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INVENTING A BETTER FUTURE FOR YOU

iWash® Slide Cleaner -User Manual-

Version 4.4
July 2021

-Invented, Designed and Manufactured by Imrali Inventions Ltd in the UK-

For more information, demonstration videos, test results and E-User Manual
Please visit
www.imraliinventions.com

iCount
iWash®
iReCycle
• No more running out of plastic slides
• No more manual cleaning of re-useable slides
• Reduce the cost of cell counting by 95%
• Invented to make labs greener
• Less than 30 seconds to Wash&Dry a slide
• All in one, Plug&Play system
iWash
Slide Cleaner

! Please read this manual in detail before use, and retain for future reference !

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Thank you for purchasing the iWash® slide cleaner

Thank you and congratulations on purchasing the iWash® Slide Cleaner. This is a significant step towards a sustainable future for your laboratory. The iWash® is designed to significantly extend the lifetime of cell counter slides, reducing the consumable and disposal costs of performing cell counting studies. The benefits from your purchase will last for the lifetime of the device, helping you to make your research budget stretch further, improving the reliability of your analysis while reducing the environmental impact of your research. We hope that you enjoy the convenience and savings that the iWash® slide cleaning system will provide, and that your research continues and grows as a result.

Ahmet Imrali
Chief Inventor & CEO

1.0 Declaration of Conformity

EU Declaration of Conformity (DoC)

Product:	iWash™ Slide Cleaner and Slide Dryer units
Manufacturer:	Imrali inventions Ltd 620B Greenlane, Ilford Essex, London IG3 9SE
Telephone:	0044 7525849142

This declaration of conformity is issued under the sole responsibility of the manufacturer

Object of declaration	iWash™ Slide Washer (IWxxx) and Slide Dryer (IDxxx) units. XXX denotes the type of Slide Washer and Dryer units. WDxxx denotes iWash™ washer and dryer units provided together. IWxxx denotes iWash™ Slide Washer unit only. IDxxx denotes iWash™ Slide Dryer unit only.

The object of the declaration described above is in conformity with the relevant Union Harmonisation Legislation:

Low Voltage Directive	2006/95/EC	(until 19 April 2016)
	2014/35/EU	(from 20 April 2016)
EMC Directive	2014/30/EU	
RoHS Directive	2011/65/EU	(until 21 July 2019)
	2015/863/EU	(from 22 July 2019)

References to the relevant harmonised standards used or references to the other technical specifications in relation to which conformity declared:

IEC/EN 61010-1:2010+A1:2019	Safety requirements for electrical equipment for measurement, control, and laboratory use. Part 1: General requirements.
IEC/EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use. EMC requirements. Part 1: General requirements (Class B).

Additional information: None

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with all applicable Essential Requirements of the Directives. The Technical Construction File required by this Directive is maintained at company headquarters of Imrali inventions Ltd., 620B Greenlane, Ilford, Essex, London, IG3 9SE.

Signed for and on behalf of: **Imrali inventions Ltd**
Name: **Ahmet Imrali**
Position: **CEO & Chief inventor**
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Telephone: **07525849142**

Place of issue: **United Kingdom**
Date of issue: **01/07/2019**

1.1: Packing List

Part Description	Image
Washer Unit	
Dryer Unit	
Concentrated Wash Solution (part number WFC 100)	
Concentrated Silicone Defoamer Solution (part number SDF 100)	
Plastic Waste Liquid Reservoir (part number IW Bottles)	

Plastic Wash Liquid Reservoir (part number IW Bottles)	
Universal power supply	
Slide Storage Pouch (pack of 5)	

Four types of safety alerts may appear in this manual to highlight potential hazards. Each alert word —**IMPORTANT, CAUTION, WARNING, DANGER**— implies a particular level of observation or action, as defined below:

IMPORTANT! – Provides information that is necessary for proper instrument operation, accurate installation, or safe use of a chemical.

CAUTION! – Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

WARNING! – Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

DANGER! – Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

Except for **IMPORTANT!** safety alerts, each safety alert word in this manual appears with an open triangle figure that contains a hazard symbol.

If the equipment is used in a manner not specified by this manufacturer's manual, the protection provided by the equipment may be impaired and the warranty may be invalidated. Only use accessories that are provided by or approved by Imrali inventions Ltd

1.2: Safety Instructions ⚠ **WARNING!** Do not install the instrument in high humidity environments such as a greenhouse or an incubator to avoid the danger of electric shock. If water or another material enters the instrument, the adaptor, or power inlet, disconnect the power cord and contact a service person. For operating environment, refer to "Environmental Conditions" (1.3.1 page 8).

1.2.1: Electrical Safety

⚠ **WARNING!**

- Do not touch the mains plug or power cord with wet hands. Always ensure that the power supply input voltage matches the voltage available in your location.
- Do not install the instrument in heavy humidity such as a greenhouse or an incubator to avoid a danger of electric shock. If water or other material enters the power adaptor, disconnect the power cord and contact a service person. For operating environment, refer to "Environmental Conditions" (1.3.1 page 8).
- Use only the provided power supply unit (PSU) specific for the washer.
- Plug the power cord firmly into the wall outlet and AC adapter.
- To avoid potential shock hazard, make sure that the power cord is properly grounded.
- Be sure to position the equipment such that it is easy to disconnect the instrument.
- Turn off the instrument before unplugging the power cord and/or moving the instrument.

1.2.2: Emergency Switch Off

⚠ **WARNING!**

- If the instrument is damaged, disconnect the power cord and contact a service person. **Do not attempt to disassemble the instrument.**
- If the instrument emits smoke, disconnect the power cord from the wall outlet and contact a service person.

1.2.3: Intended Use

⚠ **CAUTION!**

- Indoor use only. Do not install the instrument on a slant or a place prone to vibrations; this increases the risk of instrument malfunction or damage.
- The iWash® slide cleaner is designed to clean plastic slides compatible with the Nexcelom® cell counters, the Biorad TC20®, Invitrogen Countess II®, NanoEntek's Eve® and Arthur®, Logos Biosystems Luna®, Luna II® and Luna® Fluorescent Cell Counters, Olympus R1® cell counters and other common brands…
- For research use only. Not intended for any animal or human therapeutic or diagnostic use.

1.2.4: Chemical Hazards Warning

⚠ **CAUTION!**

- Before handling any chemicals, refer to the Safety Data Sheets (SDS) which can be downloaded from the manufacturer's website https://www.imraliinvention.com and observe all relevant precautions.
- Minimize contact with chemicals. Wear appropriate personal protective equipment when handling chemicals (for example, safety glasses, gloves, and protective clothing: Lab coat etc.).
- Comply with all local, state/provincial, or national laws and regulations related to chemical storage, handling and disposal.

1.3: Product Specifications

1.3.1: Environmental Conditions

Operating Power:	100–240 VAC, 1.5 A
Frequency:	50/60 Hz
Electrical input:	12 VDC, 3.0 A
Installation site:	Indoor use only
Operating Temperature:	10–35°C
Maximum Relative Humidity:	20–80%
Altitude:	<2,000 m
Transient Category:	Installation categories II
Pollution Degree:	2
Degree of Protection:	IPX0

1.3.2: Wash Unit Specifications

Instrument Type:	Benchtop Slide Washer
Washing Time:	10 seconds
Instrument Dimensions:	23cm (w) × 28 cm (L) × 21 cm (h)
Weight:	2 kg (dry)
Buzzer sound:	<60dB

1.3.3: Dryer Unit Specifications

Instrument Type:	Benchtop Slide Dryer
Drying Time:	5-10 seconds
Power Consumption:	12V 1A power consumption
Air Pump Specification:	12L/min airflow diagram pump
Instrument Dimensions:	6cm (w) x 16cm (L) x 16cm (h)
Weight:	0.4kg (dry)

1.3.4: Dimensions and weights (Boxed/Unboxed)

Shipment box dimensions:	28cm (w) x 25cm (d) x 29cm (h)
Shipment box weight:	3.3kg
Washer and Dryer combined dimensions:	29cm (w) x 28cm (d) x 21cm (h)
Washer and Dryer combined weight:	2.4kg

1.3.5: Unit safety

iWash® unit and power supply unit are CE marked to the specifications detailed on page 4 of this manual.

- Unit contains no sharp parts or pinch points.
- No flammable liquids or pressurized vessels.
- Possesses no risk of injury under the use of normal circumstances as described in this manual.

To troubleshoot problems with iWash® Slide Cleaner, refer to the Troubleshooting section 10. Do not attempt to perform any repairs or service on the iWash® instrument by yourself or without any approved engineer by imrali inventions Ltd as this may invalidate your warranty.

1.4: Summary of Parts

The iWash® slide cleaner is an easy-to-use, service-free cell counter slide cleaning device.

Note: For effective and quick cleaning of the slides, it is recommended that slides are cleaned immediately or within 5-10 minutes of use. Do not allow cell samples to dry within the slide cavity.

CAUTION!

Please wear appropriate personal protective equipment whilst operating the iWash® at all times.

Washing Unit

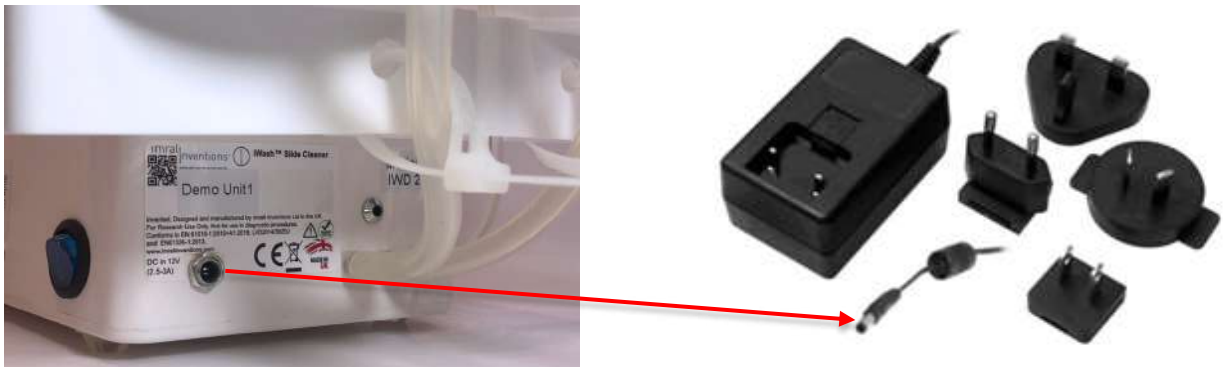
Drying Unit

2. Getting Started:

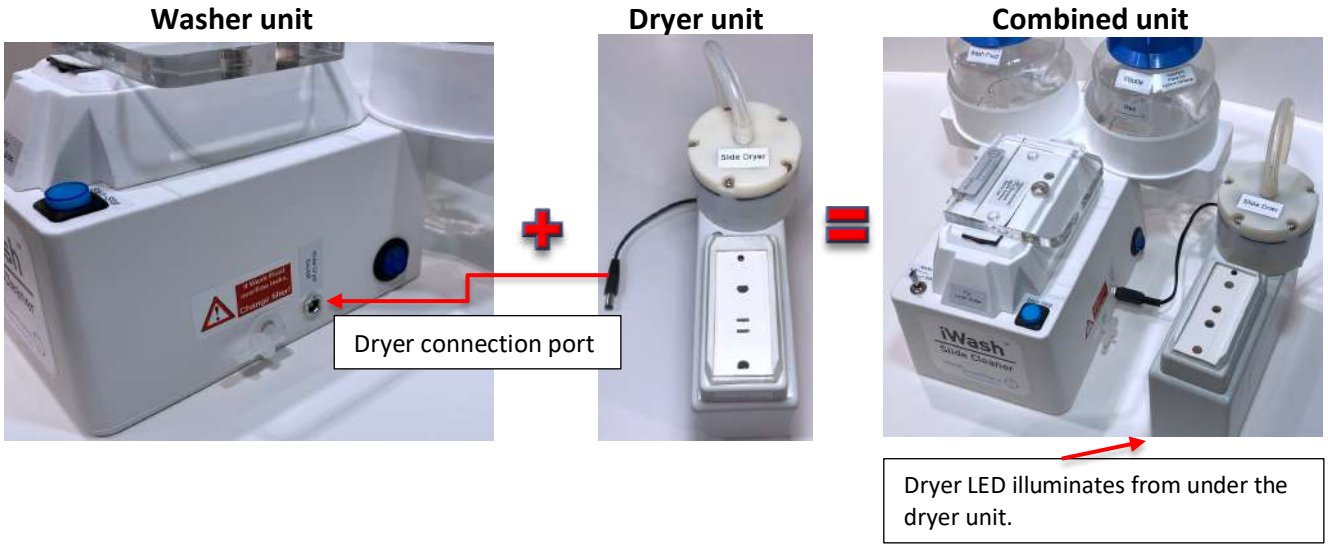
2.1 Setting up the washer:

2.1.1 Remove all external packaging and check the components against the packing list (Section 1.1)

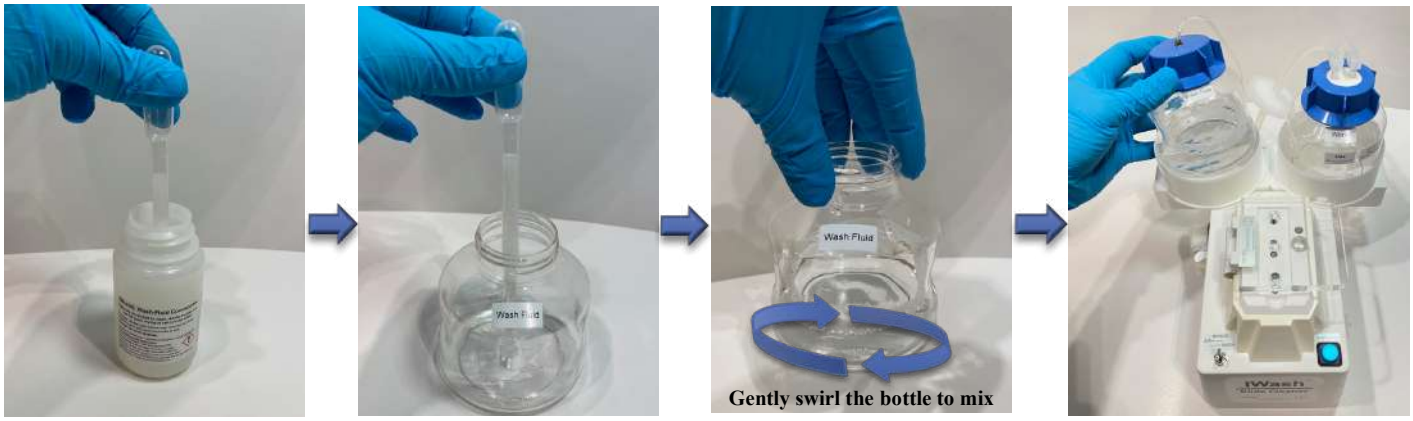
2.1.2 Plug the iWash® power cable into the socket port located at the back of the washer and then, plug the power source unit (PSU) to the wall socket. Make sure to attach the correct adaptor to PSU for the country specific wall socket.



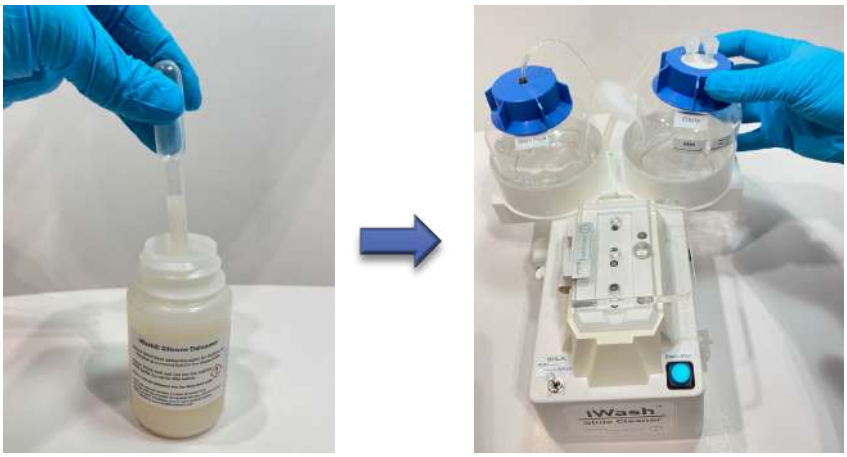
2.1.3 If the unit is purchased with the dryer, connect the dryer unit via the cable into the dryer unit connection socket. Switch power switch to “ON” position; the ON/OFF switch, and the LED on dryer unit will illuminate.



2.1.4 Make up the wash solution by pipetting 2mL of the iWash® wash-fluid concentrate into the wash solution reservoir, then add approx. 200ml of distilled water and swirl to mix. Use the volumetric markings on the bottle for ease. Screw on cap and place in the left hand side of the white bottle holder.



2.1.5 Pipette 2mL of silicone defoamer solution into the waste bottle and place in the right hand side of the white holder. Then gently screw on the waste bottle lid (lid with two pipes attached) until it is closed. Do not tighten the lid too hard. Closing the lid just when it stops turning is enough.



2.2 Priming the Washer for the first use:

2.2.1 Open the lid and place a new or used slide with the chamber side down onto the silicon surface of the slide loader. **The holes on the slide should face downwards onto the silicon surface**. Make sure the slide is flush within the chamber. If it is not flush, the system will not operate.

2.2.2 Close the lid and push the manual operation toggle switch right, keeping it pushed for about 20 seconds in order to draw wash fluid through the system (image 2.7.1) until the foamed wash fluid begins to collect in the waste bottle (image 2.7.3). Alternatively, pressing the Auto wash button (image 2.7.2) to initiate and run 3 consecutive wash cycles, will allow wash fluid to fill in the internal pipes of the washer in order to prime it.

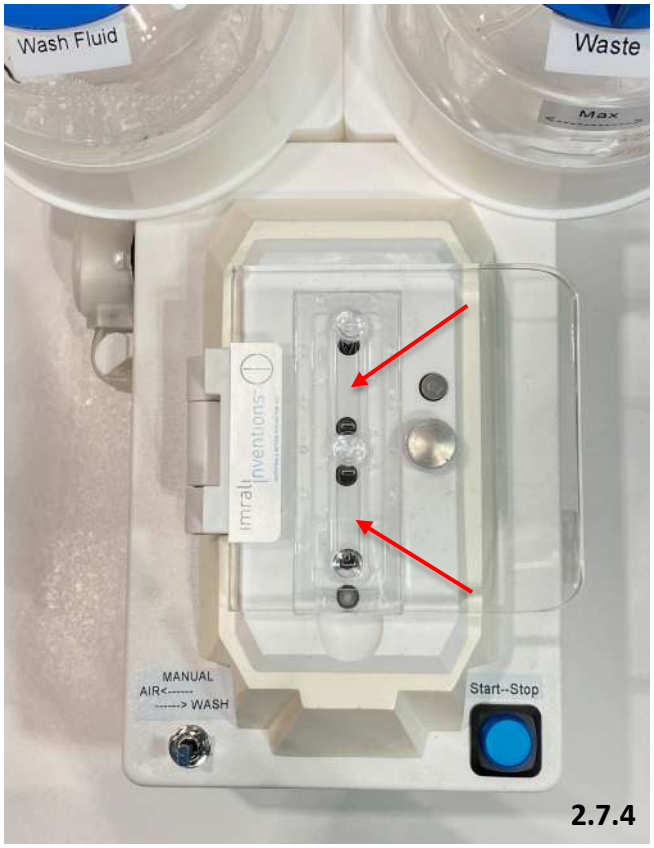
2.7.1

2.7.2

2.7.3

Waste bottle reservoir. The foamed wash fluid is collected in this bottle.

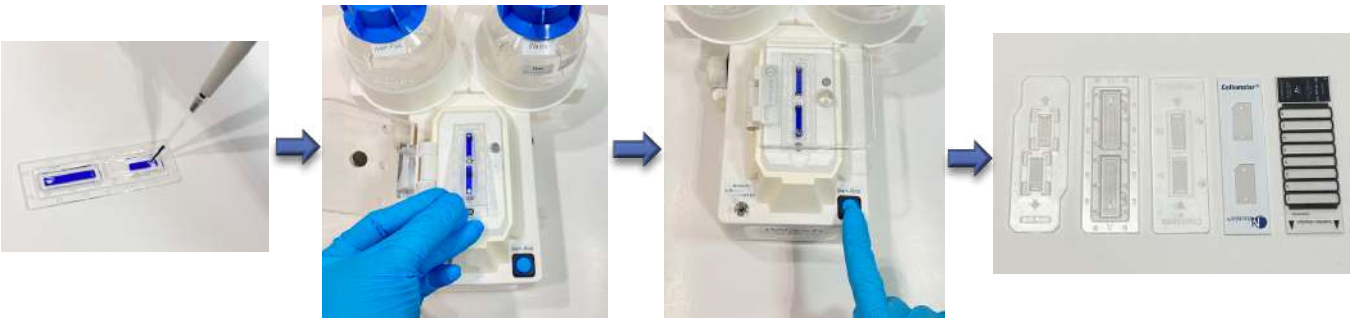
Slides can only be effectively cleaned when the wash fluid is being injected and travels through the slide's internal chambers. Make sure this is observed during the end of the priming step and each time the slide is being washed (image 2.7.4).



2.7.4

Top view of washer with a slide present in the slide loading chamber and the lid is in closed position. The arrows indicate the slide's chambers where the flow of wash fluid should be observed at the end of the priming step also during every slide washing cycle.

2.3 Testing the washer after first set up (optional):



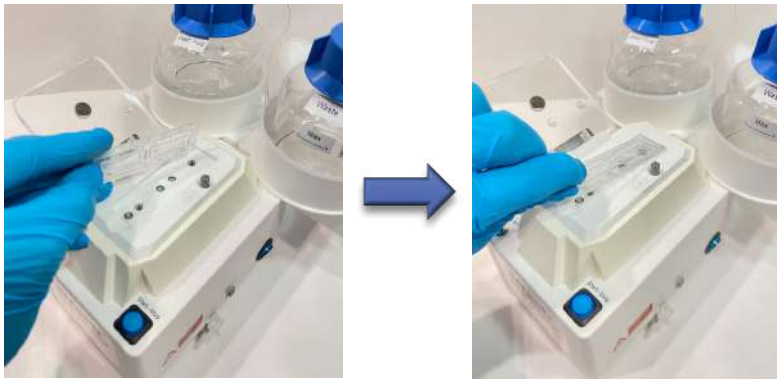
2.3.1 Load the required amount of trypan blue or your staining dye, normally 10-20µL (depending on your cell counter manufacturer's recommendations) into the slide chamber, and perform a full wash cycle by placing the slide, with the front face down, onto the silicon surface of the slide loader. **The holes on the slide should face downwards onto the silicon surface**. Make sure the slide is flush within the chamber. If it is not flush, the system will not operate. Gently close the lid. Then press the illuminated dual action button once to initiate the automatic wash cycle. During the washing step, you should be able to observe that wash fluid is periodically injected and travels through the slide's chambers.

2.3.2 Wait for the beep sound which indicates the end of the wash cycle (about 10 seconds after the initiation of the wash cycle). Open the lid and remove the slide and dry the slide either leaving at room temperature overnight or using the dryer unit as in section 4. Visually check to ensure the slide is dry and there is no wash fluid left on the slide. This will confirm the system is correctly set up and ready for use.

3. Using the iWash® Washer module:

3.1: iWash® Washing Module Operating Procedure (Automatic mode):

3.1.1. Place a new or used slide with the front (sample loading side) facing down onto the silicon surface of the slide loader. **Important: The holes on the slide should face downwards onto the silicon surface. Make sure the slide sits flush within the chamber.**



3.1.2 Close the lid - which will close firmly with the help of built in magnets, causing the lid to push down the slide onto the silicone bed.

3.1.3 The light of the dual action 'START/STOP and 'SLIDE EJECTION' button will illuminate to indicate the presence of a slide in the silicone slide loader when the lid is securely closed.

3.1.4 Press and release the dual action ‘‘START/STOP and ‘SLIDE EJECTION’ button to start the wash cycle.

Note: Pressing the dual action button again, during the wash cycle, will terminate the wash cycle. Also opening the lid during wash cycle will immediately stop the washer. Once the washer is stopped for the above reasons, the wash cycle re-sets itself and starts from the beginning when started again.

3.1.5 The iWash® will begin the wash cycle. Wait for an audible beep, then open the lid and remove the slide by using the fingernail groove or by pressing the dual action START/STOP or Release button.

Note: When the lid is open and the illuminated START/STOP button turns off, the same button now (when pressed and kept in the pressed position) activates the slide lift-up pin, which lifts the slide upwards from the slide loader and makes it easier to remove the slide.

CAUTION! Do not attempt to run the device by over-riding the interlock switches and not having any slides in the slide loader. Any attempt to do this will result in clean wash fluid escaping from the wash fluid overflow pipe located on the right side of the iWash®. This may also cause a potential squirting of clean wash fluid to the operator.

3.2: Manual Washer Operating Procedure:

The iWash® is pre-programmed with an optimised washing protocol. If desired, slides may also be washed manually by using the manual operation toggle switch (image 3.2.1).

3.2.1 Place a new or used slide rough side down onto the silicon surface of the slide loader. The holes on the slide should face downwards onto the silicon surface. Make sure the slide is flush within the chamber and close the lid.

3.2.2. Use the manual operation toggle switch (image 3.2.1) to perform the desired clean; pushing the toggle switch right will apply air and wash fluid simultaneously. Pushing the toggle switch left applies air alone to remove excess wash fluid from the slide chambers.

3.2.1

4. Using the Dryer Module:

After washing the slides, the washed slides may be left at room temperature to air dry overnight. If you wish to do this, please place in a cabinet or locate where there is little air movement. If placed in an open lab, the cleaned slides may accumulate dust and dirt particles present in the air.

When the iWash® Washer module is used in combination with the Dryer unit, slides can be dried in less than 10 seconds ready for immediate reuse.

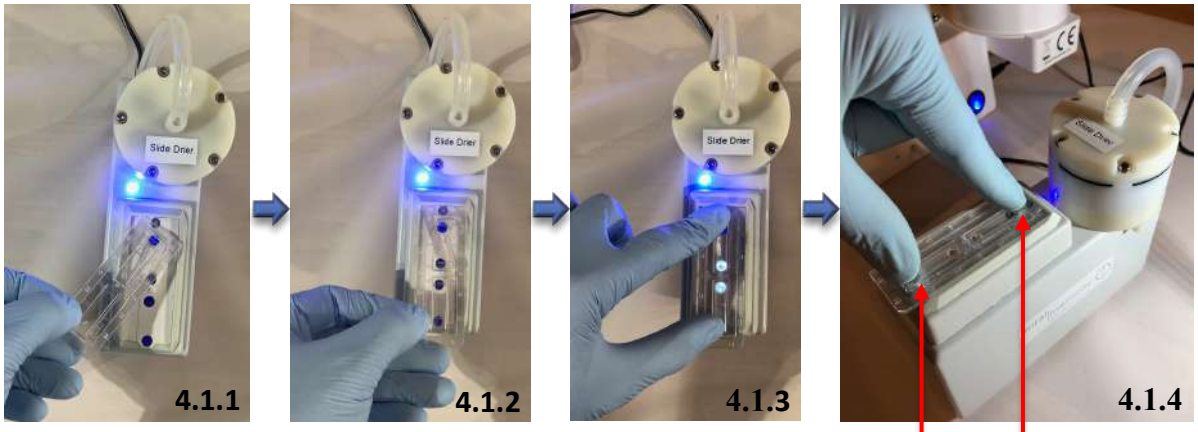
4.1 : Dryer Operating Procedure:

4.1.1 Place the washed slide rough side down (the holes on the slide facing towards the silicon slide bed) onto the silicon chamber of the slide dryer (images 4.1.1 to 4.1.3).

4.1.2 Press the slide down simultaneously at both ends to activate the dryer (image 4.1.4). This will be accompanied by an audible noise of the dryer's air pump being activated. Keep the slide pressed down for about 10 seconds to dry.

Note: Pressing the slide down for a few seconds, then releasing and repeating this a few times, can improve slide drying and shorten the drying time.

4.1.3 Remove excessive moisture from the external surface of the slide by wiping with a lint free tissue or simply wipe through a gloved hand.

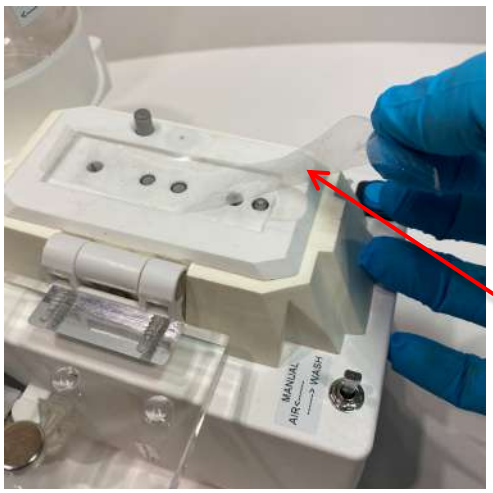


Press slide down at these two edges to activate the dryer and keep the slide pressed for 5-10 seconds.

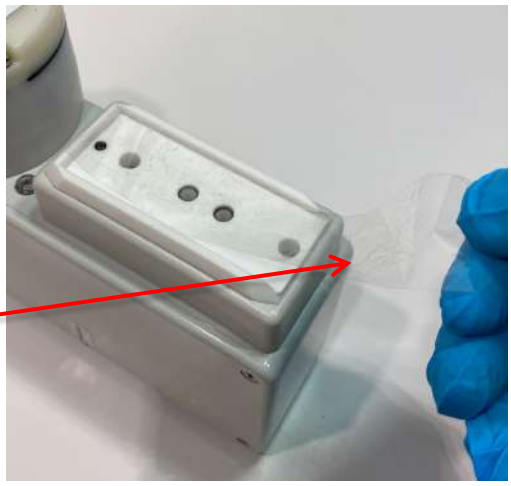
5. Cleaning, Maintenance and Decontamination:

The iWash® Slide Cleaner does not need regular maintenance. If the unit is not going to be used for more than two weeks, the wash solution needs to be removed from the tubing. See Section 7 for detailed instructions.

The silicon base of the slide loader and dryer may accumulate airborne dust and dirt particles over time. Occasionally removing the dust and dirt is the only maintenance required. Place a piece of standard sticky tape over the silicon bed and smooth down. Remove gently, and repeat if required.



Sticky tape



5.1 Cleaning the body of the washer:

5.1.1. Clean the surface of the iWash® instrument with a damp cloth. Do not use any bleaching agents, pure alcohol or cleaning agents as this may cause discolouration of the outer surfaces. Before cleaning, turn off the instrument, disconnect the power cable, and clean the outside body with a soft, lightly water-moistened cloth.

5.1.2. If any of the iWash® components require general cleaning because of spillage, apply a small amount of the dilute iWash® wash solution to a lint free tissue and wipe the affected area.

5.2 Decontaminating the iWash® unit for transport or shipping:

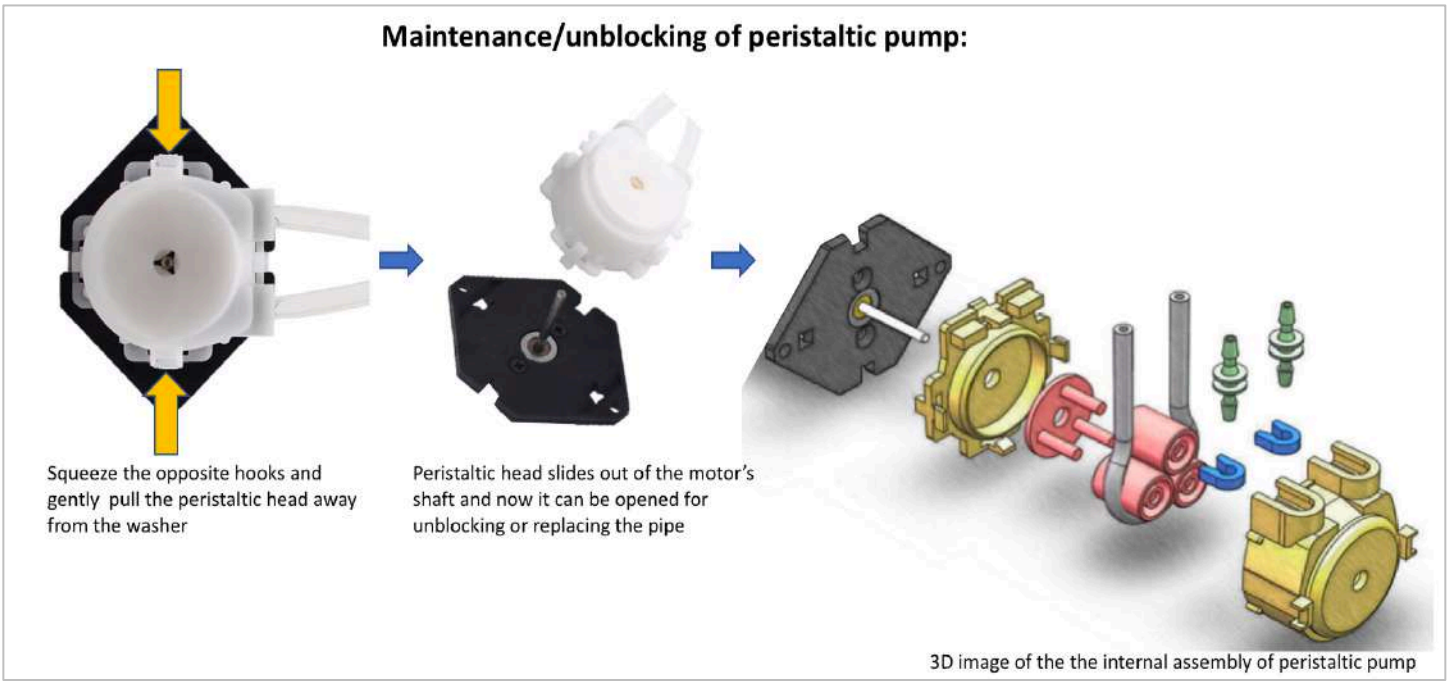
5.2.1 For decontamination before shipment and/or transport: The iWash® surfaces may be cleaned with 70% ethanol, aqueous detergents, and acid/base viricide (such as Virkon) solutions. Make sure to wipe with deionised water or 70% Ethanol after using these cleaning solutions to completely remove any corrosive decontaminants from the surface of the instrument.

5.2.2 If in doubt, please contact your local distributor. If any components need to be returned to your supplier, please contact them directly for a decontamination declaration.

5.3 Maintenance and unblocking of the peristaltic pump head:

5.3.1 If any unlikely circumstance of peristaltic pump's head gets blocked or requires a replacement of internal pipes: The following instructions can be followed:

The head of the peristaltic pump is located on the left back side of the washer's body. This head is attached to specially designed pipe bender and protector body and it needs to be detached from it before any maintenance is carried out.



6. Recovering Old and Dried Slides:

Old and dried-up slides cannot be cleaned with the iWash washing protocol (in section 3) alone. The slide recovery solution (Cat # SRS10) has been developed to recover old slides and effectively remove the dry-fixed cells from these slides.

6.1 To recover old and dried slides:

6.1.1 Place enough volume of cell recovery solution (10-20μl depending on the volumetric capacity of the slide chamber) into the chambers of the slide and incubate at room temperature for 5 minutes.

6.1.2 Then wash the slide in the iWash® module (section 3) twice to make sure all contaminants and slide recovery solution is removed. The slide will be as new again.

Note: Highly contaminated slides may require two treatments with the slide recovery solution.

7. Not using the iWash® periodically / Preparing iWash® for Long term storage:

If the washer is not going to be used for longer than two weeks or if it will be stored for long term, it is necessary to remove the wash fluid and rinse the internal pipes with distilled water to remove any residues of wash fluid from the system.

> ⚠ **IMPORTANT: Not following this step may cause a blockage of the peristaltic pump's head as a result of wash fluid being left to dry inside the unit and this will require manual unblocking of the peristaltic pump by opening the peristaltic pump's head and removing the rollers to unblock the internal pipe and then reassembling the rollers and closing the pump's head.**

7.1 Remove the lid of the wash fluid bottle and put the wash bottle away from the washer. **Do not remove the waste bottle yet.**

7.2 Place a slide (used/new) in to the slide loader, as if it was going to be washed, and close the lid.

7.3 Use the manual operation toggle switch and press it to the right side where both air and wash fluid is applied to the slide. Keep it pressed for at least 30 seconds to drain all of the wash fluid from the internal pipes of the system.

7.4 Place the wash fluid pipe, which is connected to the wash fluid bottle lid, into a small beaker containing about 20 ml of distilled water.

7.5 Using the manual toggle switch again, press to the right to activate the wash and keep it pressed until all distilled water (20ml) has been removed from the beaker. This will rinse the internal pipes with distilled water.

7.6 When all distilled water is removed, keep the toggle switch pressed right for at least 30 seconds to drain all distilled water from the internal pipes of the system.

7.7 Release the toggle switch, remove the slide, remove and empty the waste bottle, as well as the wash fluid bottle and rinse both bottles with distilled water to remove any residues and drain the bottles upside down on a paper cloth.

7.8 The system is now rinsed, drained and ready to be stored long term.

8. TIPS

8.1 Tips for maintaining the cleaned slides:

8.1.1 After drying, a small amount of wash fluid may remain on the surface of the slide. Remove this moisture by wiping the slide gently with lint free tissue. Do not wipe the slide with a paper towel, as this may deposit microscopic fibres in the sample inlet holes. This may cause contamination of subsequent samples.

8.1.2 The optical properties of a slide are crucial to the accuracy of each measurement. It is therefore important to handle slides carefully to prevent scratches or bending, altering the refractive index of the slide. Keeping the outside of the slide clean is the responsibility of the user. After each wash, place the slide in the slide pouch supplied to prevent dust accumulation or possible scratching of the slide.

8.2 Important recommendations for best cell counting practice:

These recommendations are for getting the best out of your iWash® slide cleaner as well as improving the accuracy of your cell counting.

8.2.1 Always use filtered trypan blue dye when counting the cells and make sure cells are thoroughly mixed before loading into the slide.

8.2.2 After loading the slide with cell solution, read the slide within 5 minutes before evaporation occurs in the chambers, causing volume change,~~change~~ leading to possible inaccurate cell counts.

8.2.3 Wash slides immediately after the cell count or within 5 minutes, before the slides start to dry.

8.2.4 If the slide cannot be washed straight away after the cell count, it is recommended that the slide is stored in a separate beaker containing wash fluid, to keep the slides wet until they can be put through the wash cycle.

8.3 Correct setup of your automated cell counter:

This step is recommended in order to improve your cell counting efficiency, by reducing the detection of false positive dead cells by your cell counter.

Most cells have a diameter between 10-50µM. Small dirt particles or debris are generally smaller than 10µm in size and those particles can be detected as dead cells by the cell counter, if the correct detection range for the cell size is not set properly. Setting up the cell counter to omit particles smaller than 5µm, will improve the cell counting by excluding those small particles from the count as false positive dead cells. This is also recommended by a number of automated cell counter manufacturers for improving the cell counting accuracy.

8.4 Manual washing of slides:

Manual washing of slides under a running tap is not recommended at all as this is a highly inefficient way of removing the cells from the slides. iWash® is specifically designed and developed to ensure the complete removal of waste material from the slides. Our proprietary wash fluid solution is also designed to recondition and replace the internal coating of the used slides and make them like new again. Slides washed under the tap are rendered useless as they lose their internal coating which makes it impossible to re-load those slides again as well as causing uneven cell distribution in the chambers resulting in inaccurate cell counts.

8.5 Preparing wash fluid:

Wash fluid needs to be clean and free of contaminants such as dust or bacterial and fungal spores. Therefore it needs to be prepared with distilled water and not using tap water or any other water. If any contamination is observed in the wash fluid, please refer to the troubleshooting section (page 21) to solve this.

8.6 Time limitations to wash slides:

It is recommended that slides are washed immediately after use or within 5 minutes whist the cell solution is still wet inside the slides. If the slides cannot be washed straight away or if a bulk of slides are desired to be washed at the end of the day or at the end of a specific time, the used slides can be stored in a separate beaker with wash fluid in order to prevent the slide's internal chambers from drying. Make sure the wash fluid covers the entire surface of the slide until it is time to wash. For used and dried slides, it is possible to recover by using the slide recovery solution (see section 6).

8.7 Incorrect preparation of wash solution:

Incorrect preparation of the wash fluid solution will result in unsatisfactory cleaning of the slides. The recommended dilution of wash solution concentrate is 2mL added to 200 mL distilled water (or 1/100). If this ratio is too low, after the wash, you may experience difficulty in loading your washed slide with a cell solution such as ununiform fill of the chamber with possible voids being present in the cavity after loading.

Having the wash fluid concentration too high (greater than 2 mL per 200 mL distilled water) may result in excessive foam formation in the waste bottle. Also, washed slides when loaded with cell solution might exhibit small bubble formations from the inside edges of the chambers. If this is observed, reduce the wash fluid concentration from using 2ml to 1.5ml of wash fluid concentrate per 200ml of distilled water.

8.8 Waste bottle:

Do not let the waste bottle fill above the maximum fill level indicated on the bottle (or more than 250ml mark level) and do not operate the iWash® without placing silicone defoamer in the waste bottle. Excess fluid or foam in the waste bottle will be sucked into the system and this will result in blocking the in-line hydrophobic filter. If this happens, the hydrophobic filter must be changed before operating the washer again. Otherwise, the wash fluid will be ejected from the wash fluid overflow pipe from the right side of the washer as a result of reduced airflow in the system due to the blocked filter and slides will not be cleaned.

8.9 Handling the slide loader lid:

Please handle the lid gently during opening and closing of the lid and do not slam the lid as this may cause an entrapment of operator's fingers between the lid and slide loader, if the lid is closed too fast. However, the slide loader is equipped with a built-in anti-slam bumper as a safety feature to slow down the lid as it closes.

8.10 Treating the waste material:

Do not place Virkon or any other strong disinfectants into the waste bottle. These reagents are corrosive and therefore may cause gradual damage to the waste bottle and its top assembly part. The wash fluid contains gentle and effective disinfectant which is designed to disinfect the biohazardous materials collected in the wash bottle. If an additional disinfection is desired, the waste can be treated in a separate container before discarding the waste accordingly.

9. Relocating the iWash® System:

Once the iWash® system is up and running, moving it to another location is not recommended. However, if you wish to relocate the iWash® system either within the same lab or building, or to a different site, please follow the recommended steps.

9.1 Moving the washer and dryer units within the same lab:

9.1.1 Make sure both wash fluid bottle and waste bottle are empty.

9.1.2 Switch off the washer then switch off the power socket and disconnect from the mains

9.1.3 Disconnect the dryer module from the main washer module.

9.1.4 Hold the washer module from the sides and lift off and move to the new location.

⚠ **CAUTION: Ensure the washer is <u>not held</u> from the slide loading compartment and lifted. This will invalidate the warranty as the slide loading compartment is not designed for lifting and therefore may not withstand the weight of the washer unit.**

9.1.5 Hold the Dryer unit with both hands and transfer to the new place and connect the dryer to the washing unit.

9.2 Moving the iWash® to a new building or facility

9.2.1. To transport the iWash® system to a new building or facility, please ensure that the liquid lines are thoroughly cleaned as outlined in section 7. Use the packaging provided with your original iWash® system, for safe transport.

10. Troubleshooting:

10.1 Washer Leak:

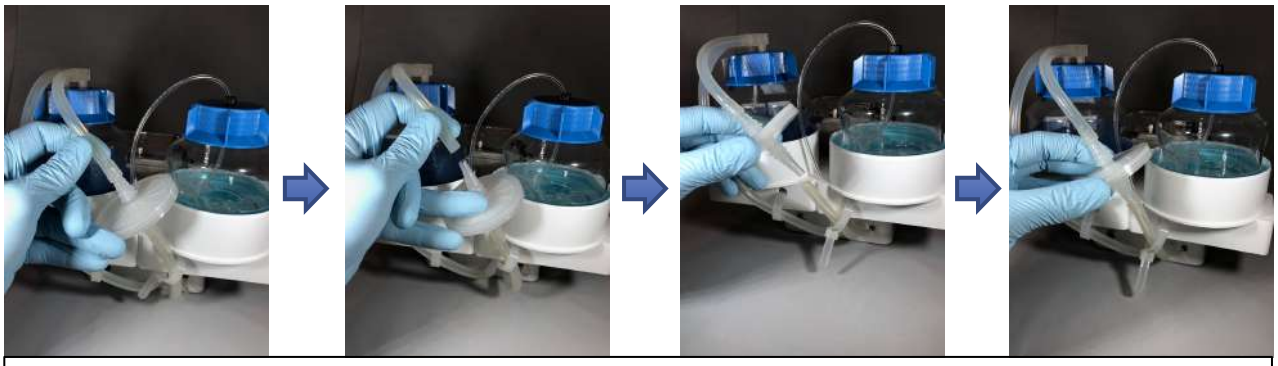
By following the recommended cleaning and maintenance steps, the iWash® system is designed to give many years of continued operation. The system has additional safety features designed to protect it from damage through misuse or obstructions. These features may manifest as a possible leak from the wash fluid overflow pipe.

10.1.1 Possible leak from the Wash Fluid overflow pipe:

This will occur if the airflow through the washer is obstructed.

- Ensure the slide is placed on the wash bed correctly (as described in section 2.3.1).
- Check the hydrophobic filter and determine if it is blocked. If there is resistance to airflow through the filter then change the filter as shown in the images below.
- Check the waste reservoir lid is closed properly and it is airtight.

10.1.2: Changing the Hydrophobic filter:



Changing the hydrophobic filter: Gently and slowly pull away the silicon pipes from the barbed ends of the blocked hydrophobic filter to remove it and then replace with a new hydrophobic filter by pushing the silicone pipes into the barbed ends of the new filter.

⚠ **CAUTION: Wash fluid coming out from the wash fluid overflow pipe located on the right side of the washer is due to blockage or insufficient air flow in the system**. Any liquid from overflow pipe of the iWash® washer module is not biohazardous as it does not contact with the waste material in the slide's chambers. This liquid can be can be wiped with a tissue paper and the paper can be discarded into general waste. Wipe the area with a small amount of 70% ethanol and discard into the general waste. **Always use personal protective equipment when using iWash® and avoid direct contact with the wash fluid.**

10.2 Microbial growth is observed in the wash fluid bottle:

Microbial growth may be observed in the wash bottle solution if it has been left unused for over 1 week. In this case, empty the bottle; rinse thoroughly with 70% ethanol followed by distilled water. Do not allow the ethanol to remain in the bottle for longer than 60 seconds. Make sure distilled water is used to prepare the wash fluid and add 2ml of proprietary iWash® Wash Fluid Concentrate per 200ml of wash fluid prepared.

10.3 Visible crystals in the wash fluid:

In unlikely situations where the lab temperature may have dropped below ambient and reaches near freezing temperatures, eg. power failure, or when the wash solution is insufficiently diluted, crystallisation of the wash fluid may be observed. If this happens, bring the wash fluid up to room temperature or dilute further. If this fails then make up a fresh wash solution.

10.4 Checking the slide after cleaning:

Periodically, you may wish to incorporate a QC check in your laboratory's standard operating procedure (SOP) to validate the cleaning performance of the iWash®. If this is required, after washing and drying of the used slide, the slide is loaded with sterile PBS, distilled water or sterile Trypan blue. This will simulate the presence of liquid in the slide and allow you to do a QC check to validate the performance of the iWash®. Having a clear liquid in the slide will ensure that the cell counter is correctly focussed inside the chambers of the slide.

10.5 Excessive foaming is observed in the waste bottle:

Excessive foaming will be observed if 2mL of silicone defoamer has not been added into the waste bottle. This can be easily rectified by adding 2mL silicone defoamer into the waste bottle.

⚠ **CAUTION**: The excessive foam when filling up the waste bottle, can be sucked by internal pump and cause the hydrophobic in line filter to block. This is one of the safety features of iWash® to prevent any waste escaping from the waste bottle. If this happens, the blocked hydrophobic filter must be changed.

10.6 The hydrophobic filter keeps blocking:

Hydrophobic filter attached to the waste bottle is an important safety feature of the washer. A blocked hydrophobic filter will cause the washer to fail and not work properly due to reduced air flow in the slide. As a result, the wash fluid will be ejected from the wash fluid overflow pipe located on the right-hand side of the washer.

⚠ **CAUTION:** Silicone defoamer needs to be present in the waste bottle to avoid over foaming of the used wash fluid in the waste bottle. Also please make sure the wash bottle is not filled above the indicated "MAX" level on the bottle.

10.7 Particles detected in the slide after washing:

If any particles are detected on a washed and dried slide consistently, this could be due to wash fluid being too old and contaminated with microorganisms. Check the appearance of the wash fluid. If it is not clear and appears cloudy this is a sign of contamination of the wash fluid. Discard the wash fluid, rinse the bottle with 70% ethanol and then with distilled water and prepare a fresh wash fluid solution. We recommend to prepare the wash fluid solution as aseptically as possible by using distilled water, and in the case of contamination, rinsing the wash fluid bottle with 70% ethanol to decontaminate.

11. Unique features and benefits of the iWash®:

- Slides are washed in a sealed and airtight system where the waste is rapidly removed from the slide therefore, users are not exposed to any biohazardous material during the wash step. Wash fluid also contains a disinfectant to neutralize any biohazardous waste in the waste bottle and sterilize the washed slides. **Unlike using re-useable slides or traditional haemocytometers where manual cleaning is required by the user and subsequent exposure to biohazardous waste material.**

- Washing slides with the iWash® significantly reduces single use plastic waste.

- If any toxic dye such as trypan blue is NOT used for cell counting then the liquid waste solution generated as a result of the washing process can be safely discarded down the sink due to a proprietary, microbiocidal and biodegradable wash fluid solution.

- iWash® has a very low power consumption. Washing 100 slides is equivalent to one full charge of a mobile phone battery (10W of power)

- The iWash® has a relatively small footprint. It can be easily adopted to any laboratory bench and workflow.

- The unit is only activated when the slide is inserted into the slide loader and the lid is closed. This is when the iWash® START/STOP button is activated and the washer can be started or stopped by pressing this illuminated button.

- If the lid is opened at any time during the wash, the washer automatically stops preventing any possible leakage to the slide chamber.

- The slide loader is equipped with a built-in anti-slam dampener, which slows down the lid when closed too fast, and prevents the slamming of the lid which may cause potential damage to the lid itself or the operator's hands.

- A beep indicates the end of the wash cycle, when the slide can be removed from the washer.

- When the lid is opened and the illuminated START/STOP button turns off, the same button now (when pressed and kept in the depressed position) activates the slide lift up pin which lifts the slide upwards from the slide loader and makes it easier to remove the slide.

- The hydrophobic filter connected to the waste bottle, ensures no waste material can be removed from the waste bottle back into the system.

12. Frequently Asked Questions, FAQ's:

12.1 Do the waste materials in the bottles require specialist disposal methods?

The wash fluid contains quaternary ammonium compounds as an effective disinfectant in order to prevent microbial growth in the wash fluid. The wash fluid will also deactivate cells together with bacteria, fungus, algae and viruses which might be collected in the waste bottle as a result of washing used slides. Therefore, no specialist disinfection or disposal methods are required for the waste.

Please do NOT place any additional disinfection material in the waste bottle such as Virkon, Distell etc. The strong concentration of those chemicals will eventually corrode the waste bottle.

Should an additional disinfection method be required it is recommended to treat the waste with other generally used strong disinfectants (4% Virkon, Distell solution etc.) in a separate beaker or container before discarding the waste appropriately.

12.2 Does the cleaning change the refractive index of the slides and is this important?

Washing a slide with the proprietary water based wash fluid as provided does not cause any physical or structural change to the slide at all. Any change in the refractive index of the slide does not affect the detection of the cells in the slide and is not considered a significant issue.

12.3 Is the concentration of detergent used hazardous/toxic?

The wash fluid concentrate is a highly concentrated solution and contains quaternary ammonium compounds as a microbiocide and is considered to be hazardous. It is biologically degradable and causes no serious or long lasting damage to the environment. Always use appropriate personal protective equipment and read the safety instructions provided. Once diluted 1/100 in distilled water to make the wash fluid solution, the potential toxic and hazardous effect is dramatically reduced. As a precaution, always exercise care when handling. If the solution comes in contact with the eyes or skin, wash with copious amounts of water and seek medical attention.

12.4 How stable is the washing solution?

Prepared wash fluid is stable at room temperature as long as it is sterile and does not have any sign of microbial growth for the period of one month. The Chlorine based microbiocide contained in the wash fluid prohibits the growth of microorganisms. However, it is recommended that, the wash fluid is regularly checked visually for the growth of any contaminants. Sterile wash fluid has a clear, transparent colour. If contaminated, the wash fluid will have a cloudy appearance. In this case the waste bottle needs to be emptied, rinsed with 70% ethanol and a fresh wash solution needs to be prepared.

12.5 How many times can a slide be cleaned?

This mainly depends on how well the slide is kept between washes. If the slide is well protected between the washes it should last for at least 50 cycles as this is the extent of the testing so far.

The patent pending direct injection technology of the iWash® in combination with the gentle wash fluid causes no physical or structural change to the slide even after so many washes.

Using the slide storage pouch to store slides in between washes, also ensures the slide is being kept dust free and scratch free for the longest amount of time possible.

12.6 Do I need to clean new slides?

Yes. It has been shown that a significant percentage of new slides contain particulates as a result of the process used for manufacturing and so it is good practice to clean all slides before use. Microscopic dust

particles or imperfections may be incorrectly detected as dead cells when you place a brand new slide in the cell counter and count the cells on an empty slide. Using the iWash® slide cleaner to clean a new slide takes less than 30 seconds and ensures consistency of analysis.

12.7 How do I know when the slide is clean and dry?

The iWash® slide cleaner is programmed with an optimum wash cycle that is very effective at removing the cells from the slide within seconds. Washing the used slide only once with the iWash® slide cleaner is sufficient to remove all of the cells from the slide. Usually drying a slide for 5 to 10 seconds with the dryer module is long enough to completely dry the slide. Dried slides should have no visible wash fluid residues or foam in its chambers. This can quickly be assessed when the slide is visually checked after drying. Any excess water outside the chambers may be wiped clean with a lint free tissue.

12.8 How do I check if my slide is effectively cleaned?

iWash® is very effective at removing the cells from the slides so you don't necessarily need to check to see if the slide is cleaned. However, if desired, after wash and drying, the slide can be placed back in the cell counter to obtain the image of the chambers to see if there are any cells remaining.

When evaluating the effectiveness of slide cleaning in a washed slide by using the cell counting function of the cell counter; it is recommend that, after washing and drying of the used slide, the cleaned slide is then loaded with sterile PBS or distilled water to simulate the presence of liquid in the slide before carrying out cell counting on the cleaned slide. Having a clear liquid in the slide will ensure that the cell counter performs better and gives more accurate results.

12.9 What happens if I have a slide that has cells dried on the surface?

Slides should be washed straight after cell counting while the cell solution is fresh in the slide so it may be easily cleaned. Since it only takes 30 seconds to wash and dry the slide, it is practical to wash the slide after cell counting before re-using or storing.
However if the used slide is not washed straight away and cells have dried in the slide, then washing the slide with iWash® wash fluid may not be sufficient to remove adhered cells from the slide. In this case the special slide recovery solution (part number SRS 10) is needed to effectively remove these fixed cells from the slide. The slide recovery solution is enzyme based and stable at room temperature. Pipette 10µL of the recovery solution into slide's internal chambers and then leave for 5 minutes at room temperature before washing the slide as normal.

12.10 When do I need to change the hydrophobic filter?

The hydrophobic filter will only need to be changed when blocked. Allowing the waste bottle to fill above the max level or not placing silicone defoamer into the waste bottle will cause excessive liquid waste or foam to be sucked through the pipe and block the hydrophobic filter. If this happens, the suction and therefore the movement of the wash fluid through inside the chambers of the slide will be restricted. This will result in excessive wash fluid being discarded from the 'excessive wash fluid port' located on the right side of iWash®

12.11 What is the decontamination procedure?

If any of the iWash® components require general cleaning, apply a small amount of the dilute iWash® solution (1:100 dilution) to a lint free tissue and wipe the affected area.
For decontamination before shipment and/or transport: The iWash® surfaces may be cleaned with solvents, aqueous detergents, and acid/base viricide (such as Virkon S) solutions. Wipe with deionised water or 70% Ethanol after using these cleaning solutions to completely remove any corrosive decontaminants from the

surface of the instrument. If in doubt, please contact your local distributor. If any components need to be returned to your supplier, please contact them directly for a decontamination declaration.

12.12 What cell counters is the iWash® system compatible with?

iWash® is compatible with most of the automated cell counters in the market and we are constantly making it compatible with more types. Please contact us for the latest list of iWash® compatible cell counters.

12.13 How many slides can be cleaned at the same time?

iWash® is designed to wash one slide at a time, the whole procedure is semi-automated taking less than 30 seconds per slide. This is compatible with normal workflows.

12.14 Can the same iWash® system be used to clean the slides from different cell counter designs?

No, iWash™ is not generic. Due to the different dimensions of the slides of each manufacturer, iWash® models are by definition specific to only one type of cell counter slide.

12.15 How long does it take to wash and dry a used slide?

The whole process is only about 30 seconds which is very similar to finding a new slide and taking it out of its packaging or less than running a cell count.

12.16 When should I wash my used slide?

Slides should be washed straight after cell counting while the cell solution is fresh in the slide so it may be easily cleaned. Since it only takes 30 seconds to wash and dry the slide, it is practical to wash the slide after cell counting before re-using or storing.

12.17 Is there a risk of cross contamination?

No, iWash® completely removes all of the cells from the slide and does this very effectively so there is no risk of cross contamination of cells from the washed slides.

12.18 Do washed slides needs to be sterilised?

Since the slides are only used for cell counting and no other biological usage, there is no need for sterilising the slides. The manufacturers of the respective slides do not indicate anything about the sterility of the slides supplied. Our tests on brand new slides indicate that they are not sterile.

12.19 Can iWash® clean the reusable slides of some of the cell counters?

Unfortunately not. The reusable slides have removable parts and therefore cannot be washed with the iWash® slide cleaner.

12.20 Will multiple washing cause progressive damage to the slide? (E.g. after *x* number of washes there is more debris accumulated)

Multiple washes do not cause damage to the slide and each time all of the cells and debris are effectively removed from the slide.
Please refer to videos and test results available at https://www.imraliinvention.com to see the proof data. Trypan blue may permanently stain the edges of the slide's chambers after repeated use, or if it is left to dry inside the slide. However, this stain has absolutely no effect on the performance of the washed slide.

12.21 Will multiple washes scratch the slide over time?

Washing does not cause damage to the slide. However, the outside of the slide can accumulate scratches in between the washes over time if not handled and stored carefully. Using re-useable slide protective pouches for storing the slides, will protect the slides from dust and scratch accumulation during storage.

12.22 Does the quality of plastic play a role in the effectiveness and durability of the washed slides?

The effectiveness of the iWash® slide cleaner is not compromised by different type of slides. iWash® effectively washes and removes the cells from all types of compatible slides. The durability and the lifespan of a slide is very much affected by the type of the slide and varies amongst the different brands available. We have seen contaminants in brand new slides, straight out of their pack, as dust or manufacturing residues are present in a significant percentage of the slides, as a result of production and packaging issues. Therefore, all new slides should be washed. Washing new slides will remove particles from the chambers making cell counting more accurate.

12.23 How can I obtain more info about iWash® and are there any operational videos available?

Yes, please visit our website https://www.imraliinvention.com where you will find more information about the washer, validation results of the washed slides, as well as various videos about how to use, set up and maintain your iWash®.

12.24 Do I need to purchase an annual service or maintenance with the iWash®?

No, iWash® is designed to be easy to use and virtually maintenance free.

12.25 What kind of housekeeping is required with iWash®?

The only things you will need to do with the iWash® is to prepare wash fluid solution (less than a minute), empty the waste bottle when full, and from time to time, clean any dust from the silicone slide bed with sticky tape as per the manual. If you are not planning to use the iWash® for more than a week, we recommend you rinse out the wash solution from the tubing with distilled water.

12.26 iWash® seems a little expensive compared to an automated cell counter

Automated cell counters cover a range of prices as do the slides. However, typically the return on investment (ROI or recovery period) for a mid-size lab is 3-4 months. We have available a simple cost calculator to help you calculate your own ROI. When you consider that new slides should also be washed and that single use plastics may be subject to stringent regulation in the near future, the iWash® is a good investment and will support a company's sustainability target.

12.27 What is the impact of the iWash® slide cleaner to the environment?

iWash® allows the reduction of biohazardous single use plastic consumables used in the labs as well as reducing the cost of automated cell counting down to almost nothing. The carbon footprint generated by iWash® is also very small. Washing and drying 100 slides will consume just enough energy to charge a mobile phone battery once. The waste material generated as a result of washing slides is decontaminated by the wash fluid and it is biodegradable, which may be discarded without the need for specialist disposal.

12.28 How does the cleaning process affect the coating/surface treatment of the slides?

The cleaning of the slide is very gentle and does not cause any physical strain or a structural change to the slide, enabling the same slide to be washed and used time and time again. Our proprietary iWash® wash fluid concentrate is very gentle to the slide and specially designed to clean, sterilise, recondition and aid the quick drying of the slides. After each wash, the internal surface of the slide is reconditioned with a special constituent in the wash fluid solution making it like new again.

12.29 After washing do cells spread homogeneously in the slide's internal chambers?

Even distribution of cells and avoidance of cell clumping in any type of counting slide is achieved by a good practice of pipetting and making sure the cells are homogeneously mixed before loading into the slide. Washing slides does not affect the homogeneous distribution of the cells in the slide even after multiple wash cycles. The cell solution might move slightly faster over the edges of the chamber when loaded into

the washed slide but this does not affect the homogenous distribution of the cells in the chamber. We have tested this by obtaining the images of the entire chamber of the washed slide loaded with cells and the results indicate that washing slides with the iWash® has no effect on the distribution of the cells in the slide chamber.

12.30 Can the iWash® be used to clean standard microscope slides such as ones used in histology labs?

No, unfortunately not. iWash® is specifically designed to clean automated cell counter slides only.

13. Miscellaneous:

13.1 User Assistance:

If you require any assistance, please contact your local distributor.

13.2 Notices

The information contained in this document is subject to change without notice.

Except as specifically set forth in its terms and conditions of sale, Imrali Inventions Ltd makes no warranty of any kind with regard to this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

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Other trademarks belong to the specific manufacturer where mentioned, i.e. Nexcelom® cell counter, the Biorad TC20®, Invitrogen Countess II®, NanoEntek's Eve® and Arthur®, Logos Biosystems Luna®, Luna II® and Luna® Fluorescent Cell Counters, and Olympus R1® cell counters.

13.4 Trademarks

iWash® is a registered trade mark of Imrali Inventions Ltd. Other trademarks used in this document, even when not specifically marked as such, are protected by law.

13.5 Service Support

Contact your supplier or imrali inventions Ltd at info@imraliinventions.co.uk if any out of warranty servicing is required. Any subsequent repair may be billed depending on the parts replaced and labour hours at the local rate.

14. iWash® and Dye Compatibility

iWash® is compatible with most of the cell staining dyes including but not limited to:

- Trypan-Blue
- Propidium iodide (PI)
- Acridine Orange
- DAPI
- SYBR® Green
- All NucSpot® and RedDot™ nuclear fluorescent dyes
- All Fluorescent annexin V conjugates
- All NucView® and Live-or-Dye™ fluorescent dyes
- Fluorescein diacetate (FDA)
- CytoRed solution
- Carboxyfluorescein succinimidyl ester (CFSE)
- BCECF-AM
- Calcein-AM solution
- Hoechs solution
- Mito-Red
- Rh123

15. iWash® and cell counter compatibility table

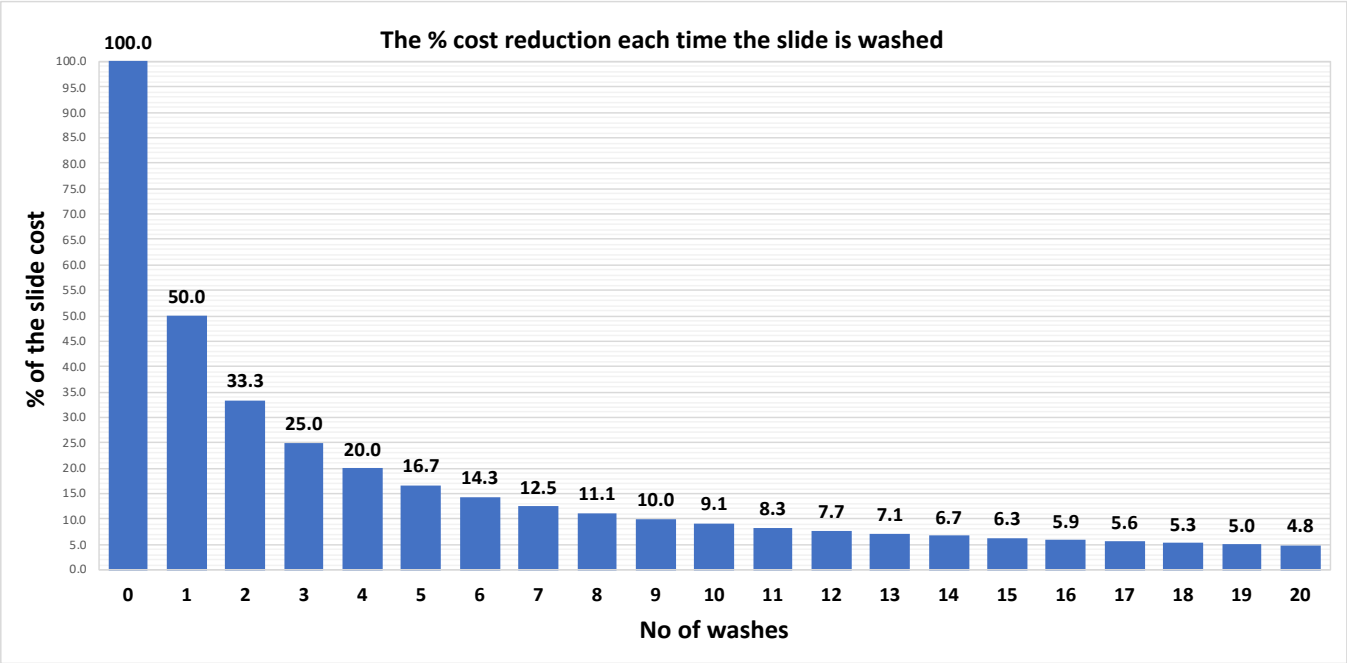
Some cell counters use different slides therefore iWash® models can be specific for those cell counters which use different type of slides. However, some cell counters from different companies use the same type of slides therefore the same iWash® model is compatible with them all. For most up to date list or a quote please contact us at info@imraliinventions.co.uk

iWash® models vs cell counter compatibility table

iWash® model	***Compatible Cell Counter models***
IWD1XX	**ALL ThermoFisher® CountessI™, Countess II™ /Countess III™** (including Fluorescent) cell counters Logos biosystems® **Quantom Tx™** , **C-chip™**, C-slide™, **Teecan spark 3000™**, RWD-C100™ **NanoEnteK® C-Slide™** **NanoEnteK® Eve™ cell counter** **All NanoEnteK® labelled 2-chamber slides manufactured for other cell counters**
IWD2XX	2-chamber slides used by **ALL Luna™** cell counters
IWD5XX	BioRad TC10™ & **TC20™**
IWD7XX	**Arthur™** cell counter
IWD8XX	**All Cellometer™** cell counters
IWD9XX	**All NanoEnteK® Adam™-MC, Adam™-MC2, Adam™-CellT** cell counters. AccuChip2x and AccuChip4x
IWDNCX	**Chemometec NucleoCounter® NC-3000™ & NC-250™** Dual compatible with A2 and A8 slides
IWDBPX	***WE CAN INVENT A BESPOKE WASHER FOR EVERY CELL COUNTER*** Please contact info@imraliinventions.co.uk for more info.

16. iWash® quickly reduces the cost of cell counting:

The amount of cost reduction obtained by recycling disposable slides show a rapid, exponential decrease in the cost of the cell counting. Washing a slide only four times enables staggering 80% of cost savings (as seen in the graph below). Each plastic disposable slide can be washed as many as 20-50 times. Washing slides 20 times will enable 95% cost savings as well as 20 times reduction in the amount of plastic waste produced compared to not washing.
Please visit our website https://www.imraliinvention.com for more information about the validation and test results of the washed slides.



An example of recycled slides used by scientists in one week after their lab started to use iWash® (25 slides)

An example of single-use slides collected from a tissue culture lab in one week (approx. 450 slides)

17. Instrument Warranty:

Imrali Inventions Ltd warrants to the original purchaser ("Purchaser") that the Instrument ("Instrument") will be free from defects in materials and workmanship for a period of three (3) years from the date of delivery. Imrali Inventions Ltd agrees, as its sole responsibility under this limited warranty, and upon prompt notice of a defect, to repair, replace or credit the purchase price, at its discretion, any Instrument discovered to be defective within the warranty period.

Return of Instrument: if the purchaser would like to return the instrument, Imrali Inventions Ltd or local distributor will refund the Purchaser full amount if the instrument is returned in its original condition within 14 days of purchase. After 14 days, Imrali Inventions Ltd will only repair, send out replacement parts or replace the instrument for up to three years and no credit will be issued. Imrali Inventions Ltd may not accept any returned instrument that was used in HIV or other infectious disease labs.

This warranty does not include repair, replacement, or refund necessitated by accident, abuse, neglect, misuse, unauthorized repair, or modification of the Instrument. The warranty will be voided if the instrument is disassembled or a customer attempted to repair the instrument. In the event that Imrali Inventions Ltd determines that the Instrument is in need of repair and not replacement, this Standard Warranty includes replacement parts and labor for the Instrument. This Standard Warranty does not include shipment of the Instrument to and from service location or travel cost of service engineer, the costs of which shall be borne by the Purchaser. **This Warranty and the remedies set forth herein are exclusive and in lieu of all other express or implied warranties (including implied warranties of merchantability, fitness for a particular purpose and non-infringement), and no other warranties shall be binding upon Imrali Inventions Ltd. In no event shall Imrali Inventions Ltd be liable for any special, incidental or consequential damages resulting from the use or malfunction of this Instrument or the system with which it is used, even if such damages could be anticipated by Imrali Inventions Ltd.** To obtain service or more information during or after the warranty period, contact Imrali Inventions Ltd for further instruction at info@imraliinventions.co.uk

OUT OF WARRANTY SERVICE

Contact your supplier or Imrali Inventions Ltd at info@imraliinventions.co.uk Repair service, if needed, will be billed depending on the parts replaced and labor hours needed to repair your instrument. You will be billed for shipment of the instrument to the recommended service facility.

Please ensure to register your iWash® at www.imraliinventions.com or email us from our website using 'contact us' link within one week of receiving your instrument in order to activate your warranty. Failing to do this will void your warranty due to our inability to identify the eligible customer if they contact us in the future. Many thanks.

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