Validation Guide
TAKEONE® Aseptic Sampling System

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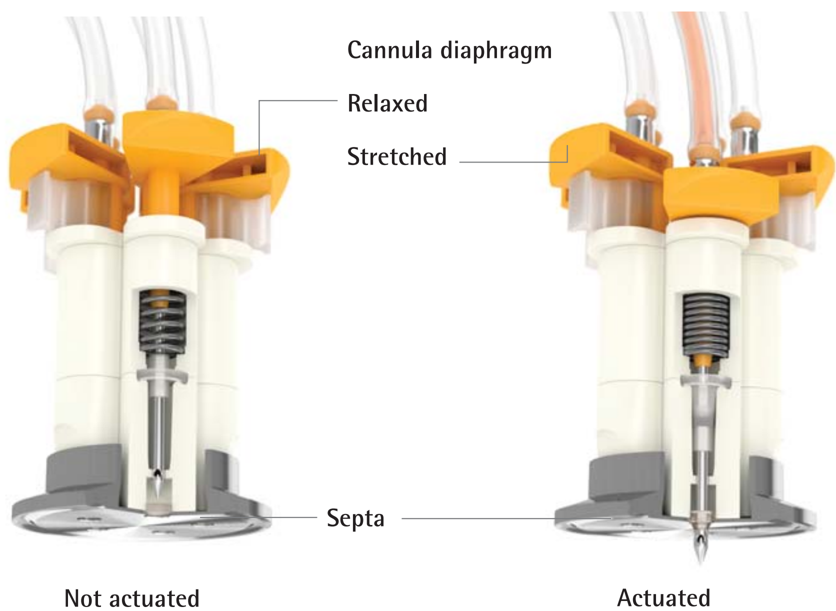
I. Product Overview

The TAKEONE® is an aseptic sampling system designed to aseptically remove fluid from a vessel or for analysis. The device can be used to collect samples for microbiological analysis including sterility, bioburden and endotoxin and process monitoring samples including gas analysis and measure of metabolites, nutrients and cell characteristics. The TAKEONE® has independent sampling lines allowing for collection of perfectly representative samples.

The TAKEONE® aseptic sampling device protects the vessel it is connected to and the sample collected from outside contaminants. During actuation the cannula, or needle, pierces a self-sealing septa allowing fluid to enter the sampling pathway and into the collection vessel. The design and operation of cannula diaphragm and septa support aseptic performance before, during and after actuation.

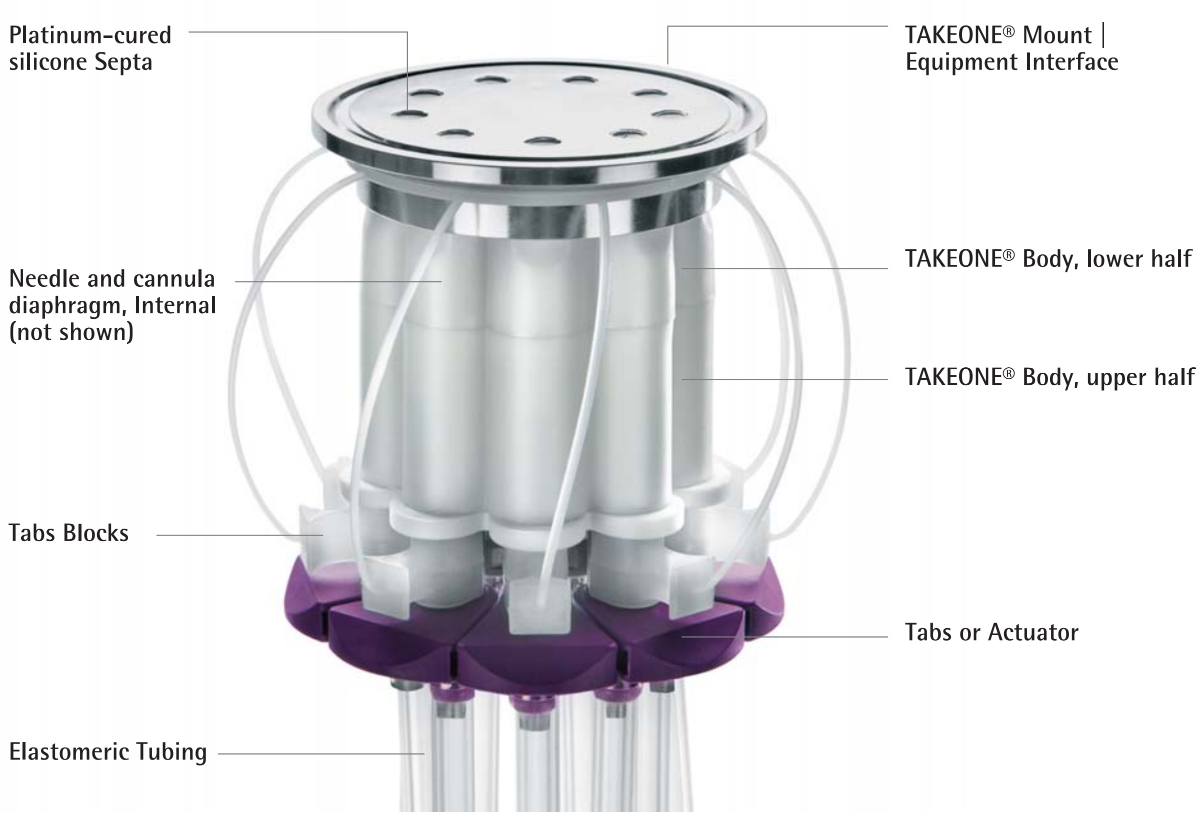
The platinum-cured silicone cannula diaphragm is molded to the needle and the platinum-cured silicone septa are molded into a recess in the 316L stainless steel sanitary fitting. The cannula diaphragm is compressed and secured between the upper and lower halves of the TAKEONE® body creating a sealed deformable chamber where the open hole of the needle resides. The chamber of every TAKEONE® device is integrity tested by pressure decay at AllPure Technologies prior to shipment. The diaphragm, compressed between the upper and lower halves of the TAKEONE® body, stretches during actuation, allowing the needle to advance. During actuation the chamber does not move into or communicate with environments external to the vessel or the sampling lines – it simply changes its shape. External contaminants do not enter the vessel or the sampling line during any actuation.



II. TAKEONE® Aseptic Sampling Device Datasheet

The table below provides a description of the TAKEONE® Aseptic Sampling Device including test standards and materials of construction. This table does not provide information for the tubing or sample collection vessel or components connected to the TAKEONE® Aseptic Sampling Device

Sampling Mechanism	2 mm cannula (needle) pierces platinum-cured silicone septum
Aseptic Separation Mechanism	QUICKSEAL® - Metallic Collar cut and seal
Mounting Mechanism | Equipment Interface	Sanitary fitting
Mounting Mechanism Material of Construction	316L Stainless Steel, electropolished, 15rA or better
Cannula | Needle Material of Construction	316L Stainless Steel, electropolished, 15rA or better
Body Material of Construction	High temperature glass reinforced polyester
Assembly Required	No
Disassembly Required	No
Irradiation	25kGy to 45kGy, per ISO11137-2
Autoclave	Yes, 122°C for 30min (configuration dependent)
Max Steam-in-Place Sterilization	3.0bar|143.7°C, after 10 acuations per line 2.06bar|134.5°C, up to 10 times after actuation
Operating Temperature Range	-20°C to 50° (configuration dependent)
Min/Max Temperature	-55°C/300°C (TAKEONE® device only)
Burst Pressure (TAKEONE® Mount Side)	19.9 bar (288psi)
Maximum Operating Pressure (TAKEONE® Mount Side)	3.1 bar (45psi)
Maximum Operating Pressure, during sampling	2 bar (29psi) at 25C | do not overfill or pressurize collection vessels
Assembly | Manufacturing Space	ISO 7
Biocompatibility	Passes USP Class VI
EP 3.1.9	Passes (configuration dependent)
Bacterial Endotoxin	Passes USP 85 (<0.125 EU/mL)
Particulate Test	Passes USP 788 (≤ 3 particles/ml >25 microns; ≤ 10 particles/mL >10 microns)



III. TAKEONE® Device Lot Release Criteria

Each TAKEONE® aseptic sampling device released by AllPure Technologies undergoes a variety of in-process quality inspections including visual inspection and sampling line integrity testing.

Visual Inspection (lot release)
Visual inspections check for completeness and correctness of build as well as cleanliness of product and packaging.

Integrity Testing (lot release)
The sampling line leak test is conducted on each sampling line per AllPure procedure ALP-P003. The procedure includes a 2psi pressure decay test for 30 seconds using the TME Worker™, Model W-L-015. Pass/Fail criteria is leak rate less than .03 psi. Only devices that pass the leak test are cleared for shipment

IV. TAKEONE® Septa Bacterial Ingress

The test evaluates the microbial barrier properties of the septa after actuation.

Study Procedures
The test units were installed to a steamable piping assembly and steamed in place for 1 hour at 120°C and allowed to cool to ambient temperature.

The piping assembly was filled with sterile, nutrient-rich broth. All sampling lines were actuated.

The actuator tabs were removed and a bacterial solution (Brevundimonas diminuta) was filled into each chamber of the TAKEONE® body.

The entire system was then incubated for 24 to 48 hours at 30°C to 32°C.

Liquid from the chambers of the TAKEONE® body and the piping assembly was plated on tryptic soy agar plates, incubated for 24-48 hours at 30°C to 32°C and observed for growth.

Study Results
1. A control of bacterial solution plated on the tryptic soy agar plates showed bacterial growth.

2. All tryptic soy agar plates plated with liquid from the piping assembly showed no bacterial growth.

Study Conclusion
No bacterial growth on the plates with liquid from the piping assembly concludes that bacteria do not travel across the pierced septa. These results confirm that the platinum-cured silicone septa maintain an aseptic barrier before, during and after actuation of the TAKEONE® aseptic sampling system.

V. Device Pressure Performance

The pressure equipment directive 2014/68/EU is a required directive for pressure equipment subject to a maximum allowable pressure greater than 0.5 bar.

TAKEONE® is installed to pressure equipment so the device was evaluated in accordance with the scope of the directive.

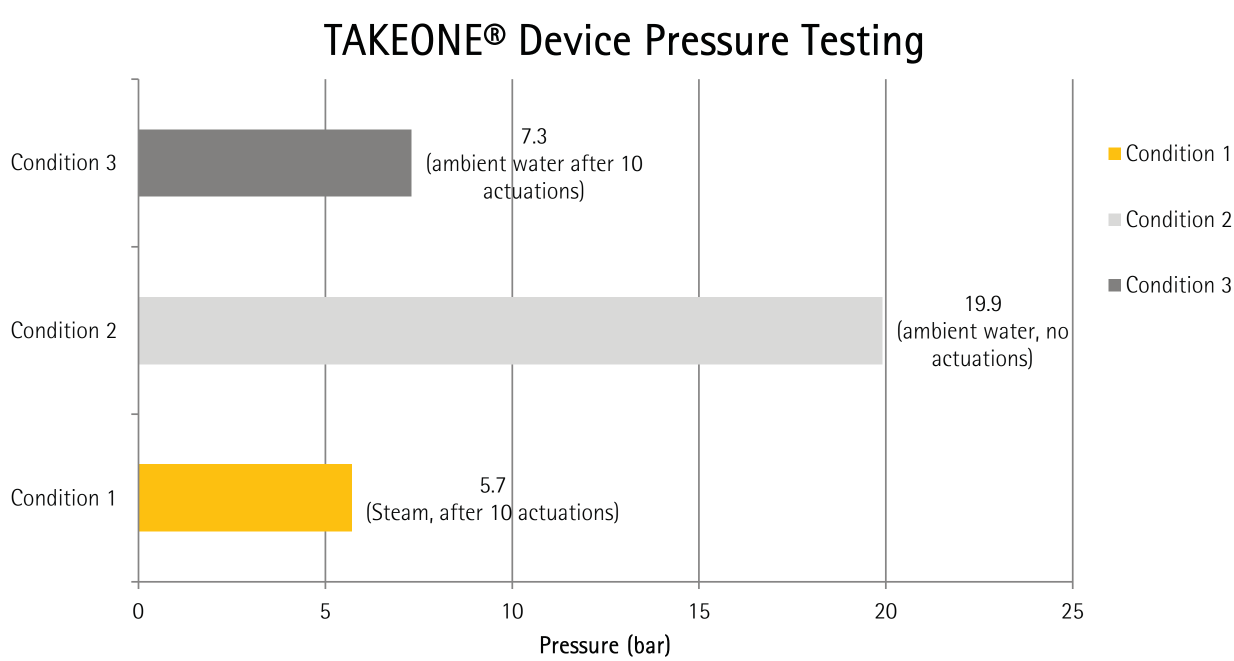
Test Conditions
Three test conditions were evaluated. Tests were performed on 16 different 1.5" and 2" TAKEONE® devices. In each case, the test articles were taken to the point of failure.

Conditions for performance are defined within the directive in Table 6, Art. 2, Annex II: "Piping, Fluid: gaseous, Fluid group 1: dangerous". Acceptance criteria are met when point of failure exceeds 3bar.

Results
Condition 1:
Burst pressure test (water + steam), after 10 actuations per sampling line
Result: 5.7bar
Acceptance Criteria: Passed

Condition 2:
Burst pressure test (water)
Result: 19.9bar Acceptance Criteria: Passed

Condition 3:
Burst pressure test (water), after 10 actuations per sampling line Result: 7.3bar
Acceptance Criteria: Passed



VI. Performance After Autoclave

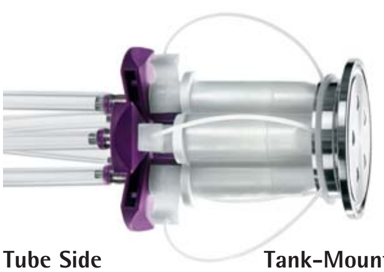
Some applications require TAKEONE® be attached to portable tanks which are sterilized out of place by autoclave, rather than steam in place (SIP).

Unlike during SIP, the entire device is exposed to conditions in the autoclave. The following tests were done to evaluate the condition of the TAKEONE® device after autoclave conditions.

1.5" Device

Burst Pressure
This test evaluates the burst pressure of the Takeone device when pressurized from the tank-mount side of the device. The test was conducted on 10 units, each from 3 different production lots.

Study Procedures
Test units were autoclaved 2 times at 122°C for 30 min. After each autoclave cycle all needles are actuated 10 times. The sample is connected to a pressure pump. The pump increases the pressure with water until the sample fails. The maximum applied pressure is determined. Pressurization was done at ambient temperature.



Tube Side **Tank-Mount Side**

Study Results
Considering the following, the tank-mount side of the device should not be exposed to pressures higher than 3.1bar (45psig). The results showed the following:

The minimum failure pressure was at 8.9bar (129.0psig)

The maximum failure pressure was at 11.3bar (163.9psig)

The average failure pressure was at 9.8bar (141.6psig)

Performance After Autoclave

1.5" Device

Pressure Decay from Tank Mount
This test evaluates the pressure decay from the tank-mount side of the TAKEONE® device. The test was conducted on 10 units, each from 3 different production lots.

Study Procedures
The sample is connected to a water filled rig. Air pressure is applied from the tank mount side with Sartocheck 4. The rig is pressurized up to 72.5 psig in 5 psig increments at ambient temperature. Air diffusion is measured. It is also observed if any leakage occurs. Acceptance criteria is no leakage and air diffusion <0.5mL/min.

Tube Side **Tank-Mount Side**

Three test conditions are studied:
Condition 1:
The TAKEONE® is not actuated
Condition 2:
The Takeone is autoclaved one time at 122°C for 30 min followed by ten actuations on each sampling line
Condition 3:
The TAKEONE® is autoclaved a second time at 122°C for 30 min followed by ten actuations on each sampling line

Study Results
No failures were found in test Condition 1.

Failures (air diffusion > 0.5 ml/min) were found at 5bar (72.5psig) in test Condition 2.

Failures (air diffusion > 0.5 ml/min) were first noted when pressures reached 2.75bar (40psig) in test Condition 3.

Considering this, the device should not be exposed to more than one autoclave cycle followed by pressures higher than 3.1bar (45psig).

For comparative purposes, a T-Test at 3.1 bar (45psig) was used to compare the results Condition 2 and 3 with Condition 1.

The differences of air diffusion rates at 3.1 bar between the conditions is considered to not be statistically significant (95% confidence interval).

Performance After Autoclave

1.5" Device

Pressure Decay from Tube Side
This test evaluates the pressure decay from the tube side of the Takeone device. The test was conducted on 10 units, each from 3 different production lots.

Study Procedures
The sample is connected to a water filled rig. Air pressure is applied from the tube side with Sartocheck 4. The rig is pressurized up to 29 psig in 5 psig increments at ambient temperature. Air diffusion is measured. It is also observed if any leakage occurs. Acceptance criteria is no leakage and air diffusion <2mL/min

Tube Side **Tank-Mount Side**

Three test conditions are studied:

Condition 1:
The TAKEONE® is not actuated

Condition 2:
The Takeone is autoclaved one time at 122°C for 30 minfollowed by ten actuations on each sampling line

Condition 3:
The TAKEONE® is autoclaved a second time at 122°C for 30 min followed by ten actuations on each sampling line

Study Results
No failures were found in test Condition 1 devices.

Failures (air diffusion > 2 ml/min) were found at 0.69bar (10psig) in test Condition 2.

Failures (air diffusion > 2 ml/min) were found at 0.69bar (10psig) in test Condition 3.

Considering this and the following, the device should not be exposed to more than one autoclave cycle, after which the sampling lines should not be pressurized higher than 0.69bar (10psig). This pressure limitation applies only to the sampling pathways but not the TAKEONE® device in its entirety.

For comparative purposes a T-Test at 0.69 bar was used to compare the results from conditions 2 and 3 with condition 1.

The differences of air diffusion rates at 0.69 bar between the conditions is considered to not be statistically significant (95% confidence interval).

Performance After Autoclave

1.5" Device

Pressure Decay from Tank Mount-90 minutes
This test evaluates the pressure decay from the tank-mount side of the Takeone device after 90 minutes. The test was conducted on 10 units, each from 3 different production lots

Study Procedures
The sample is connected to a water filled rig. Air pressure is applied from the tank mount side with Sartocheck 4. The rig is pressurized up to 72.5psig for 90 minutes at ambient temperature. Air diffusion is measured. It is also observed if any leakage occurs. Acceptance criteria is no leakage and air diffusion <0.5mL/min

Tube Side **Tank-Mount Side**

Three test conditions are studied:
Condition 1:
The TAKEONE® is not actuated
Condition 2:
The TAKEONE® is autoclaved one time at 122°C for 30 min followed by ten actuations on each sampling line
Condition 3:
The TAKEONE® is autoclaved a second time at 122°C for 30 min followed by ten actuations on each sampling line

Study Results
Considering the following, the Takeone should not be exposed to more than 1 autoclave cycle alone or in combination with pressure on the tank-mount side greater than 3.1bar (45psig).

The results showed the following:

Device Lot Number	Test Article	Condition 1		Condition 2		Condition 3	
		Diffusion	Pass/Fail	Diffusion	Pass/Fail	Diffusion	Pass/Fail
APGO8308	1	0.0	Pass	0.0	Pass	0.0	Pass
APGO8308	2	0.0	Pass	0.0	Pass	0.0	Pass
APGO8304	3	0.0	Pass	0.0	Pass	0.0	Pass
APGO8304	4	0.0	Pass	0.0	Pass	0.1	Pass
APGO8302	5	0.0	Pass	0.0	Pass	0.0	Pass
APGO8302	6	0.0	Pass	0.0	Pass	0.0	Pass

VII. Multiple Actuation

This test evaluates the integrity of sampling pathway of the TAKEONE® aseptic sampling system after multiple actuations.

Study Procedures
An initial leak test on each sampling line of the device was performed by AllPure Technologies per AllPure procedure ALP-P003 using TME Worker™, Model W-L-015.

A second leak test on each sampling line of the device was performed after actuating the lines for 40 times.

Leak test results were within AllPure's acceptance criteria of rates less than 0.03psi decay.

A T-Test compared the leak rate values before and after the conditions of the test.

Study Conclusion
The difference of the leak rates was found to not be significantly different indicating the sampling pathway maintains an equivalent integrity before and after 40 actuations.

VIII. Multiple SIP Cycles

This test evaluates the integrity of sampling pathway of the TAKEONE® aseptic sampling system after multiple SIP cycles.

Study Procedures
An initial leak test on each sampling line of the device was performed by AllPure Technologies per AllPure procedure ALP-P003 using TME Worker™, Model W-L-015.

The sampling lines were actuated and the device exposed to 10 SIP cycles at 130°C for 60 minutes. The system was cooled down to 25°C with compressed dry air between each SIP cycle.

A second leak test on each sampling line of the device was performed after the SIP cycles.

Leak test results were within AllPure's acceptance criteria of rates less than 0.03psi decay.

A T-Test compared the leak rate values before and after the conditions of the test.

Study Conclusion
The difference of the leak rates was found to not be significantly different indicating the sampling pathway maintains an equivalent integrity before and after actuation and 10 SIP cycles

IX. Flow Rate through Sampling Pathway

This study evaluates the flow rate of water through the sampling pathway of TAKEONE.

Study Procedures
TAKEONE® devices were installed onto a stainless steel manifold. The manifold was filled with water and pressurized to 7psi. A graduated, empty collection receptacle was held at the end of the tubing and sampling line depressed for 30 seconds. Fluid volume was weighed and flow rates calculated.

Study Results
This table below summarizes the results of the test.

Sample Volume	Vessel Pressure	Time to Collect Sample
50mL	7 psi (0.5Bar)	10 seconds
100mL	7 psi (0.5Bar)	20 seconds
250mL	7 psi (0.5Bar)	54 seconds
500mL	7 psi (0.5Bar)	101 seconds
1000mL	7 psi (0.5Bar)	202 seconds

X. Gamma Irradiation Validation

Why Gamma Irradiation?
Gamma Irradiation as a means for sterilization was first used in the United States on medical devices in 1963. Since, gamma irradiation has become commonplace across varied industries, including pharmaceutical and biopharmaceutical.

AllPure's TAKEONE® Aseptic Sampling System is ideally suited for gamma irradiation. TAKEONE® is a single-use system and features intricate designs. The device has fully contained chambers that are not efficiently rendered sterile by temperature related sterilization techniques. Gamma rays easily penetrate packaging and product materials of ranging densities, thicknesses, configurations and orientations.

How do I know my AllPure product was irradiated?
AllPure affixes an irradiation indicator dot on the inner product package. When irradiated, the dot turns red.

Each load of irradiated product includes purposefully placed dosimeters. The dosimeters are analyzed at the end of each irradiation cycle and confirm that the specified dose has been delivered.

Every AllPure lot includes a Certificate of Irradiation which documents minimum and maximum dosage and other data gathered from the dosimeters.

What kind of irradiation validation work did AllPure perform?
ISO-11137-2 ANSI/AAMI/ISO 11137-2:2006: Sterilization of health care products – Radiation-Part 2: Establishing the sterilization dose is a test method which validates an irradiation dose of 25kGy provides a sterility assurance level (SAL) of 10-6 on the product tested. The method includes tests for bioburden, bioburden recovery, bacteriostasis/fungistasis and sterility.

Compliance to ISO-11137-2 requires regular audits which repeat bioburden, bacteriostasis/fungistasis and sterility testing.

Representative configurations of the 2" and 1.5" TAKEONE® aseptic sampling systems were selected in consideration to the guidelines described by the standard, as indicated below. The assemblies are built in an ISO Level 7 clean room following AllPure's current SOP and Quality Policy manuals.

a) **nature and sources of raw materials**
b) **components**
c) **product design and size**
d) **manufacturing process**
e) **manufacturing equipment**
f) **manufacturing environment**
g) **manufacturing location**

Study Results
The study concludes that an irradiation dose greater than 25kGy provides SAL 10-6 for the fluid pathway of TAKEONE® aseptic sampling system product family.

XI. Shelf-Life

Device Integrity & Performance
This test evaluates the integrity of sampling pathway of the TAKEONE® aseptic sampling system that had been held in storage for 2 years after multiple actuations.

Study Procedures
An initial leak test on each sampling line of the device was performed by AllPure Technologies per AllPure procedure ALP-P003 using TME Worker™, Model W-L-015.

A second leak test on each sampling line of the device was performed after actuating the lines for 40 times.

A T-Test compared the leak rate values before and after the conditions of the test.

Study Conclusion
Leak test results of devices after 2 years of storage within AllPure's acceptance criteria of rates less than 0.03psi decay indicating the device is within performance specifications.

Leak test results of devices actuated 40 times after 2 years of storage were within AllPure's acceptance criteria of rates less than 0.03psi decay indicating the device is within performance specifications.

The difference of the leak rates before and after actuations was found to not be statistically significant. The sampling pathway maintains an equivalent integrity after 2 years storage and 40 actuations to a device that has not been actuated.

Bioburden
This test evaluates the bioburden of sampling pathway of the TAKEONE® aseptic sampling system that had been held in storage for 3 years.

Study Procedures
Sampling pathways were filled and flushed with Peptone Tween solution as the extract fluid. Plating method was membrane filtration; agar medium was soybean casein digest and potato dextrose agar. Plates evaluated for aerobic organisms were incubated for 3-7 days at 30°C-35°C; plates evaluate for fungal organisms were incubated for 5-7 days at 30°C-35°C

Study Conclusion
No detectable organisms were found indicating the sampling pathway remains free from contamination after 3 year storage.

XII. Particulate | USP <788>

The test evaluates particulate matter generated by the TAKEONE® during sampling. Particulate matter, as defined by the USP is extraneous, mobile, undissolved substances other than gas bubbles, unintentionally present in a solution or device.

Study Procedures
In accordance with USP <788> and EP 2.9.19 guidelines, liquid from samples collected using TAKEONE® was evaluated for particulate. In addition, the remaining liquid in the vessel was evaluated for particulate after all sampling lines had been actuated.

The test article was connected to a stainless spool piece. The spool piece was filled with particle-free water. The assembly is inverted so the fluid is in contact with the TAKEONE® device.

All 9 lines of the device are actuated
for 1 to 2 seconds, 10 times each. It is assured that fluid fills each collection bags. Collection bags were removed by cutting the QUICKSEAL collar.

Fluid from 3 collection bags were pooled into washed glassware for 3 test samples.

Remaining fluid from the spool piece was swirled for 10 seconds and transferred into washed glassware for a 4th test sample.

Test articles were mixed by inverting their container 20 times.

5mL aliquots of each test sample was analyzed by HIAC Royco Particle Counter. Particles larger than 10micron and 25micron were enumerated.

Study Conclusion
USP <788> acceptance criteria for large volume (>100mL) solutions is (3 particles/ml >25 microns; 10 particles/mL >10 microns)

The study concludes that the samples collected using TAKEONE® meet USP <788> standards.

The study concludes that the liquid remaining in the vessel after all sampling lines were actuated meet USP <788> standards.

XIII. Endotoxin | USP <85>

Summary
The Bacterial Endotoxins Test, or Limulus Amebocyte Lysate (LAL) test, is an in vitro assay to detect and quantify bacterial endotoxin, a component of the cell wall of Gram negative bacteria.

References
The testing was conducted in accordance with the following regulatory documents: ANSI/AAMI ST72:2011, USP <161>, USP <85>, EP 2.6.14, and JP 4.01.

Procedures
Standard controls and a positive product control demonstrate there are no endotoxin inhibiting or enhancing effects of the tested system.

The fluid pathway was flushed with endotoxin free water that had been heated to 37 ± 1°C. The extraction liquid was kept in contact with the relevant fluid pathway for greater than one hour at room temperature (18-25°C). An assay was performed on the extraction liquid at a sensitiviy of 0.005EU/mL using Charles River reagents with acceptance at less than 0.125EU/mL.

Study Conclusions
Endotoxin levels of the fluid pathways of Takeone aseptic sampling device comply with the acceptance criteris (less than 0.125EU/mL).

XIV. QUICKSEAL® Burst Testing

The purpose of this test is to measure burst testing of the QUICKSEAL® aseptic disconnect. Testing was performed on 1/8" ID x 1/16" wall C-Flex® tubing.

Study Procedures
QUICKSEAL® collars were cut using QUICKSEAL® small diameter cutting tool. 316L ¾" Tri-Clamp by 1/8" hose barb is inserted into the open end of the tubing and secured by cable tie. Each sample was connected to clean dry air source using gasket and clamp. Starting at 5 PSI, 5 PSI will be added every minute until assembly fails. Failure is determined when assembly can no longer hold pressure.

Study Results

Trial Piece	Failure Pressure	Failure Type
Trial 1A	55 PSI	Tubing burst near fitting
Trial 1B	60 PSI	Tubing burst near fitting
Trial 2A	50 PSI	Tubing burst near fitting
Trial 2B	75 PSI	Tubing burst near QUICKSEAL®
Trial 3A	55 PSI	Tubing burst near fitting
Trial 3B	75 PSI	Tubing burst between fitting and QUICSKEAL® collar, close to center
Trial 4A	55 PSI	Tubing burst near fitting
Trial 4B	75 PSI	Tubing burst near fitting
Trial 5A	55 PSI	Tubing burst near fitting
Trial 5B	75 PSI	Tubing burst near fitting

Study Conclusion
The study shows the QUICKSEAL® is a robust closure mechanism with a pressure rating higher than that of the tubing it is connected to.

XV. QUICKSEAL® Container Closure – Ambient

The purpose of this study is to evaluate if a cut QUICKEAL collar is microbial barrier after sealing.

Study Procedures
The tubes with QUICKSEAL® collars were filled with sterile medium supportive of bacterial growth. The collars were cut and the samples were immersed tubes into a bacterial solution (Brevundimonas diminuta). During immersion the system is cycled between positive 15psig and negative 10psig.

Fluid from the sealed tubing is plated, in triplicate, on soybean casein digest agar (SCDA) and incubated for 7 days and observe for growth of organisms as indicated by colony forming units (CFU).

The scope of this test is limited seals at ambient conditions on silicone & C-Flex® tubing. Tubes have outer diameters of 1/4" and 3/8".

Study Results
No growth was observed on any of the agar plates. Positive controls showed growth and negative controls showed no growth.

Study Conclusion
A cut QUICKSEAL® collar is a microbial barrier.

XVI. QUICKSEAL® Container Closure – Freeze/Thaw

The purpose of this study is to evaluate if a cut QUICKEAL collar is microbial barrier after sealing and freezing at -100°C for 48 hours.

Study Procedures
The tubes with QUICKSEAL® collars were filled with sterile medium supportive of bacterial growth. The collars were cut and the samples were placed in a freezer set to -100°C for 48 hours. The samples were thawed and then immersed tubes into a bacterial solution (Brevundimonas diminuta). During immersion the system is cycled between positive 15psig and negative 10psig.

Fluid from the sealed tubing is plated, in triplicate, on soybean casein digest agar (SCDA) and incubated for 7 days and observe for growth of organisms as indicated by colony forming units (CFU).

The scope of this test is limited seals at ambient conditions on silicone & C-Flex® tubing. Tubes have outer diameters of 1/4" and 3/8".

Study Results
No growth was observed on any of the agar plates. Positive controls showed growth and negative controls showed no growth.

Study Conclusion
A cut QUICKSEAL® collar is a microbial barrier after freeze/thaw cycle at -100°C for 48 hours.

XVII. Material Chain of Custody

The TAKEONE® aseptic sampling device includes; the TAKEONE® aseptic sampling device, tubing for transfer of fluid from the device to the collection vessel and a variety of sample collection vessels options. The combination of materials of the final assembly, indicate the assembly's actual material of construction and compliance to standards. Each TAKEONE® design is provided with a technical drawing which indicates the materials of construction.

Below is a summary of the fluid-contact materials of the TAKEONE® device:

Component Name	Component Description	Raw Material(s) Generic	Raw Material(s) Resin	USP Class VI / ISO 10993	TSE/BSE
TAKEONE® Mount	Sanitary fitting to connect TAKEONE® to vessel, etc	316L Stainless Steel	316L Stainless Steel	NA	Animal derivative free
TAKEONE® Septa	Self-sealing septa overmolded to and hermetically sealed to TAKEONE® Mount	Platinum-cured Silicone	Elastosil® LR3003/50 A,B	✓	Animal derivative free
TAKEONE® Body & Tabs	Housing of TAKEONE®; secured to TAKEONE® mount	PBT High Temperature Glass Reinforced Polyester	Valox™ HX420HP-1H1001	✓	Animal derivative free
Cannula Diaphragm	Flexible diaphragm molded to cannula - between the upper and lower halves of TAKEONE® body	Platinum-cured Silicone	Momentive™ Platinum-cured silicone 6030	✓	Animal derivative free
Cannula	2 mm needle that punctures TAKEONE® Septa during actuation; acts as fluid conduit	316L Stainless Steel	316L Stainless Steel	NA	Animal derivative free

AllPure offers a variety of sample collection vessels. Below is a summary of the components of the variety of sample collection vessels.

Component Name	Component Description	Raw Material(s) Generic	Raw Material(s) Resin	USP Class VI / ISO 10993	TSE/BSE
Fluid Tubing	Acts as conduit for fluid transfer	Platinum-cured Silicone	Watson-Marlow™ 913.D Platinum-Cured Silicone	✓	Animal derivative free
		C-Flex® (374)	C-Flex® R70-374-000	✓	Animal derivative free
		Platinum-cured Silicone	Dow Pharma 50	✓	Animal derivative free
Hose Barbed & Luer Fittings	Connectors that connect two tubes or more tubes together or luers	Polypropylene	P5080-X/P5M6K-080X	✓	Animal derivative free
EVA Sampling Bag	Multi-layer sample collection vessel. Contact surface is ethyl vinyl acetate	Ethyl Vinyl Acetate	S71 Film	✓	Exceeds WHO/CDS/VPH/95.145, CPMP/BWP/1230/98 or EMEA/410/01 rev 3
PETG Sampling Bottle (322020-XXXX)	PETG sampling bottle	PETG	Nalgene® 8-0001-32	✓	Animal derivative free
PC Sampling Bottle (2015-XXXX)	PC sampling bottle	Polycarbonate	Nalgene® 8-0056-01	✓	Exceeds WHO/CDS/VPH/95.145, CPMP/BWP/1230/98 or EMEA/410/01 rev 3
Centrifuge Tube	Tube used for sampling collection	Polypropylene (Tube only)	Consult Factory	✓	Animal derivative free
Centrifuge Tube	Tube used for sampling collection	Polystyrene (Tube only)	Consult Factory	✓	Animal derivative free
MYCAP™ Bottle Closures	Single-piece molded stopper for bottle caps or closures	Platinum-cured Silicone	Bluesil® RTV1556	✓	Animal derivative free
MYCAP™ Adapter	Adaptor to fit 24-430 MYCAP to 30mL PETG & Polycarbonate bottle and 15mL Polystyrene Centrifuge Tube	HDPE	Purell® GC 7260	✓	Exceeds WHO/CDS/VPH/95.145, CPMP/BWP/1230/98 or EMEA/410/01 rev 3
Needleless Access Site	Swabble, luer activated access site	Polycarbonate	Makrolon® Rx 1805 451118	✓	Animal derivative free
		Platinum-cured silicone	Wacker LR3003/40, DT Color K57238	✓	Animal derivative free
Stopcock Manifolds	Stopcock valve assembly to divert fluid flow	Polycarbonate	Makrolon® 2658	✓	Exceeds WHO/CDS/VPH/95.145, CPMP/BWP/1230/98 or EMEA/410/01 rev 3
		High Density Polyethylene	Purell® GC 7260	✓	
		Polycarbonate	Lexan™ HPS 71125	✓	
Colder AseptiQuik® S Standard	Aseptic connecting device for aseptic connection of tubing	Polycarbonate Silicone Rubber Polyethylene	Consult Factory	✓	Animal derivative free
Minisart® Air Syringe Filters	0.2µm Hydrophobic PES membrane filter with PP Housing for sterile air venting	PES Polypropylene	Consult Factory	✓	Exceeds WHO/CDS/VPH/95.145, CPMP/BWP/1230/98 or EMEA/410/01 rev 3

AllPure does contract some services to external companies. The table below summarizes operations including external services.

Manufacturing Operations

Operation	Manufacturer(s)
Assembly	Sartorus-Stedim Biotech
Electropolished Cannulas	Connecticut Hypodermics, Inc.
Gamma Irrdiation	Steris Isomedix Corporation

sartorius stedim
biotech

TAKEONE® Aseptic Sampling System

Lot Number:	Gamma Irradiation ID:
Date of Manufacture:	Date of Irradiation:
Part Number:	
Drawing Number:	Drawing Revision:
Description:	

Certificate of Compliance

AllPure Technologies, LLC certifies that this product conforms to the contents listed below:

Quality System and Manufacturing

- AllPure quality and operating systems adhere to the key principles of GMPs.
- The TAKEONE® Sampling system is manufactured in a cleanroom environment that meets the requirements of ISO Class 7.

Statements

- Consult the approved AllPure drawing for this product's list of component part numbers and materials of construction.
- AllPure maintains full lot traceability on all components and assemblies.
- This product is not intended for use in implantable patient applications (human or animal) including, but not limited to, medical and dental use.

Material Compliance and Product Testing Standards

- Product is manufactured from components that meet the criteria for USP Class VI.
- The TAKEONE® Sampling Device is compliant to:
  USP <85> Bacterial Endotoxin Test (<0.125 EU/mL)
  USP <788> Microscopic Particle Count (≤ 3 particles/mL ≥ 25 µm, ≤ 25 particles/mL ≥ 10 µm)
- Gamma Irradiation Validation has been performed for an SAL of 10^{-6} per ANSI/AAMI/ISO11137-2 (VD_{MAX}25).
- Product has been inspected and integrity tested per applicable AllPure protocols.

Recommended Storage Conditions

- Store in a controlled, room-temperature environment away from direct sunlight.
- This certification applies only to product in unopened packaging stored per above.

Certified,

Quality Representative

XIX. Recommended SOPs & Operating Instructions

Collecting a sample

1.1 Support sampling vessel for duration of sampling

  1.1.1 Do not allow more than 5kg of weight to hang unsupported from sampling device

1.2 Remove safety stop by pulling tab

1.3 Use thumb/finger to fully depress thumb tab, during sampling

1.4 Remove thumb/finger from thumb tab when desired sampling volume is reached

1.5 Reinstall safety stop into vacant slot

1.6 Separate sample vessel from TAKEONE® device using Quickseal aseptic disconnect

1.7 Repeat steps1.1 - 1.6 for additional samples

Using a Stopcock Manifold

1.1 Sample #1

  1.1.1 Select sampling bag and support it for duration of sampling

    1.1.1.1 Do not allow more than 5kg of weight to hang unsupported from sampling device

  1.1.2 Divert stopcock valve so fluid pathway is directed into desired sampling vessel

  1.1.3 Remove safety stop by pulling tab

  1.1.4 Use thumb/finger to fully depress thumb tab, during sampling

  1.1.5 Remove thumb/finger from thumb tab when desired sampling volume is reached

  1.1.6 Separate sample vessel from TAKEONE® device using Quickseal aseptic disconnect.

  1.1.7 Reinstall safety stop into vacant slot

1.2 Sample #2 and beyond

  1.2.1 Divert stopcock valve so fluid pathway is directed into purge vessel

    1.2.1.1 Support purge vessel for duration of purge

    1.2.1.2 Do not allow more than 5kg of weight to hang unsupported from sampling device

  1.2.2 Remove safety stop by pulling tab

  1.2.3 Use thumb/finger to fully depress thumb tab allowing enough fluid into purge vessel to adequately clear sampling line

  1.2.4 Remove thumb/finger from thumb tab when desired sampling volume is reached

  1.2.5 Repeat step 1.1 for sample collection

1.3 Repeat step 1.2 for additional samples

Using a BENCHMARKd or BENCHMARKdq sampling line

1.1 Sample #1

1.1.1 Remove male luer cap from access site and swab with 70% IPA

1.1.2 Select and engage the sample collection container to access site

1.1.2.1 Grasp the access site and align the male luer lock fitting on collection vessel so that it will be pushed straight (not at an angle) into the seal

1.1.2.2 Twist the male luer fitting on sample collection vessel into place

1.1.3 Twist the male luer fitting on sample collection vessel into place

1.1.4 Use thumb/finger to fully depress thumb tab, during sampling

1.1.5 Disengage male luer fitting on sample collection vessel to remove. Be sure to grasp body of access site

1.1.6 Disengage male luer fitting on sample collection vessel to remove. Be sure to grasp body of access site

1.1.7 Replace male luer cap

1.1.8 Reinstall safety stop into vacant slot

1.2 Sample #2 and beyond

1.2.1 Remove male luer cap from access site and swab with 70% IPA

1.2.2 Select and engage the purge/waste collection vessel to access site

1.2.2.1 Grasp the access site and align the male luer lock fitting on collection vessel so that it will be pushed straight (not at an angle) into the seal

1.2.2.2 Twist the male luer fitting on sample collection vessel into place

1.2.3 Remove safety stop by pulling tab

1.2.4 Use thumb/finger to fully depress thumb tab, during sampling

1.2.5 Disengage male luer fitting on sample collection vessel to remove. Be sure to grasp body of access site

1.2.6 Swab access site with 70% IPA

1.2.7 Repeat step 1.1 for sample collection

1.3 Repeat step 1.2 for additional samples

The luer-activated access site on Benchmark assembly has been validated by the component manufacturer to maintain a microbial barrier after 140 actuations over 7 days. Contact component manufacturer Halkey | Roberts® for more information.

Aseptic Disconnect with QUICKSEAL®

1.1 Select QUICKSEAL® cutter (or other approved cutting tool) to storage location

1.2 Support sample collection vessel or tubing downstream from QUICKSEAL® collar

1.3 Cut QUICKSEAL® collar perpendicular to the tubing between the indicators on the collar

1.4 Return QUICKSEAL® cutter (or other approved cutting tool) to storage location

Lockout/Tagout of Sampling Line

1.1 Select thumb-press of sampling line to perform lockout/tagout procedure to

1.2 Select QUICKSEAL® small diameter cutter (or other approved device)

1.3 Grasp the safety stop of selected sampling line at the end that engages onto the stem of the thumb tab

1.4 Using the QUICKSEAL® small diameter cutter cut the safety stop between the portion that engages onto the stem of the thumb tab and the portion that the tether is connect to

1.5 Reinstall safety stop onto the thumb tab and confirm proper cutting and installation by attempting to remove the thumb tab

XX. AllPure's Operations

AllPure Technologies, LLC's headquarters is in New Oxford, Pennsylvania. The facility houses engineering, product development, sales and marketing offices and warehousing and manufacturing space. Product manufacturing occurs in an ISO 7 (Class 100,000 clean room) per ISO 14644-1 and in accordance with applicable cGMPs.

Contact us for further details or precise questions about our quality and operating systems or to schedule an on-site audit.

Material Receipt
Components received at New Oxford arrive in two forms; double-bagged and clean or bulk-packed. Double-bagged and clean materials (tubing, for example) are received into our Class 7 cleanroom per incoming inspection and testing procedures. Bulk-packed items are cleaned and transferred into the cleanroom per incoming inspection and testing procedures.

Viable Organism Control and Monitoring
In addition to line clearance and weekly cleaning of equipment and work surfaces, monthly cleaning of the cleanroom with a schedule of LpH, Vesphene® and Spor Klenz® occurs per AllPure's Cleanroom Management and Cleaning procedures.

Viable organisms are measured quarterly to monitor the effectiveness of the Cleanroom Management and Cleaning procedures and to be compliant to EU GMPs and ISO14698. As of the drafting of this document, viable monitoring is up-to-date:

Air Viables	< 100CFU
Surface Viables	< 25CFU
Wall Viables	< 5CFU

Non-Viable Control and Monitoring
Line clearance, weekly cleaning of equipment and work surfaces and monthly cleaning of the cleanroom reduce and control non-viable particles.

Non-viable readings are recorded weekly to ensure 0.5 µm/m3 and 5.0 µm/m3 particles are within the ISO Class 7 acceptance criteria, per ISO 14644-1.

Packaging and Final Inspection
The finished products are double-bagged within the Class 7 cleanroom and receive multiple in-process and final inspections including inspection for visible particles on a light box before release by quality for shipment to our customers.

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