# Spin Air Basic Instructions for Use

## Air sampler

*For units with SN 10005532/1064 and below*




Doc. 50006171-06

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## INDICATION OF THE INTRODUCED MODIFICATIONS

If it’s the first time that you use Spin Air Basic, please read the entire document carefully.

If it’s not the first time that you use Spin Air Basic and you use it before, in the table below you can read the indication of the introduced modifications.

| Revision | Description of change |
|---|---|
| 06 | Update photo and SN number on front page |

# 1. Introduction

Thank you for choosing the Spin Air Basic. We are confident that this instrument will become an integral part of your laboratory.

Before using the Spin Air Basic, it is essential that you read these Instructions for Use carefully. Following the instructions and safety information in this Instructions for Use will ensure safe operation and maintain the system in a safe condition.

## 1.1. Intended Use of the Spin Air Basic

The Spin Air Basic is intended to be used in the pharmaceutical, medical device, food, and cosmetic manufacturers, as well as healthcare facilities to assess airborne bacterial and fungal bioburden.

## 1.2. Device Description

The Spin Air Basic is a portable microbial air sampler that uses the unrivaled Spin technology. This sampling technology uses 100% of the Petri plate agar surface to plate microorganisms improving data statistical significance greatly and avoiding the use of colony count correction tables.

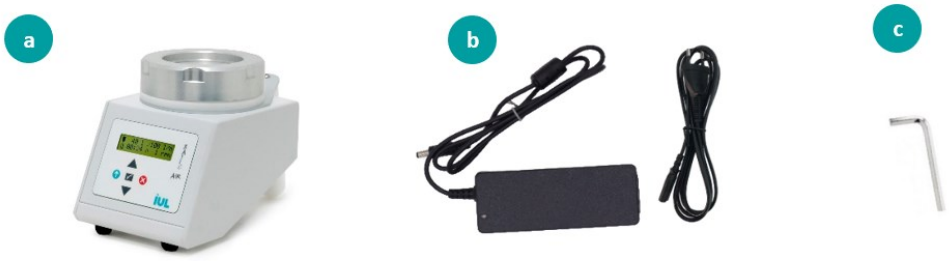
These samplers are compact and portable, they can be attached to a tripod for adequate sampling direction. A handy countdown function avoids operator interference with results.

The Spin Air Basic allows complying with USP 797 and 1116 regulations and is EN 17141:2020 Annex E certified, see Appendix J: Certificate of Compliance EN 17141:2020.

## 1.3. General Information

### 1.3.1. Scope of Delivery

The delivery includes the following items:




a. Spin Air Basic main unit (Cat. 10005532)
b. Power supply (Cat. 90001566) and power cord.
c. Allen wrench (Cat. 90005516)

See Appendix A: Ordering Codes for more information.

**NOTE:** This is an image of the standard model. The set head of the Spin Air Basic depends on the order of the customer and the appearance.

### 1.3.2. Technical Assistance

At IUL SA we pride ourselves on the quality and availability of our technical support. Our Technical Service Department is staffed by experienced technicians with extensive practical and theoretical expertise in the use of IUL SA products. If you have any questions or experience any difficulties regarding the Spin Air Basic or IUL SA products in general, do not hesitate to contact us or your local distributors.

IUL SA customers are a major source of information regarding advanced or specialized uses of our products. This information is helpful to other customers as well as to the researchers at IUL SA. We, therefore, encourage you to contact us if you have any suggestions about product performance or new applications and techniques.

For technical assistance, contact the IUL SA Technical Service Department or your local distributors.

### 1.3.3. Policy Statement

It is the policy of IUL SA to improve products as new techniques and components become available. IUL SA reserves the right to change the specifications of products at any time.

To produce useful and appropriate documentation, we appreciate your comments on these Instructions for Use. Please contact IUL SA Technical Service with any feedback.

### 1.3.4. Requirements for Spin Air Basic Users

Table 1 covers the general level of competence for the use and servicing of the Spin Air Basic.

| Task | Personnel | Training and experience |
|---|---|---|
| Routine use | Laboratory technicians or equivalent | Trained in techniques for laboratory instrument operation |
| Servicing | IUL SA Service Specialists only | Trained, certified, and authorized by IUL SA |

## 2. Safety Information

Before using the Spin Air Basic, it is essential that you read these Instructions for Use carefully. Following the instructions and safety information in this Instructions for Use will ensure safe operation and maintain the system in a safe condition.

The following types of safety information appear throughout the Spin Air Basic Instructions for Use.

| | |
|---|---|
| **WARNING**  | The term WARNING is used to inform you about situations that could result in **personal injury** to you or other persons.<br>Details about these circumstances are given in a box like this one. |

| | |
|---|---|
| **CAUTION**  | The term CAUTION is used to inform you about situations that could result in **damage to the instrument** or other equipment.<br>Details about these circumstances are given in a box like this one. |

The advice given in this Instructions for Use is intended to supplement, not supersede, the normal safety requirements prevailing in the user's country.

### 2.1. Proper Use

| | |
|---|---|
| **WARNING/ CAUTION**  | **Risk of personal injury and material damage**<br>Improper use of the Spin Air Basic instrument may cause personal injury or damage to the instrument.<br>The instrument must only be operated by qualified personnel. |

| | |
|---|---|
| **CAUTION**  | **Damage to the instrument**<br>Avoid spilling water or chemicals onto the Spin Air Basic instrument.<br>Damage caused by water or chemical spillage will void your warranty. |

In case of emergency, switch off the Spin Air Basic and unplug the power cord from the power outlet.

## 2.2. Electrical Safety

If the operation of the Spin Air Basic is interrupted in any way (e.g., due to interruption of the power supply or a mechanical error), first switch off the instrument using the power button, then unplug the power cord from the power outlet. Contact IUL SA or IUL's Partner Technical Service after such an incident.

| | |
|---|---|
| **WARNING**  | **Rechargeable Batteries**<br>This WARNING is applicable to routine users as well as to technical service users.<br>• Do not dismantle, open or shred batteries.<br>• Keep batteries out of the reach of children.<br>• Seek medical advice immediately if a battery has been swallowed.<br>• Do not expose batteries to heat or fire. Avoid storage in direct sunlight.<br>• Do not remove a battery from its original packaging.<br>• Do not subject batteries to mechanical shock<br>• In event of a cell leaking, do not allow the liquid to encounter the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice.<br>• Only use Batteries provided by IUL SA or your local distributor.<br>After extended periods of storage, it may be necessary to charge and discharge the batteries several times to obtain maximum performance. |

| | |
|---|---|
| **WARNING**  | **Electrical hazard**<br>Any interruption of the protective conductor (earth/ground lead) inside or outside the instrument or disconnection of the protective conductor terminal is likely to make the instrument unsafe. **This must be checked after service or maintenance.**<br>Intentional interruption is prohibited.<br>**Lethal voltages inside the instrument**<br>This WARNING applies to routine users as well as to technical service users.<br>• Risk of electrical shock and energy hazard. All failures should be examined by a qualified technician. Please do not remove the case of the AC adaptor by yourself!<br>• Adaptors should be placed on a reliable surface. A drop or fall could cause damage. |

| | |
|---|---|
| | • Please do not place the AC adaptor in places with high moisture or near the water.<br>• Please do not place the AC adaptor in places with high ambient temperature or near the fire source. About the maximum ambient temperature, please refer to “Appendix B: Technical Data”.<br>• Disconnect the AC adaptor from the AC power before cleaning. Do not use any liquid or an aerosol cleaner. Only use a damp cloth to wipe it.<br>In case of replacement or a loosing of the AC adaptor or the mains power cord, these must be replaced only with the AC adaptors or power cords listed on the “Ordering Codes” In case of replacement, this must be ordered to IUL SA’s Partner. |

To ensure satisfactory and safe operation of the Spin Air Basic:

- The power cord of the external power supply must be connected to a line power outlet that has a protective conductor (earth/ground).
- No other external power supply neither power cords than the specified in “Appendix A: Ordering Codes” must be used. In case of replacement, this must be ordered to IUL SA.
- The instrument must not be operated with the head removed.
- If you suspect any instrument damage, contact IUL SA Technical Services or your local distributor.

If the Spin Air Basic becomes electrically unsafe, prevent other personnel from operating it, and contact IUL SA Technical Service.

The instrument may be electrically unsafe if:

- The instrument or the external power supply is shown to be damaged.
- The instrument has been stored under unfavourable conditions for a prolonged period.
- A different external power supply is used other than the one provided by IUL SA.

| | |
|---|---|
| **WARNING**  | **Risk of electric shock**<br>In case of replacement or loss of the external power supply or the power cord, these must be replaced only with the external power supply or power cords listed on the “Appendix A: Ordering Codes” and provided by IUL SA. |

## 2.3. Environment

### Operating conditions

| | |
|---|---|
| **CAUTION**  | **Explosive atmosphere**<br>The Spin Air Basic is not designed for use in an explosive atmosphere. |
| **CAUTION**  | **Overheating risk**<br>Do not cover gaps and slots that ensure the ventilation of the Spin Air Basic. |

## 2.4. Biological Safety

Use safe laboratory procedures as outlined in publications such as Biosafety in Microbiological and Biomedical Laboratories, HHS:

https://www.cdc.gov/labs/pdf/CDC-BiosafetyMicrobiologicalBiomedicalLaboratories-2009-P.PDF

See: Section III—Principles of Biosafety

Laboratory Practices and Technique

The most important element of containment is strict adherence to standard microbiological practices and techniques. Persons working with infectious agents or potentially infected materials must be aware of potential hazards and must be trained and proficient in the practices and techniques required for handling such material safely. The director or person in charge of the laboratory is responsible for providing or arranging the appropriate training of personnel.

| | |
|---|---|
| **WARNING**  | **Samples containing infectious agents**<br>Some samples used with the Spin Air Basic may contain infectious agents. Handle such samples following the required safety regulations.<br>The responsible person(s) (e.g., laboratory manager) must take the necessary precautions to ensure that the workplace is safe and that the instrument operators are suitably trained and not exposed to hazardous levels of infectious agents, as defined in the applicable Safety Data Sheets (SDSs) or OSHA[1] ACGIH[2] or COSHH[3] documents.<br>Venting of fumes and disposal of wastes must be following all national, state, and local health and safety regulations and laws. |

[1] OSHA: Occupational Safety and Health Administration (United States of America).
[2] ACGIH: American Conference of Government Industrial Hygienists (United States of America).
[3] COSHH: Control of Substances Hazardous to Health (United Kingdom).

## 2.5. Chemicals

| | |
|---|---|
| **WARNING**  | **Hazardous chemicals**<br>Some chemicals used with the Spin Air Basic may be hazardous.<br>Always wear safety glasses, gloves, and a lab coat.<br>The responsible person(s) (e.g., laboratory manager) must take the necessary precautions to ensure that the workplace is safe and that the instrument operators are suitably trained and not exposed to hazardous levels of toxic substances (chemical or biological), as defined in the applicable Safety Data Sheets (SDSs) or OSHA, ACGIH or COSHH documents.<br>Venting of fumes and disposal of wastes must be following all national, state, and local health and safety regulations and laws. |

## 2.6. Maintenance Safety

| | |
|---|---|
| **CAUTION**  | **Damage to the instrument**<br>Do not use spray bottles containing alcohol or disinfectant to clean the surface of the Spin Air Basic instrument.<br>Do not use products containing alcohol or other corrosive solvents to clean the Spin Air Basic instrument. |
| **WARNING**  | **Risk of electric shock**<br>Do not open the panels on the instruments.<br>**Risk of personal injury and material damage**<br>Only perform maintenance that is specifically described in this Instructions for Use. |

## 2.7. Waste Disposal

Used consumables, such as sample dishes, may contain hazardous chemicals or infectious agents. Such waste must be collected and disposed of properly following local safety regulations.

For disposal of waste electrical and electronic equipment (WEEE) see “Appendix D: Waste Electrical and Electronic Equipment (WEEE)”.

## 2.8. Symbols on the Spin Air Basic Device

| Symbol | Location | Description |
|---|---|---|
|  | Type plate on the bottom of the device. | Waste Electrical and Electronic Equipment (WEEE), see “Appendix D: Waste Electrical and Electronic Equipment (WEEE)”. |
| CE | Type plate on the bottom of the device. | Appendix I: EU Declaration of Conformity. |

# 3. General Description

## 3.1. Device Overview

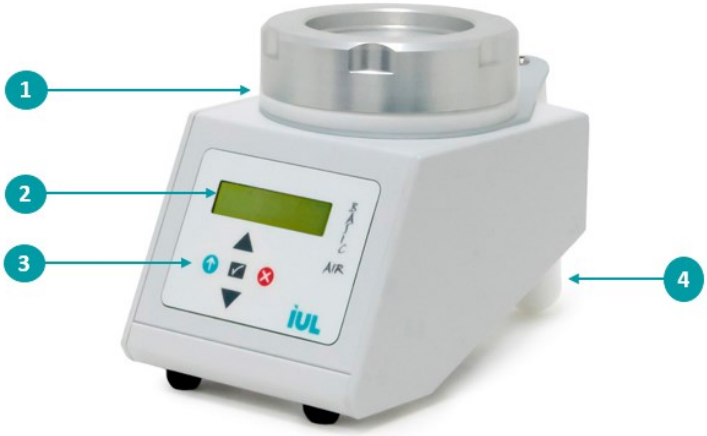
**FRONT VIEW:**

1.Head

2. Display

3. Keyboard

4. Holder and handler



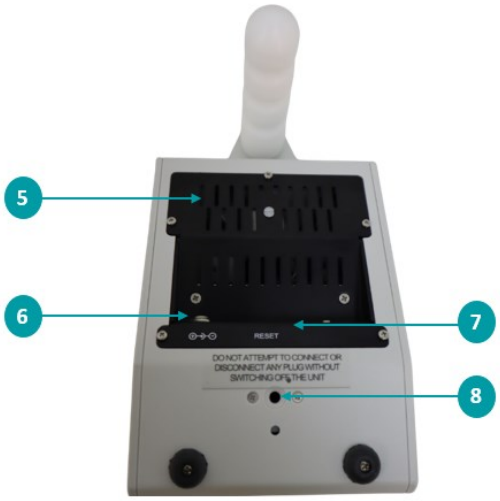

**BOTTOM VIEW:**

5. Air exhaust

6. Power supply connector

7. Reset buttonhole

8. Coupling tripod with base




See “Appendix A: Ordering Codes” for more information.

**NOTE: Use <u>only</u> the AC Adapter supplied by IUL SA to charge the Spin Air Basic.**

When the device shows a “blank screen” and it is not possible to switch on the device either start the charging process, do the following: Connect the charger, wait 10 seconds, and then push the “Reset” button. If the problem isn’t solved, contact your Technical Service.

## 3.2. Control Panel

| KEY | ACTION | > 3 sec | CONTINOUS |
|---|---|---|---|
|  | RUN a program | ON (if stopped) | _____ |
|  | STOP running a program<br><br>STEP BACK in any menu | Instrument SWITCH OFF | _____ |
|  | ONE STEP FORWARD.<br><br>With Barcode Scanner connected reads it | _____ | STEP UP quickly |
|  | Change Menu.<br><br>ACCEPT parameter. | CHANGE workflow | _____ |
|  | ONE STEP BACK | _____ | STEP DOWN quickly |

A sample process can be always interrupted by pushing . The icon showing the time on the left will start flashing. The interrupted process cannot be restarted. Pushing any key will return to the main menu.

## 3.3. Accessories of the Device

### 3.3.1. AC Adaptor

The AC Adaptor (Cat. 90001566) is included. It converts the Mains AC supply to a DC low voltage supply required by the Spin Air Basic.

### 3.3.2. Power Cord

The Spin Air Basic is equipped with a power cord with a plug suitable for the destination country. See “Appendix A: Ordering Codes” for details.

| | |
|---|---|
| **CAUTION**  | **Risk of malfunction or harmful interference**<br><br>Conformity to **2014/30/EU** and FCC rules could be compromised by the use of an AC adaptor or power cord not provided by IUL SA see “Appendix A: Ordering Codes” and “Appendix E: RoHS Statement”. |

| | |
|---|---|
| **WARNING**  | **Risk of electric shock**<br><br>In case of replacement or a loosing of the power cord, this must be replaced only with one of the power cords listed on the “Appendix A: Ordering Codes” delivered by IUL SA. |

# 4. Installation

## 4.1. Unpack the Device

The packaging of the Spin Air Basic can be stored for reuse.






## 4.2. Site Requirements

Place the Spin Air Basic device on a stable surface, far away from powerful lights and near an earthed/grounded electrical outlet. If a surface is not available, connect the Spin Air Basic to a tripod. See “Appendix A: Ordering Codes”.

For a long period of use, kept the Spin Air Basic device connected to the power supply.

## 4.3. Power Cable Connection

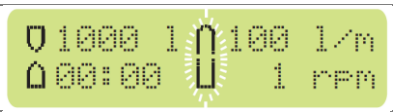
The socket for connecting the power cable is on the back of the Spin Air Basic device.

When the Spin Air Basic is not in use for a long period, we recommend disconnecting the power cable.

# 5. Operating Procedures

## 5.1. Charging Battery

The instrument works properly during the charging battery process. In this case, the display will show the normal parameters.

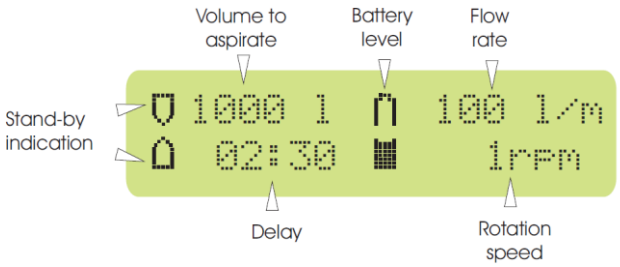
| | | |
|---|---|---|
| |  | Low battery indicator |
| |  | Connect power supply |
| |  | > 5 min |
| |  | Battery charged after 5 hours approx. |

## 5.2. Sampling

1. Switch on the instrument by pushing this button for more than 3 seconds. The software version will be shown:




In stand-by following display indications will be shown:




2. Select the parameters before running the program by pushing the arrow up, arrow down, and tick keys ( , and ):

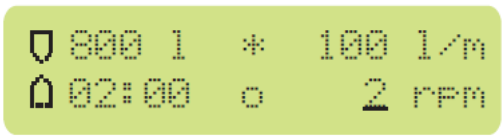
2.1 Adjust the volume (10 to 9900L).




2.2 Adjust the minutes of delay before starting the sampling (60 minutes divided in seconds).

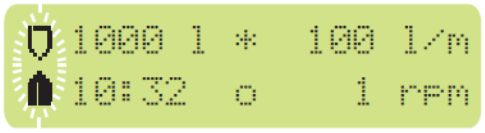



2.3 Adjust the rotation speed (0 to 4 rpm).

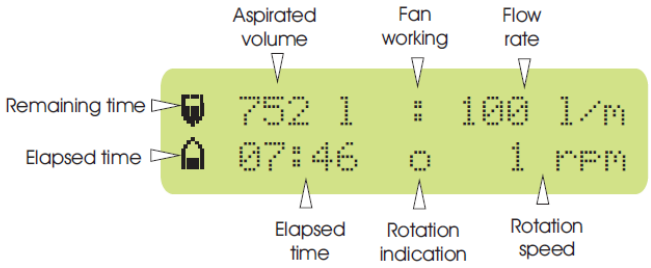



3. Run the program by pushing  :

The hourglass on the left screen will blink while the program is running:



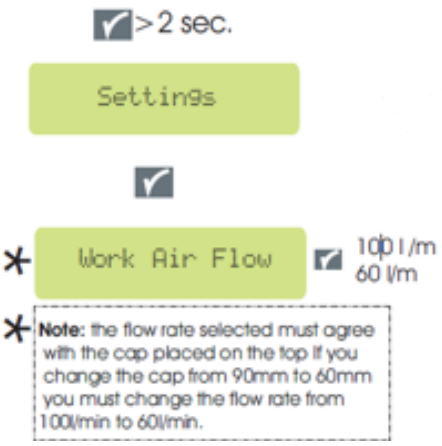

The remaining and the elapsed time will be indicated as is shown below:




4. Switch off the device by pushing the cross key  for more than 3 seconds. The device will be automatically switched off if it is not used for more than 5 minutes.

## 5.3. Advanced Menu

Push the tick key ( ) for more than 2 seconds to access the advanced menu:




To return one step back push the cross key .

# 6. Calibration

The instrument calibration is valid for 2 years or 1 million air liters. When the instrument reaches one of these situations it shows a message to every operation notifying about that.

The calibration must be performed by a trained operator, and it is compulsory to use an anemometer manufactured for this specific purpose. Contact your IUL distributor when calibration is needed.

# 7. Troubleshooting

| Symptom | Probable cause | Recommended action |
|---|---|---|
| The unit cannot turn ON. | Battery discharged. | Plug the power supply unit. Wait 5 seconds. If the battery icon doesn't appear then press the RESET button. |
| The unit switches off spontaneously. | The mains cord is unplugged and the battery getting too low. | Plug the mains supply and let the battery fully charge. |
| "Power flow Err" is displayed. | The Dish is obstructed / The battery voltage has dropped / No head. | Clean the Dish holes, dry them and place properly the Dish on the device / Check the charging process and if you believe a part is damaged or the battery is in bad condition contact your distributor or the Technical Service / Verify the installation of the head. |
| "Calibration Needed" is displayed. | The calibration is out of limits (2 years or 1 million liters). | Perform the calibration process. |
| "Battery Low" is displayed. | The battery is empty. | Plug the charger and wait about 4 hours. |

# 8. Maintenance

## 8.1. Cleaning Procedure

To clean the Spin Air Basic device use a damp brush or cloth moistened with a solution of hot water and soap. The stainless steel and aluminum heads can be autoclavable or clean with an alcohol solution (70%).

| | |
|---|---|
| **CAUTION**  | **Damage to the device.**<br>Do not sprinkle inside the device. |

# APPENDIX A: ORDERING CODES

## Spare Parts

| Product | Contents | Cat. # |
|---|---|---|
| Power cord (UK) | 1 unit | 90002497 |
| Power cord (Argentina) | 1 unit | 90002499 |
| Power cord (EU/Schuko) | 1 unit | 90002495 |
| Power cord (China/Australia) | 1 unit | 90002498 |
| Power cord (Japan/USA) | 1 unit | 90002496 |
| Adapter AC | 1 unit | 90001566 |

## Optional Accessories

| Product | Contents | Cat. # |
|---|---|---|
| Aluminium head and lid for 90 mm Petri dishes | 1 unit | 90005504 |
| Aluminium head and lid for 60 mm Petri dishes (RODAC) | 1 unit | 90005505 |
| Calibration kit with transport case | 1 unit | 900012093 |
| Tripod with base | 1 unit | 90005511 |

| Product | Contents | Cat. # |
|---|---|---|
| Plastic head and lid for 90 mm Petri dishes | 1 unit | 90005525 |
| Plastic head and lid for 60 mm Petri dishes (RODAC) | 1 unit | 90005526 |
| INOX head and lid for 90 mm Petri dishes | 1 unit | 90005527 |
| Tripod base | 1 unit | 900011099 |

# APPENDIX B: TECHNICAL DATA

IUL SA reserves the right to change specifications at any time.

## Specifications

| | |
|---|---|
| Airflow | 100 l/m (90 mm plate) |
| | 60 l/m (55-60 and Rodac plate) |
| | controlled by microprocessor |
| Air Total Volume | 10 – 9900 L |

The parameter of total air volume must be referred to sea-level pressure[1]

| | |
|---|---|
| Delay to start | 60 minutes, divided in seconds |
| Rotation speed | 0, 1, 2, 3 and 4 rpm |
| Tripod thread | At the bottom |
| IUL Switching adapter (90001566) | 100~240V AC 50/60 Hz to 12V DC 15W |
| Battery pack | Niquel Metal Hydride 7,2V |
| Range | 8 hours full charge |

## Operating Conditions

Power range 12V +/-3%.

(It is supplied with the IUL's external power supply unit that can be used in 100V-240V)

Frequency range D.C.

(It is supplied with an external power supply unit that can be used in 50Hz-60Hz)

Maximum power 18 W

[1] To operate the Spin Air at high altitude locations (>300 m), the desired volume at local pressure should be converted by decreasing a 1% of the volume for every 100 m of altitude.

| | |
|---|---|
| Overvoltage category | II |
| Air temperature | 10 ~ 40ºC (50ºF ~ 104ºF) |
| Relative humidity | 10 ~ 75 % (non-condensing) |
| Atmospheric Pressure | 1 atm ± 5% (101.3 kPa) |
| Place of operation | For indoor use only |
| Pollution level | 2 |
| Energy efficiency level | VI |

## Transportation Conditions

| | |
|---|---|
| Air temperature | 10 ~ 40ºC (50ºF ~ 104ºF) In manufacturer's packaging |
| Relative humidity | Maximum 75 % (non-condensing) |

## Storage Conditions

| | |
|---|---|
| Air temperature | 10 ~ 40ºC (50ºF ~ 104ºF) In manufacturer's packaging |
| Relative humidity | Maximum 75 % (non-condensing) |

## Dimensions and Weight

| | |
|---|---|
| Dimensions (WxHxD) | 145 x 190 x 215 mm / 5.71 x 7.48 x 8.46 in |
| Weight | Spin Air: 1.7 Kg / 3.75 lb<br>Carrying case: 2.24 Kg / 4.85 lb (empty) |

# APPENDIX C: WARRANTY

The IUL SA instrument has a 12-month warranty period.

The warranty is void when misuse of the equipment can be proved. Damage or faults caused by impacts, chemical or corrosive products, liquids, dampness, or other external factors, such as radiation, fire, or inadequate transport are not included.

In addition, the warranty will not apply if the equipment has been handled, repaired, or modified by unqualified or specifically designated personnel.

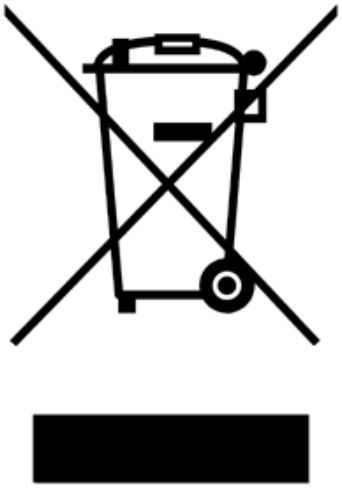
As part of this warranty, all shipping costs to the selected technical service are the responsibility of the Buyer.

# APPENDIX D: WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

This section provides information about the disposal of waste electrical and electronic equipment by users.

The crossed-out wheeled bin symbol (see below) indicates that this product must not be disposed of with other waste. The product must be disposed to a certified treatment facility or a recycling collection point, according to local legislation.

The separate collection and recycling of electronic waste equipment at the time of disposal helps conserve natural resources and ensures that the product is recycled, protecting human health and the environment.



## APPENDIX E: ROHS STATEMENT

The following information has been made available to comply with The Restriction of Hazardous Substances Directive, (RoHS2 & RoHS3), short for Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment.



# APPENDIX F: STATISTICAL CORRECTIONS WHEN SAMPLING WITHOUT DISK ROTATION

The principle of Spin Technology is mainly based on two features: the rotating Petri dish and the distribution of the holes. The rotating Petri dish feature provides a genuine count without the need to apply statistical corrections. This is because a motionless system only uses 5% of the total surface of the agar. The IUL's Spin Air has a unique rotation motion device combined with a distinctive distribution of the holes that covers 100% of the agar surface.

If the Spin Air is used **without rotation** (0 rpm) a correction of the result must be applied. This correction takes into account the probability that one microorganism travels across the same hole that a previous one. This correction that is not important for low counts becomes dramatically high when there are more than 150 CFU per plate.

The statistical treatment due to Feller (1950) says that the probable statistically total (Pr) can be calculated according to the number of holed (N) and the real count (r).

$$Pr = N \cdot [1/N + 1/(N-1) + 1/(N-2) + .. 1/(N – r + 1)]$$

Applying the previous formula to the Spin Air for 90 mm plate the probable total count (Tc) is when (C) is the real count.

$$Tc = 400 \cdot [1/400 + 1/399 + 1/398 + … + 1/(400 – C + 1)]$$

Up to 20 colonies, there is no difference between the motionless and the rotation system. At 50 counts you must add around 5%. At 70 the difference is 10%. If the count reaches 100 CFUs you must add 15% of the total count. This percentage reaches 25% at 150 counts and it's more than 100% at more than 300 counts.

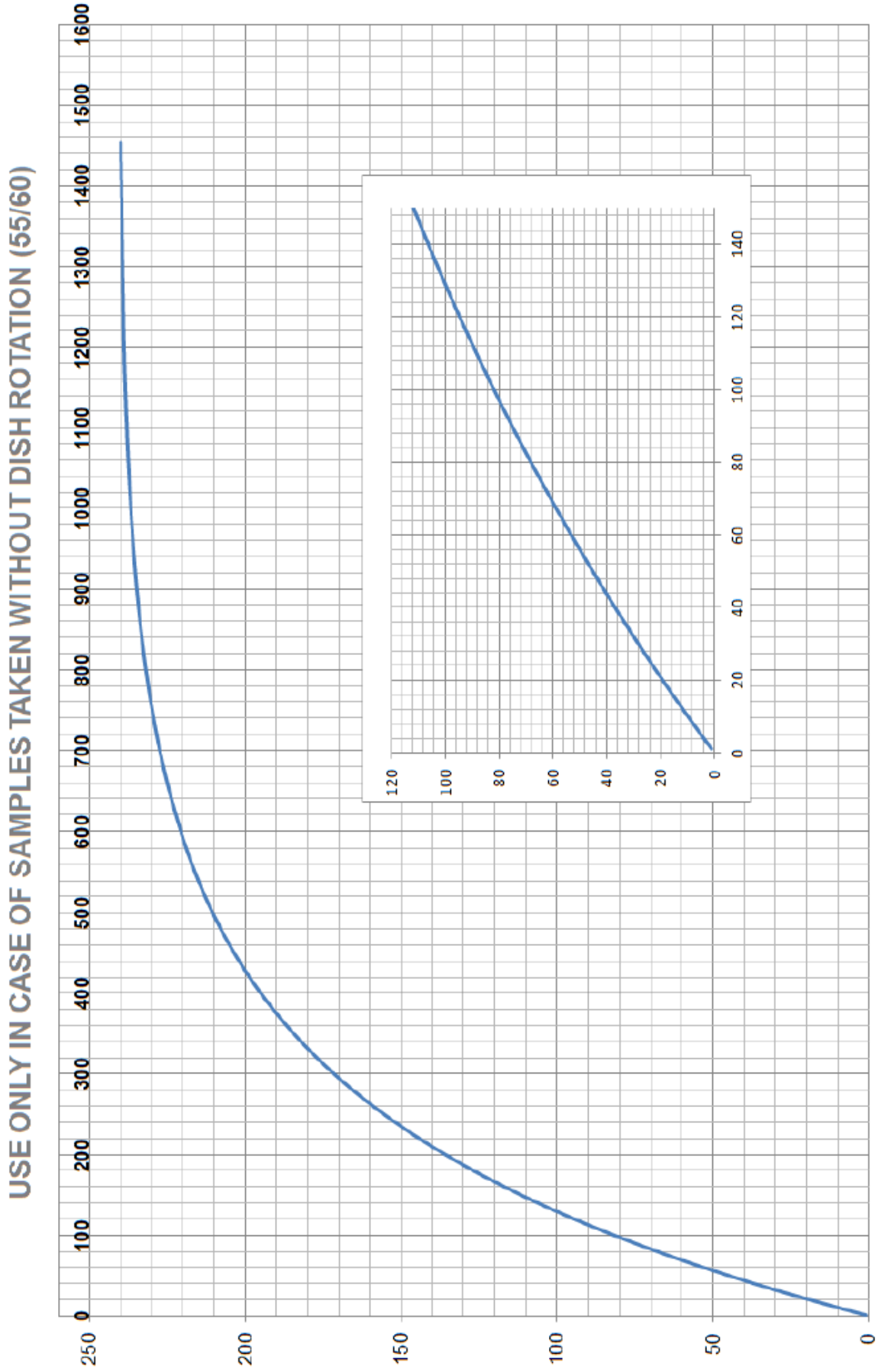
Using the **rotation motion** of the Spin Air all these calculations must be avoided.

# APPENDIX G: TABLE OF STATISTICAL CORRECTIONS FOR SAMPLING USING A 55/60 MM DISH

(USE ONLY IN CASE SAMPLES TAKEN WITHOUT ROTATION)

**Total number of holes: N = 240**
**Colony number counter: r**
**Colony number estimated: PR**

| r | Pr | r | Pr | r | Pr | r | Pr | r | Pr |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 51 | 57 | 101 | 131 | 151 | 237 | 201 | 434 |
| 2 | 2 | 52 | 58 | 102 | 132 | 152 | 240 | 202 | 440 |
| 3 | 3 | 53 | 60 | 103 | 134 | 153 | 243 | 203 | 446 |
| 4 | 4 | 54 | 61 | 104 | 136 | 154 | 245 | 204 | 452 |
| 5 | 5 | 55 | 62 | 105 | 138 | 155 | 248 | 205 | 459 |
| 6 | 6 | 56 | 64 | 106 | 139 | 156 | 251 | 206 | 466 |
| 7 | 7 | 57 | 65 | 107 | 141 | 157 | 254 | 207 | 473 |
| 8 | 8 | 58 | 66 | 108 | 143 | 158 | 257 | 208 | 480 |
| 9 | 9 | 59 | 68 | 109 | 145 | 159 | 260 | 209 | 488 |
| 10 | 10 | 60 | 69 | 110 | 147 | 160 | 263 | 210 | 496 |
| 11 | 11 | 61 | 70 | 111 | 149 | 161 | 266 | 211 | 504 |
| 12 | 12 | 62 | 72 | 112 | 150 | 162 | 269 | 212 | 512 |
| 13 | 13 | 63 | 73 | 113 | 152 | 163 | 272 | 213 | 520 |
| 14 | 14 | 64 | 74 | 114 | 154 | 164 | 275 | 214 | 529 |
| 15 | 15 | 65 | 76 | 115 | 156 | 165 | 278 | 215 | 539 |
| 16 | 17 | 66 | 77 | 116 | 158 | 166 | 281 | 216 | 548 |
| 17 | 18 | 67 | 78 | 117 | 160 | 167 | 285 | 217 | 558 |
| 18 | 19 | 68 | 80 | 118 | 162 | 168 | 288 | 218 | 569 |
| 19 | 20 | 69 | 81 | 119 | 164 | 169 | 291 | 219 | 579 |
| 20 | 21 | 70 | 83 | 120 | 166 | 170 | 295 | 220 | 591 |
| 21 | 22 | 71 | 84 | 121 | 168 | 171 | 298 | 221 | 603 |
| 22 | 23 | 72 | 85 | 122 | 170 | 172 | 301 | 222 | 616 |
| 23 | 24 | 73 | 87 | 123 | 172 | 173 | 305 | 223 | 629 |
| 24 | 25 | 74 | 88 | 124 | 174 | 174 | 309 | 224 | 643 |
| 25 | 26 | 75 | 90 | 125 | 176 | 175 | 312 | 225 | 658 |
| 26 | 27 | 76 | 91 | 126 | 178 | 176 | 316 | 226 | 674 |
| 27 | 29 | 77 | 93 | 127 | 180 | 177 | 320 | 227 | 691 |
| 28 | 30 | 78 | 94 | 128 | 182 | 178 | 323 | 228 | 710 |
| 29 | 31 | 79 | 96 | 129 | 184 | 179 | 327 | 229 | 730 |
| 30 | 32 | 80 | 97 | 130 | 187 | 180 | 331 | 230 | 751 |
| 31 | 33 | 81 | 99 | 131 | 189 | 181 | 335 | 231 | 775 |
| 32 | 34 | 82 | 100 | 132 | 191 | 182 | 339 | 232 | 802 |
| 33 | 35 | 83 | 102 | 133 | 193 | 183 | 343 | 233 | 832 |
| 34 | 37 | 84 | 103 | 134 | 195 | 184 | 348 | 234 | 866 |
| 35 | 38 | 85 | 105 | 135 | 198 | 185 | 352 | 235 | 906 |
| 36 | 39 | 86 | 106 | 136 | 200 | 186 | 356 | 236 | 954 |
| 37 | 40 | 87 | 108 | 137 | 202 | 187 | 361 | 237 | 1014 |
| 38 | 41 | 88 | 109 | 138 | 205 | 188 | 365 | 238 | 1094 |
| 39 | 42 | 89 | 111 | 139 | 207 | 189 | 370 | 239 | 1214 |
| 40 | 44 | 90 | 113 | 140 | 209 | 190 | 375 | 240 | 1454 |
| 41 | 45 | 91 | 114 | 141 | 212 | 191 | 379 | | |
| 42 | 46 | 92 | 116 | 142 | 214 | 192 | 384 | | |
| 43 | 47 | 93 | 117 | 143 | 217 | 193 | 389 | | |
| 44 | 48 | 94 | 119 | 144 | 219 | 194 | 394 | | |
| 45 | 50 | 95 | 121 | 145 | 222 | 195 | 400 | | |
| 46 | 51 | 96 | 122 | 146 | 224 | 196 | 405 | | |
| 47 | 52 | 97 | 124 | 147 | 227 | 197 | 410 | | |
| 48 | 53 | 98 | 126 | 148 | 229 | 198 | 416 | | |
| 49 | 55 | 99 | 127 | 149 | 232 | 199 | 422 | | |
| 50 | 56 | 100 | 129 | 150 | 235 | 200 | 428 | | |


USE ONLY IN CASE OF SAMPLES TAKEN WITHOUT DISH ROTATION (55/60)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
250
200
150
100
50
0
120
100
80
60
40
20
0
140
120
100
80
60
40
20
0

# APPENDIX H: TABLE OF STATISTICAL CORRECTIONS FOR SAMPLING USING A 90 MM DISH

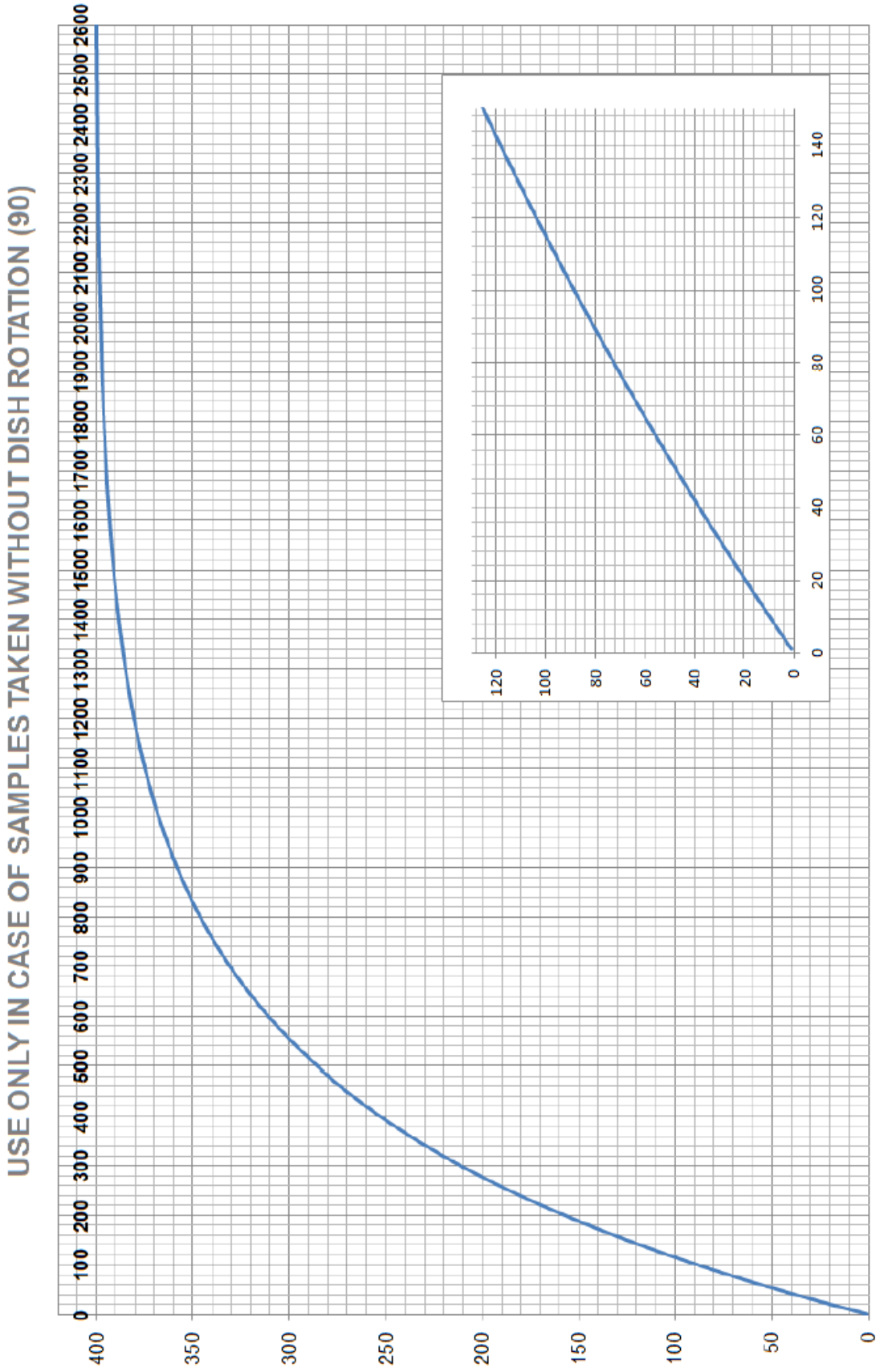
(USE ONLY IN CASE SAMPLES TAKEN WITHOUT DISH ROTATION)

Total number of holes: N = 400

Colony number counter: r

Colony number estimated: PR

| r | Pr | r | Pr | r | Pr | r | Pr | r | Pr | r | Pr | r | Pr | r | Pr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 51 | 54 | 101 | 116 | 151 | 189 | 201 | 279 | 251 | 394 | 301 | 557 | 351 | 836 |
| 2 | 2 | 52 | 56 | 102 | 118 | 152 | 191 | 202 | 281 | 252 | 397 | 302 | 561 | 352 | 844 |
| 3 | 3 | 53 | 57 | 103 | 119 | 153 | 193 | 203 | 283 | 253 | 400 | 303 | 565 | 353 | 853 |
| 4 | 4 | 54 | 58 | 104 | 120 | 154 | 194 | 204 | 285 | 254 | 402 | 304 | 569 | 354 | 861 |
| 5 | 5 | 55 | 59 | 105 | 122 | 155 | 196 | 205 | 287 | 255 | 405 | 305 | 573 | 355 | 870 |
| 6 | 6 | 56 | 60 | 106 | 123 | 156 | 197 | 206 | 289 | 256 | 408 | 306 | 578 | 356 | 879 |
| 7 | 7 | 57 | 61 | 107 | 124 | 157 | 199 | 207 | 291 | 257 | 411 | 307 | 582 | 357 | 888 |
| 8 | 8 | 58 | 63 | 108 | 126 | 158 | 201 | 208 | 293 | 258 | 413 | 308 | 586 | 358 | 897 |
| 9 | 9 | 59 | 64 | 109 | 127 | 159 | 202 | 209 | 295 | 259 | 416 | 309 | 591 | 359 | 907 |
| 10 | 10 | 60 | 65 | 110 | 128 | 160 | 204 | 210 | 297 | 260 | 419 | 310 | 595 | 360 | 917 |
| 11 | 11 | 61 | 66 | 111 | 130 | 161 | 206 | 211 | 299 | 261 | 422 | 311 | 599 | 361 | 927 |
| 12 | 12 | 62 | 67 | 112 | 131 | 162 | 207 | 212 | 301 | 262 | 425 | 312 | 604 | 362 | 937 |
| 13 | 13 | 63 | 68 | 113 | 133 | 163 | 209 | 213 | 304 | 263 | 428 | 313 | 608 | 363 | 947 |
| 14 | 14 | 64 | 70 | 114 | 134 | 164 | 211 | 214 | 306 | 264 | 431 | 314 | 613 | 364 | 958 |
| 15 | 15 | 65 | 71 | 115 | 135 | 165 | 212 | 215 | 308 | 265 | 433 | 315 | 618 | 365 | 969 |
| 16 | 16 | 66 | 72 | 116 | 137 | 166 | 214 | 216 | 310 | 266 | 436 | 316 | 622 | 366 | 981 |
| 17 | 17 | 67 | 73 | 117 | 138 | 167 | 216 | 217 | 312 | 267 | 439 | 317 | 627 | 367 | 992 |
| 18 | 18 | 68 | 74 | 118 | 140 | 168 | 218 | 218 | 314 | 268 | 442 | 318 | 632 | 368 | 1005 |
| 19 | 19 | 69 | 76 | 119 | 141 | 169 | 219 | 219 | 317 | 269 | 445 | 319 | 637 | 369 | 1017 |
| 20 | 20 | 70 | 77 | 120 | 142 | 170 | 221 | 220 | 319 | 270 | 449 | 320 | 642 | 370 | 1030 |
| 21 | 22 | 71 | 78 | 121 | 144 | 171 | 223 | 221 | 321 | 271 | 452 | 321 | 647 | 371 | 1043 |
| 22 | 23 | 72 | 79 | 122 | 145 | 172 | 224 | 222 | 323 | 272 | 455 | 322 | 652 | 372 | 1057 |
| 23 | 24 | 73 | 80 | 123 | 147 | 173 | 226 | 223 | 325 | 273 | 458 | 323 | 657 | 373 | 1071 |
| 24 | 25 | 74 | 82 | 124 | 148 | 174 | 228 | 224 | 328 | 274 | 461 | 324 | 662 | 374 | 1086 |
| 25 | 26 | 75 | 83 | 125 | 150 | 175 | 230 | 225 | 330 | 275 | 464 | 325 | 667 | 375 | 1102 |
| 26 | 27 | 76 | 84 | 126 | 151 | 176 | 232 | 226 | 332 | 276 | 467 | 326 | 673 | 376 | 1118 |
| 27 | 28 | 77 | 85 | 127 | 153 | 177 | 233 | 227 | 335 | 277 | 471 | 327 | 678 | 377 | 1134 |
| 28 | 29 | 78 | 87 | 128 | 154 | 178 | 235 | 228 | 337 | 278 | 474 | 328 | 684 | 378 | 1152 |
| 29 | 30 | 79 | 88 | 129 | 156 | 179 | 237 | 229 | 339 | 279 | 477 | 329 | 689 | 379 | 1170 |
| 30 | 31 | 80 | 89 | 130 | 157 | 180 | 239 | 230 | 342 | 280 | 480 | 330 | 695 | 380 | 1189 |
| 31 | 32 | 81 | 90 | 131 | 158 | 181 | 241 | 231 | 344 | 281 | 484 | 331 | 701 | 381 | 1209 |
| 32 | 33 | 82 | 92 | 132 | 160 | 182 | 242 | 232 | 346 | 282 | 487 | 332 | 706 | 382 | 1230 |
| 33 | 34 | 83 | 93 | 133 | 161 | 183 | 244 | 233 | 349 | 283 | 491 | 333 | 712 | 383 | 1252 |
| 34 | 35 | 84 | 94 | 134 | 163 | 184 | 246 | 234 | 351 | 284 | 494 | 334 | 718 | 384 | 1276 |
| 35 | 37 | 85 | 95 | 135 | 164 | 185 | 248 | 235 | 353 | 285 | 497 | 335 | 724 | 385 | 1301 |
| 36 | 38 | 86 | 97 | 136 | 166 | 186 | 250 | 236 | 356 | 286 | 501 | 336 | 730 | 386 | 1327 |
| 37 | 39 | 87 | 98 | 137 | 167 | 187 | 252 | 237 | 358 | 287 | 504 | 337 | 737 | 387 | 1356 |
| 38 | 40 | 88 | 99 | 138 | 169 | 188 | 254 | 238 | 361 | 288 | 508 | 338 | 743 | 388 | 1387 |
| 39 | 41 | 89 | 101 | 139 | 171 | 189 | 255 | 239 | 363 | 289 | 511 | 339 | 749 | 389 | 1420 |
| 40 | 42 | 90 | 102 | 140 | 172 | 190 | 257 | 240 | 366 | 290 | 515 | 340 | 756 | 390 | 1456 |
| 41 | 43 | 91 | 103 | 141 | 174 | 191 | 259 | 241 | 368 | 291 | 519 | 341 | 763 | 391 | 1496 |
| 42 | 44 | 92 | 104 | 142 | 175 | 192 | 261 | 242 | 371 | 292 | 522 | 342 | 769 | 392 | 1541 |
| 43 | 45 | 93 | 106 | 143 | 177 | 193 | 263 | 243 | 373 | 293 | 526 | 343 | 776 | 393 | 1591 |
| 44 | 47 | 94 | 107 | 144 | 178 | 194 | 265 | 244 | 376 | 294 | 530 | 344 | 783 | 394 | 1648 |
| 45 | 48 | 95 | 108 | 145 | 180 | 195 | 267 | 245 | 378 | 295 | 534 | 345 | 791 | 395 | 1715 |
| 46 | 49 | 96 | 110 | 146 | 181 | 196 | 269 | 246 | 381 | 296 | 537 | 346 | 798 | 396 | 1795 |
| 47 | 50 | 97 | 111 | 147 | 183 | 197 | 271 | 247 | 384 | 297 | 541 | 347 | 805 | 397 | 1895 |
| 48 | 51 | 98 | 112 | 148 | 185 | 198 | 273 | 248 | 386 | 298 | 545 | 348 | 813 | 398 | 2028 |
| 49 | 52 | 99 | 114 | 149 | 186 | 199 | 275 | 249 | 389 | 299 | 549 | 349 | 820 | 399 | 2228 |
| 50 | 53 | 100 | 115 | 150 | 188 | 200 | 277 | 250 | 391 | 300 | 553 | 350 | 828 | 400 | 2628 |


USE ONLY IN CASE OF SAMPLES TAKEN WITHOUT DISH ROTATION (90)
0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600
400 350 300 250 200 150 100 50 0
0 20 40 60 80 100 120 140
120 100 80 60 40 20 0

# APPENDIX I: EU DECLARATION OF CONFORMITY

**Manufacturer Name:**

IUL SA

**Manufacturer Address:**

Carrer de la Ciutat d'Asuncion, 4 08030 Barcelona Spain

**Declares that the product Name:**

Spin Air Basic

**Catalog Number:**

90005500

**Conforms the Council Directives:**

- Directive **2014/30/EU** of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast).
- Directive **2014/35/EU** of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits (recast).
- Directive **2011/65/EU** of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment and its amendments.

**Standards which Conformity is Declared:**

- **EN 61326-1:2013** Electrical equipment for measurement, control and laboratory use - EMC requirements -- Part 1: General requirements (IEC 61326-1:2012)
- **EN 61010-1:2010** Safety requirements for electrical equipment for measurement, control, and laboratory use -- Part 1: General requirements.

Barcelona, January the 23rd 2024

CE

Daniel Blanch / Director of Electronical Engineering

## APPENDIX J: CERTIFICATE OF COMPLIANCE EN 17141:2020

UK Health Security Agency

# Certificate of Compliance Testing

## Biological Efficiency Testing of the IUL Spin Air 100 and 60 Samplers Using Techniques Described in EN 17141:2020 Annex E, Section E6.2

Report No. 23/011

**Report Prepared For:** IUL Instruments

**Issue Date:** 10 January 2024

### Test Summary

Tests were undertaken using the simplified laboratory method (Annex E6.2) sampling environmental aerosols. Compared to the reference slit sampler the IUL Spin Air 100 was found to be 83.30% efficient and the Spin Air 60 was found to be 86.41% efficient. This shows compliance to acceptance criteria detailed in Annex E.6.4. Tests were also undertaken using a variation of the aerosol chamber method, comparing the ratio of the recoveries of mixed aerosol of *Staphylococcus epidermidis* and *Bacillus atrophaeus* spores. It was found that the compared to the reference sampler the Spin Air 100 was 91.73% efficient and the Spin Air 60 was 98.49% efficient.

**Report Written By**

**Name:** Mr Simon Parks

**Title:** Senior Biosafety Scientist

**Report Authorised By**

**Name:** Ms Helen Hookway

**Title:** Senior Biosafety Scientist

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## Notes

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