | 0.0041 | | | | 0.0040 | | | | 0.0042 | | 0.0041 |
| 2 | | | 0.021 | | | | | 0.021 | | | | | 0.019 | | | | 0.020 | | | | | 0.020 | | | | | 0.019 | | | | | 0.020 | | | | 0.020 | | | | 0.021 | | | | 0.020 | | 0.019 |
| 3 | | | 0.052 | | | | | 0.048 | | | | | 0.051 | | | | 0.049 | | | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | 0.051 | | | | 0.051 | | | | 0.051 | | 0.052 |
| 4 | | | 0.079 | | | | | 0.083 | | | | | 0.079 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.079 | | | | 0.083 | | | | 0.079 | | | | 0.079 | | 0.080 |
| 7 | | | 1 | | | 0.0041 | | | | | 0.0041 | | | | | 0.0040 | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0041 | | | | 0.0041 | | | | 0.0040 | | | | 0.0041 | | 0.0041 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | | 0.020 | | 0.021 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.049 | | | | 0.050 | | | | 0.050 | | 0.050 |
| 4 | | | 0.081 | | | | | 0.081 | | | | | 0.081 | | | | 0.081 | | | | | 0.082 | | | | | 0.081 | | | | | 0.081 | | | | 0.081 | | | | 0.081 | | | | 0.081 | | 0.081 |
| 8 | | | 1 | | | 0.0039 | | | | | 0.0039 | | | | | 0.0039 | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0049 | | | | 0.0041 | | | | 0.0041 | | | | 0.0039 | | 0.0039 |
| 2 | | | 0.021 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.021 | | | | | 0.021 | | | | | 0.021 | | | | 0.020 | | | | 0.021 | | | | 0.020 | | 0.020 |
| 3 | | | 0.051 | | | | | 0.049 | | | | | 0.050 | | | | 0.050 | | | | | 0.049 | | | | | 0.048 | | | | | 0.049 | | | | 0.051 | | | | 0.049 | | | | 0.049 | | 0.048 |
| 4 | | | 0.081 | | | | | 0.082 | | | | | 0.080 | | | | 0.081 | | | | | 0.081 | | | | | 0.080 | | | | | 0.078 | | | | 0.079 | | | | 0.080 | | | | 0.080 | | 0.079 |
| 9 | | | 1 | | | 0.0045 | | | | | 0.0047 | | | | | 0.0046 | | | | 0.0047 | | | | | 0.0044 | | | | | 0.0047 | | | | | 0.0046 | | | | 0.0046 | | | | 0.0048 | | | | 0.0047 | | 0.0047 |
| 2 | | | 0.023 | | | | | 0.023 | | | | | 0.023 | | | | 0.023 | | | | | 0.024 | | | | | 0.024 | | | | | 0.024 | | | | 0.023 | | | | 0.023 | | | | 0.023 | | 0.023 |
| 3 | | | 0.052 | | | | | 0.052 | | | | | 0.052 | | | | 0.052 | | | | | 0.052 | | | | | 0.052 | | | | | 0.051 | | | | 0.052 | | | | 0.052 | | | | 0.052 | | 0.051 |
| 4 | | | 0.082 | | | | | 0.082 | | | | | 0.081 | | | | 0.080 | | | | | 0.081 | | | | | 0.081 | | | | | 0.082 | | | | 0.081 | | | | 0.082 | | | | 0.081 | | 0.082 |
| Cu | | 1 | | | 1 | | | 0.0041 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | 0.0041 | | | | 0.0040 | | | | 0.0040 | | 0.0040 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | | 0.021 | | | | | 0.019 | | | | | 0.021 | | | | 0.021 | | | | 0.019 | | | | 0.020 | | 0.020 |
| 元素 | | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | 2 | | | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | 8 | | | | 9 | | | | 10 | | 11 |
| Cu | | 1 | | | 3 | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.048 | | | | 0.051 | | | | 0.050 | | | | 0.049 | | 0.051 |
| 4 | | | 0.080 | | | | | 0.080 | | | | | 0.078 | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | 0.082 | | | | 0.078 | | | | 0.081 | | 0.080 |
| 2 | | | 1 | | | 0.0042 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0040 | | | | 0.0041 | | | | 0.0040 | | | | 0.0040 | | 0.0040 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | | 0.020 | | 0.020 |
| 3 | | | 0.049 | | | | | 0.049 | | | | | 0.050 | | | | 0.049 | | | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | 0.049 | | | | 0.050 | | | | 0.049 | | 0.049 |
| 4 | | | 0.081 | | | | | 0.081 | | | | | 0.080 | | | | 0.079 | | | | | 0.079 | | | | | 0.080 | | | | | 0.080 | | | | 0.081 | | | | 0.080 | | | | 0.079 | | 0.080 |
| 3 | | | 1 | | | 0.0039 | | | | | 0.0039 | | | | | 0.0040 | | | | 0.0040 | | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0039 | | | | 0.0040 | | | | 0.0040 | | | | 0.0041 | | 0.0040 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | 0.020 | | | | 0.021 | | | | 0.019 | | 0.020 |
| 3 | | | 0.050 | | | | | 0.049 | | | | | 0.051 | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | 0.049 | | | | 0.050 | | 0.050 |
| 4 | | | 0.079 | | | | | 0.078 | | | | | 0.080 | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | | 0.079 | | | | 0.080 | | | | 0.081 | | | | 0.080 | | 0.079 |
| 4 | | | 1 | | | 0.0042 | | | | | 0.0037 | | | | | 0.0037 | | | | 0.0040 | | | | | 0.0033 | | | | | 0.0038 | | | | | 0.0036 | | | | 0.0039 | | | | 0.0036 | | | | 0.0042 | | 0.0039 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | | 0.020 | | 0.019 |
| 3 | | | 0.049 | | | | | 0.048 | | | | | 0.048 | | | | 0.048 | | | | | 0.049 | | | | | 0.049 | | | | | 0.049 | | | | 0.048 | | | | 0.048 | | | | 0.048 | | 0.048 |
| 4 | | | 0.078 | | | | | 0.078 | | | | | 0.078 | | | | 0.079 | | | | | 0.079 | | | | | 0.079 | | | | | 0.079 | | | | 0.079 | | | | 0.079 | | | | 0.079 | | 0.079 |
| 5 | | | 1 | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0041 | | | | 0.0041 | | | | 0.0040 | | | | 0.0041 | | 0.0040 |
| 2 | | | 0.021 | | | | | 0.021 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | 0.020 | | | | 0.020 | | | | 0.021 | | 0.020 |
| 3 | | | 0.051 | | | | | 0.050 | | | | | 0.051 | | | | 0.051 | | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | 0.051 | | | | 0.050 | | 0.050 |
| 4 | | | 0.081 | | | | | 0.081 | | | | | 0.080 | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | | 0.079 | | | | 0.081 | | | | 0.079 | | | | 0.080 | | 0.081 |
| 6 | | | 1 | | | 0.0042 | | | | | 0.0042 | | | | | 0.0042 | | | | 0.0042 | | | | | 0.0039 | | | | | 0.0039 | | | | | 0.0042 | | | | 0.0039 | | | | 0.0039 | | | | 0.0039 | | 0.0041 |
| 2 | | | 0.020 | | | | | 0.021 | | | | | 0.021 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | 0.021 | | | | 0.020 | | | | 0.020 | | 0.020 |
| 3 | | | 0.049 | | | | | 0.048 | | | | | 0.049 | | | | 0.051 | | | | | 0.048 | | | | | 0.049 | | | | | 0.049 | | | | 0.049 | | | | 0.050 | | | | 0.051 | | 0.049 |
| 4 | | | 0.081 | | | | | 0.079 | | | | | 0.083 | | | | 0.079 | | | | | 0.079 | | | | | 0.081 | | | | | 0.080 | | | | 0.080 | | | | 0.081 | | | | 0.079 | | 0.081 |
| 7 | | | 1 | | | 0.0040 | | | | | 0.0041 | | | | | 0.0041 | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0040 | | | | 0.0041 | | | | 0.0041 | | | | 0.0040 | | 0.0041 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | | 0.020 | | 0.020 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | | 0.050 | | 0.050 |
| 4 | | | 0.079 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.080 | | | | 0.080 | | 0.080 |
| 8 | | | 1 | | | 0.0043 | | | | | 0.0040 | | | | | 0.0042 | | | | 0.0043 | | | | | 0.0043 | | | | | 0.0044 | | | | | 0.0040 | | | | 0.0040 | | | | 0.0041 | | | | 0.0041 | | 0.0041 |
| 2 | | | 0.020 | | | | | 0.021 | | | | | 0.021 | | | | 0.019 | | | | | 0.021 | | | | | 0.019 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | | 0.020 | | 0.020 |
| 3 | | | 0.052 | | | | | 0.050 | | | | | 0.052 | | | | 0.051 | | | | | 0.050 | | | | | 0.048 | | | | | 0.050 | | | | 0.051 | | | | 0.050 | | | | 0.049 | | 0.049 |
| 4 | | | 0.082 | | | | | 0.083 | | | | | 0.080 | | | | 0.081 | | | | | 0.082 | | | | | 0.082 | | | | | 0.079 | | | | 0.080 | | | | 0.081 | | | | 0.081 | | 0.080 |
| 9 | | | 1 | | | 0.0041 | | | | | 0.0041 | | | | | 0.0043 | | | | 0.0041 | | | | | 0.0042 | | | | | 0.0043 | | | | | 0.0043 | | | | 0.0041 | | | | 0.0040 | | | | 0.0042 | | 0.0039 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | | 0.019 | | | | | 0.019 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | | 0.020 | | 0.020 |
| 3 | | | 0.049 | | | | | 0.049 | | | | | 0.049 | | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | | 0.051 | | | | 0.051 | | | | 0.049 | | | | 0.050 | | 0.049 |
| 4 | | | 0.077 | | | | | 0.077 | | | | | 0.078 | | | | 0.077 | | | | | 0.077 | | | | | 0.076 | | | | | 0.078 | | | | 0.079 | | | | 0.081 | | | | 0.078 | | 0.081 |
| Mo | | 1 | | | 1 | | | 0.0040 | | | | | 0.0039 | | | | | 0.0041 | | | | 0.0041 | | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0040 | | | | 0.0040 | | | | 0.0040 | | | | 0.0041 | | 0.0040 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.019 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.019 | | | | 0.020 | | 0.020 |
| 3 | | | 0.050 | | | | | 0.049 | | | | | 0.051 | | | | 0.050 | | | | | 0.051 | | | | | 0.051 | | | | | 0.049 | | | | 0.050 | | | | 0.051 | | | | 0.050 | | 0.050 |
| 元素 | | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | 2 | | | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | 8 | | | | 9 | | | | 10 | | 11 |
| Mo | | 1 | | | 4 | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.081 | | | | | 0.081 | | | | | 0.079 | | | | | 0.079 | | | | 0.081 | | | | 0.082 | | | | 0.081 | | 0.081 |
| 2 | | | 1 | | | 0.0039 | | | | | 0.0039 | | | | | 0.0039 | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0040 | | | | 0.0039 | | | | 0.0040 | | 0.0040 |
| 2 | | | 0.021 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.019 | | | | | 0.020 | | | | 0.021 | | | | 0.020 | | | | 0.020 | | 0.020 |
| 3 | | | 0.051 | | | | | 0.050 | | | | | 0.051 | | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | 0.051 | | | | 0.050 | | | | 0.050 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.079 | | | | | 0.079 | | | | 0.081 | | | | | 0.081 | | | | | 0.079 | | | | | 0.080 | | | | 0.080 | | | | 0.080 | | | | 0.080 | | 0.080 |
| 3 | | | 1 | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0039 | | | | | 0.0040 | | | | 0.0040 | | | | 0.0040 | | | | 0.0040 | | 0.0039 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | | 0.019 | | | | 0.020 | | | | 0.020 | | | | 0.020 | | 0.020 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.051 | | | | 0.050 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | | 0.079 | | | | | 0.080 | | | | | 0.081 | | | | 0.081 | | | | 0.080 | | | | 0.080 | | 0.080 |
| 4 | | | 1 | | | 0.0041 | | | | | 0.004 | | | | | 0.004 | | | | 0.004 | | | | | 0.004 | | | | | 0.004 | | | | | 0.004 | | | | 0.004 | | | | 0.004 | | | | 0.004 | | 0.004 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | | 0.020 | | 0.020 |
| 3 | | | 0.049 | | | | | 0.049 | | | | | 0.049 | | | | 0.049 | | | | | 0.049 | | | | | 0.049 | | | | | 0.049 | | | | 0.049 | | | | 0.049 | | | | 0.049 | | 0.049 |
| 4 | | | 0.079 | | | | | 0.079 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.080 | | | | 0.080 | | 0.080 |
| 5 | | | 1 | | | 0.0041 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0041 | | | | 0.0041 | | | | 0.0040 | | | | 0.0040 | | 0.0040 |
| 2 | | | 0.020 | | | | | 0.021 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | | 0.021 | | | | 0.020 | | | | 0.020 | | | | 0.021 | | 0.020 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | 0.051 | | | | 0.051 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.081 | | | | | 0.081 | | | | 0.080 | | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | 0.080 | | | | 0.081 | | | | 0.080 | | 0.080 |
| 6 | | | 1 | | | 0.0042 | | | | | 0.0039 | | | | | 0.0042 | | | | 0.0041 | | | | | 0.0040 | | | | | 0.0042 | | | | | 0.0039 | | | | 0.0042 | | | | 0.0040 | | | | 0.0039 | | 0.0040 |
| 2 | | | 0.021 | | | | | 0.020 | | | | | 0.020 | | | | 0.021 | | | | | 0.020 | | | | | 0.019 | | | | | 0.020 | | | | 0.019 | | | | 0.020 | | | | 0.021 | | 0.021 |
| 3 | | | 0.049 | | | | | 0.052 | | | | | 0.052 | | | | 0.050 | | | | | 0.052 | | | | | 0.051 | | | | | 0.051 | | | | 0.051 | | | | 0.050 | | | | 0.049 | | 0.052 |
| 4 | | | 0.080 | | | | | 0.081 | | | | | 0.082 | | | | 0.081 | | | | | 0.082 | | | | | 0.082 | | | | | 0.082 | | | | 0.079 | | | | 0.079 | | | | 0.083 | | 0.083 |
| 7 | | | 1 | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0040 | | | | 0.0041 | | | | 0.0042 | | | | 0.0041 | | 0.0040 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.021 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | | 0.020 | | 0.020 |
| 3 | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | 0.050 | | | | 0.050 | | 0.050 |
| 4 | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.081 | | | | 0.079 | | 0.080 |
| 8 | | | 1 | | | 0.0042 | | | | | 0.0040 | | | | | 0.0042 | | | | 0.0042 | | | | | 0.0042 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0040 | | | | 0.0041 | | | | 0.0042 | | 0.0041 |
| 2 | | | 0.019 | | | | | 0.021 | | | | | 0.020 | | | | 0.019 | | | | | 0.021 | | | | | 0.019 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | | 0.021 | | 0.020 |
| 3 | | | 0.050 | | | | | 0.049 | | | | | 0.049 | | | | 0.050 | | | | | 0.049 | | | | | 0.048 | | | | | 0.049 | | | | 0.051 | | | | 0.049 | | | | 0.049 | | 0.048 |
| 4 | | | 0.081 | | | | | 0.081 | | | | | 0.080 | | | | 0.081 | | | | | 0.082 | | | | | 0.080 | | | | | 0.079 | | | | 0.078 | | | | 0.082 | | | | 0.080 | | 0.080 |
| 9 | | | 1 | | | 0.0039 | | | | | 0.0038 | | | | | 0.0038 | | | | 0.0039 | | | | | 0.0038 | | | | | 0.0038 | | | | | 0.0039 | | | | 0.0038 | | | | 0.0038 | | | | 0.0038 | | 0.0038 |
| 2 | | | 0.020 | | | | | 0.019 | | | | | 0.019 | | | | 0.019 | | | | | 0.021 | | | | | 0.020 | | | | | 0.021 | | | | 0.020 | | | | 0.020 | | | | 0.020 | | 0.020 |
| 3 | | | 0.050 | | | | | 0.052 | | | | | 0.051 | | | | 0.052 | | | | | 0.053 | | | | | 0.052 | | | | | 0.051 | | | | 0.051 | | | | 0.051 | | | | 0.051 | | 0.050 |
| 4 | | | 0.084 | | | | | 0.084 | | | | | 0.083 | | | | 0.082 | | | | | 0.083 | | | | | 0.081 | | | | | 0.083 | | | | 0.083 | | | | 0.083 | | | | 0.083 | | 0.084 |
| Ta | | 1 | | | 1 | | | 0.0039 | | | | | 0.0040 | | | | | 0.0041 | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0040 | | | | 0.0040 | | | | 0.0039 | | | | 0.0041 | | 0.0041 |
| 2 | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.019 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | | 0.019 | | 0.020 |
| 3 | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | 0.049 | | | | 0.049 | | | | 0.050 | | 0.050 |
| 4 | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | | 0.079 | | | | | 0.080 | | | | | 0.079 | | | | 0.080 | | | | 0.079 | | | | 0.080 | | 0.080 |
| 元素 | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | 2 | | | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | | 8 | | | | 9 | | | | 10 | | | 11 |
| Ta | 2 | | | 1 | | | 0.0039 | | | | 0.0040 | | | | | 0.0040 | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0039 | | | | | 0.0041 | | | | 0.0042 | | | | 0.0042 | | | 0.0041 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.019 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.051 | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.080 | | | | 0.081 | | | | | 0.080 | | | | 0.081 | | | | | 0.081 | | | | | 0.081 | | | | | 0.080 | | | | | 0.081 | | | | 0.081 | | | | 0.081 | | | 0.081 |
| 3 | | | 1 | | | 0.0040 | | | | 0.0040 | | | | | 0.0041 | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0039 | | | | | 0.0040 | | | | 0.0039 | | | | 0.0040 | | | 0.0041 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.080 | | | | 0.081 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | | 0.081 | | | | 0.081 | | | | 0.079 | | | 0.080 |
| 4 | | | 1 | | | 0.0045 | | | | 0.0037 | | | | | 0.0036 | | | | 0.0041 | | | | | 0.0036 | | | | | 0.0038 | | | | | 0.0040 | | | | | 0.0047 | | | | 0.0045 | | | | 0.0047 | | | 0.0040 |
| 2 | | | 0.021 | | | | 0.020 | | | | | 0.020 | | | | 0.021 | | | | | 0.020 | | | | | 0.021 | | | | | 0.021 | | | | | 0.021 | | | | 0.021 | | | | 0.021 | | | 0.021 |
| 3 | | | 0.050 | | | | 0.051 | | | | | 0.051 | | | | 0.052 | | | | | 0.051 | | | | | 0.051 | | | | | 0.052 | | | | | 0.051 | | | | 0.051 | | | | 0.051 | | | 0.051 |
| 4 | | | 0.081 | | | | 0.082 | | | | | 0.080 | | | | 0.083 | | | | | 0.082 | | | | | 0.082 | | | | | 0.080 | | | | | 0.083 | | | | 0.083 | | | | 0.082 | | | 0.084 |
| 5 | | | 1 | | | 0.0040 | | | | 0.0041 | | | | | 0.0040 | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0040 | | | | 0.0040 | | | | 0.0040 | | | 0.0040 |
| 2 | | | 0.020 | | | | 0.021 | | | | | 0.021 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | | 0.021 | | | | 0.020 | | | | 0.020 | | | 0.021 |
| 3 | | | 0.051 | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | 0.051 | | | 0.051 |
| 4 | | | 0.081 | | | | 0.080 | | | | | 0.081 | | | | 0.081 | | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | 0.081 | | | | 0.081 | | | 0.079 |
| 6 | | | 1 | | | 0.0039 | | | | 0.0042 | | | | | 0.0041 | | | | 0.0039 | | | | | 0.0041 | | | | | 0.0039 | | | | | 0.0039 | | | | | 0.0039 | | | | 0.0039 | | | | 0.0038 | | | 0.0039 |
| 2 | | | 0.019 | | | | 0.020 | | | | | 0.021 | | | | 0.021 | | | | | 0.020 | | | | | 0.019 | | | | | 0.020 | | | | | 0.020 | | | | 0.021 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.050 | | | | 0.049 | | | | | 0.051 | | | | 0.052 | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | 0.049 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.081 | | | | 0.079 | | | | | 0.079 | | | | 0.082 | | | | | 0.081 | | | | | 0.079 | | | | | 0.081 | | | | | 0.083 | | | | 0.080 | | | | 0.079 | | | 0.079 |
| 7 | | | 1 | | | 0.0042 | | | | 0.0041 | | | | | 0.0042 | | | | 0.0041 | | | | | 0.0042 | | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0042 | | | | 0.0042 | | | | 0.0042 | | | 0.0041 |
| 2 | | | 0.021 | | | | 0.021 | | | | | 0.021 | | | | 0.020 | | | | | 0.021 | | | | | 0.021 | | | | | 0.021 | | | | | 0.021 | | | | 0.021 | | | | 0.021 | | | 0.021 |
| 3 | | | 0.049 | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | 0.049 | | | 0.050 |
| 4 | | | 0.079 | | | | 0.079 | | | | | 0.080 | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.079 | | | 0.080 |
| 8 | | | 1 | | | 0.0044 | | | | 0.0042 | | | | | 0.0041 | | | | 0.0040 | | | | | 0.0043 | | | | | 0.0040 | | | | | 0.0044 | | | | | 0.0043 | | | | 0.0044 | | | | 0.0039 | | | 0.0040 |
| 2 | | | 0.019 | | | | 0.021 | | | | | 0.021 | | | | 0.019 | | | | | 0.020 | | | | | 0.019 | | | | | 0.020 | | | | | 0.020 | | | | 0.019 | | | | 0.021 | | | 0.020 |
| 3 | | | 0.049 | | | | 0.049 | | | | | 0.048 | | | | 0.048 | | | | | 0.049 | | | | | 0.048 | | | | | 0.048 | | | | | 0.048 | | | | 0.049 | | | | 0.048 | | | 0.048 |
| 4 | | | 0.077 | | | | 0.079 | | | | | 0.080 | | | | 0.080 | | | | | 0.079 | | | | | 0.081 | | | | | 0.079 | | | | | 0.078 | | | | 0.078 | | | | 0.077 | | | 0.078 |
| 9 | | | 1 | | | 0.0044 | | | | 0.0042 | | | | | 0.0046 | | | | 0.0045 | | | | | 0.0045 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0047 | | | | 0.0042 | | | | 0.0038 | | | 0.0037 |
| 2 | | | 0.020 | | | | 0.018 | | | | | 0.019 | | | | 0.020 | | | | | 0.018 | | | | | 0.018 | | | | | 0.018 | | | | | 0.018 | | | | 0.018 | | | | 0.018 | | | 0.018 |
| 3 | | | 0.052 | | | | 0.052 | | | | | 0.050 | | | | 0.052 | | | | | 0.053 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.081 | | | | 0.080 | | | | | 0.081 | | | | 0.079 | | | | | 0.080 | | | | | 0.079 | | | | | 0.080 | | | | | 0.079 | | | | 0.081 | | | | 0.080 | | | 0.081 |
| Pb | 1 | | | 1 | | | 0.0041 | | | | 0.0041 | | | | | 0.0040 | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0042 | | | | 0.0040 | | | | 0.0039 | | | 0.0041 |
| 2 | | | 0.020 | | | | 0.019 | | | | | 0.020 | | | | 0.019 | | | | | 0.020 | | | | | 0.021 | | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | 0.020 | | | 0.021 |
| 3 | | | 0.050 | | | | 0.049 | | | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | | 0.049 | | | | 0.050 | | | | 0.050 | | | 0.049 |
| 4 | | | 0.079 | | | | 0.081 | | | | | 0.081 | | | | 0.079 | | | | | 0.081 | | | | | 0.079 | | | | | 0.081 | | | | | 0.081 | | | | 0.080 | | | | 0.081 | | | 0.080 |
| 2 | | | 1 | | | 0.0040 | | | | 0.0041 | | | | | 0.0042 | | | | 0.0041 | | | | | 0.0042 | | | | | 0.0039 | | | | | 0.0041 | | | | | 0.0041 | | | | 0.0041 | | | | 0.0039 | | | 0.0041 |
| 元素 | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | 2 | | | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | | 8 | | | | 9 | | | | 10 | | | 11 |
| Pb | 2 | | | 2 | | | 0.021 | | | | 0.021 | | | | | 0.020 | | | | 0.021 | | | | | 0.021 | | | | | 0.020 | | | | | 0.021 | | | | | 0.020 | | | | 0.021 | | | | 0.021 | | | 0.021 |
| 3 | | | 0.051 | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | 0.051 | | | 0.051 |
| 4 | | | 0.080 | | | | 0.079 | | | | | 0.080 | | | | 0.079 | | | | | 0.079 | | | | | 0.079 | | | | | 0.080 | | | | | 0.079 | | | | 0.079 | | | | 0.080 | | | 0.080 |
| 3 | | | 1 | | | 0.0040 | | | | 0.0041 | | | | | 0.0040 | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0041 | | | | 0.0041 | | | 0.0040 |
| 2 | | | 0.020 | | | | 0.021 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.021 | | | 0.020 |
| 3 | | | 0.049 | | | | 0.050 | | | | | 0.049 | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | 0.049 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.081 | | | | 0.080 | | | | | 0.080 | | | | 0.081 | | | | | 0.081 | | | | | 0.080 | | | | | 0.081 | | | | | 0.081 | | | | 0.080 | | | | 0.079 | | | 0.080 |
| 4 | | | 1 | | | 0.0039 | | | | 0.0041 | | | | | 0.0040 | | | | 0.0038 | | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0042 | | | | | 0.0044 | | | | 0.0042 | | | | 0.0044 | | | 0.0041 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | 0.019 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.049 | | | | 0.048 | | | | | 0.048 | | | | 0.049 | | | | | 0.048 | | | | | 0.049 | | | | | 0.049 | | | | | 0.049 | | | | 0.048 | | | | 0.049 | | | 0.049 |
| 4 | | | 0.079 | | | | 0.079 | | | | | 0.079 | | | | 0.079 | | | | | 0.080 | | | | | 0.079 | | | | | 0.079 | | | | | 0.080 | | | | 0.079 | | | | 0.079 | | | 0.078 |
| 5 | | | 1 | | | 0.0040 | | | | 0.0040 | | | | | 0.0040 | | | | 0.0041 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0041 | | | | 0.0041 | | | | 0.0040 | | | 0.0040 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.021 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | 0.021 |
| 3 | | | 0.051 | | | | 0.050 | | | | | 0.051 | | | | 0.051 | | | | | 0.051 | | | | | 0.049 | | | | | 0.049 | | | | | 0.050 | | | | 0.050 | | | | 0.049 | | | 0.050 |
| 4 | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.081 | | | | | 0.081 | | | | 0.081 | | | | 0.080 | | | 0.081 |
| 6 | | | 1 | | | 0.0038 | | | | 0.0041 | | | | | 0.0039 | | | | 0.0039 | | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0038 | | | | | 0.0041 | | | | 0.0040 | | | | 0.0038 | | | 0.0039 |
| 2 | | | 0.019 | | | | 0.019 | | | | | 0.021 | | | | 0.019 | | | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | | 0.021 | | | | 0.019 | | | | 0.020 | | | 0.021 |
| 3 | | | 0.051 | | | | 0.050 | | | | | 0.052 | | | | 0.048 | | | | | 0.051 | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | 0.052 | | | | 0.051 | | | 0.051 |
| 4 | | | 0.083 | | | | 0.079 | | | | | 0.079 | | | | 0.080 | | | | | 0.081 | | | | | 0.082 | | | | | 0.079 | | | | | 0.083 | | | | 0.081 | | | | 0.080 | | | 0.083 |
| 7 | | | 1 | | | 0.0040 | | | | 0.0041 | | | | | 0.0042 | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0040 | | | | | 0.0041 | | | | 0.0042 | | | | 0.0042 | | | 0.0040 |
| 2 | | | 0.020 | | | | 0.021 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | 0.021 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.050 | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.079 | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | | 0.079 | | | | | 0.080 | | | | | 0.080 | | | | | 0.081 | | | | 0.080 | | | | 0.079 | | | 0.080 |
| 8 | | | 1 | | | 0.0040 | | | | 0.0042 | | | | | 0.0039 | | | | 0.0038 | | | | | 0.0039 | | | | | 0.0043 | | | | | 0.0037 | | | | | 0.0038 | | | | 0.0043 | | | | 0.0040 | | | 0.0043 |
| 2 | | | 0.018 | | | | 0.020 | | | | | 0.020 | | | | 0.018 | | | | | 0.021 | | | | | 0.019 | | | | | 0.019 | | | | | 0.019 | | | | 0.019 | | | | 0.020 | | | 0.019 |
| 3 | | | 0.052 | | | | 0.050 | | | | | 0.051 | | | | 0.051 | | | | | 0.051 | | | | | 0.049 | | | | | 0.051 | | | | | 0.051 | | | | 0.050 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.079 | | | | 0.078 | | | | | 0.079 | | | | 0.078 | | | | | 0.079 | | | | | 0.077 | | | | | 0.078 | | | | | 0.076 | | | | 0.078 | | | | 0.077 | | | 0.078 |
| 9 | | | 1 | | | 0.0039 | | | | 0.0038 | | | | | 0.0040 | | | | 0.0040 | | | | | 0.0038 | | | | | 0.0037 | | | | | 0.0039 | | | | | 0.0039 | | | | 0.0040 | | | | 0.0039 | | | 0.0037 |
| 2 | | | 0.019 | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | | 0.018 | | | | | 0.018 | | | | | 0.018 | | | | | 0.019 | | | | 0.020 | | | | 0.018 | | | 0.020 |
| 3 | | | 0.052 | | | | 0.051 | | | | | 0.053 | | | | 0.053 | | | | | 0.052 | | | | | 0.052 | | | | | 0.053 | | | | | 0.053 | | | | 0.053 | | | | 0.052 | | | 0.052 |
| 4 | | | 0.083 | | | | 0.083 | | | | | 0.083 | | | | 0.081 | | | | | 0.082 | | | | | 0.082 | | | | | 0.082 | | | | | 0.082 | | | | 0.082 | | | | 0.082 | | | 0.083 |
| Ti | 1 | | | 1 | | | 0.0040 | | | | 0.0039 | | | | | 0.0041 | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0040 | | | | 0.0040 | | | 0.0041 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | 0.019 | | | | | 0.019 | | | | | 0.020 | | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | 0.019 | | | 0.020 |
| 3 | | | 0.050 | | | | 0.051 | | | | | 0.049 | | | | 0.051 | | | | | 0.049 | | | | | 0.050 | | | | | 0.049 | | | | | 0.049 | | | | 0.050 | | | | 0.049 | | | 0.050 |
| 4 | | | 0.078 | | | | 0.080 | | | | | 0.080 | | | | 0.081 | | | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | | 0.082 | | | | 0.080 | | | | 0.079 | | | 0.079 |
| 2 | | | 1 | | | 0.0039 | | | | 0.0039 | | | | | 0.0040 | | | | 0.0042 | | | | | 0.0043 | | | | | 0.0041 | | | | | 0.0039 | | | | | 0.0041 | | | | 0.0042 | | | | 0.0042 | | | 0.0040 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.019 | | | | 0.019 | | | 0.019 |
| 3 | | | 0.050 | | | | 0.049 | | | | | 0.050 | | | | 0.050 | | | | | 0.052 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.079 | | | | 0.081 | | | | | 0.079 | | | | 0.079 | | | | | 0.081 | | | | | 0.082 | | | | | 0.079 | | | | | 0.080 | | | | 0.081 | | | | 0.079 | | | 0.082 |
| 元素 | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | 2 | | | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | | 8 | | | | 9 | | | | 10 | | | 11 |
| Ti | 3 | | | 1 | | | 0.0040 | | | | 0.0041 | | | | | 0.0041 | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0040 | | | | 0.0040 | | | 0.0040 |
| 2 | | | 0.019 | | | | 0.020 | | | | | 0.020 | | | | 0.019 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.051 | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | 0.051 | | | 0.050 |
| 4 | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | 0.081 | | | | 0.079 | | | 0.079 |
| 4 | | | 1 | | | 0.0041 | | | | 0.0042 | | | | | 0.0041 | | | | 0.0041 | | | | | 0.0044 | | | | | 0.0042 | | | | | 0.0042 | | | | | 0.0041 | | | | 0.0042 | | | | 0.0041 | | | 0.0042 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.021 | | | | 0.020 | | | 0.021 |
| 3 | | | 0.049 | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.051 | | | 0.049 |
| 4 | | | 0.081 | | | | 0.082 | | | | | 0.081 | | | | 0.081 | | | | | 0.081 | | | | | 0.082 | | | | | 0.080 | | | | | 0.082 | | | | 0.082 | | | | 0.082 | | | 0.083 |
| 5 | | | 1 | | | 0.0041 | | | | 0.0040 | | | | | 0.0040 | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | 0.0040 | | | | 0.0041 | | | 0.0040 |
| 2 | | | 0.021 | | | | 0.021 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | | 0.021 | | | | | 0.020 | | | | 0.021 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.049 | | | | 0.050 | | | | | 0.049 | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | | 0.049 | | | | | 0.049 | | | | 0.050 | | | | 0.051 | | | 0.051 |
| 4 | | | 0.080 | | | | 0.079 | | | | | 0.079 | | | | 0.080 | | | | | 0.080 | | | | | 0.079 | | | | | 0.079 | | | | | 0.081 | | | | 0.081 | | | | 0.081 | | | 0.081 |
| 6 | | | 1 | | | 0.0038 | | | | 0.0041 | | | | | 0.0041 | | | | 0.0042 | | | | | 0.0039 | | | | | 0.0038 | | | | | 0.0041 | | | | | 0.0041 | | | | 0.0040 | | | | 0.0039 | | | 0.0039 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | 0.021 | | | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | | 0.021 | | | | 0.020 | | | | 0.020 | | | 0.021 |
| 3 | | | 0.051 | | | | 0.052 | | | | | 0.052 | | | | 0.049 | | | | | 0.052 | | | | | 0.048 | | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | 0.052 | | | 0.052 |
| 4 | | | 0.080 | | | | 0.083 | | | | | 0.083 | | | | 0.079 | | | | | 0.082 | | | | | 0.082 | | | | | 0.082 | | | | | 0.083 | | | | 0.083 | | | | 0.083 | | | 0.080 |
| 7 | | | 1 | | | 0.0039 | | | | 0.0039 | | | | | 0.0040 | | | | 0.0040 | | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0039 | | | | | 0.0039 | | | | 0.0040 | | | | 0.0039 | | | 0.0040 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | | 0.019 | | | | | 0.020 | | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | 0.019 | | | 0.020 |
| 3 | | | 0.050 | | | | 0.049 | | | | | 0.049 | | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.079 | | | | 0.079 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.080 | | | 0.079 |
| 8 | | | 1 | | | / | | | | / | | | | | / | | | | / | | | | | / | | | | | / | | | | | / | | | | | / | | | | / | | | | / | | | / |
| 2 | | | 0.020 | | | | 0.021 | | | | | 0.019 | | | | 0.019 | | | | | 0.020 | | | | | 0.019 | | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.053 | | | | 0.051 | | | | | 0.052 | | | | 0.052 | | | | | 0.050 | | | | | 0.049 | | | | | 0.051 | | | | | 0.052 | | | | 0.051 | | | | 0.050 | | | 0.049 |
| 4 | | | 0.083 | | | | 0.084 | | | | | 0.080 | | | | 0.082 | | | | | 0.083 | | | | | 0.082 | | | | | 0.080 | | | | | 0.080 | | | | 0.082 | | | | 0.082 | | | 0.081 |
| 9 | | | 1 | | | 0.0043 | | | | 0.0041 | | | | | 0.0042 | | | | 0.0042 | | | | | 0.0041 | | | | | 0.0042 | | | | | 0.0041 | | | | | 0.0040 | | | | 0.0041 | | | | 0.0041 | | | 0.0041 |
| 2 | | | 0.021 | | | | 0.020 | | | | | 0.019 | | | | 0.019 | | | | | 0.019 | | | | | 0.019 | | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.049 | | | | | 0.049 | | | | | 0.049 | | | | | 0.053 | | | | 0.050 | | | | 0.051 | | | 0.050 |
| 4 | | | 0.077 | | | | 0.077 | | | | | 0.078 | | | | 0.079 | | | | | 0.078 | | | | | 0.078 | | | | | 0.079 | | | | | 0.079 | | | | 0.080 | | | | 0.077 | | | 0.079 |
| V | 1 | | | 1 | | | 0.0040 | | | | 0.0040 | | | | | 0.0041 | | | | 0.0039 | | | | | 0.0041 | | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0041 | | | | 0.0040 | | | | 0.0040 | | | 0.0039 |
| 2 | | | 0.021 | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.019 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.050 | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | 0.050 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.080 | | | | 0.081 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.079 | | | 0.079 |
| 2 | | | 1 | | | 0.0040 | | | | 0.0042 | | | | | 0.0040 | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0041 | | | | 0.0041 | | | | 0.0041 | | | 0.0041 |
| 2 | | | 0.021 | | | | 0.020 | | | | | 0.020 | | | | 0.021 | | | | | 0.021 | | | | | 0.021 | | | | | 0.020 | | | | | 0.021 | | | | 0.020 | | | | 0.020 | | | 0.021 |
| 3 | | | 0.050 | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | 0.051 |
| 4 | | | 0.080 | | | | 0.081 | | | | | 0.080 | | | | 0.081 | | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | | 0.079 | | | | 0.079 | | | | 0.079 | | | 0.079 |
| 元素 | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | 2 | | | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | | 8 | | | | 9 | | | | 10 | | | 11 |
| V | 3 | | | 1 | | | 0.0040 | | | | 0.0041 | | | | | 0.0040 | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0040 | | | | 0.0039 | | | | 0.0040 | | | 0.0039 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | 0.021 |
| 3 | | | 0.051 | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | | 0.049 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.051 | | | 0.050 |
| 4 | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.079 | | | 0.080 |
| 4 | | | 1 | | | 0.0044 | | | | 0.0046 | | | | | 0.0042 | | | | 0.0046 | | | | | 0.0047 | | | | | 0.0042 | | | | | 0.0048 | | | | | 0.0044 | | | | 0.0044 | | | | 0.0045 | | | 0.0046 |
| 2 | | | 0.021 | | | | 0.022 | | | | | 0.021 | | | | 0.021 | | | | | 0.022 | | | | | 0.022 | | | | | 0.021 | | | | | 0.021 | | | | 0.022 | | | | 0.021 | | | 0.022 |
| 3 | | | 0.051 | | | | 0.053 | | | | | 0.052 | | | | 0.053 | | | | | 0.052 | | | | | 0.052 | | | | | 0.052 | | | | | 0.052 | | | | 0.052 | | | | 0.052 | | | 0.052 |
| 4 | | | 0.083 | | | | 0.084 | | | | | 0.083 | | | | 0.083 | | | | | 0.083 | | | | | 0.084 | | | | | 0.082 | | | | | 0.084 | | | | 0.085 | | | | 0.083 | | | 0.083 |
| 5 | | | 1 | | | 0.0040 | | | | 0.0041 | | | | | 0.0040 | | | | 0.0041 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | 0.0041 | | | | 0.0040 | | | 0.0040 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | 0.021 | | | | | 0.021 | | | | | 0.021 | | | | | 0.020 | | | | | 0.021 | | | | 0.020 | | | | 0.020 | | | 0.021 |
| 3 | | | 0.050 | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | 0.051 |
| 4 | | | 0.081 | | | | 0.080 | | | | | 0.081 | | | | 0.081 | | | | | 0.081 | | | | | 0.081 | | | | | 0.081 | | | | | 0.079 | | | | 0.081 | | | | 0.080 | | | 0.079 |
| 6 | | | 1 | | | 0.0040 | | | | 0.0039 | | | | | 0.0040 | | | | 0.0039 | | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0039 | | | | 0.0039 | | | | 0.0039 | | | 0.0039 |
| 2 | | | 0.020 | | | | 0.021 | | | | | 0.019 | | | | 0.021 | | | | | 0.021 | | | | | 0.019 | | | | | 0.021 | | | | | 0.020 | | | | 0.019 | | | | 0.020 | | | 0.021 |
| 3 | | | 0.050 | | | | 0.049 | | | | | 0.049 | | | | 0.052 | | | | | 0.052 | | | | | 0.052 | | | | | 0.050 | | | | | 0.049 | | | | 0.052 | | | | 0.052 | | | 0.049 |
| 4 | | | 0.079 | | | | 0.081 | | | | | 0.079 | | | | 0.081 | | | | | 0.083 | | | | | 0.083 | | | | | 0.083 | | | | | 0.082 | | | | 0.079 | | | | 0.082 | | | 0.083 |
| 7 | | | 1 | | | 0.0039 | | | | 0.0040 | | | | | 0.0040 | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0039 | | | | 0.0040 | | | | 0.0040 | | | 0.0039 |
| 2 | | | 0.019 | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.019 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.050 | | | | 0.050 | | | | | 0.049 | | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | 0.049 |
| 4 | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | 0.079 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.081 | | | 0.080 |
| 8 | | | 1 | | | 0.0040 | | | | 0.0040 | | | | | 0.0040 | | | | 0.0041 | | | | | 0.0039 | | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0039 | | | | 0.0039 | | | | 0.0039 | | | 0.0041 |
| 2 | | | 0.020 | | | | 0.022 | | | | | 0.021 | | | | 0.019 | | | | | 0.019 | | | | | 0.021 | | | | | 0.019 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.054 | | | | 0.052 | | | | | 0.053 | | | | 0.053 | | | | | 0.052 | | | | | 0.050 | | | | | 0.051 | | | | | 0.052 | | | | 0.051 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.080 | | | | 0.080 | | | | | 0.078 | | | | 0.079 | | | | | 0.080 | | | | | 0.079 | | | | | 0.077 | | | | | 0.077 | | | | 0.079 | | | | 0.079 | | | 0.078 |
| 9 | | | 1 | | | 0.0045 | | | | 0.0043 | | | | | 0.0045 | | | | 0.0045 | | | | | 0.0044 | | | | | 0.0044 | | | | | 0.0044 | | | | | 0.0043 | | | | 0.0044 | | | | 0.0043 | | | 0.0044 |
| 2 | | | 0.022 | | | | 0.021 | | | | | 0.021 | | | | 0.021 | | | | | 0.021 | | | | | 0.020 | | | | | 0.021 | | | | | 0.021 | | | | 0.021 | | | | 0.021 | | | 0.022 |
| 3 | | | 0.053 | | | | 0.053 | | | | | 0.052 | | | | 0.052 | | | | | 0.052 | | | | | 0.052 | | | | | 0.052 | | | | | 0.055 | | | | 0.053 | | | | 0.054 | | | 0.053 |
| 4 | | | 0.081 | | | | 0.080 | | | | | 0.080 | | | | 0.079 | | | | | 0.077 | | | | | 0.080 | | | | | 0.084 | | | | | 0.083 | | | | 0.084 | | | | 0.082 | | | 0.084 |
| W | 1 | | | 1 | | | 0.0041 | | | | 0.0040 | | | | | 0.0039 | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0041 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0040 | | | | 0.0041 | | | 0.0039 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | 0.019 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.019 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.049 | | | | 0.050 | | | | | 0.049 | | | | 0.049 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.049 | | | | 0.049 | | | 0.050 |
| 4 | | | 0.081 | | | | 0.082 | | | | | 0.080 | | | | 0.081 | | | | | 0.081 | | | | | 0.079 | | | | | 0.082 | | | | | 0.082 | | | | 0.080 | | | | 0.081 | | | 0.082 |
| 2 | | | 1 | | | 0.0041 | | | | 0.0041 | | | | | 0.0041 | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0042 | | | | | 0.0042 | | | | | 0.0040 | | | | 0.0041 | | | | 0.0041 | | | 0.0041 |
| 2 | | | 0.021 | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.019 | | | | | 0.020 | | | | | 0.021 | | | | 0.020 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | 0.050 |
| 元素 | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | 2 | | | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | | 8 | | | | 9 | | | | 10 | | | 11 |
| W | 2 | | | 4 | | | 0.079 | | | | 0.080 | | | | | 0.080 | | | | 0.081 | | | | | 0.081 | | | | | 0.080 | | | | | 0.081 | | | | | 0.081 | | | | 0.080 | | | | 0.081 | | | 0.079 |
| 3 | | | 1 | | | 0.0040 | | | | 0.0040 | | | | | 0.0040 | | | | 0.0041 | | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0039 | | | | 0.0041 | | | | 0.0040 | | | 0.0040 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.049 | | | | 0.050 | | | | | 0.050 | | | | 0.049 | | | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | 0.050 | | | | 0.051 | | | 0.049 |
| 4 | | | 0.081 | | | | 0.081 | | | | | 0.081 | | | | 0.080 | | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | | 0.079 | | | | 0.081 | | | | 0.079 | | | 0.081 |
| 4 | | | 1 | | | 0.0039 | | | | 0.0040 | | | | | 0.0039 | | | | 0.0040 | | | | | 0.0045 | | | | | 0.0043 | | | | | 0.0045 | | | | | 0.0038 | | | | 0.0042 | | | | 0.0038 | | | 0.0044 |
| 2 | | | 0.019 | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | | 0.020 | | | | | 0.019 | | | | | 0.019 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | 0.019 |
| 3 | | | 0.048 | | | | 0.048 | | | | | 0.048 | | | | 0.049 | | | | | 0.049 | | | | | 0.048 | | | | | 0.048 | | | | | 0.048 | | | | 0.049 | | | | 0.048 | | | 0.048 |
| 4 | | | 0.078 | | | | 0.079 | | | | | 0.080 | | | | 0.079 | | | | | 0.079 | | | | | 0.079 | | | | | 0.080 | | | | | 0.079 | | | | 0.079 | | | | 0.079 | | | 0.079 |
| 5 | | | 1 | | | 0.0041 | | | | 0.0041 | | | | | 0.0040 | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0040 | | | | 0.0040 | | | | 0.0040 | | | 0.0040 |
| 2 | | | 0.020 | | | | 0.021 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.021 | | | 0.020 |
| 3 | | | 0.050 | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | | 0.051 | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.049 | | | 0.050 |
| 4 | | | 0.080 | | | | 0.081 | | | | | 0.080 | | | | 0.080 | | | | | 0.081 | | | | | 0.081 | | | | | 0.079 | | | | | 0.080 | | | | 0.079 | | | | 0.081 | | | 0.080 |
| 6 | | | 1 | | | 0.0041 | | | | 0.0039 | | | | | 0.0039 | | | | 0.0041 | | | | | 0.0039 | | | | | 0.0038 | | | | | 0.0042 | | | | | 0.0040 | | | | 0.0040 | | | | 0.0039 | | | 0.0040 |
| 2 | | | 0.020 | | | | 0.021 | | | | | 0.019 | | | | 0.021 | | | | | 0.021 | | | | | 0.020 | | | | | 0.021 | | | | | 0.020 | | | | 0.020 | | | | 0.019 | | | 0.020 |
| 3 | | | 0.051 | | | | 0.050 | | | | | 0.048 | | | | 0.052 | | | | | 0.052 | | | | | 0.050 | | | | | 0.049 | | | | | 0.049 | | | | 0.049 | | | | 0.051 | | | 0.052 |
| 4 | | | 0.083 | | | | 0.083 | | | | | 0.079 | | | | 0.081 | | | | | 0.082 | | | | | 0.080 | | | | | 0.083 | | | | | 0.080 | | | | 0.082 | | | | 0.083 | | | 0.079 |
| 7 | | | 1 | | | 0.0039 | | | | 0.0039 | | | | | 0.0040 | | | | 0.0038 | | | | | 0.0039 | | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0038 | | | | 0.0039 | | | 0.0039 |
| 2 | | | 0.019 | | | | 0.019 | | | | | 0.020 | | | | 0.019 | | | | | 0.019 | | | | | 0.019 | | | | | 0.020 | | | | | 0.019 | | | | 0.019 | | | | 0.019 | | | 0.019 |
| 3 | | | 0.050 | | | | 0.050 | | | | | 0.049 | | | | 0.049 | | | | | 0.049 | | | | | 0.050 | | | | | 0.050 | | | | | 0.049 | | | | 0.049 | | | | 0.049 | | | 0.050 |
| 4 | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | | 0.079 | | | | | 0.080 | | | | 0.081 | | | | 0.080 | | | 0.080 |
| 8 | | | 1 | | | 0.0040 | | | | 0.0040 | | | | | 0.0040 | | | | 0.0038 | | | | | 0.0039 | | | | | 0.0039 | | | | | 0.0041 | | | | | 0.0038 | | | | 0.0040 | | | | 0.0041 | | | 0.0042 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | 0.019 | | | 0.020 |
| 3 | | | 0.049 | | | | 0.050 | | | | | 0.047 | | | | 0.047 | | | | | 0.048 | | | | | 0.047 | | | | | 0.047 | | | | | 0.047 | | | | 0.047 | | | | 0.048 | | | 0.047 |
| 4 | | | 0.082 | | | | 0.082 | | | | | 0.082 | | | | 0.080 | | | | | 0.079 | | | | | 0.080 | | | | | 0.081 | | | | | 0.082 | | | | 0.080 | | | | 0.080 | | | 0.079 |
| 9 | | | 1 | | | 0.0035 | | | | 0.0033 | | | | | 0.0038 | | | | 0.0039 | | | | | 0.0038 | | | | | 0.0038 | | | | | 0.0036 | | | | | 0.0037 | | | | 0.0039 | | | | 0.0036 | | | 0.0036 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.019 | | | | 0.019 | | | | | 0.019 | | | | | 0.019 | | | | | 0.019 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.049 | | | | 0.048 | | | | | 0.048 | | | | 0.049 | | | | | 0.049 | | | | | 0.049 | | | | | 0.050 | | | | | 0.051 | | | | 0.049 | | | | 0.050 | | | 0.049 |
| 4 | | | 0.078 | | | | 0.076 | | | | | 0.076 | | | | 0.076 | | | | | 0.076 | | | | | 0.078 | | | | | 0.079 | | | | | 0.080 | | | | 0.082 | | | | 0.079 | | | 0.081 |
| Ca | 1 | | | 1 | | | 0.0039 | | | | 0.0041 | | | | | 0.0041 | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0039 | | | | | 0.0040 | | | | | 0.0041 | | | | 0.0040 | | | | 0.0040 | | | 0.0041 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | | 0.021 | | | | | 0.019 | | | | | 0.021 | | | | | 0.021 | | | | 0.020 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.050 | | | | 0.051 | | | | | 0.051 | | | | 0.050 | | | | | 0.051 | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | 0.050 | | | 0.051 |
| 4 | | | 0.081 | | | | 0.078 | | | | | 0.081 | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | | 0.080 | | | | | 0.080 | | | | 0.082 | | | | 0.080 | | | 0.079 |
| 2 | | | 1 | | | 0.0040 | | | | 0.0041 | | | | | 0.0041 | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0040 | | | | | 0.0042 | | | | 0.0041 | | | | 0.0040 | | | 0.0041 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.021 | | | | 0.020 | | | | | 0.020 | | | | | 0.021 | | | | | 0.020 | | | | | 0.021 | | | | 0.021 | | | | 0.020 | | | 0.020 |
| 元素 | 实验室 | | | 水平数 | | | N=11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | 2 | | | | | 3 | | | | 4 | | | | | 5 | | | | | 6 | | | | | 7 | | | | | 8 | | | | 9 | | | | 10 | | | 11 |
| Ca | 2 | | | 3 | | | 0.051 | | | | 0.051 | | | | | 0.050 | | | | 0.049 | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.051 | | | 0.049 |
| 4 | | | 0.080 | | | | 0.080 | | | | | 0.081 | | | | 0.079 | | | | | 0.079 | | | | | 0.082 | | | | | 0.082 | | | | | 0.079 | | | | 0.083 | | | | 0.079 | | | 0.081 |
| 3 | | | 1 | | | 0.0040 | | | | 0.0040 | | | | | 0.0040 | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0041 | | | | | 0.0040 | | | | 0.0040 | | | | 0.0039 | | | 0.0040 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.021 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | | 0.049 | | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | 0.049 | | | 0.050 |
| 4 | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | 0.079 | | | | | 0.080 | | | | | 0.079 | | | | | 0.079 | | | | | 0.081 | | | | 0.079 | | | | 0.079 | | | 0.080 |
| 4 | | | 1 | | | 0.0042 | | | | 0.0042 | | | | | 0.0042 | | | | 0.0041 | | | | | 0.0042 | | | | | 0.0042 | | | | | 0.0042 | | | | | 0.0042 | | | | 0.0042 | | | | 0.0041 | | | 0.0043 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | | 0.020 | | | | 0.021 | | | | 0.020 | | | 0.021 |
| 3 | | | 0.050 | | | | 0.051 | | | | | 0.051 | | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | | 0.051 | | | | 0.051 | | | | 0.051 | | | 0.051 |
| 4 | | | 0.079 | | | | 0.082 | | | | | 0.080 | | | | 0.081 | | | | | 0.083 | | | | | 0.082 | | | | | 0.082 | | | | | 0.082 | | | | 0.083 | | | | 0.083 | | | 0.082 |
| 5 | | | 1 | | | 0.0040 | | | | 0.0040 | | | | | 0.0040 | | | | 0.0041 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | | 0.0040 | | | | 0.0041 | | | | 0.0040 | | | 0.0040 |
| 2 | | | 0.021 | | | | 0.021 | | | | | 0.020 | | | | 0.020 | | | | | 0.021 | | | | | 0.020 | | | | | 0.021 | | | | | 0.021 | | | | 0.021 | | | | 0.021 | | | 0.021 |
| 3 | | | 0.050 | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.080 | | | | 0.080 | | | | | 0.081 | | | | 0.080 | | | | | 0.080 | | | | | 0.081 | | | | | 0.080 | | | | | 0.081 | | | | 0.081 | | | | 0.080 | | | 0.080 |
| 6 | | | 1 | | | 0.0039 | | | | 0.0038 | | | | | 0.0040 | | | | 0.0042 | | | | | 0.0040 | | | | | 0.0042 | | | | | 0.0039 | | | | | 0.0041 | | | | 0.0039 | | | | 0.0039 | | | 0.0040 |
| 2 | | | 0.020 | | | | 0.020 | | | | | 0.021 | | | | 0.020 | | | | | 0.019 | | | | | 0.021 | | | | | 0.021 | | | | | 0.021 | | | | 0.021 | | | | 0.021 | | | 0.021 |
| 3 | | | 0.051 | | | | 0.048 | | | | | 0.049 | | | | 0.048 | | | | | 0.049 | | | | | 0.051 | | | | | 0.050 | | | | | 0.052 | | | | 0.050 | | | | 0.052 | | | 0.050 |
| 4 | | | 0.081 | | | | 0.082 | | | | | 0.080 | | | | 0.083 | | | | | 0.083 | | | | | 0.079 | | | | | 0.079 | | | | | 0.080 | | | | 0.081 | | | | 0.080 | | | 0.082 |
| 7 | | | 1 | | | 0.0040 | | | | 0.0039 | | | | | 0.0039 | | | | 0.0038 | | | | | 0.0039 | | | | | 0.0039 | | | | | 0.0039 | | | | | 0.0040 | | | | 0.0039 | | | | 0.0039 | | | 0.0039 |
| 2 | | | 0.019 | | | | 0.019 | | | | | 0.020 | | | | 0.019 | | | | | 0.019 | | | | | 0.019 | | | | | 0.019 | | | | | 0.020 | | | | 0.020 | | | | 0.019 | | | 0.019 |
| 3 | | | 0.050 | | | | 0.050 | | | | | 0.049 | | | | 0.049 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | 0.050 | | | | 0.049 | | | 0.050 |
| 4 | | | 0.079 | | | | 0.080 | | | | | 0.080 | | | | 0.079 | | | | | 0.080 | | | | | 0.080 | | | | | 0.079 | | | | | 0.080 | | | | 0.080 | | | | 0.079 | | | 0.080 |
| 8 | | | 1 | | | 0.0041 | | | | 0.0042 | | | | | 0.0040 | | | | 0.0042 | | | | | 0.0042 | | | | | 0.0041 | | | | | 0.0040 | | | | | 0.0041 | | | | 0.0041 | | | | 0.0041 | | | 0.0041 |
| 2 | | | 0.020 | | | | 0.019 | | | | | 0.019 | | | | 0.019 | | | | | 0.019 | | | | | 0.019 | | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.051 | | | | 0.052 | | | | | 0.051 | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.053 | | | | 0.051 | | | | 0.051 | | | 0.051 |
| 4 | | | 0.078 | | | | 0.077 | | | | | 0.077 | | | | 0.076 | | | | | 0.078 | | | | | 0.077 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.079 | | | 0.080 |
| 9 | | | 1 | | | 0.0038 | | | | 0.0039 | | | | | 0.0038 | | | | 0.0039 | | | | | 0.0038 | | | | | 0.0038 | | | | | 0.0036 | | | | | 0.0037 | | | | 0.0039 | | | | 0.0036 | | | 0.0036 |
| 2 | | | 0.020 | | | | 0.019 | | | | | 0.019 | | | | 0.019 | | | | | 0.019 | | | | | 0.019 | | | | | 0.020 | | | | | 0.019 | | | | 0.020 | | | | 0.020 | | | 0.020 |
| 3 | | | 0.051 | | | | 0.052 | | | | | 0.051 | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | | 0.050 | | | | | 0.053 | | | | 0.051 | | | | 0.051 | | | 0.051 |
| 4 | | | 0.078 | | | | 0.077 | | | | | 0.077 | | | | 0.076 | | | | | 0.078 | | | | | 0.077 | | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | 0.079 | | | 0.080 |
| Si | 1 | | | 1 | | | 0.010 | | | | 0.010 | | | | | 0.009 | | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | 0.0092 | | | | 0.010 | | | 0.010 |
| 2 | | | 0.031 | | | | 0.030 | | | | | 0.031 | | | | 0.030 | | | | | 0.029 | | | | | 0.031 | | | | | 0.031 | | | | | 0.030 | | | | 0.030 | | | | 0.030 | | | 0.031 |
| 3 | | | 0.050 | | | | 0.049 | | | | | 0.050 | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | | 0.049 | | | | | 0.051 | | | | 0.050 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.082 | | | | 0.080 | | | | | 0.081 | | | | 0.080 | | | | | 0.082 | | | | | 0.081 | | | | | 0.082 | | | | | 0.082 | | | | 0.082 | | | | 0.082 | | | 0.081 |
| 2 | | | 1 | | | 0.010 | | | | 0.010 | | | | | 0.011 | | | | 0.011 | | | | | 0.011 | | | | | 0.010 | | | | | 0.011 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | 0.010 |
| 2 | | | 0.030 | | | | 0.030 | | | | | 0.030 | | | | 0.029 | | | | | 0.031 | | | | | 0.030 | | | | | 0.030 | | | | | 0.031 | | | | 0.030 | | | | 0.030 | | | 0.030 |
| 3 | | | 0.051 | | | | 0.048 | | | | | 0.051 | | | | 0.051 | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.079 | | | | 0.080 | | | | | 0.081 | | | | 0.081 | | | | | 0.080 | | | | | 0.083 | | | | | 0.079 | | | | | 0.078 | | | | 0.079 | | | | 0.079 | | | 0.079 |
| 3 | | | 1 | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | | 0.0092 | | | | 0.011 | | | | 0.010 | | | 0.010 |
| Si | 3 | | | 2 | | | 0.030 | | | | 0.029 | | | | | 0.029 | | | | 0.030 | | | | | 0.031 | | | | | 0.030 | | | | | 0.030 | | | | | 0.030 | | | | 0.030 | | | | 0.030 | | | 0.029 |
| 3 | | | 0.050 | | | | 0.050 | | | | | 0.051 | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | 0.050 | | | | 0.050 | | | 0.051 |
| 4 | | | 0.080 | | | | 0.080 | | | | | 0.080 | | | | 0.080 | | | | | 0.079 | | | | | 0.079 | | | | | 0.081 | | | | | 0.080 | | | | 0.081 | | | | 0.081 | | | 0.079 |
| 4 | | | 1 | | | 0.009 | | | | 0.0091 | | | | | 0.0090 | | | | 0.0086 | | | | | 0.0092 | | | | | 0.0088 | | | | | 0.0087 | | | | | 0.0091 | | | | 0.0090 | | | | 0.0089 | | | 0.010 |
| 2 | | | 0.028 | | | | 0.028 | | | | | 0.027 | | | | 0.028 | | | | | 0.028 | | | | | 0.028 | | | | | 0.028 | | | | | 0.028 | | | | 0.029 | | | | 0.027 | | | 0.028 |
| 3 | | | 0.048 | | | | 0.050 | | | | | 0.048 | | | | 0.048 | | | | | 0.048 | | | | | 0.048 | | | | | 0.048 | | | | | 0.048 | | | | 0.049 | | | | 0.049 | | | 0.048 |
| 4 | | | 0.078 | | | | 0.079 | | | | | 0.079 | | | | 0.079 | | | | | 0.079 | | | | | 0.080 | | | | | 0.078 | | | | | 0.081 | | | | 0.079 | | | | 0.079 | | | 0.082 |
| 5 | | | 1 | | | 0.010 | | | | 0.010 | | | | | 0.009 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | 0.010 | | | 0.010 |
| 2 | | | 0.030 | | | | 0.031 | | | | | 0.031 | | | | 0.031 | | | | | 0.030 | | | | | 0.031 | | | | | 0.031 | | | | | 0.031 | | | | 0.031 | | | | 0.030 | | | 0.031 |
| 3 | | | 0.051 | | | | 0.050 | | | | | 0.051 | | | | 0.051 | | | | | 0.050 | | | | | 0.051 | | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | 0.050 | | | 0.050 |
| 4 | | | 0.082 | | | | 0.083 | | | | | 0.082 | | | | 0.081 | | | | | 0.083 | | | | | 0.082 | | | | | 0.081 | | | | | 0.081 | | | | 0.081 | | | | 0.081 | | | 0.081 |
| 6 | | | 1 | | | 0.010 | | | | 0.011 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | | 0.010 | | | | 0.011 | | | | 0.010 | | | 0.010 |
| 2 | | | 0.031 | | | | 0.029 | | | | | 0.032 | | | | 0.029 | | | | | 0.031 | | | | | 0.031 | | | | | 0.030 | | | | | 0.030 | | | | 0.031 | | | | 0.031 | | | 0.030 |
| 3 | | | 0.052 | | | | 0.049 | | | | | 0.049 | | | | 0.049 | | | | | 0.050 | | | | | 0.049 | | | | | 0.051 | | | | | 0.049 | | | | 0.051 | | | | 0.049 | | | 0.051 |
| 4 | | | 0.079 | | | | 0.079 | | | | | 0.082 | | | | 0.080 | | | | | 0.080 | | | | | 0.079 | | | | | 0.083 | | | | | 0.082 | | | | 0.079 | | | | 0.079 | | | 0.081 |
| 7 | | | 1 | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | | 0.010 | | | | 0.011 | | | | 0.010 | | | 0.010 |
| 2 | | | 0.030 | | | | 0.030 | | | | | 0.031 | | | | 0.031 | | | | | 0.031 | | | | | 0.030 | | | | | 0.030 | | | | | 0.031 | | | | 0.030 | | | | 0.031 | | | 0.030 |
| 3 | | | 0.051 | | | | 0.052 | | | | | 0.052 | | | | 0.051 | | | | | 0.051 | | | | | 0.052 | | | | | 0.051 | | | | | 0.051 | | | | 0.051 | | | | 0.051 | | | 0.052 |
| 4 | | | 0.080 | | | | 0.079 | | | | | 0.079 | | | | 0.079 | | | | | 0.080 | | | | | 0.080 | | | | | 0.079 | | | | | 0.079 | | | | 0.080 | | | | 0.079 | | | 0.078 |
| 8 | | | 1 | | | 0.010 | | | | 0.011 | | | | | 0.010 | | | | 0.011 | | | | | 0.011 | | | | | 0.010 | | | | | 0.010 | | | | | 0.011 | | | | 0.010 | | | | 0.010 | | | 0.010 |
| 2 | | | 0.030 | | | | 0.030 | | | | | 0.028 | | | | 0.028 | | | | | 0.030 | | | | | 0.029 | | | | | 0.030 | | | | | 0.029 | | | | 0.030 | | | | 0.030 | | | 0.030 |
| 3 | | | 0.053 | | | | 0.050 | | | | | 0.050 | | | | 0.051 | | | | | 0.051 | | | | | 0.049 | | | | | 0.051 | | | | | 0.053 | | | | 0.050 | | | | 0.051 | | | 0.049 |
| 4 | | | 0.080 | | | | 0.082 | | | | | 0.080 | | | | 0.080 | | | | | 0.081 | | | | | 0.079 | | | | | 0.079 | | | | | 0.078 | | | | 0.080 | | | | 0.079 | | | 0.078 |
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