

附件 2

HJ

中华人民共和国国家环境保护标准

HJ□□□-201□

水质 总大肠菌群、粪大肠菌群和大肠埃希
氏菌的测定 酶底物法

Water quality—Determination of total coliforms, fecal coliforms and escherichia coli
—Enzyme substrate method

(征求意见稿)

201□-□□-□□发布

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环 境 保 护 部 发布

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前 言

为贯彻《中华人民共和国环境保护法》和《中华人民共和国水污染防治法》，保护水环境，保障人体健康，改善环境质量，规范水中总大肠菌群、粪大肠菌群和大肠埃希氏菌的测定方法，制定本标准。

本标准规定了地表水、地下水和废水中总大肠菌群、粪大肠菌群和大肠埃希氏菌测定的酶底物法。

本标准为首次发布。

本标准的附录 A 为规范性附录，附录 B 和附录 C 为资料性附录。

本标准由环境保护部环境监测司、科技标准司组织制订。

本标准主要起草单位：上海市环境监测中心。

本标准验证单位：江苏省环境监测中心、浙江省环境监测中心、常州市环境监测中心、上海市松江区环境监测站、上海市长宁区环境监测站、上海市青浦区环境监测站。

本标准环境保护部 201□年□□月□□日批准。

本标准自 201□年□□月□□日起实施。

本标准由环境保护部解释。

水质 总大肠菌群、粪大肠菌群和大肠埃希氏菌的测定 酶底物法

1 适用范围

本标准规定了测定水中总大肠菌群、粪大肠菌群和大肠埃希氏菌的酶底物法。

本标准适用于地表水、地下水和废水中总大肠菌群、粪大肠菌群和大肠埃希氏菌的测定。

本方法的检出限为 10 MPN/L。

2 规范性引用文件

本标准内容引用了下列文件或其中的条款。凡是不注明日期的引用文件，其有效版本适用于本标准。

GB/T 6682 分析实验用水规格和实验方法

3 术语和定义

下列术语和定义适用于本标准。

3.1

总大肠菌群 total coliforms

37 °C 培养 24 h，能产生 β -半乳糖苷酶（ β -D-galactosidase），分解选择性培养基中的邻硝基苯- β -D-吡喃半乳糖苷（ONPG）生成黄色的邻硝基苯酚的肠杆菌科细菌。

3.2

粪大肠菌群 fecal coliforms

粪大肠菌群，又称耐热大肠菌群（thermotolerant coliforms）。44.5 °C 培养 24 h，能产生 β -半乳糖苷酶（ β -D-galactosidase），分解选择性培养基中的邻硝基苯- β -D-吡喃半乳糖苷（ONPG）生成黄色的邻硝基苯酚的肠杆菌科细菌。

3.3

大肠埃希氏菌 escherichia coli

又称大肠杆菌。37 °C 培养 24 h，能产生 β -半乳糖苷酶（ β -D-galactosidase），分解选择性培养基中的邻硝基苯- β -D-吡喃半乳糖苷（ONPG）生成黄色的邻硝基苯酚，同时产生 β -葡萄糖醛酸酶，分解选择性培养基中的 4-甲基伞形酮- β -D-葡萄糖醛酸苷（MUG）释放出荧光物质（4-甲基伞形酮）的肠杆菌科细菌。

3.4

最大可能数 most probable number (MPN)

最大可能数 (most probable number, 缩写为 MPN), 又称稀释培养计数, 是一种基于泊松分布的间接计数法。利用统计学原理, 根据一定体积不同稀释度样品经培养后产生的目标微生物阳性数, 查表估算一定体积样品中目标微生物存在的数量 (单位体积存在目标微生物的最大可能数)。

4 方法原理

在特定温度下培养特定的时间, 总大肠菌群、粪大肠菌群、大肠埃希氏菌能产生特定的 β -半乳糖苷酶将选择性培养基中的无色底物邻硝基苯- β -D-吡喃半乳糖苷 (ONPG) 分解为邻硝基酚 (ONP), 呈黄色反应; 且大肠埃希氏菌同时又能产生 β -葡萄糖醛酸酶将选择性培养基中的 4-甲基伞形酮- β -D-葡萄糖醛酸苷 (MUG) 分解为 4-甲基伞形酮, 在紫外灯照射下呈荧光反应。统计阳性反应出现数量, 查 MPN 表, 再除以接种样品的稀释度, 计算相应水样中总大肠菌群、粪大肠菌群、大肠埃希氏菌的浓度值。

5 试剂和材料

除非另有说明, 分析时均使用符合国家标准分析纯试剂, 实验用水为新制备的蒸馏水或去离子水。

5.1 培养基

本标准采用 MMO-MUG 培养基 (Minimal Medium ONPG-MUG 培养基)。每 1000 ml MMO-MUG 培养基所含基本成份如下:

硫酸铵 [(NH ₄) ₂ SO ₄]	5.0 g
硫酸锰 (MnSO ₄)	0.5 mg
硫酸锌 (ZnSO ₄)	0.5 mg
硫酸镁 (MgSO ₄)	100 mg
氯化钠 (NaCl)	10 g
氯化钙 (CaCl ₂)	50 mg
亚硫酸钠 (Na ₂ SO ₃)	40 mg
两性霉素 B (Amphotericin B)	1 mg
邻硝基苯- β -D-吡喃半乳糖苷 (ONPG)	500 mg
4-甲基伞形酮- β -D-葡萄糖醛酸苷 (MUG)	75 mg
茄属植物萃取物 (Solanium 萃取物)	500 mg
N-2-羟乙基哌嗪-N-2-乙磺酸钠盐 (HEPES 钠盐)	5.3 g
N-2-羟乙基哌嗪-N-2-乙磺酸 (HEPES)	6.9 g

注: 考虑到培养基的质量控制, 建议采用市售商品化培养基制品。

5.2 硫代硫酸钠 (Na₂S₂O₃)。

5.3 乙二胺四乙酸二钠 (EDTA-Na₂)。

5.4 硫代硫酸钠溶液： $\rho(\text{Na}_2\text{S}_2\text{O}_3)=0.10\text{ g/ml}$ 。

称取硫代硫酸钠（5.2）10 g，溶于适量实验用水，定容至 100 ml，临用现配。

5.5 乙二胺四乙酸二钠（EDTA- Na_2 ）溶液： $\rho(\text{C}_{10}\text{H}_{14}\text{N}_2\text{O}_8\text{Na}_2\cdot 2\text{H}_2\text{O})=0.15\text{ g/ml}$ 。

称取乙二胺四乙酸二钠（5.3）15 g，溶于适量实验用水，定容至 100 ml，此溶液保质期为 30 d。

5.6 无菌水。

应满足 GB/T 6682 中三级水的要求，经 121 °C 高压蒸汽灭菌 20 min，备用。

6 仪器和设备

6.1 采样瓶：具螺旋帽或磨口塞的 500 ml 广口玻璃瓶。

6.2 恒温培养箱或振荡培养箱：（37±1）°C、（44.5±0.5）°C。

6.3 高压蒸汽灭菌器：121 °C、101.3 kpa。

6.4 97 孔定量盘：含 49 个大孔，48 个小孔。其中，48 个小孔可容纳 0.186 ml 水样，49 个大孔可容纳 1.86 ml 水样。

6.5 程控定量封口机：用于 97 孔定量盘的封口。

6.6 标准阳性比色盘。

6.7 紫外灯：365 nm~366 nm。

6.8 天平：感量 0.01 g。

6.9 移液管：（1±0.01）ml、（10±0.1）ml。也可采用量筒或计量合格的可调式移液器。

6.10 三角瓶：100 ml。

注：移液管、采样瓶等玻璃器皿及采样器具试验前要按无菌操作要求包扎，121 °C 高压蒸汽灭菌 20 min，烘干，备用；97 孔定量盘经环氧乙烷灭菌后使用。

7 样品

7.1 样品采集

与其它项目一同采样时，先单独采集微生物样品，采样瓶（6.1）不得用水样洗涤，采集水样于灭菌的采样瓶中。

采集河流、湖库等地表水样时，可握住瓶子下部直接将带塞采样瓶插入水中，约距水面 10 cm~15 cm 处，瓶口朝水流方向，拔玻璃塞，使水样灌入瓶内然后盖上瓶塞，将采样瓶从水中取出。如果没有水流，可握住瓶子水平往前推。采样量一般为采样瓶容量的 80% 左右。采好水样后，迅速扎上无菌包装纸。

从龙头装置采集样品时，不要选用漏水龙头，采水前将龙头打开至最大，放水 3 min~5 min，然后将水龙头关闭，用火灼烧约 3 min 灭菌，开足龙头，再放水 1 min，以充分除去水管中的滞留杂质。采水时控制水流速度，小心接入瓶内。

采集地表水、废水样品及一定深度的水样时，可使用灭菌过的专用采样装置采样。在同一采样点进行分层采样时，应自上而下进行，以免不同层次的搅扰。

7.2 样品的保存

采样后应在 2 h 内检测。否则，应 10 °C 以下冷藏但不得超过 6 h。实验室接样后，不能立即开展检测的，将样品放入 0 °C~4 °C 冷藏，在 2 h 内检测。

7.3 干扰和消除

本方法适用于 pH 范围在 4.5~10.5 的水样。如果采集的是经加氯处理或含有余氯的水样，在采样瓶灭菌前加入 0.4 ml 硫代硫酸钠溶液（5.4）；如果采集的是重金属离子含量较高的水样，在采样瓶灭菌前加入 1.2 ml 乙二胺四乙酸二钠（EDTA-Na₂）溶液（5.5）。加入干扰消除剂的采样瓶 121 °C 高压蒸汽灭菌 20 min，采样瓶外壁及包扎纸干燥后可用于样品采集。

注：10 mg 硫代硫酸钠（5.2）可保证去除水样中 1.5 mg 余氯，硫代硫酸钠用量可根据水样实际余氯量调整。

8 分析步骤

8.1 样品稀释

地表水中，水源水和湖泊（水库）水样的参考接种量为 100 ml，河流水样的参考接种量为 100 ml、10 ml、1 ml；废水中，生活污水水样的参考接种量为 10 ml、1 ml、0.1 ml，处理前工业废水水样的参考接种量为 10 ml、1 ml、0.1 ml、0.01 ml，处理后工业废水水样的参考接种量为 100 ml；地下水水样的参考接种量为 100 ml；见表 1。

根据水样污染程度确定稀释度，避免接种水样培养后 97 孔定量盘（6.4）出现全部阳性或全部阴性。接种量小于 100 ml 时，水样应制成稀释样品后使用，接种量为 10 ml 时，取 10 ml 水样加入到盛有 90 ml 无菌水（5.6）的三角瓶（6.10）中混匀制成 1:10 稀释的样品，其他接种量的稀释样品依次类推。

表 1 水样接种量参考表

水样类型		接种量 (ml)					
		100	10	1	0.1	0.01	
地表水	水源水	√					
	湖泊（水库）	√					
	河流	√	√	√			
废水	生活污水		√	√	√		
	工业废水	处理前		√	√	√	√
		处理后	√				
地下水		√					

8.2 接种

量取 100 ml 水样或稀释样品于三角瓶，加入 (2.7 ± 0.5) g 培养基 (5.1)，充分混匀，完全溶解后，全部倒入灭菌后的 97 孔定量盘内，以手抚平 97 孔定量盘背面，赶除孔内气泡，然后用程控定量封口机 (6.5) 封口。观察 97 孔定量盘颜色，若出现类似或深于标准阳性比色盘 (6.6) 的颜色，则需排查水样、培养基、无菌水等一系列因素后，重新操作。

8.3 培养

测定总大肠菌群和大肠埃希氏菌时，将封口后的 97 孔定量盘放入 (37 ± 1) °C 的恒温培养箱或振荡培养箱 (6.2) 中培养 24 h。

测定粪大肠菌群时，将封口后的 97 孔定量盘放入 (44.5 ± 0.5) °C 的恒温培养箱或振荡培养箱中培养 24 h。

8.4 对照试验

8.4.1 空白对照

用无菌水 (5.6) 做实验室空白测定，培养后的 97 孔定量盘不得有任何颜色反应，否则，该次样品测定结果无效，应重新测定。

8.4.2 阴性及阳性对照

总大肠菌群、大肠埃希氏菌、粪大肠菌群的阴性、阳性菌株参考表 2。

表 2 阴、阳性菌株参考表

检测指标	阳性菌种	阴性菌种
总大肠菌群	大肠埃希氏菌、产气肠杆菌	金黄色葡萄球菌、假单胞菌属
大肠埃希氏菌	大肠埃希氏菌	金黄色葡萄球菌、假单胞菌属
粪大肠菌群	大肠埃希氏菌 (耐热型)、克雷伯氏菌 (耐热型)	产气肠杆菌、粪链球菌、假单胞菌属

将标准菌株制成 300 个/ml~3000 个/ml 的菌悬液，将菌悬液按接种 (8.2) 和培养 (8.3) 要求操作，阳性菌株应呈现阳性反应；阴性菌株呈现阴性反应，否则，该次样品测定结果无效，应重新测定。

注：可先制备较高浓度菌悬液，采用血球计数器在显微镜下对其浓度进行初步测定，然后根据实际情况用无菌水稀释至 300 个/ml~3000 个/ml。

8.5 结果判读与计数

将培养 24 h 后的 97 孔定量盘进行结果判读，水样变黄色判断为总大肠菌群或粪大肠菌群阳性；水样变黄色且在紫外灯（6.7）照射下有荧光，判断为大肠埃希氏菌阳性。如果结果可疑，可延长培养时间到 28 h 进行结果判读，超过 28 h 后出现的颜色反应不作为阳性结果。可使用保质期内的标准阳性比色盘以辅助判读，参照图片见附录 C。

分别记录 97 孔定量盘中大孔和小孔的阳性孔数量。

9 结果计算与表示

9.1 结果计算

从 97 孔定量盘法 MPN 表（见附录 A）中查得每 100 ml 水样中总大肠菌群、粪大肠菌群数或大肠埃希氏菌的 MPN 值（置信区间参见附录 B）后，再根据样品不同的稀释度，每 1 L 水样中总大肠菌群、粪大肠菌群数或大肠埃希氏菌浓度经公式（1）换算并报告。

$$C = \frac{MPN \text{值} \times 10}{f} \quad (1)$$

式中：C——每 1 L 水样中总大肠菌群、粪大肠菌群数或大肠埃希氏菌浓度，MPN/L；

MPN 值——每 100 ml 水样中总大肠菌群、粪大肠菌群数或大肠埃希氏菌浓度，MPN/100 ml；

10——将 MPN 值的单位 MPN/100 ml 转换为 MPN/L；

f——接种样品的稀释度。

9.2 结果表示

测定结果保留二位有效数字，大于等于 100 时以科学计数法表示，结果的单位为 MPN/L。

10 精密度和准确度

10.1 精密度

微生物检测数据为偏态分布，按其统计分析要求，其检测所得结果全部经对数（以 10 为底）转换后进行以下分析，准确度（10.2）统计同理。

6 家实验室分别对高浓度（ 9.0×10^7 MPN/L）、中浓度（ 4.0×10^4 MPN/L）、低浓度（ 6.0×10^2 MPN/L）的实际样品以及有证标准品（2000 MPN/L），进行总大肠菌群的测定。实验室内的相对标准偏差范围分别为：0.26%~1.3%、0.65%~2.0%、1.3%~3.7%、0.68%~2.8%；实验室间的相对标准偏差为分别为：9.9%、1.3%、4.2%、1.3%。重复性限为 0.17、0.18、0.21、0.18；再现性限为 1.84、0.23、0.38、0.20。实验室内置信区间分别为 $7.8 \times 10^5 \sim 1.9 \times 10^7$ MPN/L、 $3.2 \times 10^4 \sim 5.4 \times 10^4$ MPN/L、 $3.5 \times 10^2 \sim 1.0 \times 10^3$ MPN/L、 $1.1 \times 10^3 \sim 1.8$

$\times 10^3$ MPN/L, 实验室间置信区间分别为 $3.7 \times 10^6 \sim 4.6 \times 10^6$ MPN/L、 $3.5 \times 10^4 \sim 4.6 \times 10^4$ MPN/L、 $5.5 \times 10^2 \sim 7.4 \times 10^2$ MPN/L、 $1.8 \times 10^3 \sim 2.3 \times 10^3$ MPN/L。

6家实验室分别对高浓度 (2.0×10^6 MPN/L)、中浓度 (9.0×10^3 MPN/L)、低浓度 (70 MPN/L) 的实际样品以及有证标准品 (2000 MPN/L), 进行大肠埃希氏菌群的测定。实验室内的相对标准偏差范围分别为: 0.69%~1.9%、0.93%~2.9%、5.4%~21%、1.8%~3.0%; 实验室间的相对标准偏差为分别为 9.6%、1.6%、15%、3.7%。重复性限为 0.23、0.21、0.58、0.19; 再现性限为 1.67、0.26、0.90、0.35。实验室内置信区间分别为 $2.0 \times 10^5 \sim 5.5 \times 10^6$ MPN/L、 $5.9 \times 10^3 \sim 1.2 \times 10^4$ MPN/L、 $1.1 \times 10^1 \sim 1.4 \times 10^2$ MPN/L、 $5.5 \times 10^2 \sim 1.4 \times 10^3$ MPN/L, 实验室间置信区间分别为 $1.3 \times 10^6 \sim 1.7 \times 10^6$ MPN/L、 $7.3 \times 10^3 \sim 9.8 \times 10^3$ MPN/L、 $3.9 \times 10^1 \sim 9.0 \times 10^1$ MPN/L、 $1.7 \times 10^3 \sim 2.3 \times 10^3$ MPN/L。

6家实验室分别对高浓度 (3.0×10^6 MPN/L)、中浓度 (1.3×10^4 MPN/L)、低浓度 (1.0×10^2 MPN/L) 的实际样品以及有证标准品 (3700 MPN/L), 进行粪大肠菌群的测定。实验室内的相对标准偏差范围分别为: 0.40%~2.4%、1.3%~2.9%、3.4%~17%、2.4%~9.2%; 实验室间的相对标准偏差为分别为: 8.9%、6.4%、6.6%、6.4%。重复性限为 0.22、0.26、0.58、0.55; 再现性限为 1.58、0.76、0.64、0.75。实验室内置信区间分别为 $3.0 \times 10^5 \sim 8.8 \times 10^6$ MPN/L、 $4.0 \times 10^3 \sim 2.3 \times 10^4$ MPN/L、 $3.7 \times 10^1 \sim 1.7 \times 10^2$ MPN/L、 $6.1 \times 10^2 \sim 5.0 \times 10^3$ MPN/L, 实验室间置信区间分别为 $1.6 \times 10^6 \sim 2.1 \times 10^6$ MPN/L、 $9.5 \times 10^3 \sim 1.4 \times 10^4$ MPN/L、 $6.2 \times 10^1 \sim 1.3 \times 10^2$ MPN/L、 $2.5 \times 10^3 \sim 5.4 \times 10^3$ MPN/L。

10.2 准确度

6家合格实验室分别对总大肠菌群有证标样 (2000 MPN/L) 进行测定。实验室内的相对误差范围为: -6.4%~-3.5%; 相对误差的最终值为: $-4.7\% \pm 1.2\%$ 。

6家合格实验室分别对大肠埃希氏菌群有证标样 (2000 MPN/L) 进行测定。实验室内的相对误差范围为: -15%~-6.3%; 相对误差的最终值为: $-13\% \pm 3.3\%$ 。

6家合格实验室分别对粪大肠菌群的有证标样 (3700 MPN/L) 进行测定。实验室内的相对误差范围为: -17%~-0.81%; 相对误差的最终值为: $-13\% \pm 6.1\%$ 。

11 质量保证和质量控制

11.1 每批样品按对照试验 (8.4) 进行空白对照测定, 并使用有证标准菌株进行阳性、阴性对照试验。

11.2 每批次实验取待测水样数量的 10%, 做双样分析, 检测结果以双样平均值计。

11.3 为减少配制中的误差, 尽量选用市售的商品化培养基; 对每批次培养基须有证标准菌株进行培养基质量检验。

11.4 定期使用有证标准物质/标准样品进行质量控制。

12 废物处理

实验产生的废物经 121 °C 高压蒸汽灭菌 20 min 后，作为一般废物处理。

附录 A
 (规范性附录)
 97 孔定量盘法 MPN 表

表 A.1 97 孔定量盘法 MPN 表

大孔阳 性格数	小孔阳性格数											
	0	1	2	3	4	5	6	7	8	9	10	11
0	<1	1	2	3	4	5	6	7	8	9	10	11
1	1	2	3	4	5	6	7.1	8.1	9.1	10.1	11.1	12.1
2	2	3	4.1	5.1	6.1	7.1	8.1	9.2	10.2	11.2	12.2	13.3
3	3.1	4.1	5.1	6.1	7.2	8.2	9.2	10.3	11.3	12.4	13.4	14.5
4	4.1	5.2	6.2	7.2	8.3	9.3	10.4	11.4	12.5	13.5	14.6	15.6
5	5.2	6.3	7.3	8.4	9.4	10.5	11.5	12.6	13.7	14.7	15.8	16.9
6	6.3	7.4	8.4	9.5	10.6	11.6	12.7	13.8	14.9	16	17	18.1
7	7.5	8.5	9.6	10.7	11.8	12.8	13.9	15	16.1	17.2	18.3	19.4
8	8.6	9.7	10.8	11.9	13	14.1	15.2	16.3	17.4	18.5	19.6	20.7
9	9.8	10.9	12	13.1	14.2	15.3	16.4	17.6	18.7	19.8	20.9	22
10	11	12.1	13.2	14.4	15.5	16.6	17.7	18.9	20	21.1	22.3	23.4
11	12.2	13.4	14.5	15.6	16.8	17.9	19.1	20.2	21.4	22.5	23.7	24.8
12	13.5	14.6	15.8	16.9	18.1	19.3	20.4	21.6	22.8	23.9	25.1	26.3
13	14.8	16	17.1	18.3	19.5	20.6	21.8	23	24.2	25.4	26.6	27.8
14	16.1	17.3	18.5	19.7	20.9	22.1	23.3	24.5	25.7	26.9	28.1	29.3
15	17.5	18.7	19.9	21.1	22.3	23.5	24.7	25.9	27.2	28.4	29.6	30.9
16	18.9	20.1	21.3	22.6	23.8	25	26.2	27.5	28.7	30	31.2	32.5
17	20.3	21.6	22.8	24.1	25.3	26.6	27.8	29.1	30.3	31.6	32.9	34.1
18	21.8	23.1	24.3	25.6	26.9	28.1	29.4	30.7	32	33.3	34.6	35.9
19	23.3	24.6	25.9	27.2	28.5	29.8	31.1	32.4	33.7	35	36.3	37.6
20	24.9	26.2	27.5	28.8	30.1	31.5	32.8	34.1	35.4	36.8	38.1	39.5
21	26.5	27.9	29.2	30.5	31.8	33.2	34.5	35.9	37.3	38.6	40	41.4
22	28.2	29.5	30.9	32.3	33.6	35	36.4	37.7	39.1	40.5	41.9	43.3
23	29.9	31.3	32.7	34.1	35.5	36.8	38.3	39.7	41.1	42.5	43.9	45.4
24	31.7	33.1	34.5	35.9	37.3	38.8	40.2	41.7	43.1	44.6	46	47.5

续表

大孔阳 性格数	小孔阳性格数											
	0	1	2	3	4	5	6	7	8	9	10	11
25	33.6	35	36.4	37.9	39.3	40.8	42.2	43.7	45.2	46.7	48.2	49.7
26	35.5	36.9	38.4	39.9	41.4	42.8	44.3	45.9	47.4	48.9	50.4	52
27	37.4	38.9	40.4	42	43.5	45	46.5	48.1	49.6	51.2	52.8	54.4
28	39.5	41	42.6	44.1	45.7	47.3	48.8	50.4	52	53.6	55.2	56.9
29	41.7	43.2	44.8	46.4	48	49.6	51.2	52.8	54.5	56.1	57.8	59.5
30	43.9	45.5	47.1	48.7	50.4	52	53.7	55.4	57.1	58.8	60.5	62.2
31	46.2	47.9	49.5	51.2	52.9	54.6	56.3	58.1	59.8	61.6	63.3	65.1
32	48.7	50.4	52.1	53.8	55.6	57.3	59.1	60.9	62.7	64.5	66.3	68.2
33	51.2	53	54.8	56.5	58.3	60.2	62	63.8	65.7	67.6	69.5	71.4
34	53.9	55.7	57.6	59.4	61.3	63.1	65	67	68.9	70.8	72.8	74.8
35	56.8	58.6	60.5	62.4	64.4	66.3	68.3	70.3	72.3	74.3	76.3	78.4
36	59.8	61.7	63.7	65.7	67.7	69.7	71.7	73.8	75.9	78	80.1	82.3
37	62.9	65	67	69.1	71.2	73.3	75.4	77.6	79.8	82	84.2	86.5
38	66.3	68.4	70.6	72.7	74.9	77.1	79.4	81.6	83.9	86.2	88.6	91
39	70	72.2	74.4	76.7	78.9	81.3	83.6	86	88.4	90.9	93.4	95.9
40	73.8	76.2	78.5	80.9	83.3	85.7	88.2	90.8	93.3	95.9	98.5	101.2
41	78	80.5	83	85.5	88	90.6	93.3	95.9	98.7	101.4	104.3	107.1
42	82.6	85.2	87.8	90.5	93.2	96	98.8	101.7	104.6	107.6	110.6	113.7
43	87.6	90.4	93.2	96	99	101.9	105	108.1	111.2	114.5	117.8	121.1
44	93.1	96.1	99.1	102.2	105.4	108.6	111.9	115.3	118.7	122.3	125.9	129.6
45	99.3	102.5	105.8	109.2	112.6	116.2	119.8	123.6	127.4	131.4	135.4	139.6
46	106.3	109.8	113.4	117.2	121	125	129.1	133.3	137.6	142.1	146.7	151.5
47	114.3	118.3	122.4	126.6	130.9	135.4	140.1	145	150	155.3	160.7	166.4
48	123.9	128.4	133.1	137.9	143	148.3	153.9	159.7	165.8	172.2	178.9	186
49	135.5	140.8	146.4	152.3	158.5	165	172	179.3	187.2	195.6	204.6	214.3

续表

大孔阳 性格数	小孔阳性格数											
	12	13	14	15	16	17	18	19	20	21	22	23
0	12	13	14.1	15.1	16.1	17.1	18.1	19.1	20.2	21.2	22.2	23.3
1	13.2	14.2	15.2	16.2	17.3	18.3	19.3	20.4	21.4	22.4	23.5	24.5
2	14.3	15.4	16.4	17.4	18.5	19.5	20.6	21.6	22.7	23.7	24.8	25.8
3	15.5	16.5	17.6	18.6	19.7	20.8	21.8	22.9	23.9	25	26.1	27.1
4	16.7	17.8	18.8	19.9	21	22	23.1	24.2	25.3	26.3	27.4	28.5
5	17.9	19	20.1	21.2	22.2	23.3	24.4	25.5	26.6	27.7	28.8	29.9
6	19.2	20.3	21.4	22.5	23.6	24.7	25.8	26.9	28	29.1	30.2	31.3
7	20.5	21.6	22.7	23.8	24.9	26	27.1	28.3	29.4	30.5	31.6	32.8
8	21.8	22.9	24.1	25.2	26.3	27.4	28.6	29.7	30.8	32	33.1	34.3
9	23.2	24.3	25.4	26.6	27.7	28.9	30	31.2	32.3	33.5	34.6	35.8
10	24.6	25.7	26.9	28	29.2	30.3	31.5	32.7	33.8	35	36.2	37.4
11	26	27.2	28.3	29.5	30.7	31.9	33	34.2	35.4	36.6	37.8	39
12	27.5	28.6	29.8	31	32.2	33.4	34.6	35.8	37	38.2	39.5	40.7
13	29	30.2	31.4	32.6	33.8	35	36.2	37.5	38.7	39.9	41.2	42.4
14	30.5	31.7	33	34.2	35.4	36.7	37.9	39.1	40.4	41.6	42.9	44.2
15	32.1	33.3	34.6	35.8	37.1	38.4	39.6	40.9	42.2	43.4	44.7	46
16	33.7	35	36.3	37.5	38.8	40.1	41.4	42.7	44	45.3	46.6	47.9
17	35.4	36.7	38	39.3	40.6	41.9	43.2	44.5	45.9	47.2	48.5	49.8
18	37.2	38.5	39.8	41.1	42.4	43.8	45.1	46.5	47.8	49.2	50.5	51.9
19	39	40.3	41.6	43	44.3	45.7	47.1	48.4	49.8	51.2	52.6	54
20	40.8	42.2	43.6	44.9	46.3	47.7	49.1	50.5	51.9	53.3	54.7	56.1
21	42.8	44.1	45.5	46.9	48.4	49.8	51.2	52.6	54.1	55.5	56.9	58.4
22	44.8	46.2	47.6	49	50.5	51.9	53.4	54.8	56.3	57.8	59.3	60.8
23	46.8	48.3	49.7	51.2	52.7	54.2	55.6	57.1	58.6	60.2	61.7	63.2
24	49	50.5	52	53.5	55	56.5	58	59.5	61.1	62.6	64.2	65.8

续表

大孔阳 性格数	小孔阳性格数											
	12	13	14	15	16	17	18	19	20	21	22	23
25	51.2	52.7	54.3	55.8	57.3	58.9	60.5	62	63.6	65.2	66.8	68.4
26	53.5	55.1	56.7	58.2	59.8	61.4	63	64.7	66.3	67.9	69.6	71.2
27	56	57.6	59.2	60.8	62.4	64.1	65.7	67.4	69.1	70.8	72.5	74.2
28	58.5	60.2	61.8	63.5	65.2	66.9	68.6	70.3	72	73.7	75.5	77.3
29	61.2	62.9	64.6	66.3	68	69.8	71.5	73.3	75.1	76.9	78.7	80.5
30	64	65.7	67.5	69.3	71	72.9	74.7	76.5	78.3	80.2	82.1	84
31	66.9	68.7	70.5	72.4	74.2	76.1	78	79.9	81.8	83.7	85.7	87.6
32	70	71.9	73.8	75.7	77.6	79.5	81.5	83.5	85.4	87.5	89.5	91.5
33	73.3	75.2	77.2	79.2	81.2	83.2	85.2	87.3	89.3	91.4	93.6	95.7
34	76.8	78.8	80.8	82.9	85	87.1	89.2	91.4	93.5	95.7	97.9	100.2
35	80.5	82.6	84.7	86.9	89.1	91.3	93.5	95.7	98	100.3	102.6	105
36	84.5	86.7	88.9	91.2	93.5	95.8	98.1	100.5	102.9	105.3	107.7	110.2
37	88.8	91.1	93.4	95.8	98.2	100.6	103.1	105.6	108.1	110.7	113.3	115.9
38	93.4	95.8	98.3	100.8	103.4	105.9	108.6	111.2	113.9	116.6	119.4	122.2
39	98.4	101	103.6	106.3	109	111.8	114.6	117.4	120.3	123.2	126.1	129.2
40	103.9	106.7	109.5	112.4	115.3	118.2	121.2	124.3	127.4	130.5	133.7	137
41	110	113	116	119.1	122.2	125.4	128.7	132	135.4	138.8	142.3	145.9
42	116.9	120.1	123.4	126.7	130.1	133.6	137.2	140.8	144.5	148.3	152.2	156.1
43	124.6	128.1	131.7	135.4	139.1	143	147	151	155.2	159.4	163.8	168.2
44	133.4	137.4	141.4	145.5	149.7	154.1	158.5	163.1	167.9	172.7	177.7	182.9
45	143.9	148.3	152.9	157.6	162.4	167.4	172.6	178	183.5	189.2	195.1	201.2
46	156.5	161.6	167	172.5	178.2	184.2	190.4	196.8	203.5	210.5	217.8	225.4
47	172.3	178.5	185	191.8	198.9	206.4	214.2	222.4	231	240	249.5	259.5
48	193.5	201.4	209.8	218.7	228.2	238.2	248.9	260.3	272.3	285.1	298.7	313
49	224.7	235.9	248.1	261.3	275.5	290.9	307.6	325.5	344.8	365.4	387.3	410.6

续表

大孔阳 性格数	小孔阳性格数											
	24	25	26	27	28	29	30	31	32	33	34	35
0	24.3	25.3	26.4	27.4	28.4	29.5	30.5	31.5	32.6	33.6	34.7	35.7
1	25.6	26.6	27.7	28.7	29.8	30.8	31.9	32.9	34	35	36.1	37.2
2	26.9	27.9	29	30	31.1	32.2	33.2	34.3	35.4	36.5	37.5	38.6
3	28.2	29.3	30.4	31.4	32.5	33.6	34.7	35.8	36.8	37.9	39	40.1
4	29.6	30.7	31.8	32.8	33.9	35	36.1	37.2	38.3	39.4	40.5	41.6
5	31	32.1	33.2	34.3	35.4	36.5	37.6	38.7	39.9	41	42.1	43.2
6	32.4	33.5	34.7	35.8	36.9	38	39.2	40.3	41.4	42.6	43.7	44.8
7	33.9	35	36.2	37.3	38.4	39.6	40.7	41.9	43	44.2	45.3	46.5
8	35.4	36.6	37.7	38.9	40	41.2	42.3	43.5	44.7	45.9	47	48.2
9	37	38.1	39.3	40.5	41.6	42.8	44	45.2	46.4	47.6	48.8	50
10	38.6	39.7	40.9	42.1	43.3	44.5	45.7	46.9	48.1	49.3	50.6	51.8
11	40.2	41.4	42.6	43.8	45	46.3	47.5	48.7	49.9	51.2	52.4	53.7
12	41.9	43.1	44.3	45.6	46.8	48.1	49.3	50.6	51.8	53.1	54.3	55.6
13	43.6	44.9	46.1	47.4	48.6	49.9	51.2	52.5	53.7	55	56.3	57.6
14	45.4	46.7	48	49.3	50.5	51.8	53.1	54.4	55.7	57	58.3	59.6
15	47.3	48.6	49.9	51.2	52.5	53.8	55.1	56.4	57.8	59.1	60.4	61.8
16	49.2	50.5	51.8	53.2	54.5	55.8	57.2	58.5	59.9	61.2	62.6	64
17	51.2	52.5	53.9	55.2	56.6	58	59.3	60.7	62.1	63.5	64.9	66.3
18	53.2	54.6	56	57.4	58.8	60.2	61.6	63	64.4	65.8	67.2	68.6
19	55.4	56.8	58.2	59.6	61	62.4	63.9	65.3	66.8	68.2	69.7	71.1
20	57.6	59	60.4	61.9	63.3	64.8	66.3	67.7	69.2	70.7	72.2	73.7
21	59.9	61.3	62.8	64.3	65.8	67.3	68.8	70.3	71.8	73.3	74.9	76.4
22	62.3	63.8	65.3	66.8	68.3	69.8	71.4	72.9	74.5	76.1	77.6	79.2
23	64.7	66.3	67.8	69.4	71	72.5	74.1	75.7	77.3	78.9	80.5	82.2
24	67.3	68.9	70.5	72.1	73.7	75.3	77	78.6	80.3	81.9	83.6	85.2

续表

大孔阳 性格数	小孔阳性格数											
	24	25	26	27	28	29	30	31	32	33	34	35
25	70	71.7	73.3	75	76.6	78.3	80	81.7	83.3	85.1	86.8	88.5
26	72.9	74.6	76.3	78	79.7	81.4	83.1	84.8	86.6	88.4	90.1	91.9
27	75.9	77.6	79.4	81.1	82.9	84.6	86.4	88.2	90	91.9	93.7	95.5
28	79	80.8	82.6	84.4	86.3	88.1	89.9	91.8	93.7	95.6	97.5	99.4
29	82.4	84.2	86.1	87.9	89.8	91.7	93.7	95.6	97.5	99.5	101.5	103.5
30	85.9	87.8	89.7	91.7	93.6	95.6	97.6	99.6	101.6	103.7	105.7	107.8
31	89.6	91.6	93.6	95.6	97.7	99.7	101.8	103.9	106	108.2	110.3	112.5
32	93.6	95.7	97.8	99.9	102	104.2	106.3	108.5	110.7	113	115.2	117.5
33	97.8	100	102.2	104.4	106.6	108.9	111.2	113.5	115.8	118.2	120.5	122.9
34	102.4	104.7	107	109.3	111.7	114	116.4	118.9	121.3	123.8	126.3	128.8
35	107.3	109.7	112.2	114.6	117.1	119.6	122.2	124.7	127.3	129.9	132.6	135.3
36	112.7	115.2	117.8	120.4	123	125.7	128.4	131.1	133.9	136.7	139.5	142.4
37	118.6	121.3	124	126.8	129.6	132.4	135.3	138.2	141.2	144.2	147.3	150.3
38	125	127.9	130.8	133.8	136.8	139.9	143	146.2	149.4	152.6	155.9	159.2
39	132.2	135.3	138.5	141.7	145	148.3	151.7	155.1	158.6	162.1	165.7	169.4
40	140.3	143.7	147.1	150.6	154.2	157.8	161.5	165.3	169.1	173	177	181.1
41	149.5	153.2	157	160.9	164.8	168.9	173	177.2	181.5	185.8	190.3	194.8
42	160.2	164.3	168.6	172.9	177.3	181.9	186.5	191.3	196.1	201.1	206.2	211.4
43	172.8	177.5	182.3	187.3	192.4	197.6	202.9	208.4	214	219.8	225.8	231.8
44	188.2	193.6	199.3	205.1	211	217.2	223.5	230	236.7	243.6	250.8	258.1
45	207.5	214.1	220.9	227.9	235.2	242.7	250.4	258.4	266.7	275.3	284.1	293.3
46	233.3	241.5	250	258.9	268.2	277.8	287.8	298.1	308.8	319.9	331.4	343.3
47	270	280.9	292.4	304.4	316.9	330	343.6	357.8	372.5	387.7	403.4	419.8
48	328.2	344.1	360.9	378.4	396.8	416	436	456.9	478.6	501.2	524.7	549.3
49	435.2	461.1	488.4	517.2	547.5	579.4	613.1	648.8	686.7	727	770.1	816.4

续表

大孔阳 性格数	小孔阳性格数												
	36	37	38	39	40	41	42	43	44	45	46	47	48
0	36.8	37.8	38.9	40	41	42.1	43.1	44.2	45.3	46.3	47.4	48.5	49.5
1	38.2	39.3	40.4	41.4	42.5	43.6	44.7	45.7	46.8	47.9	49	50.1	51.2
2	39.7	40.8	41.9	43	44	45.1	46.2	47.3	48.4	49.5	50.6	51.7	52.8
3	41.2	42.3	43.4	44.5	45.6	46.7	47.8	48.9	50	51.2	52.3	53.4	54.5
4	42.8	43.9	45	46.1	47.2	48.3	49.5	50.6	51.7	52.9	54	55.1	56.3
5	44.4	45.5	46.6	47.7	48.9	50	51.2	52.3	53.5	54.6	55.8	56.9	58.1
6	46	47.1	48.3	49.4	50.6	51.7	52.9	54.1	55.2	56.4	57.6	58.7	59.9
7	47.7	48.8	50	51.2	52.3	53.5	54.7	55.9	57.1	58.3	59.4	60.6	61.8
8	49.4	50.6	51.8	53	54.1	55.3	56.5	57.7	59	60.2	61.4	62.6	63.8
9	51.2	52.4	53.6	54.8	56	57.2	58.4	59.7	60.9	62.1	63.4	64.6	65.8
10	53	54.2	55.5	56.7	57.9	59.2	60.4	61.7	62.9	64.2	65.4	66.7	67.9
11	54.9	56.1	57.4	58.6	59.9	61.2	62.4	63.7	65	66.3	67.5	68.8	70.1
12	56.8	58.1	59.4	60.7	62	63.2	64.5	65.8	67.1	68.4	69.7	71	72.4
13	58.9	60.2	61.5	62.8	64.1	65.4	66.7	68	69.3	70.7	72	73.3	74.7
14	60.9	62.3	63.6	64.9	66.3	67.6	68.9	70.3	71.6	73	74.4	75.7	77.1
15	63.1	64.5	65.8	67.2	68.5	69.9	71.3	72.6	74	75.4	76.8	78.2	79.6
16	65.3	66.7	68.1	69.5	70.9	72.3	73.7	75.1	76.5	77.9	79.3	80.8	82.2
17	67.7	69.1	70.5	71.9	73.3	74.8	76.2	77.6	79.1	80.5	82	83.5	84.9
18	70.1	71.5	73	74.4	75.9	77.3	78.8	80.3	81.8	83.3	84.8	86.3	87.8
19	72.6	74.1	75.5	77	78.5	80	81.5	83.1	84.6	86.1	87.6	89.2	90.7
20	75.2	76.7	78.2	79.8	81.3	82.8	84.4	85.9	87.5	89.1	90.7	92.2	93.8
21	77.9	79.5	81.1	82.6	84.2	85.8	87.4	89	90.6	92.2	93.8	95.4	97.1
22	80.8	82.4	84	85.6	87.2	88.9	90.5	92.1	93.8	95.5	97.1	98.8	100.5
23	83.8	85.4	87.1	88.7	90.4	92.1	93.8	95.5	97.2	98.9	100.6	102.4	104.1
24	86.9	88.6	90.3	92	93.8	95.5	97.2	99	100.7	102.5	104.3	106.1	107.9

续表

大孔阳 性格数	小孔阳性格数												
	36	37	38	39	40	41	42	43	44	45	46	47	48
25	90.2	92	93.7	95.5	97.3	99.1	100.9	102.7	104.5	106.3	108.2	110	111.9
26	93.7	95.5	97.3	99.2	101	102.9	104.7	106.6	108.5	110.4	112.3	114.2	116.2
27	97.4	99.3	101.2	103.1	105	106.9	108.8	110.8	112.7	114.7	116.7	118.7	120.7
28	101.3	103.3	105.2	107.2	109.2	111.2	113.2	115.2	117.3	119.3	121.4	123.5	125.6
29	105.5	107.5	109.5	111.6	113.7	115.7	117.8	120	122.1	124.2	126.4	128.6	130.8
30	109.9	112	114.2	116.3	118.5	120.6	122.8	125.1	127.3	129.5	131.8	134.1	136.4
31	114.7	116.9	119.1	121.4	123.6	125.9	128.2	130.5	132.9	135.3	137.7	140.1	142.5
32	119.8	122.1	124.5	126.8	129.2	131.6	134	136.5	139	141.5	144	146.6	149.1
33	125.4	127.8	130.3	132.8	135.3	137.8	140.4	143	145.6	148.3	150.9	153.7	156.4
34	131.4	134	136.6	139.2	141.9	144.6	147.4	150.1	152.9	155.7	158.6	161.5	164.4
35	138	140.8	143.6	146.4	149.2	152.1	155	158	161	164	167.1	170.2	173.3
36	145.3	148.3	151.3	154.3	157.3	160.5	163.6	166.8	170	173.3	176.6	179.9	183.3
37	153.5	156.7	159.9	163.1	166.5	169.8	173.2	176.7	180.2	183.7	187.3	191	194.7
38	162.6	166.1	169.6	173.2	176.8	180.4	184.2	188	191.8	195.7	199.7	203.7	207.7
39	173.1	176.9	180.7	184.7	188.7	192.7	196.8	201	205.3	209.6	214	218.5	223
40	185.2	189.4	193.7	198.1	202.5	207.1	211.7	216.4	221.1	226	231	236	241.1
41	199.5	204.2	209.1	214	219.1	224.2	229.4	234.8	240.2	245.8	251.5	257.2	263.1
42	216.7	222.2	227.7	233.4	239.2	245.2	251.3	257.5	263.8	270.3	276.9	283.6	290.5
43	238.1	244.5	251	257.7	264.6	271.7	278.9	286.3	293.8	301.5	309.4	317.4	325.7
44	265.6	273.3	281.2	289.4	297.8	306.3	315.1	324.1	333.3	342.8	352.4	362.3	372.4
45	302.6	312.3	322.3	332.5	343	353.8	364.9	376.2	387.9	399.8	412	424.5	437.4
46	355.5	368.1	381.1	394.5	408.3	422.5	437.1	452	467.4	483.3	499.6	516.3	533.5
47	436.6	454.1	472.1	490.7	509.9	529.8	550.4	571.7	593.8	616.7	640.5	665.3	691
48	574.8	601.5	629.4	658.6	689.3	721.5	755.6	791.5	829.7	870.4	913.9	960.6	1011.2
49	866.4	920.8	980.4	1046.2	1119.9	1203.3	1299.7	1413.6	1553.1	1732.9	1986.3	2419.6	>2419.6

附录 B

(资料性附录)

97 孔定量盘法 MPN 表对应置信区间

表 B.1 97 孔定量盘法 MPN 表对应置信区间

大孔阳 性格数	小孔阳性格数						
	0	1	2	3	4	5	6
0	0.0-3.7	0.0-3.7	0.3-5.6	0.6-7.3	1.1-8.9	1.7-10.5	2.3-12.1
1	0.1-5.5	0.3-5.9	0.6-7.3	1.1-8.9	1.7-10.5	2.3-12.1	3.0-13.7
2	0.3-7.1	0.7-7.4	1.2-9.0	1.6-10.6	2.3-12.1	3.0-13.7	3.7-15.3
3	0.7-8.9	1.2-9.1	1.7-10.6	2.3-12.1	3.0-13.7	3.6-15.3	4.4-16.9
4	1.7-9.5	1.8-10.8	2.4-12.2	2.9-13.7	3.6-15.3	4.5-16.9	5.2-18.5
5	2.3-11.9	2.5-12.7	2.9-13.9	3.7-15.3	4.3-16.9	5.2-18.5	6.0-20.1
6	2.9-13.7	3.2-14.4	3.7-15.3	4.4-16.9	5.3-18.5	6.0-20.1	6.8-21.7
7	3.6-14.9	3.9-15.6	4.4-16.9	5.1-18.5	6.1-20.1	6.9-21.7	7.8-22.9
8	4.5-16.9	4.5-17.2	5.2-18.6	5.9-20.2	6.7-21.8	7.8-23.4	8.7-24.6
9	4.7-18.4	5.6-19.5	6.0-20.3	6.8-21.8	7.6-23.4	8.5-25.1	9.5-26.4
10	5.7-20.1	6.5-21.1	7.1-22.0	7.7-23.6	8.6-25.1	9.6-26.8	10.6-27.5
11	6.8-21.4	7.4-22.3	7.8-23.6	8.7-25.3	9.7-26.8	10.7-28.2	11.4-29.3
12	7.8-23.4	8.2-24.6	8.8-25.7	9.4-27.0	10.4-28.6	11.5-30.0	12.6-31.2
13	8.5-25.1	9.2-26.4	9.9-27.4	10.5-28.8	11.6-30.4	12.7-31.8	13.4-33.1
14	9.3-26.8	10.3-28.2	11.0-29.2	11.7-30.7	12.4-32.3	13.6-33.7	14.8-35.0
15	10.1-28.6	10.8-30.0	11.9-30.9	12.6-32.6	13.7-34.1	14.9-35.2	15.7-36.5
16	11.3-30.4	12.4-31.8	12.7-32.6	13.9-34.5	14.6-35.8	15.9-37.1	17.2-38.5
17	12.1-32.2	12.9-33.7	14.0-35.0	14.8-36.5	16.1-37.7	16.9-39.2	18.2-40.6
18	13.4-33.9	14.2-35.7	15.4-37.1	15.7-38.4	17.1-39.8	18.4-41.3	19.2-42.7
19	14.4-36.1	15.1-37.6	16.4-39.1	17.3-40.2	18.1-41.8	19.5-43.4	20.9-44.9
20	15.8-38.1	16.6-39.7	17.5-41.2	18.3-42.7	19.7-44.2	20.6-45.7	22.1-47.2
21	16.8-40.1	18.2-41.3	18.5-43.1	19.4-44.8	20.8-46.4	21.7-47.9	23.3-49.5
22	17.9-42.3	18.8-44.0	19.6-45.5	21.2-47.2	22.0-48.8	23.6-50.3	24.5-51.3
23	19.0-44.4	20.5-46.0	21.4-47.7	22.3-49.2	23.9-51.0	24.8-52.2	25.8-53.8
24	20.7-46.6	21.7-48.1	23.3-50.1	24.2-51.9	25.2-53.3	26.1-54.7	27.1-56.4

续表

大孔阳 性格数	小孔阳性格数						
	0	1	2	3	4	5	6
25	22.0-48.9	22.9-51.2	23.8-52.6	25.5-54.0	26.5-55.9	28.3-57.3	29.3-59.0
26	23.2-52.0	24.9-53.7	25.9-55.4	26.9-56.5	27.9-58.6	29.7-60.1	30.7-61.8
27	24.5-54.5	26.2-55.9	27.3-57.4	28.3-59.7	29.3-60.8	31.2-63.0	32.3-64.7
28	25.9-57.0	27.7-58.8	28.7-60.7	30.6-62.5	30.8-63.8	32.8-65.9	33.9-67.5
29	28.1-59.8	29.1-61.4	30.2-63.4	31.3-65.4	33.3-67.2	34.4-68.5	35.5-70.7
30	29.6-62.6	30.7-64.5	31.8-66.6	33.8-68.0	34.9-70.1	36.1-72.2	38.3-74.0
31	31.1-65.5	32.3-67.5	34.4-69.3	35.5-71.7	36.7-73.7	37.9-75.6	39.1-77.6
32	32.8-69.0	33.9-70.9	36.1-73.0	37.3-75.0	38.5-77.2	39.7-79.1	42.1-81.2
33	34.5-72.3	36.7-74.3	38.0-76.4	39.2-78.6	40.5-80.6	42.9-83.0	44.2-85.1
34	37.4-75.8	38.6-77.9	39.9-80.0	41.2-82.2	43.7-84.6	45.0-86.9	46.4-89.2
35	39.4-79.5	40.7-81.5	42.0-83.7	43.3-86.2	44.6-88.6	47.3-90.4	48.7-93.0
36	41.4-83.4	42.8-85.4	44.1-87.8	45.5-90.3	46.9-92.7	49.7-95.3	51.1-97.5
37	43.6-87.4	45.0-89.6	46.5-92.0	47.9-95.6	50.7-98.3	52.2-100.1	53.8-102.6
38	46.0-91.7	47.5-96.2	48.9-98.5	51.9-101.0	53.4-102.9	55.0-105.7	56.6-107.7
39	48.5-98.5	50.0-101.1	53.0-103.6	54.6-106.2	56.3-108.8	57.9-111.4	59.6-113.8
40	51.2-103.6	52.8-106.2	56.0-109.0	57.7-111.7	59.4-114.6	61.1-117.2	62.9-120.2
41	54.1-109.0	55.8-111.8	57.5-114.9	60.9-118.0	62.8-121.0	64.6-124.1	66.5-126.3
42	57.3-115.4	59.1-118.3	60.9-121.9	62.8-125.0	66.5-128.0	68.4-131.7	70.4-135.3
43	60.7-123.1	62.7-126.0	64.6-129.1	68.5-132.1	70.5-136.7	72.7-140.4	74.8-143.9
44	64.6-130.6	66.6-135.3	68.7-138.7	70.9-142.2	75.1-145.4	77.4-150.0	79.8-154.0
45	68.8-140.4	71.1-144.2	73.4-148.9	75.7-152.6	78.1-156.6	80.6-160.7	83.1-165.2
46	71.6-151.7	76.1-155.9	78.7-159.9	81.3-163.9	83.9-168.3	86.7-176.8	89.5-181.9
47	79.3-163.7	82.0-168.0	84.8-177.0	85.3-181.9	88.2-187.2	91.3-192.7	97.2-198.8
48	83.5-181.9	86.5-187.2	89.7-192.9	92.9-199.0	99.2-206.3	102.8-212.4	106.7-222.4
49	88.7-203.4	92.1-209.3	98.7-219.3	102.6-228.4	106.8-235.5	111.2-243.4	115.9-260.5

续表

大孔阳 性格数	小孔阳性格数						
	7	8	9	10	11	12	13
0	2.9-13.7	3.7-15.3	4.5-15.8	5.2-16.9	5.9-18.5	6.9-20.1	7.8-21.2
1	3.7-15.3	4.3-16.2	5.2-17.2	6.0-18.5	6.8-20.1	7.6-21.7	8.7-22.2
2	4.4-16.9	5.3-17.8	6.0-18.6	6.8-20.1	7.7-21.7	8.5-22.9	9.4-24.0
3	5.1-18.3	6.1-18.8	6.9-20.2	7.7-21.8	8.6-23.6	9.5-24.1	10.2-25.3
4	5.9-19.5	6.9-20.5	7.8-21.8	8.7-23.4	9.6-24.6	10.3-25.7	10.9-26.9
5	6.8-21.2	7.6-21.9	8.5-23.4	9.4-25.1	10.4-26.4	11.0-27.0	11.7-28.6
6	7.7-22.0	8.6-23.6	9.5-25.1	10.5-26.8	11.1-27.5	11.8-28.8	12.5-30.4
7	8.7-24.0	9.6-25.3	10.6-26.9	11.6-28.2	12.3-29.3	12.6-30.5	13.7-31.9
8	9.7-25.7	10.4-26.9	11.4-28.6	12.4-30.0	13.1-30.7	13.9-32.3	14.6-33.8
9	10.5-27.0	11.5-28.6	12.6-30.4	13.3-31.2	14.0-32.6	14.7-34.2	15.9-35.2
10	11.6-28.8	12.7-30.4	13.4-31.8	14.1-33.1	14.9-34.5	16.1-35.7	16.8-37.1
11	12.4-30.7	13.6-32.3	14.3-33.8	15.5-35.0	15.8-36.1	17.0-37.7	18.3-39.1
12	13.7-32.6	14.9-34.2	15.7-35.2	15.9-36.5	17.2-38.1	18.0-39.2	19.3-40.6
13	14.6-34.5	15.8-35.7	16.6-37.1	17.4-38.5	18.2-39.9	19.5-41.3	20.3-42.7
14	16.0-36.1	16.8-37.7	17.6-39.1	18.4-40.6	19.7-41.8	20.6-43.4	22.0-44.4
15	17.0-38.1	17.8-39.7	18.6-41.2	19.4-42.3	20.8-44.0	21.6-44.9	23.1-46.5
16	18.0-40.2	18.8-41.6	19.6-42.7	21.0-44.4	21.9-45.7	23.4-47.2	24.3-48.8
17	19.0-42.0	20.4-43.4	21.3-44.9	22.2-46.5	27.3-48.0	24.6-49.5	25.5-51.0
18	20.7-44.2	21.6-45.7	22.4-47.2	23.3-48.8	24.9-50.3	25.8-51.2	26.7-52.8
19	21.8-46.5	22.7-48.0	23.6-49.5	25.2-51.0	26.1-52.0	27.0-53.7	27.9-55.4
20	23.0-48.8	23.9-50.3	25.5-51.2	26.4-52.8	27.4-54.5	28.3-56.2	30.1-57.6
21	24.2-51.0	25.8-52.0	26.8-53.7	27.7-55.4	28.7-57.1	30.5-58.6	31.5-60.1
22	26.2-52.9	27.1-54.5	28.1-56.2	29.1-58.0	30.9-59.7	31.9-60.8	32.9-62.5
23	26.7-55.4	28.5-57.1	29.5-58.9	30.5-60.2	32.3-61.8	33.4-63.6	34.4-65.4
24	28.9-58.0	29.9-59.8	30.9-61.3	32.8-63.0	33.9-64.7	34.9-66.1	36.0-67.8

续表

大孔阳 性格数	小孔阳性格数						
	7	8	9	10	11	12	13
25	30.3-60.7	31.3-62.5	33.3-64.2	34.4-66.0	35.4-67.3	36.5-69.0	37.6-70.7
26	31.8-63.5	32.8-65.4	34.9-66.6	36.0-68.5	37.1-70.4	38.2-72.2	40.4-73.7
27	33.3-66.1	35.4-67.8	36.5-69.7	37.6-71.7	38.8-73.4	41.0-75.0	42.2-77.2
28	35.0-69.1	37.1-71.0	38.2-73.0	39.4-74.4	41.7-76.4	41.7-77.9	44.1-80.0
29	36.6-72.3	38.8-74.1	40.0-75.9	41.2-77.8	42.4-79.5	44.8-81.4	46.0-83.3
30	39.5-75.8	40.7-77.6	41.9-79.5	43.1-81.4	45.6-83.3	46.8-85.3	48.1-87.3
31	41.4-79.5	42.6-81.4	43.9-83.3	46.4-85.3	47.7-87.3	49.0-89.5	50.3-91.6
32	43.4-83.3	44.7-85.3	46.0-87.3	48.6-89.5	49.9-91.6	51.3-93.9	52.6-94.6
33	45.5-87.2	46.8-89.2	49.5-91.6	50.9-93.9	52.3-94.6	53.7-96.2	55.1-98.5
34	47.7-91.5	50.5-93.8	50.5-94.6	51.9-96.2	54.8-98.5	56.2-101.0	57.7-103.6
35	50.1-94.6	51.5-96.4	53.0-98.8	55.9-101.2	57.4-103.6	59.0-106.2	60.5-109.0
36	52.6-99.5	54.1-101.4	55.6-103.8	58.7-106.4	60.3-109.1	61.9-111.8	63.5-114.7
37	55.3-104.5	56.9-107.0	60.0-109.4	61.7-112.2	63.3-114.9	65.0-117.5	66.7-120.2
38	58.2-110.3	59.8-112.8	63.2-115.4	64.9-118.3	66.6-121.0	68.4-123.1	70.2-126.0
39	61.3-115.5	63.0-119.2	66.6-121.6	68.4-124.2	70.2-127.6	72.1-130.6	74.0-133.7
40	66.5-123.1	66.5-125.4	70.2-128.9	72.2-132.1	74.1-135.0	76.1-137.0	78.2-140.4
41	68.4-130.5	72.3-133.7	74.3-136.1	76.4-139.3	78.5-142.7	80.6-146.2	82.8-149.1
42	72.5-138.2	74.6-142.1	78.8-145.4	81.0-148.8	83.3-151.7	85.6-155.9	87.9-159.8
43	77.0-147.2	79.3-151.7	81.6-155.5	86.3-158.2	88.7-163.3	91.2-167.8	93.8-172.1
44	82.2-158.1	84.7-162.7	87.2-167.2	92.2-172.0	95.0-174.4	95.1-177.9	97.9-182.9
45	85.7-170.1	90.8-176.4	93.6-180.4	96.5-184.0	99.5-190.0	102.6-195.0	105.7-199.9
46	92.4-186.9	98.1-192.3	101.3-196.8	104.6-201.1	108.0-207.8	111.6-215.4	115.2-220.6
47	100.5-204.8	104.0-211.8	107.7-218.7	111.4-226.4	115.4-234.0	119.5-242.2	123.8-250.5
48	110.7-229.7	114.9-238.0	119.4-245.0	124.0-257.8	125.3-268.8	130.4-279.5	135.7-284.0
49	120.8-270.3	126.1-281.0	128.0-292.9	137.9-306.9	140.2-320.9	147.0-343.5	159.0-360.0

续表

大孔阳 性格数	小孔阳性格数						
	14	15	16	17	18	19	20
0	8.6-21.9	9.0-23.4	9.6-24.9	10.5-25.7	11.5-26.9	12.5-28.6	13.2-29.3
1	9.4-23.6	9.7-25.1	10.6-26.4	11.6-27.0	12.6-28.6	13.3-30.0	14.0-30.7
2	9.8-25.1	10.4-26.8	11.4-27.5	12.4-28.8	13.5-30.4	14.1-31.2	14.8-32.6
3	10.5-26.9	11.5-28.2	12.5-29.2	13.6-30.4	14.3-31.8	15.0-32.7	15.7-34.2
4	11.6-28.6	12.6-29.3	13.7-30.7	14.8-32.2	15.1-33.1	15.8-34.5	17.0-35.7
5	12.4-30.0	13.4-31.2	14.6-32.3	15.7-33.8	16.0-35.0	17.2-36.1	17.9-37.5
6	13.6-31.8	14.7-32.6	15.9-34.2	16.6-35.2	17.4-36.5	18.1-37.8	19.4-39.1
7	14.9-33.1	15.6-34.5	16.8-35.7	17.5-37.1	18.3-38.1	19.6-39.7	20.4-40.6
8	15.7-35.0	17.0-36.1	17.7-37.7	18.5-38.5	19.2-40.2	20.6-41.3	21.4-42.7
9	17.1-36.5	17.9-38.1	18.7-39.2	19.5-40.6	20.8-41.8	21.6-43.2	22.4-44.4
10	18.1-38.5	18.9-39.7	19.7-41.2	21.0-42.3	21.8-43.4	23.3-44.9	23.5-46.5
11	19.1-40.2	19.9-41.6	20.7-42.7	22.1-44.2	23.6-45.7	23.7-46.8	25.2-48.0
12	20.1-42.0	21.5-43.4	22.3-44.9	23.2-46.2	24.7-47.2	24.8-48.8	26.4-50.3
13	21.8-44.2	22.6-45.6	23.4-46.6	25.0-48.0	25.8-49.5	26.7-51.0	27.6-52.0
14	22.9-45.8	23.7-47.2	24.6-48.8	26.1-50.3	27.0-51.2	27.9-52.8	28.8-54.5
15	24.0-48.0	24.9-49.5	26.4-51.0	27.3-52.0	28.2-53.7	29.1-55.2	30.9-56.2
16	25.2-50.3	26.8-51.2	27.7-52.8	28.6-54.5	29.5-55.9	30.4-57.1	32.2-58.6
17	26.4-52.0	28.0-53.7	28.9-55.4	29.9-56.4	30.8-58.0	32.6-59.7	33.6-60.8
18	27.6-54.5	29.3-56.1	30.3-57.4	31.2-58.9	33.0-60.2	34.0-61.8	35.0-63.4
19	29.7-57.0	30.7-58.0	31.6-59.8	32.6-61.3	34.5-62.6	35.5-64.2	36.5-66.0
20	31.1-59.0	32.0-60.7	33.0-62.5	34.9-63.6	36.0-65.4	37.0-66.6	38.0-68.5
21	32.5-61.6	33.5-63.0	35.4-64.7	36.5-66.1	37.5-67.8	38.5-69.2	39.6-70.9
22	33.9-64.2	35.0-66.0	37.0-67.3	38.0-69.0	39.1-70.4	40.2-72.2	41.2-73.7
23	35.5-66.6	37.5-68.5	38.6-70.3	39.7-71.7	40.8-73.4	41.9-75.0	43.0-76.4
24	38.1-69.7	39.2-71.0	40.3-73.0	41.4-74.4	42.5-75.9	44.8-77.8	45.9-79.5

续表

大孔阳 性格数	小孔阳性格数						
	14	15	16	17	18	19	20
25	39.7-72.4	40.9-74.0	42.0-75.9	43.1-77.6	45.5-79.5	46.7-81.2	47.8-83.0
26	41.5-75.7	42.7-77.6	43.8-79.2	45.0-80.8	46.2-82.7	48.6-84.2	49.8-85.4
27	43.3-78.6	44.5-80.6	45.7-82.3	46.9-83.7	49.4-85.3	50.7-87.3	51.9-89.5
28	45.3-81.5	46.5-83.4	47.7-85.3	50.3-87.3	51.6-89.5	52.8-91.6	54.1-93.9
29	47.3-85.3	48.6-87.3	51.2-89.5	51.1-91.6	53.8-93.9	55.1-94.6	56.5-96.2
30	49.4-89.5	50.7-91.6	52.0-93.9	54.8-94.6	56.1-96.2	57.5-98.6	58.9-101.0
31	51.7-93.9	53.0-94.6	55.8-96.2	57.2-98.5	58.6-101.0	60.1-103.6	61.5-105.7
32	54.0-96.2	56.9-98.5	58.4-101.0	59.8-103.6	61.3-106.2	62.8-108.0	64.3-109.4
33	58.1-101.0	59.5-103.6	61.0-106.2	62.6-108.3	64.1-110.3	65.6-112.2	67.2-114.9
34	60.8-106.2	62.3-108.8	63.9-111.1	65.5-112.8	67.1-115.1	68.7-118.0	70.3-120.4
35	62.1-111.4	65.3-113.8	67.0-115.4	68.6-118.3	70.3-121.2	72.0-123.1	73.7-126.0
36	66.9-116.4	68.6-119.2	70.3-121.8	72.0-124.2	73.8-127.1	75.5-129.1	77.3-132.1
37	70.3-121.9	72.0-125.0	73.8-127.6	75.7-130.6	77.5-133.7	79.4-135.3	83.4-138.7
38	73.9-128.9	75.8-132.1	77.7-135.0	79.7-137.0	81.6-140.4	83.6-143.0	85.6-146.2
39	75.9-135.3	77.9-138.7	82.0-142.2	84.0-145.4	86.1-148.2	88.3-151.7	92.8-154.7
40	80.2-144.0	84.5-147.9	86.7-150.0	88.9-154.0	91.1-156.6	95.9-159.9	95.8-163.7
41	87.2-152.6	89.6-156.1	91.9-159.8	94.3-163.7	94.2-168.0	99.2-172.4	101.8-174.4
42	92.8-163.7	95.3-168.0	95.3-172.4	97.8-174.4	103.1-177.0	105.9-182.0	108.7-187.2
43	96.5-174.4	99.2-177.0	101.9-182.0	107.5-187.2	110.5-192.9	113.5-197.7	116.7-200.4
44	103.5-187.8	106.6-193.2	109.7-199.0	115.9-203.5	119.2-209.3	122.7-213.8	126.2-219.3
45	112.0-206.2	115.4-212.3	119.0-215.7	122.6-222.7	126.4-228.5	130.3-235.5	134.4-243.1
46	119.0-227.9	123.0-235.5	130.5-243.1	134.9-251.4	135.7-254.1	144.2-260.8	149.1-270.3
47	131.9-256.3	136.7-264.5	141.8-273.3	147.1-283.1	152.7-294.4	158.5-303.3	169.2-315.5
48	145.5-301.1	151.7-314.5	158.2-323.1	165.2-340.8	172.6-350.2	175.4-365.2	183.5-382.9
49	162.3-371.9	170.9-398.5	185.7-416.8	190.4-446.1	195.3-471.2	206.6-498.1	218.9-520.7

续表

大孔阳 性格数	小孔阳性格数						
	21	22	23	24	25	26	27
0	13.9-30.5	14.5-31.8	15.7-33.1	16.4-34.2	17.6-35.2	18.3-36.5	19.5-37.7
1	14.7-32.3	15.8-33.1	17.0-34.5	17.2-35.7	18.4-37.1	19.2-38.1	20.5-39.2
2	16.0-33.8	17.2-35.0	17.9-36.1	18.1-37.1	19.4-38.5	20.7-39.7	21.4-40.6
3	16.8-35.2	18.1-36.5	18.8-37.7	19.6-39.1	20.9-40.2	21.6-41.3	22.4-42.7
4	18.3-37.1	19.0-38.1	19.8-39.2	20.5-40.6	21.9-41.8	22.6-42.8	23.4-44.2
5	19.2-38.5	20.0-39.9	20.7-41.2	22.1-42.3	22.9-43.4	23.7-44.9	24.4-45.8
6	20.2-40.2	20.9-41.6	22.3-42.7	23.1-44.2	23.9-45.2	24.7-46.5	26.2-47.9
7	21.2-42.0	21.9-43.4	23.4-44.4	24.2-45.7	25.0-47.2	26.5-48.3	27.3-49.5
8	22.2-44.0	23.6-44.9	24.4-46.5	25.2-47.8	26.1-48.8	27.6-50.3	28.5-51.2
9	23.2-45.7	24.7-47.2	25.5-48.0	26.3-49.5	27.9-51.0	28.8-52.0	29.6-53.7
10	25.0-47.5	25.8-48.8	26.6-50.3	28.2-51.2	29.1-52.8	30.0-54.1	30.9-55.4
11	26.1-49.5	26.9-51.0	28.6-52.0	29.4-53.7	30.3-54.6	31.2-56.2	32.1-57.4
12	27.3-51.2	28.9-52.8	29.8-54.4	30.7-55.4	31.6-57.0	32.5-58.0	33.4-59.7
13	28.5-53.7	30.1-54.7	31.1-56.2	32.0-57.6	32.9-58.9	34.7-60.2	35.6-61.6
14	30.5-55.4	31.4-57.1	32.4-58.6	33.3-59.8	35.1-61.3	36.1-62.5	37.0-64.0
15	31.8-58.0	32.8-59.0	33.7-60.7	35.6-61.8	36.5-63.5	37.5-64.7	38.5-66.1
16	33.2-60.1	34.1-61.5	35.1-63.0	37.0-64.2	38.0-66.0	39.0-67.3	40.0-68.5
17	34.6-62.5	35.5-63.6	37.5-65.4	38.5-66.6	39.5-68.4	40.5-69.7	41.5-71.0
18	36.0-64.7	38.0-66.1	39.0-67.8	40.0-69.1	41.1-70.7	42.1-72.2	43.1-73.7
19	37.5-67.3	39.5-69.0	40.6-70.4	41.6-71.7	42.7-73.4	43.7-75.0	44.8-76.4
20	40.1-69.7	41.1-71.5	42.2-73.0	43.3-74.4	44.4-75.9	45.5-77.6	47.8-79.3
21	41.7-72.4	42.8-74.0	43.9-75.8	45.0-77.6	46.1-79.2	48.5-80.6	49.6-81.7
22	43.5-75.7	44.6-77.2	45.7-78.6	46.8-80.0	47.9-81.5	50.4-83.3	51.5-85.3
23	45.2-77.9	46.4-79.5	47.5-81.4	48.7-83.3	51.1-85.3	51.0-86.9	53.5-87.8
24	47.1-81.4	48.3-83.3	49.4-85.1	50.6-86.3	53.2-87.8	54.4-89.5	55.6-91.6

续表

大孔阳 性格数	小孔阳性格数						
	21	22	23	24	25	26	27
25	49.0-84.6	50.2-86.2	51.5-87.4	54.0-89.5	55.3-91.6	56.6-93.9	57.8-94.6
26	51.1-87.3	52.3-89.5	55.0-91.6	54.8-93.9	57.5-94.6	58.8-96.2	60.1-98.6
27	53.2-91.6	55.9-93.9	55.8-94.6	58.5-96.2	59.9-98.6	61.2-101.0	62.6-102.5
28	55.5-94.6	56.8-96.2	59.6-98.6	61.0-101.0	62.4-102.8	63.7-103.9	65.1-106.2
29	57.8-98.6	60.7-101.0	62.1-103.3	63.5-104.7	65.0-106.4	66.4-109.0	67.8-111.1
30	60.3-103.6	63.3-105.0	64.8-106.4	66.2-109.0	67.7-111.4	69.2-112.9	70.7-115.1
31	63.0-107.0	66.1-109.1	67.6-111.8	69.1-113.8	70.7-115.4	72.2-118.0	73.8-120.4
32	65.8-111.8	69.0-114.7	70.6-116.4	72.2-118.3	73.8-121.2	75.4-123.1	77.0-125.1
33	70.5-117.5	72.2-119.2	73.8-121.8	75.5-124.2	77.2-126.0	78.8-128.9	80.6-130.6
34	73.8-121.9	75.5-125.0	77.3-127.3	79.0-129.4	80.8-132.1	84.6-135.0	84.3-137.0
35	75.4-128.2	79.2-130.6	81.0-133.7	82.8-135.3	84.7-138.7	86.5-140.7	88.4-144.0
36	81.2-135.0	83.1-137.0	85.0-140.4	87.0-142.7	88.9-145.4	93.2-148.2	95.2-151.7
37	83.2-142.1	87.4-144.2	89.4-147.9	91.5-150.0	93.6-152.6	95.7-155.9	97.8-159.5
38	90.0-148.9	92.1-152.3	94.3-155.5	96.5-158.7	98.7-161.3	103.5-163.9	105.9-168.0
39	95.0-158.2	94.9-160.7	99.6-163.7	102.0-168.0	104.4-172.4	106.8-174.4	109.3-177.0
40	98.1-168.0	103.2-172.4	105.7-174.4	108.2-177.0	110.8-181.9	113.5-186.9	119.2-190.0
41	107.1-177.0	107.0-181.9	109.7-187.2	115.3-190.1	118.2-194.0	121.1-198.9	124.1-203.5
42	111.5-192.3	114.4-195.0	120.5-200.4	123.6-205.3	126.8-209.3	130.0-213.8	133.4-219.3
43	119.9-206.2	123.1-212.3	126.5-215.7	133.3-221.8	133.5-227.0	140.7-233.7	144.5-238.0
44	129.9-226.4	133.6-229.7	137.5-235.5	141.5-243.1	145.6-251.4	153.7-254.1	158.2-260.5
45	142.3-251.4	146.7-254.1	151.3-260.5	156.1-270.3	161.0-279.8	170.4-283.1	175.8-294.4
46	154.2-281.0	159.5-290.4	169.5-296.2	175.4-306.9	176.9-315.5	188.0-328.6	194.7-340.8
47	175.8-328.6	177.9-340.8	185.0-343.5	197.7-360.0	205.8-378.3	214.2-388.4	217.0-401.8
48	197.7-398.8	207.1-423.2	217.0-439.5	233.9-448.0	245.3-472.5	257.3-498.7	262.4-526.2
49	231.9-555.5	245.9-567.0	260.6-618.9	276.2-650.0	292.7-687.9	310.0-721.5	338.4-763.6

续表

大孔阳 性格数	小孔阳性格数						
	28	29	30	31	32	33	34
0	19.7-38.6	21.0-39.9	21.7-41.2	22.5-42.3	23.9-43.4	24.6-44.4	25.4-45.7
1	21.2-40.6	22.0-41.6	22.7-42.7	23.5-44.0	24.9-44.9	25.7-46.4	26.4-47.2
2	22.2-42.0	23.6-43.4	24.4-44.4	25.1-45.7	25.9-46.6	26.7-48.0	28.2-48.9
3	23.2-43.6	24.6-44.9	25.4-46.2	26.2-47.2	27.0-48.6	27.8-49.5	29.3-51.0
4	24.9-45.6	25.7-46.5	26.5-48.0	27.3-48.8	28.1-50.3	29.7-51.2	30.5-52.8
5	25.9-47.2	26.7-48.5	27.6-49.5	28.4-51.0	29.2-52.0	30.8-53.3	31.7-54.5
6	27.0-48.8	27.9-50.3	28.7-51.2	29.5-52.8	31.1-53.8	32.0-55.4	32.9-56.2
7	28.2-51.0	29.0-52.0	30.6-53.5	31.5-54.5	32.4-55.9	33.2-57.1	34.1-58.3
8	29.3-52.8	30.2-53.8	31.8-55.4	32.7-56.4	33.6-58.0	34.5-59.0	35.4-60.2
9	30.5-54.5	32.2-56.1	33.1-57.1	34.0-58.6	34.9-59.8	35.8-61.2	36.7-62.5
10	31.7-56.8	33.5-58.0	34.4-59.1	35.3-60.7	36.2-61.8	37.1-63.0	39.0-64.5
11	33.9-58.9	34.8-60.1	35.7-61.3	36.6-62.6	38.5-64.2	39.5-65.4	40.4-66.6
12	35.2-60.8	36.1-62.5	37.1-63.6	38.0-64.7	40.0-66.1	40.9-67.7	41.9-69.0
13	36.6-63.0	37.5-64.4	38.5-66.0	39.4-67.3	41.4-68.5	42.4-69.7	43.4-71.0
14	38.0-65.4	39.0-66.6	41.0-67.9	42.0-69.6	43.0-70.9	44.0-72.3	45.0-73.7
15	39.5-67.8	40.5-69.0	41.4-70.4	43.5-72.0	44.6-73.4	45.6-74.7	46.6-75.9
16	41.0-70.3	43.1-71.7	44.1-73.0	45.2-74.4	46.2-75.9	47.3-77.6	48.3-78.9
17	42.6-72.4	44.7-74.0	45.8-75.7	46.8-77.2	47.9-78.6	49.0-79.8	51.3-81.4
18	45.3-75.1	46.4-76.6	47.5-77.9	48.6-79.5	49.7-81.4	50.8-83.0	53.2-84.2
19	47.1-77.8	48.2-79.5	49.3-81.2	50.4-82.7	51.5-83.7	54.0-85.3	53.7-87.3
20	48.9-80.8	50.0-82.3	51.1-83.4	52.3-85.3	53.4-87.3	55.9-88.7	57.1-89.6
21	50.7-83.4	51.9-85.3	53.1-87.2	54.2-88.6	56.8-89.5	58.0-91.6	59.2-93.9
22	52.7-87.0	53.9-88.2	55.1-89.5	56.3-91.6	58.9-93.9	60.2-94.6	61.4-96.1
23	54.7-89.5	56.0-91.6	57.2-93.9	58.4-94.6	61.2-96.1	62.4-98.6	63.7-100.4
24	56.9-93.9	58.1-94.6	60.9-96.1	62.2-98.6	63.5-100.6	64.8-101.5	66.1-103.6

续表

大孔阳 性格数	小孔阳性格数						
	28	29	30	31	32	33	34
25	59.1-96.1	60.4-98.6	61.7-101.0	64.6-101.6	65.9-103.6	67.3-106.2	68.6-107.3
26	61.5-101.0	62.8-102.2	64.1-103.6	67.1-106.2	68.5-108.0	69.9-109.4	71.3-111.8
27	63.9-103.8	65.3-106.2	68.4-108.3	69.8-109.6	71.2-111.8	72.7-113.8	74.1-115.4
28	66.5-108.8	68.0-110.3	71.1-112.2	72.6-114.7	74.1-116.4	75.6-118.3	77.1-120.4
29	69.3-112.8	72.6-114.9	74.1-116.9	75.6-119.2	77.2-121.2	78.7-123.1	80.3-125.0
30	74.1-117.5	75.6-119.2	77.2-121.8	78.8-124.2	80.4-126.0	82.0-128.2	83.6-130.6
31	75.4-121.9	78.9-124.7	80.5-127.1	82.2-128.9	83.9-131.5	85.6-133.7	87.3-135.3
32	78.7-127.6	82.4-130.5	84.1-132.1	85.8-135.0	87.6-137.0	89.4-139.5	91.1-142.1
33	84.4-133.7	86.1-135.3	88.0-138.7	89.8-140.5	91.6-143.0	95.8-145.9	95.3-148.2
34	86.1-139.5	90.2-142.2	92.1-145.0	94.0-147.9	96.0-150.0	97.9-152.6	102.4-155.5
35	92.6-146.2	94.6-148.9	96.6-152.0	98.7-154.7	100.7-157.0	102.8-159.9	107.5-163.6
36	94.9-154.0	99.4-156.6	101.6-159.8	103.7-163.1	105.9-165.2	110.8-168.0	110.4-172.4
37	102.5-162.7	104.8-164.6	107.0-168.0	109.3-172.4	111.7-174.4	114.1-177.0	116.5-181.9
38	105.6-172.4	110.7-174.4	113.1-177.0	115.6-181.9	118.1-185.4	120.7-187.3	123.3-192.2
39	114.7-181.9	117.3-185.5	120.0-187.8	122.7-192.8	125.4-196.8	128.2-200.4	131.1-203.8
40	119.0-193.1	124.8-197.7	127.8-200.4	130.8-205.9	133.8-209.3	136.9-213.8	140.0-219.3
41	130.4-206.2	133.6-212.3	133.4-215.7	140.1-221.8	143.5-226.4	147.0-229.7	150.5-235.5
42	136.8-222.7	140.3-228.5	147.5-234.0	151.3-238.0	155.1-243.1	159.1-251.4	163.1-254.1
43	148.4-243.1	152.4-251.4	160.5-254.1	160.8-260.5	169.3-269.7	173.9-273.3	178.6-281.0
44	162.8-270.3	167.5-274.9	172.4-282.2	177.5-290.4	187.3-296.2	188.0-305.1	198.4-314.5
45	176.8-302.0	187.2-310.9	193.2-318.2	199.4-328.6	205.8-340.8	212.4-343.5	219.2-360.0
46	201.6-343.5	208.9-360.0	216.4-372.2	230.0-382.9	232.2-398.6	246.8-405.3	255.7-423.0
47	232.1-423.0	248.2-439.5	251.7-446.2	262.0-471.2	280.1-495.6	299.1-498.7	295.5-526.2
48	275.1-555.5	296.6-556.7	310.9-586.6	334.6-618.9	341.2-652.5	357.3-687.9	374.1-700.1
49	358.2-804.5	379.1-847.2	401.2-879.2	424.5-941.5	449.3-974.4	475.7-1048.9	549.0-1094.0

续表

大孔阳 性格数	小孔阳性格数						
	35	36	37	38	39	40	41
0	26.2-46.8	27.7-48.0	28.5-49.0	29.2-50.3	30.0-51.2	30.8-52.8	31.6-53.7
1	27.9-48.8	28.7-49.6	29.5-51.0	30.4-52.0	31.2-53.1	32.8-54.5	33.6-55.4
2	29.0-50.3	29.9-51.2	30.7-52.8	31.5-53.7	32.3-54.9	34.0-56.2	34.8-57.1
3	30.2-52.0	31.0-53.2	31.8-54.5	32.6-55.4	34.3-57.0	35.2-58.0	36.0-59.0
4	31.3-53.7	32.2-55.2	33.0-56.2	34.7-57.4	35.6-58.6	36.4-59.8	37.3-60.9
5	32.5-55.7	33.4-57.0	35.1-58.0	36.0-59.3	36.8-60.7	37.7-61.8	38.6-63.0
6	33.7-57.6	35.5-58.9	36.4-60.1	37.2-61.3	38.1-62.5	39.0-63.6	39.9-64.8
7	35.0-59.7	36.8-60.8	37.7-61.9	38.6-63.4	39.5-64.7	40.4-66.0	41.3-67.3
8	36.3-61.6	38.1-63.0	39.0-64.2	39.9-65.4	40.9-66.6	41.8-67.8	43.8-69.1
9	38.6-63.6	39.5-64.7	40.4-66.1	41.3-67.5	42.3-69.0	44.3-70.3	45.3-71.5
10	40.0-66.0	40.9-67.3	41.8-68.5	42.8-69.7	43.7-71.0	45.8-72.3	46.8-73.7
11	41.4-67.8	42.4-69.2	43.3-70.7	45.4-72.2	45.2-73.4	47.4-74.5	48.4-75.9
12	42.9-70.4	43.9-71.7	44.8-73.0	47.0-74.4	48.0-75.8	49.0-77.2	50.0-78.6
13	44.4-72.4	45.4-74.0	46.4-75.7	48.6-76.9	49.6-77.9	50.7-79.5	51.7-81.2
14	46.0-75.0	47.0-76.4	49.3-77.8	50.3-79.5	51.4-80.8	52.4-82.1	53.5-83.3
15	47.7-77.6	48.7-79.2	51.0-80.6	52.1-81.5	53.1-83.3	54.2-85.1	55.3-86.2
16	49.4-80.0	50.4-81.4	52.8-83.3	53.9-84.8	55.0-85.9	56.1-87.3	57.2-89.5
17	51.1-83.3	53.5-84.6	54.6-85.4	55.8-87.3	56.9-89.4	58.0-90.3	59.1-91.6
18	53.0-85.3	55.4-87.3	56.6-89.2	57.7-90.0	58.9-91.6	60.0-93.9	61.2-94.6
19	56.3-89.1	57.4-89.8	58.6-91.6	59.8-93.9	60.9-94.6	62.1-96.1	64.9-98.6
20	58.3-91.6	59.5-93.9	60.7-94.6	61.9-96.1	63.1-98.6	64.3-99.5	65.5-101.0
21	60.4-94.6	61.7-96.1	62.9-98.6	64.1-99.8	65.4-101.0	68.2-103.6	69.5-104.7
22	62.7-98.6	63.9-100.1	65.2-101.0	66.4-103.6	69.4-105.0	70.7-106.4	72.0-108.8
23	65.0-101.2	66.3-103.6	67.6-105.6	68.9-106.4	70.2-109.0	73.3-100.3	74.6-112.2
24	67.4-105.7	68.8-107.0	70.1-109.0	71.4-111.1	74.6-112.2	76.0-114.7	77.4-116.4

续表

大孔阳 性格数	小孔阳性格数						
	35	36	37	38	39	40	41
25	70.0-109.1	71.4-111.4	72.8-112.8	74.2-114.9	77.4-116.4	78.9-118.3	80.3-120.4
26	72.7-113.5	74.1-115.1	75.6-117.5	78.9-119.2	80.4-121.2	81.9-123.1	83.4-125.0
27	75.6-118.0	77.1-119.8	80.5-121.8	82.0-123.7	83.5-125.9	85.1-127.6	86.6-129.4
28	78.6-121.9	80.1-124.2	83.7-126.0	85.3-128.5	86.9-130.6	88.5-132.4	90.1-135.0
29	81.8-127.3	83.4-129.1	87.1-131.7	88.8-133.7	90.4-135.3	92.1-138.1	93.8-140.4
30	87.4-132.1	89.1-135.0	88.6-137.0	92.5-138.7	94.3-141.6	96.0-144.0	97.8-145.9
31	89.0-138.7	93.0-140.4	94.7-142.7	96.5-145.4	98.4-147.9	100.2-150.0	102.1-152.3
32	95.2-144.2	94.8-146.2	99.0-148.9	100.9-151.7	102.8-154.0	104.7-156.2	106.7-159.5
33	99.6-150.9	101.6-153.0	103.6-155.9	105.6-158.7	107.6-160.7	109.7-163.7	111.7-167.2
34	101.9-158.2	106.5-160.1	108.6-163.7	110.7-166.5	112.9-168.0	115.0-172.4	117.2-174.4
35	109.7-165.7	111.9-168.0	114.1-172.4	116.4-174.4	118.6-177.0	121.0-181.4	123.3-182.9
36	115.4-174.4	117.8-177.0	120.2-181.9	122.6-183.1	125.1-187.3	127.5-190.0	130.1-193.1
37	118.9-184.2	124.4-187.3	127.0-191.9	129.6-194.0	132.2-198.0	134.9-200.4	137.6-205.3
38	126.0-194.9	131.8-198.9	134.6-203.5	137.5-206.2	140.4-209.3	143.3-213.8	146.3-218.1
39	134.0-208.0	140.3-212.3	143.4-215.7	146.5-219.3	149.7-223.6	152.9-228.5	156.2-233.7
40	143.2-222.4	146.5-227.0	153.5-230.9	157.0-235.5	160.6-242.2	164.2-244.1	167.8-251.4
41	154.1-240.7	161.7-243.4	165.5-251.4	169.5-254.1	173.5-260.5	177.6-266.0	186.1-270.3
42	167.2-260.5	175.7-268.2	175.7-270.9	184.6-279.8	189.2-283.1	193.9-290.4	198.7-296.2
43	187.9-287.7	188.3-294.4	198.2-302.0	198.6-306.9	208.9-315.5	214.5-322.8	220.2-328.6
44	204.1-320.9	210.1-328.6	221.5-340.8	222.5-343.5	234.6-359.4	235.5-364.3	248.3-378.5
45	232.0-365.5	233.5-378.3	247.0-388.2	254.9-401.7	263.0-413.9	278.0-423.0	279.9-439.5
46	264.8-439.5	281.2-446.2	284.0-471.2	294.0-476.1	312.1-498.1	315.0-515.2	334.2-526.2
47	315.6-555.5	336.9-556.7	341.4-586.6	355.0-618.9	378.6-623.8	393.4-652.5	398.4-687.9
48	402.3-724.5	432.2-763.6	440.6-804.5	448.7-847.5	482.4-886.5	518.3-892.6	542.6-941.5
49	550.1-1174.6	583.8-1245.4	620.5-1282.0	660.6-1410.2	705.0-1509.0	754.6-1614.0	810.8-1750.7

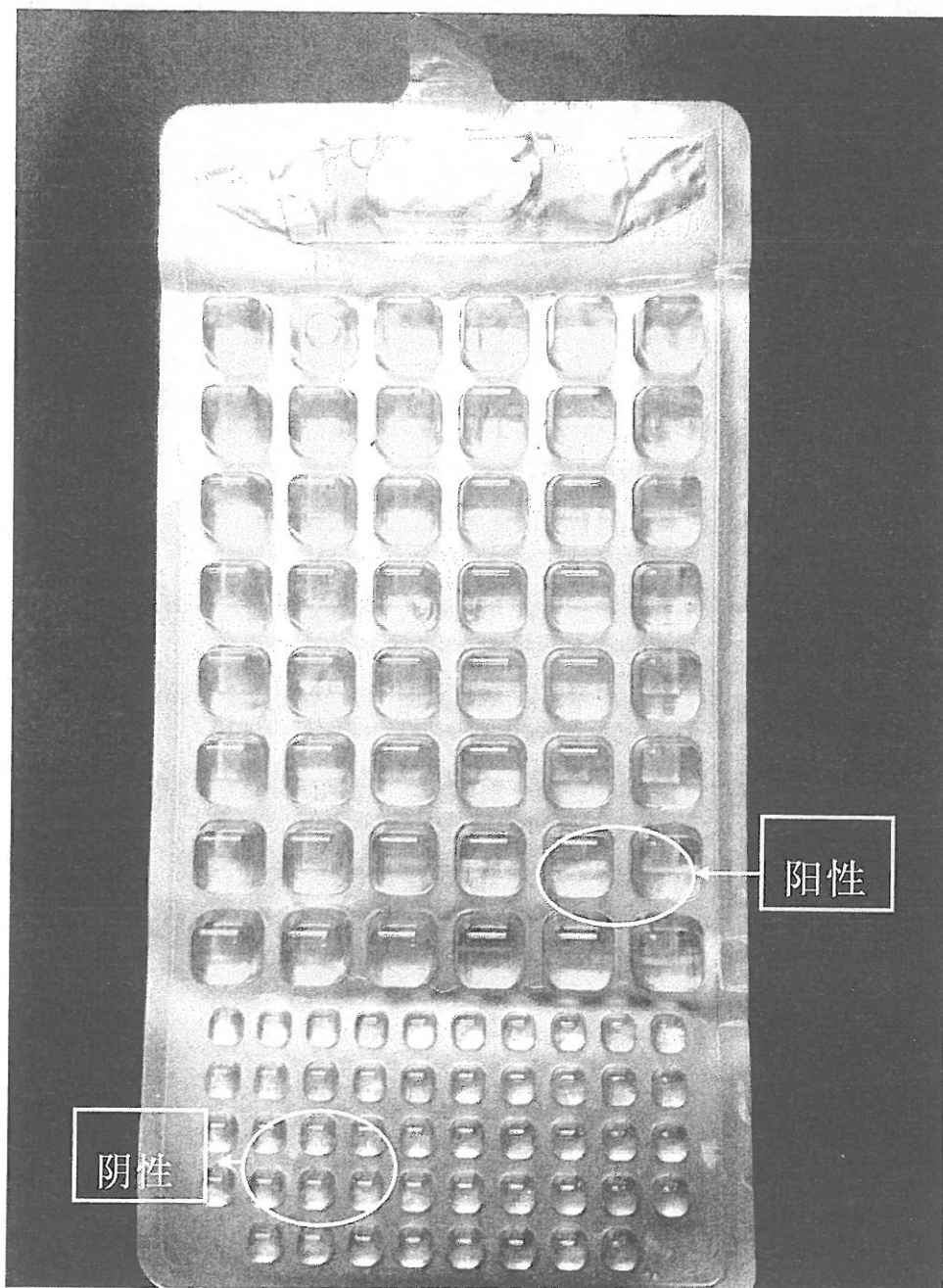
续表

大孔阳 性格数	小孔阳性格数						
	42	43	44	45	46	47	48
0	33.3-54.7	34.1-56.1	34.9-57.1	35.7-58.1	37.5-59.5	38.3-60.7	39.2-61.6
1	34.5-56.6	35.3-58.0	36.1-58.9	37.0-60.1	38.7-61.3	39.6-62.5	40.5-63.6
2	35.7-58.6	36.5-59.7	37.4-60.8	38.2-61.8	40.0-63.0	40.9-64.2	41.8-65.4
3	36.9-60.2	37.8-61.5	38.6-62.6	40.5-63.8	41.4-65.0	42.2-66.1	43.1-67.3
4	38.2-62.5	40.0-63.5	40.9-64.7	41.8-66.0	42.7-67.3	43.6-68.4	44.5-69.4
5	39.5-64.2	41.4-65.4	42.3-66.6	43.2-67.8	44.1-69.0	45.0-70.4	45.9-71.7
6	40.8-66.1	42.8-67.5	43.7-68.7	44.6-69.8	45.5-71.0	46.5-72.4	47.4-73.7
7	43.3-68.5	44.2-69.7	45.1-70.8	46.1-72.2	47.0-73.4	48.0-74.4	48.9-75.9
8	44.7-70.4	45.7-71.7	46.6-73.0	47.6-74.3	48.5-75.7	49.5-77.0	50.5-77.9
9	46.2-72.5	47.2-74.0	48.2-75.4	49.1-76.4	51.4-77.8	51.1-79.3	53.4-80.6
10	47.8-75.0	48.8-76.3	49.8-77.6	50.7-79.2	53.0-80.0	54.0-81.4	55.1-83.2
11	49.4-77.6	50.4-78.6	51.4-80.0	52.4-81.4	54.7-83.0	55.8-83.7	56.8-85.3
12	51.0-79.5	52.1-81.4	53.1-82.7	54.1-83.7	56.5-85.3	57.6-86.9	58.6-87.7
13	52.8-82.3	53.8-83.4	54.9-85.3	55.9-86.7	58.4-87.4	59.4-89.5	60.5-90.8
14	54.5-85.3	55.6-86.3	56.7-87.4	59.2-89.5	60.3-90.7	61.4-91.6	62.5-93.8
15	56.4-87.3	58.9-89.5	60.0-90.5	61.1-91.6	62.3-93.8	63.4-94.6	64.5-96.1
16	58.3-90.3	60.9-91.6	62.0-93.8	63.2-94.6	64.3-96.1	65.5-98.4	66.6-98.9
17	60.3-93.9	62.9-94.6	64.1-96.1	65.3-98.6	66.5-99.0	67.7-101.0	68.8-102.5
18	63.9-96.1	65.1-98.6	66.3-99.2	67.5-101.0	68.7-102.8	69.9-103.8	71.1-106.2
19	66.1-99.5	67.3-101.0	68.6-103.3	69.8-103.9	71.0-106.2	72.3-107.6	73.5-109.1
20	68.4-103.3	69.7-104.4	70.9-106.2	72.2-108.0	73.5-109.1	74.8-111.4	76.1-112.8
21	70.8-106.2	72.1-108.3	73.4-109.4	74.7-111.8	76.0-112.9	79.2-114.9	78.7-116.4
22	73.4-110.0	74.7-111.8	76.0-113.8	77.4-115.1	78.7-117.3	82.0-118.7	83.4-120.4
23	76.0-114.0	77.4-115.4	78.8-117.5	80.2-119.2	81.6-121.2	83.0-123.1	86.4-124.7
24	78.8-118.0	80.2-120.1	81.7-121.8	83.1-123.4	86.6-125.1	86.0-127.3	89.6-128.9

续表

大孔阳 性格数	小孔阳性格数						
	42	43	44	45	46	47	48
25	81.8-121.9	83.2-124.2	84.7-126.0	86.2-128.0	89.8-130.2	91.3-132.1	92.9-133.7
26	84.9-127.1	86.4-128.9	90.1-130.6	89.5-132.4	93.2-135.0	94.8-137.0	96.4-138.7
27	88.2-132.0	89.8-133.7	91.4-135.3	95.2-137.8	94.6-140.1	98.5-142.1	100.2-144.2
28	91.7-137.0	95.6-138.7	95.0-140.7	99.0-143.0	98.4-145.4	102.5-147.9	104.2-149.8
29	95.5-142.2	99.6-144.2	99.0-146.3	103.1-148.9	104.9-151.7	106.7-153.5	108.6-155.9
30	99.6-148.2	101.4-150.3	105.7-152.6	107.5-155.5	109.4-157.6	111.3-159.8	113.2-162.7
31	103.9-154.7	105.8-106.6	110.3-159.8	112.3-162.4	114.3-163.9	116.3-167.8	118.3-168.8
32	111.3-161.3	113.3-163.7	115.4-167.2	117.4-168.3	119.5-172.4	121.7-174.4	123.8-177.0
33	113.8-168.3	118.7-172.4	120.9-174.4	123.1-177.0	125.3-180.8	127.5-182.1	129.8-186.4
34	119.4-177.0	124.6-180.8	126.9-182.1	129.3-187.0	131.6-188.5	134.0-192.5	136.5-194.9
35	125.7-187.3	128.1-190.0	130.5-192.8	136.1-195.8	138.7-198.9	141.3-202.9	143.9-205.9
36	135.8-197.7	138.4-200.4	141.1-203.5	143.8-206.2	146.6-210.2	149.4-213.8	152.2-217.5
37	140.4-209.3	146.7-212.3	149.6-215.7	152.5-219.3	155.5-222.7	158.5-227.0	161.6-229.7
38	149.3-221.8	152.3-226.4	159.2-229.7	162.4-234.0	165.7-238.0	169.1-243.1	172.4-245.9
39	159.5-236.1	166.9-242.5	170.4-245.0	174.0-251.4	177.6-254.1	181.3-260.5	185.1-264.5
40	175.7-254.1	175.4-260.5	183.6-264.5	187.6-270.3	191.7-274.9	195.9-281.0	200.2-285.6
41	186.0-277.9	194.9-282.2	194.7-290.1	204.0-294.4	208.7-302.0	213.5-306.9	218.4-314.5
42	208.6-303.3	208.7-310.9	219.0-315.5	219.1-325.8	229.8-328.6	235.4-340.8	241.2-343.5
43	226.0-340.8	232.0-343.5	238.1-356.3	244.4-360.0	256.8-372.4	263.5-378.5	270.3-388.2
44	255.4-382.7	262.7-398.6	270.2-401.7	277.8-418.7	285.7-423.0	293.7-439.5	301.8-446.2
45	295.7-446.2	297.6-467.0	314.4-472.5	316.2-495.6	334.0-498.7	344.1-524.9	354.5-526.2
46	337.2-555.5	357.6-556.7	369.8-586.6	382.3-600.6	404.9-618.9	408.4-648.2	422.0-652.5
47	424.6-700.1	441.1-724.5	458.1-763.6	487.8-786.4	494.2-804.8	513.2-847.5	546.6-886.5
48	553.4-993.9	579.7-1048.9	623.9-1108.7	654.5-1153.8	705.0-1174.6	703.6-1245.4	740.6-1323.5
49	850.4-1896.6	924.9-2101.6	1016.2-2353.1	1167.7-2709.5	1222.0-3300.2	1630.4-4716.1	1439.5-infinite

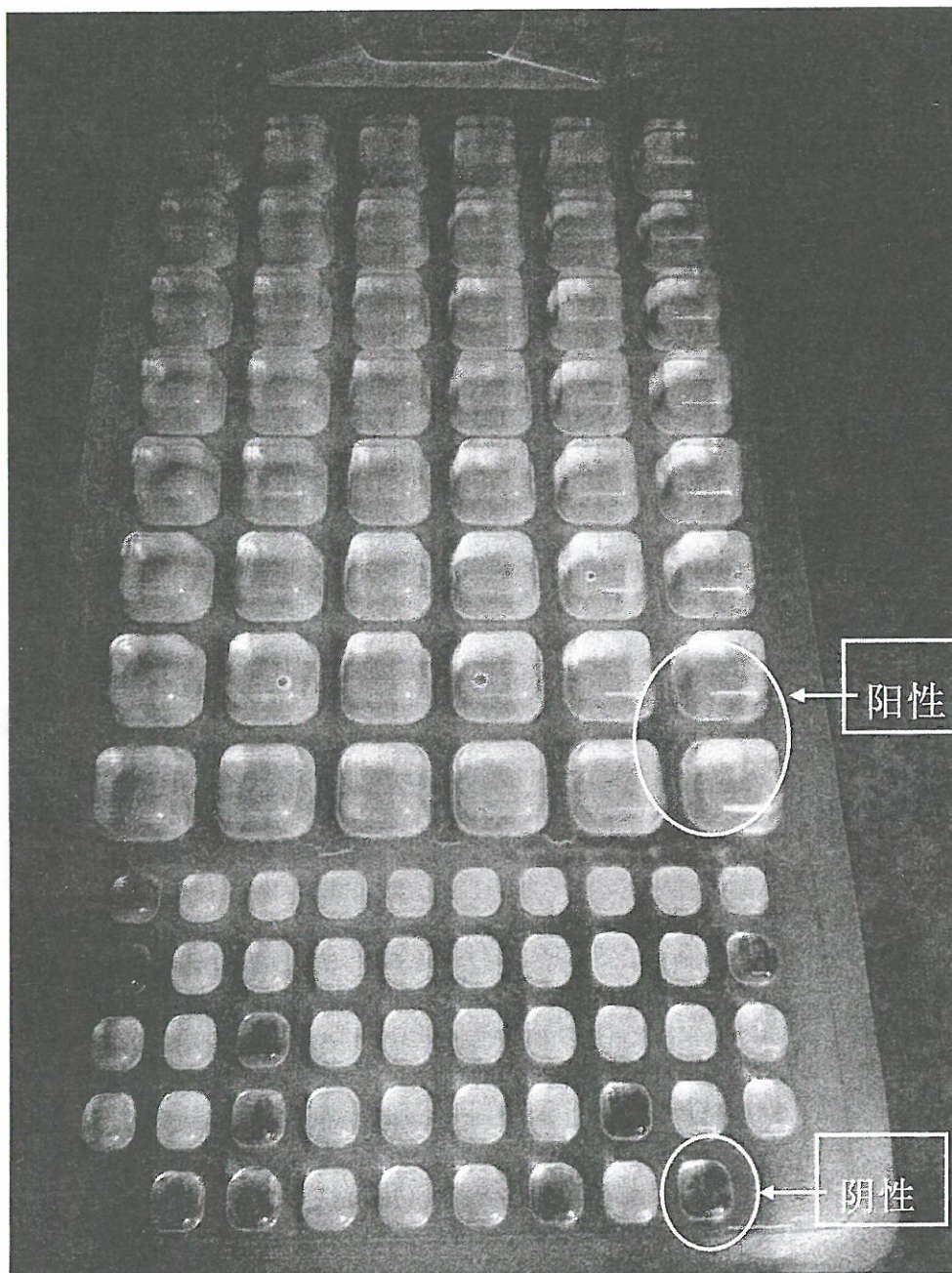
附录 C
(资料性附录)
结果判定参考图片



注1: 总大肠菌群、粪(耐热)大肠菌群阳性(黄色)

注2: 总大肠菌群、粪(耐热)大肠菌群阴性(无色)

图 C.1 总大肠菌群、粪(耐热)大肠菌群酶底物法阴阳性结果参考图



注 1: 大肠埃希氏菌阳性 (黄色且荧光)

注 2: 大肠埃希氏菌阴性 (无荧光)

图 C.2 大肠埃希氏菌酶底物法阴阳性结果参考图

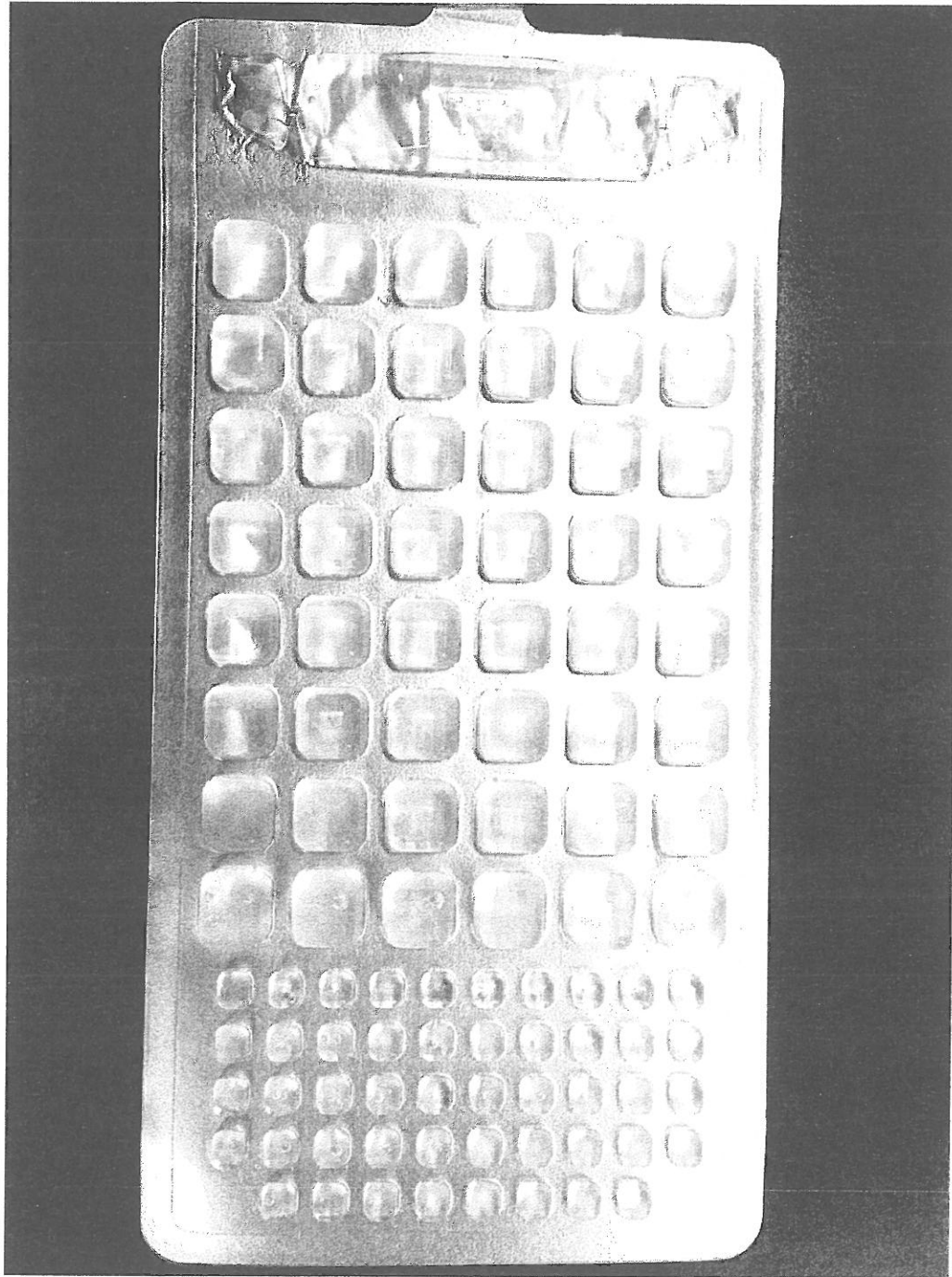


图 C.3 总大肠菌群、粪（耐热）大肠菌群酶底物法标准阳性对照盘