WHO Prequalification of In Vitro Diagnostics

PUBLIC ASSESSMENT REPORT

Product: BD Onclarity HPV Assay for the BD COR System
WHO reference number: PQDx 12411-10176-00

The BD Onclarity HPV Assay for the BD COR System, with product code 443982, manufactured by Becton, Dickinson and Company, CE-mark regulatory version, was accepted for the WHO list of prequalified in vitro diagnostics and was listed on 13 October 2025.

Summary of the WHO prequalification assessment for the BD Onclarity HPV Assay for the BD COR System

	Date	Outcome
Prequalification listing	13 October 2025	listed
Dossier assessment	20 May 2025	MR
Product performance evaluation	Waived	MR

MR: Meets Requirements

Report amendments and product changes

This public report has since been amended. Amendments may have arisen because of changes to the prequalified product for which the WHO has been notified and has undertaken a review. Amendments to the report are summarized in the following table, and details of each amendment are provided below.

Version	Summary of amendments	Date of report amendment
2.0	Correction of the manufacturer's name and the WHO's manufacturer's identification number in the WHO Public Assessment Report (WHOPAR).	23 February 2026

Intended use

According to the intended use claim from the manufacturer in the Instructions for Use *(version L011461(11) 2023-10*)), "*The BD Onclarity HPV Assay is an amplified DNA test for the qualitative detection of high risk types of human papillomavirus (HPV).*

The assay detects all high risk HPV types (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68) and provides the capability for individually genotyping six high risk types (HPV 16,18, 31, 45, 51, and 52) and three genotype groups (33/58, 35/39/68, and 56/59/66).
Cervical specimens that are tested with the BD Onclarity HPV Assay include the BD Onclarity HPV Cervical Brush Collection Kit, BD SurePath Preservative Fluid, and PreservCyt Solution (using an aliquot that is removed prior to or after processing for either the BD SurePath or ThinPrep Pap test). Self-collected vaginal specimens can also be tested with the BD Onclarity HPV Assay for cervical cancer screening. The BD Onclarity HPV Assay is indicated for use for routine cervical cancer screening as per professional medical guidelines, including triage of ASC-US cytology, co-testing (or adjunctive screen) with cytology, and HPV primary screening of women to assess the risk for cervical precancer and cancer. Patients should be followed-up in accordance with professional medical guidelines, results from prior screening, medical history, and other risk factors. The BD Onclarity HPV Assay is an automated assay performed with the BD COR System."

Reagents and materials provided

Contents	**Quantity**
BD Onclarity HPV Assay Reagent Pack Catalog Number 443982	576 Tests
Control Set for the BD Onclarity HPV Assay Catalog Number 441993	24 Sets
Control Set for the BD Onclarity HPV Assay BD Catalog No. 445026	372 Sets
BD Onclarity HPV Liquid Based Cytology Specimen (LBC) Diluent Catalog Number 442840	400 Tubes
BD Onclarity HPV Liquid Based Cytology Specimen (LBC) Diluent Catalog Number 444046	48 Tubes
BD Onclarity HPV Assay Diluent for BD COR Catalog Number 443983	4 Bottles
BD Onclarity HPV Extraction Reagent Trough Catalog Number 443981	2 Troughs
BD Onclarity HPV Cervical Brush Collection Kit Catalog Number 441991	100 Pouches
BD Onclarity HPV Self Collection Diluent Tubes Catalog Number 444869	400 Tubes
BD Molecular Aliquot Tubes Catalog Number 443975	24 x 63 Tubes
BD COR Neutralization Pouch Catalog Number 444820	12 Pouches
BD Pipette Tips 1000 µL, Filtered, Conductive Catalog Number 443996	4,800 Tips
BD COR PX Waste Biohazard Bags Catalog Number 444816	50 Bags
BD COR GX Waste Biohazard Bags Catalog Number 444834	50 Bags

BD COR Molecular Aliquot Rack Cover Catalog Number 444745	40 Covers
BD Pierceable Caps Catalog Number 440295	200 Caps
BD Pierceable Caps Pink Catalog Number 440331	400 Caps
BD Viper LT PCR Tube/Tray Kit Catalog Number 442957	20 Pieces
BD COR System BD COR PX instrument Catalog Number 443988 BD COR GX instrument Catalog Number 443990	1 System
BD Key Card Catalog Number 443747 1,000	Each

Items required but not provided

Item
Vortex Mixer
Nitrile gloves
Displacement pipettes and polypropylene aerosol-resistant tips capable of delivering 0.5 ± 0.05 mL
0.5% or 1.0% (v/v) sodium hypochlorite
3% (v/v) hydrogen peroxide
Isopropyl alcohol
Molecular biology-grade nuclease free water
BD Syringing Pipettes

Storage temperature and Stability

Parameter	**Condition**
Storage Temperature	BD Onclarity HPV Cervical Brush Diluent Tube must be stored at 2–25 °C until the indicated expiration date. All other reagents must be stored at 2–33 °C until the indicated expiration date.
Shelf Life[1]	12 months.

Dossier review

[1] The assigned device shelf-life is based on stability data generated from the date of manufacture. The finished goods shelf-life, calculated from the date of packaging completion, may be shorter depending on the time elapsed between manufacture and final packaging of the device.

The manufacturer submitted a product dossier as per the "Instructions for compilation of a product dossier" (PQDx_018). The information (data and documentation) submitted in the product dossier was reviewed by WHO staff and external technical experts (assessors) appointed by WHO.

The manufacturer's responses to the discrepancies found during dossier screening and assessment findings were accepted on 20 May 2025.

Based on the screening and assessment of the product dossier, the BD Onclarity HPV Assay for the BD COR System meets WHO prequalification requirements.

Manufacturing site inspection

The inspection of the manufacturing site(s) was conducted to assess whether the manufacturer's quality management system (QMS) and manufacturing practices are in alignment with:
(i) applicable international standards, such as ISO 13485 (Medical devices – Quality management systems – Requirements for regulatory purposes);
(ii) the manufacturer's own documented procedures and quality requirements; and
(iii) other relevant international standards and guidelines applicable to in vitro diagnostic (IVD) medical devices. The WHO's Public Inspection Reports are accessible at:

https://extranet.who.int/pqweb/vitro-diagnostics/who-public-inspection-reports

Product performance evaluation

The objective of the performance laboratory evaluation is to assess the performance and operational characteristics of commercially available in-vitro diagnostics for the purpose of advising procurers and the governments of WHO Member States on these issues.

As of October 2025, WHO has taken the executive decision to adopt the fulfilment of Meijer's criteria in independent evaluations as the prequalification independent performance evaluation component for HPV nucleic acid tests.

Based on the risk level associated with the use of this category of product, it was decided that WHO will not conduct a performance evaluation of these categories of in vitro diagnostics as part of the prequalification assessment process.

Consequently, laboratory evaluation of the BD Onclarity HPV Assay for the BD COR System was not conducted.

Labelling review

The labelling submitted for the BD Onclarity HPV Assay for the BD COR System was reviewed by WHO staff and external technical experts appointed by WHO. The review evaluated the labelling for clarity and consistency with the information submitted in the product dossier, alignment with international guidance and standards, and suitability for the intended users and settings in WHO Member States, including low- and middle-income countries.

The table below provides traceability of the labelling documents reviewed during the assessment, including document titles, version numbers, approval dates, and control identifiers.

Controlled Labelling References

Document Type	Document Title	Version / Revision	Date Approved	Controlled Document No.
Instructions for Use (IFU)	BD Onclarity HPV Assay for the BD COR System	V11	11-Jun-2025	L011461
Outer box artwork	BD Onclarity HPV Assay Reagent Pack	V3	22-Mar-2024	500023786
Inner box artwork	BD Onclarity HPV Assay Reagent Pack	V3	22-Mar-2024	500033740
Pouch label	BD Onclarity HPV Assay PCR Plate	V3	22-Mar-2024	500023781

Labels

Artwork Number:	Catalog Number(s):	Label Sheet, 8.5"x11"
500023786	443982	
SAP/Blank Stock Number:	Category and Description:	Rev from: 02 Rev to: 03
N/A	Outer Carton Label, BD Onclarity™ HPV Assay Reagent Pack - EU	Job Number: 5-340701

BD Onclarity™ HPV Assay Reagent Pack

REF 443982

Σ 576

CE 2797 IVD

2 °C – 33 °C

bd.com/e-labeling

Becton, Dickinson and Company
7 Loveton Circle
Sparks, Maryland 21152 USA

EC REP Becton Dickinson Ireland Ltd.
Donore Road, Drogheda
Co. Louth, A92 YW26
Ireland

CH REP BD Switzerland Sàrl
Route de Crassier 17
Business Park Terre-Bonne
Bâtiment A4
1262 Eysins, Switzerland

Australian and New Zealand Sponsors:
Becton Dickinson Pty Ltd., 66 Waterloo Road, Macquarie Park NSW 2113, Australia
Becton Dickinson Limited, 14B George Bourke Drive, Mt. Wellington Auckland 1060, New Zealand

Made in USA
500023786(03)

LOT LLLLLL YYYY-MM-DD

Placement of Production Identifier Bar Code
(17)YYMMDD (10) LLLLLL

Placement of Device Identifier with Check Digit
(01) 0038290 443982 8

All lines, crop marks and text in keyline blue color are not to be printed.

Artwork Number: 500033740	Catalog Number(s): 443982	Label Sheet, 8.5"x11"
SAP/Blank Stock Number: N/A	Category and Description: Inner Carton Label, BD Onclarity™ HPV Assay Reagent Pack - EU	Rev from: 02 Rev to: 03
		Job Number: 5-340701

BD Onclarity™ HPV Assay Reagent Pack

REF 443982

192

CE 2797

IVD

Becton, Dickinson and Company
7 Loveton Circle
Sparks, Maryland 21152 USA

EC REP Becton Dickinson Ireland Ltd.
Donore Road, Drogheda
Co. Louth, A92 YW26
Ireland

CH REP BD Switzerland Sàrl
Route de Crassier 17
Business Park Terre-Bonne
Bâtiment A4
1262 Eysins, Switzerland

Australian and New Zealand Sponsors:
Becton Dickinson Pty Ltd., 66 Waterloo Road, Macquarie Park NSW 2113, Australia
Becton Dickinson Limited, 14B George Bourke Drive, Mt. Wellington Auckland 1060, New Zealand

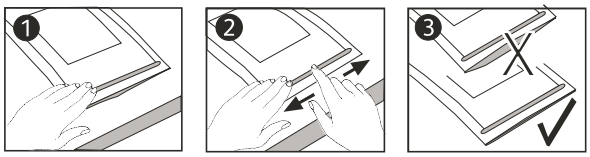
500033740(03) Made in USA

LOT LLLLLL

YYYY-MM-DD

All lines, crop marks and text in keyline blue color are not to be printed.

Artwork Number: 500023781	Catalog Number(s): HALB - 700009231	Label Sheet, 8.5"x11"
SAP/Blank Stock Number: N/A	Category and Description: Pouch Label, BD Onclarity™ HPV Assay PCR Plate	Rev from: 02 Rev to: 03 Job Number: 5-340701



BD Onclarity™ HPV Assay PCR Plate 32

Becton, Dickinson and Company, 7 Loveton Circle, Sparks, Maryland 21152 USA

Made in USA
500023781(03)

LOT LLLLLL 1234567
YYYY-MM-DD

All lines, crop marks and text in keyline blue color are not to be printed.

Instructions for Use[2]

[2] English version of the IFU was the one that was assessed by WHO. It is the responsibility of the manufacturer to ensure correct translation into other languages.

BD Onclarity™ HPV Assay for the BD COR™ System

CE 2797 IVD bd.com/e-labeling

L011461(11)
2023-10
English

REF 443981 REF 443982 REF 443983

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L011461(11)
2023-10
English

REF 443981 REF 443982 REF 443983

INTENDED USE

The BD Onclarity™ HPV Assay is an amplified DNA test for the qualitative detection of high risk types of human papillomavirus (HPV). The assay detects all high risk HPV types (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68) and provides the capability for individually genotyping six high risk types (HPV 16,18, 31, 45, 51, and 52) and three genotype groups (33/58, 35/39/68, and 56/59/66). Cervical specimens that are tested with the BD Onclarity™ HPV Assay include the BD Onclarity™ HPV Cervical Brush Collection Kit, BD SurePath™ Preservative Fluid, and PreservCyt® Solution (using an aliquot that is removed prior to or after processing for either the BD SurePath™ or ThinPrep® Pap test). Self-collected vaginal specimens can also be tested with the BD Onclarity™ HPV Assay for cervical cancer screening. The BD Onclarity™ HPV Assay is indicated for use for routine cervical cancer screening as per professional medical guidelines, including triage of ASC-US cytology, co-testing (or adjunctive screen) with cytology, and HPV primary screening of women to assess the risk for cervical precancer and cancer. Patients should be followed-up in accordance with professional medical guidelines, results from prior screening, medical history, and other risk factors. The BD Onclarity™ HPV Assay is an automated assay performed with the BD COR™ System.

WARNING

The BD Onclarity™ HPV Assay is NOT intended:

- For use in determining the need for treatment (i.e., excisional or ablative treatment of the cervix) in the absence of high-grade cervical dysplasia.
- For women who have undergone hysterectomy.
- For use with cervical samples other than those collected by a clinician using the BD Onclarity™ HPV Cervical Brush Collection Kit or an endocervical brush/spatula combination or broom in the BD SurePath™ vial or PreservCyt® Solution.
- For use with self-collected vaginal samples other than those collected with the Copan FLOQSwabs® (Catalog Number 5E089N).
- For use with other non-gynecological specimens.

HPV-negative cancers of the cervix do occur in rare circumstances.[1,2] Also, no cancer screening test is 100% sensitive. Use of this device for primary cervical cancer screening should be undertaken after carefully considering the performance characteristics put forth in this label, as well as recommendations of professional guidelines.

The use of this test has not been evaluated for the management of women with prior ablative or excisional therapy, or who are pregnant.

SUMMARY AND EXPLANATION OF THE TEST

There are more than 100 different genotypes of human papillomavirus (HPV), of which 14 are considered high-risk for cervical cancer and its precursor lesions. It is one of the most common sexually transmitted viruses in the world: nearly all sexually active men and women will get HPV at some point in their lives.[3] According to the World Health Organization (WHO), cervical cancer is the fourth largest contributor to female cancer mortality worldwide, claiming an estimated 270,000 lives annually.[4] It is estimated that in 2017 there were 12,820 cases of cervical cancer and 4,210 deaths in the United States, which correspond, respectively, to an age-adjusted rate of 7.4 and 2.3 per 100,000 women, annually.[5] In many cases, HPV infections are transient, and the body will clear the virus on its own.

HPV is a double-stranded DNA virus with a circular genome of approximately 8,000 base pairs and encodes 8 open reading frames (ORFs). Its ORFs are divided into early and late genes involved in replication (i.e., E1 and E2) and packaging (i.e., L1 and L2) with the remaining genes (E6, E7, E5, and E4) playing roles in driving cell cycle entry, immune evasion, and virus release.[6] A persistent infection of one of the fourteen sexually transmitted HPV genotypes considered high risk (genotypes 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68) can lead to the development of cervical cancer and its precursor lesions.[7]

The identification of the HPV virus' relationship to cervical cancer disease has resulted in a rich volume of scientific activity in this field. These activities range from the development of therapeutic vaccines designed to prevent infection with HPV viruses to in vitro diagnostic tests for use as aids in cervical cancer screening and clinical patient management. Today, Pap tests can inform a clinician if there are changes to the cervical cells. If those cells are abnormal, an HPV test may be done to determine if those cervical changes are due to a high risk strain of HPV which can lead to cervical cancer. Not all molecular assays can distinguish among the different types of HPV. The BD Onclarity™ HPV Assay detects HPV types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68, and allows simultaneous, discrete identification of the high-risk types 16, 18, 31, 45, 51, and 52.

The clinical performance of the BD Onclarity™ HPV Assay has been investigated in multiple published studies, including PreservCyt®,[8-15] BD SurePath™,[16-27] liquid preservative media, and self-collected vaginal specimens.[28-34]

PRINCIPLES OF THE PROCEDURE

The BD Onclarity™ HPV Assay is based on two major processing steps: 1) automated specimen preparation to homogenize the matrix, lyse cells, and extract cellular DNA; and 2) PCR amplification of target DNA sequences using primers and fluorescently-labeled detector probes for both HPV and human beta globin. Human beta globin amplification and detection is included in the BD Onclarity™ HPV Assay to differentiate HPV negative specimens from those that do not exhibit HPV signal due to insufficient cell mass in the specimen. The human beta globin serves as an internal control of the entire test by concurrently assessing specimen processing, extraction, and amplification. The BD Onclarity™ HPV Assay uses HPV target regions for primers and probes (E6/E7 oncogenes) that provide robust detection of HPV genotypes reducing the potential risk for lack of detection due to nucleic acid deletions and/ or mutations.[35,36] Testing on the BD COR™ System allows for automated sample conversion from preservative vials to sample diluent tubes.

The automated specimen preparation for the BD Onclarity™ HPV Assay is completed by the BD COR™ PX instrument. On the BD COR™ GX instrument, cervical specimens are extracted using BD FOX™ Extraction to release cellular DNA. The purified cellular DNA solution from each extracted specimen is transferred into PCR tubes containing reagents which are then sealed to prevent contamination.

The BD Onclarity™ HPV Assay reagents are dried in three individual PCR tubes that are capable of detecting 14 high risk HPV genotypes and a specimen-derived internal control consisting of a fragment of DNA from the human beta globin gene. These genotypes are reported either individually (16, 18, 31, 45, 51, 52) or as genotype groups (33/58, 59/56/66, and 35/39/68). Each of the three PCR tubes contains specific oligonucleotide sets to detect HPV genotype DNA and an oligonucleotide set to detect a region of the human beta globin gene.

The BD Onclarity™ HPV Assay uses real-time PCR technology.[37] The detection of the target DNA is accomplished using TaqMan® DNA probes that include a fluorescent dye at the 5' end and a quenching molecule at the 3' end of the oligonucleotide. The BD Onclarity™ HPV Assay utilizes fifteen probes labeled with one of four fluorescent dyes. Each dye is paired with one of two Black Hole Quencher molecules (BHQ® Dye). Fluorescent detection of amplification occurs in four separate optical channels on the BD COR™ System.

REAGENTS

BD Onclarity™ HPV Assay Reagent Pack (576 tests) Catalog Number 443982		
Components	**Quantity per kit**	**Ingredients**
BD Onclarity™ HPV PCR Plate	18 x 32 tests	HPV PCR plates contain the following ingredients. G1, G2 and G3 tubes each contain unique primers and probes. Tris Buffer Glycerol Trehalose <1.00% Upstream and downstream HPV primers <0.06% Upstream and downstream beta-globin primers <0.62% Fluorescent-labeled HPV probes <0.12% Fluorescent-labeled beta-globin probes <1.97% Hot Gold Star polymerase (microbial)
BD FOX™ PCR Extraction Tubes	18 x 32 tests	Iron Oxide in dissolvable film
Safety and Warnings		
N/A		

Control Set for the BD Onclarity™ HPV Assay Catalog Numbers 441993, 445026		
Components	**Quantity per kit**	**Ingredients**
BD Onclarity™ HPV Positive Control	Catalog Number 441993: 24 x 0.05 mL (dried) Catalog Number 445026: 372 x 0.05 mL (dried)	<1.178% Nonspecific DNA (biological) <0.077% Non-infectious plasmid DNA (microbial) containing HPV-16, 18, 56 sequences <0.013% Non-infectious plasmid DNA (microbial) containing human beta-globin sequence
BD Onclarity™ HPV Negative Control	Catalog Number 441993: 24 x 0.05 mL (dried) Catalog Number 445026: 372 x 0.05 mL (dried)	<1.182% Nonspecific DNA (biological)
Safety and Warnings		
N/A		

BD Onclarity™ HPV Extraction Reagent Troughs for BD COR™ Catalog Number 443981		
Components	**Quantity per kit**	**Ingredients**
BD Onclarity™ HPV Extraction Reagent Troughs for BD COR™	2 troughs	Sodium Phosphate, Monobasic Proclin 300 <0.109% Detergent <22.0% Sulfuric Acid <38.0% Potassium Hydroxide <0.3% Tris Base <2.9% Tris HCl

Safety and Warnings

DANGER

EUH208 Contains (CMIT/MIT mixture (3:1) - a mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC No 247-500-7] and 2-methyl-4-isothiazolin-3-one [EC No 220-239-6] (3:1)). May produce an allergic reaction.
EUH210 Safety data sheet available on request.
H314 Causes severe skin burns and eye damage.
H350 May cause cancer.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P264 Wash face, hands and any exposed skin thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P363 Wash contaminated clothing before reuse.
P405 Store locked up.
P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.
Contains: Sulfuric acid

BD Onclarity™ HPV Diluent Catalog Numbers 443983, 442840, 444046		
Components	**Quantity per kit**	**Ingredients**
BD Onclarity™ HPV Assay Diluent for BD COR™ **Or** **BD Onclarity™ HPV LBC Diluent Tubes**	Catalog Number 443983: 4 x 750 mL Catalog Number 442840: 400 x 1.7 mL Catalog Number 444046: 48 x 1.7 mL	<0.9% Detergent <0.05% Proclin <4.0% Tris HCl <5.0% Tris Base <1.5% Sodium Chloride
Safety and Warnings		

WARNING
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P363 Wash contaminated clothing before reuse.
P391 Collect spillage.
P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Contains: CMIT/MIT mixture (3:1) - a mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC No 247-500-7] and 2-methyl-4-isothiazolin-3-one [EC No 220-239-6] (3:1)

Authorization number: REACH/23/8/0 (CAS 9036-19-5)

BD Onclarity™ HPV Cervical Brush Collection Kit Catalog Number 441991		
Components	**Quantity per kit**	**Ingredients**
BD Onclarity™ HPV Cervical Brush Diluent (CBD) **Cervical Brush**	100 x 2.2 mL 100 brushes	<0.9% Detergent <0.05% Proclin <4.0% Tris HCl <5.0% Tris Base <1.5% Sodium Chloride
Safety and Warnings		

WARNING
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 Wash face, hands and any exposed skin thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P363 Wash contaminated clothing before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.
P391 Collect spillage.
P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Contains: CMIT/MIT mixture (3:1) - a mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC No 247-500-7] and 2-methyl-4-isothiazolin-3-one [EC No 220-239-6] (3:1)

Authorization number: REACH/23/8/0 (CAS 9036-19-5)

BD Onclarity™ HPV Self Collection Diluent Tubes (400 tests) Catalog Number 444869		
Components	**Quantity per kit**	**Ingredients**
HPV Self Collection Diluent Tubes	400 x 3.0 mL	<0.9% Detergent <0.05% Proclin <4.0% Tris HCl <5.0% Tris Base <1.5% Sodium Chloride
Safety and Warnings		

WARNING
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.
P391 Collect spillage.
P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.
Contains: CMIT/MIT mixture (3:1) - a mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC No 247-500-7] and 2-methyl-4-isothiazolin-3-one [EC No 220-239-6] (3:1)
Authorization number: REACH/23/8/0 (CAS 9036-19-5)

WARNING AND PRECAUTIONS

1. For in vitro diagnostic use. For Use by Trained Laboratory Personnel.
2. For warnings, precautions and cleaning procedures related to automated instrumentation, consult the BD COR™ System User's Manual.
3. Pathogenic microorganisms, including hepatitis viruses and Human Immunodeficiency Virus, may be present in clinical specimens. "Standard Precautions"[38-41] and institutional guidelines should be followed in handling all items contaminated with blood and other body fluids. For additional specific warnings, cautions and notes specific to the BD COR™ System, consult the BD COR™ System User's Manual.
4. Collect and dispose of all used and unused reagents and any other contaminated disposable materials following procedures for biohazardous or potentially biohazardous waste. It is the responsibility of each laboratory to handle solid and liquid waste according to their nature and degree of hazardousness and to adequately treat and dispose of them (or have them treated and disposed of) in accordance with any applicable regulations. Do not discharge liquid waste down the drain where prohibited.

Specimen

1. Optimal performance of the BD Onclarity™ HPV Assay requires proper specimen collection, handling and testing within the expiration dating of the BD Onclarity™ HPV LBC Diluent and BD Onclarity™ HPV Self Collection Diluent Tubes.
2. Proper labeling should accompany each specimen to the laboratory.
3. Take care to avoid cross-contamination during the specimen handling steps. Ensure that specimen containers do not contact one another, and discard used materials without passing over open containers. If gloves come in contact with specimen, change gloves to avoid contamination.
4. Cervical specimens that may be tested with the BD Onclarity™ HPV Assay include those collected with the BD Onclarity™ HPV Cervical Brush Collection Kit, or those in BD SurePath™ (using an aliquot that is removed prior to or after processing with the BD SurePath™ Pap test) or PreservCyt® solution (using an aliquot that is removed prior to or after processing for the ThinPrep® Pap test).
5. Vaginal specimens that may be tested with the BD Onclarity™ HPV Assay include those collected with the Copan FLOQSwab® (Catalog Number 5E089N).
6. The BD COR™ Tube Tray Cover (or the Molecular Aliquot Tube carrier used as a cover) is single use only. Discard after use.

Cytology Specimens (BD SurePath™ and/or PreservCyt®)

7. For liquid-based cytology specimens, use only the BD Onclarity™ HPV LBC Diluent Tubes.
8. Manually under- or over-dispensing of LBC specimen into the BD Onclarity™ HPV LBC Diluent Tube may affect assay performance. Over filling the tubes may also result in liquid overflow on the BD COR™ deck, and could cause contamination.
9. Use only polypropylene aerosol-resistant pipette tips to transfer specimens to the BD Onclarity™ HPV LBC Diluent Tubes.
10. BD SurePath™ LBC specimens transferred to BD Onclarity™ HPV LBC Diluent Tubes using the BD Totalys™ MultiProcessor can be tested with the BD Onclarity™ HPV Assay on the BD COR™.

Cervical Brush Specimens

11. For cervical brush specimens, use only the BD Onclarity™ HPV Cervical Brush Collection Kit.
12. To reduce unnecessary bleeding, do not over-rotate the cervical brush during specimen collection.
13. Do not test the BD Onclarity™ HPV Cervical Brush Diluent Tube if received in the laboratory without the brush present. A false negative test result may occur.

Vaginal Self-Collection Specimens

14. For Self-Collected vaginal specimens, use only the BD Onclarity™ HPV Self Collection Diluent Tubes.
15. Vaginal specimens may be self-collected at either the clinic or in the home setting.
16. Do not test the BD Onclarity™ HPV Self Collection Diluent Tube without a device present. A false negative test result may occur.

Assay/Reagent

17. Use only sample, control, and Molecular Aliquot tubes with pierceable caps on the BD COR™ System. Do not remove pierceable caps prior to running the instrument. Post pre-warm BD Onclarity™ LBC Diluent Tubes and BD Onclarity™ Self Collection Diluent Tubes with punctured caps are stable at 2–30 °C for 7 days without re-capping. Punctured caps should be replaced for storage outside of the aforementioned claims. For BD Onclarity™ HPV Cervical Brush Diluent Tubes, be sure to replace any previously punctured cap with a new cap prior to re-running on the instrument or prior to storage.
18. PCR plates come pre-assembled. Do not remove tubes from the tray. If tubes become dislodged do not use.
19. Use only the 1,000 µL BD pipette tips specified in this product insert (BD Catalog Number 443996).
20. Reagent pouches containing unused PCR plates MUST be carefully resealed after opening. Verify that desiccant is present prior to resealing the reagent pouches.
21. Do not use reagents after their expiration dates.
22. The Positive and Negative Controls are intended to monitor for substantial system failure and ensure reagent functionality. Quality control requirements must be performed in conformance with applicable regulations or accreditation requirements and your laboratory's standard Quality Control procedures.
23. Although dedicated work areas are not required because the BD COR™ System design reduces the possibility of amplicon contamination in the testing environment, other precautions for controlling contamination, particularly to avoid contamination of specimens during manipulation, are necessary.
24. CHANGE GLOVES if they come in contact with specimen or appear to be wet, to avoid contaminating other specimens. Change gloves before leaving work area and upon entry into work area.
25. Safety Data Sheets (SDS) are available at bd.com.
26. Contact BD Technical Service and Support in the event of an unusual situation, such as a spill into the BD COR™ System or DNA contamination that cannot be removed by cleaning.

STORAGE AND HANDLING REQUIREMENTS

1. Do not freeze reagents.
2. The BD Onclarity™ HPV Cervical Brush Diluent Tube should be stored at 2–25 °C until the indicated expiration date.
3. All other reagents may be stored at 2–33 °C until the indicated expiration date.
4. Once a PCR plate pouch is opened, the PCR plates are stable for 4 weeks at 2–33 °C if properly sealed or until the expiration date, whichever comes first.
5. Once placed on the BD COR™ System, the on-board stability is as follows:

Reagent	On-board Stability
BD Onclarity™ HPV PCR Plates	Up to 5 days
BD Onclarity™ Extraction Reagent Trough, punctured	Up to 5 days
BD Onclarity™ HPV Assay Diluent Bottle	Up to 45 days

Reagents and Materials Provided

Contents	Quantity
BD Onclarity™ HPV Assay Reagent Pack Catalog Number 443982	576 Tests
Control Set for the BD Onclarity™ HPV Assay Catalog Number 441993	24 Sets
Control Set for the BD Onclarity™ HPV Assay BD Catalog No. 445026	372 Sets
BD Onclarity™ HPV Liquid Based Cytology Specimen (LBC) Diluent Catalog Number 442840	400 Tubes
BD Onclarity™ HPV Liquid Based Cytology Specimen (LBC) Diluent Catalog Number 444046	48 Tubes
BD Onclarity™ HPV Assay Diluent for BD COR Catalog Number 443983	4 Bottles
BD Onclarity™ HPV Extraction Reagent Trough Catalog Number 443981	2 Troughs
BD Onclarity™ HPV Cervical Brush Collection Kit Catalog Number 441991	100 Pouches
BD Onclarity™ HPV Self Collection Diluent Tubes Catalog Number 444869	400 Tubes
BD Molecular Aliquot Tubes Catalog Number 443975	24 x 63 Tubes
BD COR™ Neutralization Pouch Catalog Number 444820	12 Pouches
BD Pipette Tips 1000 µL, Filtered, Conductive Catalog Number 443996	4,800 Tips
BD COR™ PX Waste Biohazard Bags Catalog Number 444816	50 Bags
BD COR™ GX Waste Biohazard Bags Catalog Number 444834	50 Bags
BD COR™ Molecular Aliquot Rack Cover Catalog Number 444745	40 Covers
BD Pierceable Caps Catalog Number 440295	200 Caps
BD Pierceable Caps Pink Catalog Number 440331	400 Caps
BD COR™ System BD COR™ PX instrument Catalog Number 443988 BD COR™ GX instrument Catalog Number 443990	1 System

Materials Required but Not Provided

- Vortex Mixer
- Nitrile gloves
- Displacement pipettes and polypropylene aerosol-resistant tips capable of delivering 0.5 ± 0.05 mL (if manually transferring LBC specimens)
- 0.5% or 1.0% (v/v) sodium hypochlorite
- 3% (v/v) hydrogen peroxide
- Isopropyl alcohol
- Molecular biology-grade nuclease free water
- BD Syringing Pipettes (if using the BD MultiProcessor)

Specimen Collection, Transport and Storage

PRECAUTION: Handle all specimens as if they are capable of transmitting infectious agents.

Specimen Collection

BD SurePath™ or PreservCyt® specimens must be collected using either an endocervical broom or a brush/spatula combination as described in the BD SurePath™ or PreservCyt® product insert. Specimens in BD Onclarity™ HPV Cervical Brush Diluent must be collected with the cervical brush included in the BD Onclarity™ HPV Cervical Brush Collection Kit as described in the product insert. Do not use the specimen after the expiration date on the tube. Copan FLOQSwabs® vaginal specimens should be collected per the device's instruction for use.

Specimen Transport and Storage

Specimen transport should comply with applicable regulations for the transport of etiological agents.

For use in the BD Onclarity™ HPV Assay, cervical specimens collected in BD Onclarity™ HPV Cervical Brush Diluent, BD SurePath™, PreservCyt® vials, or Copan FLOQSwabs® vaginal specimens may be stored according to the conditions listed, up to the specified timeframe:

Specimen Type	2–8 °C	2–30 °C	-20 °C
Specimen in BD SurePath™ vial (after collection and prior to dilution)	180 days	30 days	180 days
Specimen in PreservCyt® Solution vial (after collection and prior to dilution)	180 days	30 days	180 days
Self-collected vaginal specimen[a] (after collection dry transport)	30 days	30 days	30 days
Specimen in BD Onclarity™ HPV Cervical Brush Diluent (after collection in CBD diluent tube and prior to pre-warm)	180 days	30 days	180 days
Sample in BD Onclarity™ HPV LBC Diluent (after specimen dilution and prior to pre-warm)	15 days	15 days	90 days
Sample in BD Onclarity™ HPV Self Collection Diluent (after specimen transfer and prior to pre-warm)	15 days	15 days	15 days
Sample in BD Onclarity™ HPV LBC Diluent, capped post pre-warm[b] (after specimen dilution and sample pre-warm)	7 days	7 days	180 days
Sample in BD Onclarity™ HPV Cervical Brush Diluent, capped post pre-warm [c] (after collection in CBD diluent tube and sample pre-warm)	7 days	7 days	180 days
Sample in BD Onclarity™ HPV Self Collection Diluent, capped post pre-warm[b] (after specimen transfer and sample pre-warm)	7 days	7 days	7 days

[a] With up to 6 days exposure at 40 °C.

[b] Post pre-warm samples with punctured caps are stable at 2–30 °C for 7 days without re-capping. Punctured caps should be replaced for storage outside of the aforementioned claims.

[c] For BD Onclarity™ HPV Cervical Brush Diluent Tubes, the cap must be replaced prior to storage per the aforementioned claims.

Specimen Transfer

BD COR™ System Automated Specimen Transfer

BD Onclarity™ HPV Cervical Brush Diluent Tubes, BD Onclarity™ HPV Self Collection Diluent Tubes, BD SurePath™, or PreservCyt® vials can be loaded directly onto the BD COR™ PX Instrument. Automated transfer into the Molecular Aliquot Tubes will occur for BD SurePath™ or PreservCyt® vials. See BD COR™ System User's Manual for instructions to load the system.

If necessary for BD SurePath™ or PreservCyt® vials, follow the Specimen Transfer to BD Onclarity™ HPV LBC Diluent Tubes.

Specimen Transfer to BD Onclarity™ HPV LBC Diluent Tubes

NOTE: BD SurePath™ or PreservCyt® specimens may be manually transferred to BD Onclarity™ HPV LBC Diluent Tubes without using the BD COR™ System, however it is not required. See the BD Onclarity™ HPV LBC Diluent Tube product insert for additional information.

A 0.5 mL aliquot of the LBC specimen may be manually transferred from the original LBC vial to the BD Onclarity™ HPV LBC Diluent Tube. Wear gloves when handling the BD Onclarity™ HPV LBC Diluent Tube and the LBC specimen vial. If gloves come in contact with the specimen, immediately change them to prevent contamination of other specimens and handle one specimen at a time for processing.

A. Manual BD SurePath™ Specimen Transfer Prior to or after Processing for the BD SurePath™ Test

NOTE: Refer to the BD PrepStain™ Slide Processor or BD Totalys™ SlidePrep product insert for instructions on removing an aliquot from the BD SurePath™ specimen vial prior to performing the BD SurePath™ liquid-based Pap test.

NOTE: Handle one specimen at a time for processing.

1. Label a BD Onclarity™ HPV LBC Diluent Tube with patient identification information.
   NOTE: Do not cover the diluent tube product label barcode, as it is required for processing.
2. Remove the cap from the BD Onclarity™ HPV LBC Diluent Tube.
3. In order to ensure a homogenous mixture, vortex the BD SurePath™ specimen vial for 10–20 seconds.
4. Quickly transfer 0.5 mL from the specimen vial using an aerosol-resistant tip to the BD Onclarity™ HPV LBC Diluent Tube within 1 minute of vortexing.
5. Discard pipette tip.
   NOTE: A separate pipette tip must be used for each specimen.
6. Tightly recap the BD Onclarity™ HPV LBC Diluent Tube.
   NOTE: Bubbles may be seen upon recapping. To prevent bubbles, the user may discard the cap removed in Step 2 and replace with a new pierceable cap.
7. Invert the BD Onclarity™ HPV LBC Diluent Tube 3 to 4 times to ensure that the specimen and diluent are well mixed.
8. Load into the appropriate BD COR™ sample rack as indicated in the BD COR™ System User's Manual.

B. Automated BD SurePath™ Specimen Transfer Using BD Totalys™ MultiProcessor, Prior to or after Processing for the BD SurePath™ Test

1. Refer to the BD Totalys™ MultiProcessor User's Manual for instructions on removing an aliquot from the BD SurePath™ vial.
2. Refer to the BD Onclarity™ HPV LBC Diluent Tube product insert for instructions on loading the BD Onclarity™ HPV LBC Diluent Tube in the MultiProcessor for automated aliquot transfer.
3. Load into the appropriate BD COR™ sample rack as indicated in the BD COR™ System User's Manual.

C. Manual PreservCyt® Specimen Transfer Prior to or after Processing for the ThinPrep® Pap Test

NOTE: Refer to the ThinPrep® 2000/5000 System Operator's Manual Addendum for instructions on removing an aliquot from the PreservCyt® specimen vials prior to performing the ThinPrep® test.

NOTE: Handle one specimen at a time for processing.

1. Label a BD Onclarity™ HPV LBC Diluent Tube with patient identification information.
   NOTE: Do not cover the diluent tube product label barcode, as it is required for processing.
2. Remove the cap from the BD Onclarity™ HPV LBC Diluent Tube.
3. In order to ensure a homogenous mixture, vortex the PreservCyt® specimen vial at high speed for 8–12 seconds.
4. Immediately transfer 0.5 mL from the specimen vial using an aerosol-resistant tip to the BD Onclarity™ HPV LBC Diluent Tube.
5. Discard pipette tip.
   NOTE: A separate pipette tip must be used for each specimen.
6. Tightly recap the BD Onclarity™ HPV LBC Diluent Tube.
   NOTE: Bubbles may be seen upon recapping. To prevent bubbles, the user may discard the cap removed in Step 2 and replace with a new pierceable cap.
7. Invert the BD Onclarity™ HPV LBC Diluent Tube 3 to 4 times to ensure that the specimen and diluent are well mixed.
8. Load into the appropriate BD COR™ sample rack as indicated in the BD COR™ System User's Manual.

Specimen Transfer to BD Onclarity™ HPV Self Collection Diluent Tube

1. Uncap a BD Onclarity™ HPV Self Collection Diluent Tube.
2. Hold the test tube in one hand with the test tube opening facing away from your face.
3. Grip the end of the shaft with the thumb and forefinger of the other hand.
4. Align the breakpoint (red area with indent) with the edge of the tube.
5. Bend the swab shaft to an angle of 180° so that it breaks at the breakpoint. If necessary, gently turn the swab shaft until it is completely broken off. Discard the broken off part of the swab.
   NOTE: Breaking or cutting the shaft at the wrong location could result in downstream processing errors, delaying test results.
6. Tightly recap the BD Onclarity™ HPV Self Collection Diluent Tube.
   NOTE: Bubbles may be seen upon recapping. To prevent bubbles, the user may discard the cap removed in Step 1 and replace with a new pierceable cap.
   NOTE: Vortexing is not required for samples to be processed on the BD COR™ System.
7. Load into the appropriate sample rack as indicated in the BD COR™ System User's Manual.

QUALITY CONTROL

Controls must be loaded onto the BD COR™ System according to the BD COR™ System User's Manual. One BD Onclarity™ HPV Positive and one BD Onclarity™ HPV Negative Control are included automatically with each assay sample set. The HPV Positive Control will monitor for substantial reagent failure. The BD Onclarity™ HPV Negative Control monitors for reagent and/or environmental contamination. Additional controls may be tested according to applicable guidelines, requirements or regulations, refer to the BD COR™ System User's Manual for processing instructions.

INSTRUCTIONS FOR USE

Quality Control Processing

1. The control set for the BD Onclarity™ HPV Assay is provided separately and loaded directly on the BD COR™ System. There is no preparation of controls necessary when run on the BD COR™ System.
2. Load a BD COR™ Control Rack with BD Onclarity™ HPV Negative Controls and BD Onclarity™ HPV Positive Controls as instructed in the BD COR™ System User's Manual.
3. Controls may be stored on the instrument until product expiration, or once rehydrated for up to 7 days prior to pre-warming. After pre-warming, the controls may be stored for up to 7 days.
   NOTE: Once controls have been rehydrated and removed from the system they can no longer be used.

Processing Procedure for All Specimens

NOTE: If previously prepared specimens are frozen, make sure they are thawed completely at room temperature and mixed by inversion prior to proceeding.

Load specimens into the appropriate rack type for the sample container type to be tested as indicated in the BD COR™ System User's Manual.

Test Procedure

NOTE: Refer to the BD COR™ System User's Manual for detailed instructions for operating and maintaining the components of the system.

INTERPRETATION OF TEST RESULTS

The BD Onclarity™ HPV Assay uses the real-time polymerase chain reaction to detect the presence of Human Papillomavirus (HPV) in clinical specimens. All calculations are performed automatically by the BD COR™ System software. The presence or absence of clinically relevant HPV DNA is determined by the PCR cycle (Ct) at which the signal crosses a pre-established threshold. The assay will extract, amplify and detect a fragment of the human beta globin gene as an internal control to assess specimen processing, extraction, amplification, and to indicate the presence of PCR inhibitors. If the HPV-specific signal is greater than a cycle threshold, the internal control is utilized by the algorithm in the interpretation of the result. If the HPV-specific signal is less than or equal to a cycle threshold, the internal control is ignored by the algorithm.

For HPV specimens, an "HR" result (the combination of all genotypes) appears on the Tube Results Report. A positive result in this column indicates that the HPV assay detected one or more genotypes. Further results descriptions are outlined in Table 1. The "Positive Genotypes" column displays the positive genotype(s) detected.

Specific and combined genotypes appear in columns. If the results for a genotype are unmasked, those results are reported as explained below in Table 2. If enabled, results will be accompanied by a Ct value in parentheses to the right of the result. The "GT" column is used to report results for genotypes that are not available for unmasking based on the configuration of your system. Genotype results will remain blank if your system is configured for "HR" result only.

If assay control results are not as expected, patient results are not reported. See the Quality Control section for expected control results.

Table 1: Interpretation of High Risk HPV Genotype Test Results for the BD Onclarity™ HPV Assay

High Risk HPV Result	Interpretation	Result	Report
POS	Positive for High Risk HPV types	HPV HR Positive	HPV DNA detected by PCR.
NEG	Negative for High Risk HPV types	HPV HR Negative	HPV DNA not detected by PCR.
ICF	HPV DNA, if present, is not detectable	Internal Control Failure	Internal Control Failure. Repeat test from initial specimen tube or obtain another specimen for testing.
ETF	HPV DNA, if present, is not detectable	Extraction Transfer Failure	Extraction Transfer Failure. Repeat test from initial specimen tube or obtain another specimen for testing.
LLF	HPV DNA, if present, is not detectable.	Liquid Level Failure	Liquid Level Failure. Repeat test from initial specimen tube or obtain another specimen for testing.
INC	Aborted sample set or sample	Incomplete	Sample processing is incomplete. No results are available for controls or samples. Repeat test from initial specimen tube or obtain another specimen for testing.
QCF	Positive or Negative Control Failure	Quality Control Failure	No results are available for samples. Repeat test from initial specimen tube or obtain another specimen for testing.

Table 2: Interpretation of Specific HPV Genotype Test Results for the BD Onclarity™ HPV Assay

HPV Genotype Result	Interpretation	Result
16 POS	Positive for HPV type 16	HPV type 16 Positive
16 NEG	Negative for HPV type 16	HPV type 16 Negative
18 POS	Positive for HPV type 18	HPV type 18 Positive
18 NEG	Negative for HPV type 18	HPV type 18 Negative
45 POS	Positive for HPV type 45	HPV type 45 Positive
45 NEG	Negative for HPV type 45	HPV type 45 Negative
P1 POS	Positive for HPV types 33 and/or 58	HPV type 33 and/or 58 Positive
P1 NEG	Negative for HPV types 33 and/or 58	HPV type 33 and/or 58 Negative
31 POS	Positive for HPV type 31	HPV type 31 Positive
31 NEG	Negative for HPV type 31	HPV type 31 Negative
P2 POS	Positive for HPV types 56, 59 and/or 66	HPV type 56, 59 and/or 66 Positive
P2 NEG	Negative for HPV types 56, 59 and/or 66	HPV type 56, 59 and/or 66 Negative
51 POS	Positive for HPV type 51	HPV type 51 Positive
51 NEG	Negative for HPV type 51	HPV type 51 Negative
52 POS	Positive for HPV type 52	HPV type 52 Positive
52 NEG	Negative for HPV type 52	HPV type 52 Negative
P3 POS	Positive for HPV types 35, 39 and/or 68	HPV type 35, 39 and/or 68 Positive
P3 NEG	Negative for HPV types 35, 39 and/or 68	HPV type 35, 39 and/or 68 Negative
GT POS	Positive for unmasked HPV genotypes	Unmasked HPV genotype(s) Positive
GT NEG	Negative for unmasked HPV genotypes	Unmasked HPV genotype(s) Negative
ICF	HPV DNA, if present, is not detectable	Internal Control Failure
- -	No result reported	Liquid Level failure or Extraction Transfer failure

Interpretation of Quality Control Results

If assay control results are not as expected, patient results are not reported. If either of the controls does not provide the expected result, repeat the entire run (a new set of controls will be assigned to the sample set when re-processed by the BD COR™ System). If either of the controls is consistently invalid, contact BD Technical Service and Support for technical assistance.

Table 3: Interpretation of Quality Control Results

Control Type	Tube Result Report	QC Disposition
BD Onclarity™ HPV Positive Control	PASS	QC Pass
BD Onclarity™ HPV Positive Control	FAIL	QC Failure
BD Onclarity™ HPV Positive Control	ETF	QC Failure
BD Onclarity™ HPV Positive Control	LLF	QC Failure
BD Onclarity™ HPV Positive Control	INC	QC Failure
BD Onclarity™ HPV Negative Control	PASS	QC Pass
BD Onclarity™ HPV Negative Control	FAIL	QC Failure
BD Onclarity™ HPV Negative Control	ETF	QC Failure
BD Onclarity™ HPV Negative Control	LLF	QC Failure
BD Onclarity™ HPV Negative Control	INC	QC Failure

Refer to the Interpretation of Test Results for a description of Tube Result Report acronyms.

Monitoring for the Presence of DNA Contamination

Consult the BD COR™ System User's Manual for more information on Environmental Monitoring and Cleaning Procedures. If a contamination event does not resolve, contact BD Technical Service and Support for additional information.

PROCEDURAL LIMITATIONS

1. The BD Onclarity™ HPV Assay detects DNA of the high-risk types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68. This test does not detect DNA of HPV low-risk types (e.g., 6, 11, 42, 43, 44) since there is no clinical utility for testing of low-risk HPV types for cervical cancer screening.[42]
2. The BD Onclarity™ HPV Assay is not recommended for evaluation of suspected sexual abuse.
3. Optimal performance of the test requires adequate specimen collection, transport, storage and processing. Follow the procedures in this product insert and the BD COR™ System User's Manual.
4. A negative test result does not exclude the possibility of infection because test results may be affected by improper specimen collection, technical error, specimen mix-up, or the number of organisms in the specimen which may be below the sensitivity of the test.
5. The BD Onclarity™ HPV Assay provides qualitative results.
6. Use of the BD Onclarity™ HPV Assay is limited to personnel who have been trained in the assay procedure and the BD COR™ System.
7. The BD Onclarity™ HPV Assay has been validated for use with cervical specimens collected by a clinician using an endocervical brush/spatula combination or broom and placed in a BD SurePath™ vial or PreservCyt® Solution. In the clinical study, the Cytobrush® Plus GT Gentle Touch and Pap Perfect® Plastic Spatula (CooperSurgical, Inc.) and Rovers® Cervex-Brush® (Rovers Medical Devices B.V.) were used. BD SurePath™ cell pellets obtained after processing on the BD PrepStain™ Slide Processor have not been evaluated with the BD Onclarity™ HPV Assay. For BD CBD specimens, use only the BD Onclarity™ HPV Cervical Brush Collection Kit.
8. The BD Onclarity™ HPV Assay has been validated for use with self-collected vaginal specimens using the Copan FLOQSwabs® (Catalog Number 5E089N). Use only validated self-collection devices.
9. Cervical specimens often show visibly detectable levels of blood as a pink or light brown coloration. If concentrations exceed 4% (v/v) in BD SurePath™ vial or 5% (v/v) in PreservCyt® Solution prior to dilution in the BD Onclarity™ HPV Diluent tube, there is a likelihood of obtaining a false negative HPV result. If concentrations exceed 1% (v/v) in the cervical brush or in a vaginal self-collected sample, there is also a likelihood of obtaining a false negative HPV result.
10. False negatives may occur for specimens containing >8% (v/v) mucin (>7.8% [w/v] mucin for self-collected), >7% (w/v) Zovirax® (Acyclovir) Cream, and >8% (w/v) clindamycin vaginal cream. Please refer to "Interfering Substances" section for more complete information.
11. The effects of other potential variables such as vaginal discharge, use of tampons, douching, etc. and specimen collection variables have not been evaluated.
12. The BD Onclarity™ HPV Assay was not evaluated in women with acetic acid, iodine, spermicide, douche, or anti-fungal medications applied to the cervical area within 24 hours of specimen collection.
13. Detection of high-risk HPV is dependent on the number of copies present in the specimen and may be affected by specimen collection methods, patient factors, stage of infection and the presence of interfering substances.
14. Prevalence of HPV infection in a population may affect performance. Positive predictive values decrease when testing populations with low prevalence or individuals with no risk of infection.
15. A negative high-risk HPV result does not exclude the possibility of future cytologic high-grade squamous intraepithelial lesion (HSIL) or underlying CIN2-3 or cancer, but indicates a low likelihood of CIN2-3 or cancer.[43,44]
16. Infection with HPV is not an indicator of cytologic HSIL or underlying high-grade CIN, nor does it imply that CIN2-3 or cancer will develop. Most women infected with one or more high-risk HPV types do not develop CIN2-3 or cancer.[45,46] Women who are positive for high-risk HPV by the BD Onclarity™ HPV Assay from a self-collected vaginal specimen should follow-up with a clinician to determine management.
17. An HPV negative specimen must have a valid beta globin signal within a pre-defined range to generate a negative result on the BD COR™ System. The beta globin control does not differentiate between targeted (cervical) and non-targeted nucleated cell types.
18. A 0.7% cross-contamination rate was observed when BD SurePath™ specimens were aliquoted using the BD Totalys™ MultiProcessor.

PERFORMANCE CHARACTERISTICS

NOTE: The performance of the BD Onclarity™ HPV Assay was established on the BD Viper™ LT System and is presented in the "BD Onclarity™ HPV Assay" product insert (Catalog Number 442946), and can be accessed at: bd.com/e-labeling.

The performance of the BD Onclarity™ HPV Assay on the BD COR™ System with BD SurePath™, PreservCyt®, and BD Onclarity™ HPV Cervical Brush Diluent specimens was evaluated in agreement studies by comparing the assay results obtained on the BD Viper™ LT System to the BD COR™ System. Remnant BD SurePath™, PreservCyt®, and prospectively collected BD Onclarity™ HPV Cervical Brush Diluent specimens were used for each agreement study. Clinical panels were created either with individual specimens, pooled positive clinical specimens, or negative clinical specimens spiked with a positive clinical specimen. Contrived panels were created by spiking HPV containing cell lines into HPV negative clinical matrix.

Percent Agreement between the BD Onclarity™ HPV Assay Performed on the BD Viper™ LT System and the BD COR™ System—BD SurePath™ and PreservCyt®

The percent agreement between the BD Onclarity™ HPV Assay performed on the BD Viper™ LT System and the BD COR™ System was evaluated. The panels were prepared with hrHPV genotypes 16, 18, 45 and 11 other where the majority of the specimens were at levels close to the cutoff. Panels were tested on the BD COR™ System at three different sites (two external sites, one in-house). All BD Viper™ LT testing occurred internally and results served as the reference. Each specimen was tested twice, once with the BD Viper™ LT System and once with the BD COR™ System.

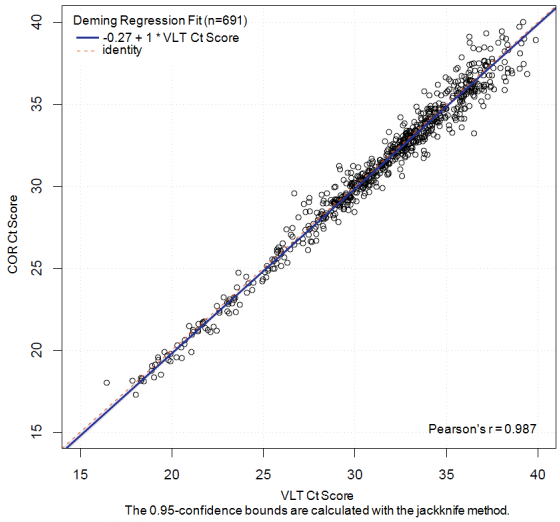
The agreement study with BD SurePath™ included 1,092 specimens of which 1,032 were clinical and 60 were contrived. Out of the 1,092 BD SurePath™ specimens, 940 (581 positive and 359 negative) had paired results (both BD COR™ and BD Viper™ LT results) and were considered evaluable in the study. The PreservCyt® agreement study included 1,014 specimens of which 996 were clinical and 18 were contrived. Out of the 1,014 specimens, 930 (587 positive and 343 negative) had paired results. The positive and negative percent agreement results for BD SurePath™ specimens are summarized in Table 4 and the results from the Deming regression analysis are provided in Figure 1. The positive and negative percent agreement results for PreservCyt® specimens are summarized in Table 5 and the results from the Deming regression analysis are provided in Figure 2.

Table 4: Percent Agreement of Results for the BD Onclarity™ HPV Assay between the BD Viper™ LT System and the BD COR™ System Tested Using BD SurePath™ Specimens

		Positive Percent Agreement		Negative Percent Agreement	
Specimen Type	**Site**	**Percent**	**95% CI**	**Percent**	**95% CI**
BD SurePath™	**A**	98.0% (192/196)	(94.9%, 99.2%)	95.8% (113/118)	(90.5%, 98.2%)
	B	97.9% (190/194)	(94.8%, 99.2%)	95.0% (115/121)	(89.6%, 97.7%)
	C	99.0% (189/191)	(96.3%, 99.7%)	95.0% (114/120)	(89.5%, 97.7%)
	Total[a]	98.3% (571/581)	(96.9%, 99.1%)	95.3% (342/359)	(92.5%, 97.0%)

[a] All discordant results occurred in panels that were close to the clinical cutoff.

Figure 1: Deming Regression for the BD Onclarity™ HPV Assay for the BD COR™ System versus the BD Viper™ LT System – Overall Ct Score Results for BD SurePath™



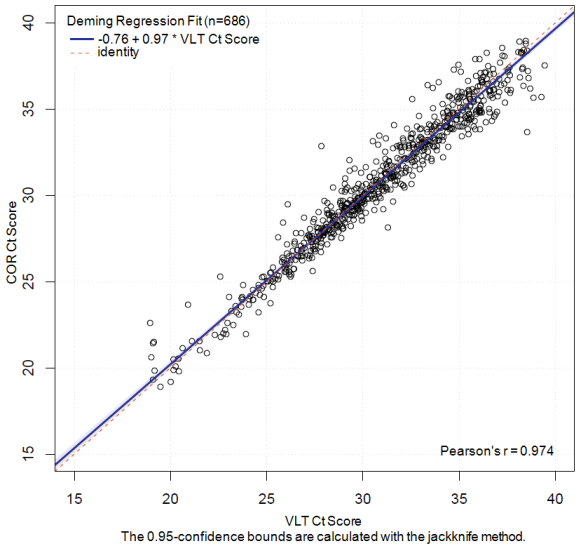
Positive and negative specimens with a Ct Score <40 were used for the Deming regression.

Table 5: Percent Agreement of Results for the BD Onclarity™ HPV Assay between the BD Viper™ LT System and the BD COR™ System Tested Using PreservCyt® Specimens

		Positive Percent Agreement		Negative Percent Agreement	
Specimen Type	**Site**	**Percent**	**95% CI**	**Percent**	**95% CI**
PreservCyt®	**A**	99.5% (192/193)	(97.1%, 99.9%)	94.9% (111/117)	(89.3%, 97.6%)
	B	98.0% (194/198)	(94.9%, 99.2%)	96.5% (109/113)	(91.3%, 98.6%)
	C	98.5% (193/196)	(95.6%, 99.5%)	96.5% (109/113)	(91.3%, 98.6%)
	Total[a]	98.6% (579/587)	(97.3%, 99.3%)	95.9% (329/343)	(93.3%, 97.6%)

[a] All discordant results occurred in panels that were close to the clinical cutoff.

Figure 2: Deming Regression for the BD Onclarity™ HPV Assay on the BD COR™ System versus the BD Viper™ LT System – Overall Ct Score Results for PreservCyt®



Positive and negative specimens with a Ct Score <40 were used for the Deming regression.

Percent Agreement between the BD Onclarity™ HPV Assay Performed on the BD Viper™ LT System and the BD COR™ System—BD Onclarity™ HPV Cervical Brush Diluent

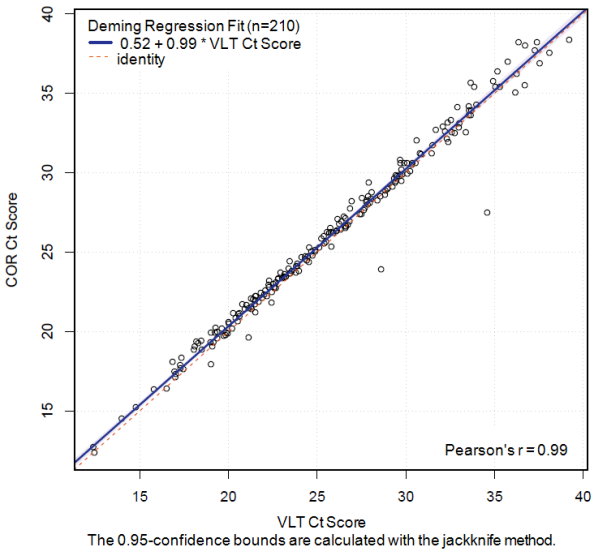
The percent agreement between the BD Onclarity™ HPV Assay performed on the BD Viper™ LT System and the BD COR™ System was evaluated internally at BD on three BD COR™ Systems. Each BD Onclarity™ HPV Cervical Brush Diluent specimen was tested twice, once with the BD Viper™ LT System and once with the BD COR™ System. The agreement study with the BD Onclarity™ HPV Cervical Brush Diluent included 485 specimens from 536 protocol compliant subjects. Out of the 485 specimens, 475 had paired results (both BD COR™ and BD Viper™ LT results) and were considered evaluable in the study. The positive and negative agreement results for the BD Onclarity™ HPV Cervical Brush Diluent specimen are summarized in Table 6 and the result from the Deming regression analysis are provided in Figure 3.

Table 6: Percent Agreement of Results for the BD Onclarity™ HPV Assay between the BD Viper™ LT System and the BD COR™ System Tested Using the BD Onclarity™ HPV Cervical Brush Specimens

		Positive Percent Agreement		Negative Percent Agreement	
Sample Type	**Instrument**	**Percent**	**95% CI**	**Percent**	**95% CI**
BD Onclarity™ HPV Cervical Brush Diluent	**1**	100% (65/65)	(94.4%, 100%)	100% (95/95)	(96.1%, 100%)
	2	97.3% (71/73)	(90.5%, 99.2%)	100% (86/86)	(95.7%, 100%)
	3	95.0% (57/60)	(86.3%, 98.3%)	100% (96/96)	(96.2%, 100%)
	Total[a]	97.5% (193/198)	(94.2%, 98.9%)	100% (277/277)	(98.6%, 100%)

[a] All discordant results occurred in samples that were close to the clinical cutoff.

Figure 3: Deming Regression for the BD Onclarity™ HPV Assay on the BD COR™ System versus the BD Viper™ LT System – Overall Ct Score Results for BD Onclarity™ HPV Cervical Brush Diluent



Positive and negative specimens with a Ct Score <40 were used for the Deming regression.

Percent Agreement between the BD Onclarity™ HPV Assay Performed on the BD Viper™ LT System and the BD COR™ System—Copan FLOQSwabs® Vaginal Self-Collection

The percent agreement of the BD Onclarity™ HPV Assay between the BD Viper™ LT System and the BD COR™ System was evaluated using Copan FLOQSwabs® self-collected vaginal specimens. Each Copan FLOQSwabs® specimen was tested twice, once with the BD Viper™ LT System and once with the BD COR™ System. Out of the 400 specimens, 399 had paired results (both BD COR™ and BD Viper™ LT results) and were considered evaluable in the study. The positive and negative agreement results for the Copan FLOQSwabs® vaginal self-collection specimen are summarized in Table 7.

Table 7: Percent Agreement of Results for the BD Onclarity™ HPV Assay between the BD Viper™ LT System and the BD COR™ System tested using Copan FLOQSwabs® Vaginal Self-collected Specimens

	Positive Percent Agreement		Negative Percent Agreement	
Sample Type	**Percent**	**95% CI**	**Percent**	**95% CI**
Vaginal Swab	97.2% (35/36)	(85.8%, 99.5%)	100% (363/363)	(98.6%, 100%)

ANALYTICAL PERFORMANCE

Analytical Sensitivity at the Clinical Cutoff

The BD Onclarity™ HPV Assay formulation for the BD COR™ System has not changed from that used with the BD Viper™ LT System. Analytical sensitivity at the clinical cutoff was conducted on the BD Viper™ LT System and is presented in the "BD Onclarity™ HPV Assay" product insert (Catalog Number 442946) and can be accessed at: bd.com/e-labeling.

The limit of detection (LOD) of the BD Onclarity™ HPV Assay with BD SurePath™, PreservCyt®, BD Onclarity™ HPV Cervical Brush Diluent, and self-collected vaginal specimens was confirmed on the BD COR™ System to be equivalent to that of the BD Viper™ LT System. For BD SurePath™, PreservCyt®, and BD Onclarity™ HPV Cervical Brush Diluent, panels were created using the LOD previously determined on the BD Viper™ LT System at the following target levels: High Negative (C5), Low Positive (C95), Moderate Positive (3x C95), and True Negative. For the self-collected vaginal samples, only the Low Positive level (C95) was tested. The positive HPV panel members were prepared with the HPV positive cell lines: SiHa (HPV16), HeLa (HPV18) and MS751 (HPV45) diluted in HPV negative matrix. The level values shown in the following tables represent the concentration in undiluted LBC media (BD SurePath™ and PreservCyt®) or in the diluent tube (BD Onclarity™ HPV Cervical Brush Diluent and vaginal self-collection). For BD SurePath™ and PreservCyt®, HPV negative clinical matrix was used. For BD Onclarity™ HPV Cervical Brush Diluent and self-collected vaginal samples, an HPV-negative cell line (C33A) matrix was used. Negative HPV panel members were prepared with only HPV negative matrix pools. A Two, One-Sided Test (TOST) of Equivalence was performed for the positive level(s) for each genotype. The 90% confidence intervals for the difference in mean Ct score between the BD COR™ System and BD Viper™ LT systems was determined for each genotype at each target level. Equivalence of the two systems is established when the difference is contained within the equivalence margin of [-0.75, 0.75].

Each panel member in BD SurePath™ and PreservCyt® had pre-analytical sample dilution performed by BD COR™ System, hand pipetting (manual) or Multiprocessor (BD SurePath™ only) (Tables 8 and 9). Each panel was tested for the presence or absence of the HPV targets on the BD COR™ System. As a reference, manually diluted panels were tested on the BD Viper™ LT System. Each panel member for BD Onclarity™ HPV Cervical Brush Diluent and self-collected vaginal samples was performed on the BD COR™ and used the BD Viper™ LT as a reference. (Tables 10 and 11).

Table 8: Analytical Sensitivity Confirmation in BD SurePath™

Target	Level (cells/mL)	Platform	Aliquoting Method	Percent Agreement	95% Confidence Interval	Mean Ct Score	Standard Deviation Ct Score	Difference in Mean Ct Score (90% CI)	Equivalence Established
SiHa cells (HPV16)	High Negative (8.8)	BD COR™	BD COR™	82.2% (74/90)	73.1–88.8%	38.20	0.52	-0.09 (-0.33, 0.16)	NA
			MultiProcessor	81.1% (73/90)	71.8–87.9%	38.15	0.45	-0.14 (-0.37, 0.09)	NA
			Manual	85.7% (78/91)	77.0–91.5%	38.13	0.41	-0.16 (-0.39, 0.07)	NA
		BD Viper™ LT	Manual	86.7% (78/90)	78.1–92.2%	38.29	0.53	NA	NA
	Low Positive (220)	BD COR™	BD COR™	100% (90/90)	95.9–100%	35.55	0.55	-0.06 (-0.20, 0.07)	YES
			MultiProcessor	100% (90/90)	95.9–100%	35.55	0.54	-0.06 (-0.20, 0.07)	YES
			Manual	100% (89/89)	95.9–100%	35.72	0.58	0.11 (-0.03, 0.25)	YES
		BD Viper™ LT	Manual	100% (90/90)	95.9–100%	35.61	0.54	NA	NA
	Moderate Positive (660)	BD COR™	BD COR™	100% (90/90)	95.9–100%	33.93	0.46	-0.15 (-0.27, -0.03)	YES
			MultiProcessor	100% (90/90)	95.9–100%	33.77	0.31	-0.31 (-0.41, -0.21)	YES
			Manual	100% (90/90)	95.9–100%	33.97	0.41	-0.11 (-0.22, 0.00)	YES
		BD Viper™ LT	Manual	100% (90/90)	95.9–100%	34.08	0.50	NA	NA

Target	Level (cells/mL)	Platform	Aliquoting Method	Percent Agreement	95% Confidence Interval	Mean Ct Score	Standard Deviation Ct Score	Difference in Mean Ct Score (90% CI)	Equivalence Established
HeLa cells (HPV18)	High Negative (101)	BD COR™	BD COR™	71.1% (64/90)	61.0–79.5%	34.55	0.69	-0.02 (-0.19, 0.15)	NA
			MultiProcessor	67.8% (61/90)	57.6–76.5%	34.41	0.42	-0.16 (-0.30, -0.01)	NA
			Manual	73.3% (66/90)	63.4–81.4%	34.60	0.63	0.03 (-0.13, 0.20)	NA
		BD Viper™ LT	Manual	67.8% (61/90)	57.6–76.5%	34.57	0.71	NA	NA
	Low Positive (915)	BD COR™	BD COR™	100% (90/90)	95.9–100%	31.46	0.20	-0.26 (-0.32, -0.19)	YES
			MultiProcessor	100% (90/90)	95.9–100%	31.55	0.27	-0.17 (-0.23, -0.10)	YES
			Manual	100% (91/91)	96.0–100%	31.66	0.29	-0.06 (-0.13, 0.01)	YES
		BD Viper™ LT	Manual	100% (90/90)	95.9–100%	31.72	0.29	NA	NA
	Moderate Positive (2,745)	BD COR™	BD COR™	100% (90/90)	95.9–100%	29.92	0.19	0.03 (-0.02, 0.07)	YES
			MultiProcessor	100% (89/89)	95.9–100%	29.88	0.22	-0.01 (-0.06, 0.04)	YES
			Manual	100% (90/90)	95.9–100%	30.05	0.19	0.16 (0.11, 0.21)	YES
		BD Viper™ LT	Manual	100% (90/90)	95.9–100%	29.89	0.19	NA	NA
MS751 cells (HPV45)	High Negative (396)	BD COR™	BD COR™	100% (90/90)	95.9–100%	36.16	0.59	-0.02 (-0.18, 0.12)	NA
			MultiProcessor	100% (90/90)	95.9–100%	36.13	0.70	-0.05 (-0.22, 0.11)	NA
			Manual	100% (89/89)	95.9–100%	36.37	0.62	0.19 (0.03, 0.34)	NA
		BD Viper™ LT	Manual	100% (90/90)	95.9–100%	36.18	0.62	NA	NA
	Low Positive (3,793)	BD COR™	BD COR™	100% (90/90)	95.9–100%	32.58	0.30	-0.40 (-0.49, -0.31)	YES
			MultiProcessor	100% (90/90)	95.9–100%	32.56	0.24	-0.42 (-0.51, -0.33)	YES
			Manual	100% (90/90)	95.9–100%	32.75	0.33	-0.23 (-0.33, -0.13)	YES
		BD Viper™ LT	Manual	100% (90/90)	95.9–100%	32.98	0.44	NA	NA
	Moderate Positive (11,379)	BD COR™	BD COR™	100% (90/90)	95.9–100%	31.01	0.18	-0.33 (-0.39, -0.26)	YES
			MultiProcessor	100% (90/90)	95.9–100%	31.12	0.39	-0.22 (-0.31, -0.14)	YES
			Manual	100% (91/91)	96.0–100%	31.24	0.29	-0.10 (-0.17, -0.03)	YES
		BD Viper™ LT	Manual	100% (90/90)	95.9–100%	31.34	0.30	NA	NA

Table 9: Analytical Sensitivity Confirmation in PreservCyt®

Target	Level (cells/mL)	Platform	Aliquoting Method	Percent Agreement	95% Confidence Interval	Mean Ct Score	Standard Deviation Ct Score	Difference in Mean Ct Score (90% CI)	Equivalence Established
SiHa cells (HPV16)	High Negative (8.8)	BD COR™	BD COR™	95.6% (86/90)	89.1–98.3%	38.27	0.64	0.42 (-0.30, 1.14)	NO
			Manual	96.7% (87/90)	90.7–98.9%	38.15	1.00	0.30 (-0.50, 1.11)	NO
		BD Viper™ LT	Manual	93.3% (84/90)	86.2–96.9%	37.85	1.01	NA	NA
	Low Positive (220)	BD COR™	BD COR™	100% (90/90)	95.9–100%	35.28	0.57	-0.12 (-0.26, 0.03)	YES
			Manual	100% (90/90)	95.9–100%	35.04	0.52	-0.36 (-0.49, -0.22)	YES
		BD Viper™ LT	Manual	100% (90/90)	95.9–100%	35.40	0.58	NA	NA
	Moderate Positive (660)	BD COR™	BD COR™	100% (90/90)	95.9–100%	33.41	0.56	-0.39 (-0.52, -0.24)	YES
			Manual	100% (90/90)	95.9–100%	33.32	0.29	-0.48 (-0.59, -0.37)	YES
		BD Viper™ LT	Manual	98.9% (89/90)	94.0–99.8%	33.80	0.57	NA	NA
HeLa cells (HPV18)	High Negative (101)	BD COR™	BD COR™	97.8% (88/90)	92.26–99.39%	35.31	0.62	-0.26 (-0.46, -0.06)	NA
			Manual	92.2% (83/90)	84.81–96.18%	34.99	0.61	-0.58 (-0.77, -0.38)	NA
		BD Viper™ LT	Manual	96.7% (87/90)	90.65–98.86%	35.57	0.94	NA	NA
	Low Positive (915)	BD COR™	BD COR™	100% (90/90)	95.9–100%	30.73	0.18	-0.35 (-0.42, -0.29)	YES
			Manual	100% (90/90)	95.9–100%	30.61	0.22	-0.47 (-0.53, -0.40)	YES
		BD Viper™ LT	Manual	100% (90/90)	95.9–100%	31.08	0.31	NA	NA
	Moderate Positive (2,745)	BD COR™	BD COR™	100% (90/90)	95.9–100%	29.22	0.18	-0.10 (-0.15, -0.04)	YES
			Manual	100% (90/90)	95.9–100%	29.06	0.17	-0.26 (-0.32, -0.21)	YES
		BD Viper™ LT	Manual	100% (90/90)	95.9–100%	29.32	0.25	NA	NA
MS751 cells (HPV45)	High Negative (396)	BD COR™	BD COR™	100% (90/90)	95.9–100%	36.39	0.79	0.13 (-0.05, 0.30)	NA
			Manual	100% (90/90)	95.9–100%	36.07	0.58	-0.19 (-0.34, -0.05)	NA
		BD Viper™ LT	Manual	100% (90/90)	95.9–100%	36.26	0.62	NA	NA
	Low Positive (3,793)	BD COR™	BD COR™	100% (90/90)	95.9–100%	32.09	0.30	-0.38 (-0.48, -0.29)	YES
			Manual	100% (90/90)	95.9–100%	31.88	0.23	-0.59 (-0.68, -0.50)	YES
		BD Viper™ LT	Manual	98.9% (89/90)	94.0–99.8%	32.47	0.46	NA	NA
	Moderate Positive (11,379)	BD COR™	BD COR™	100% (90/90)	95.9–100%	30.68	0.18	-0.30 (-0.37, -0.24)	YES
			Manual	100% (90/90)	95.9–100%	30.49	0.21	-0.49 (-0.56, -0.42)	YES
		BD Viper™ LT	Manual	100% (90/90)	95.9–100%	30.98	0.33	NA	NA

Table 10: Analytical Sensitivity Confirmation in BD Onclarity™ HPV Cervical Brush Diluent

Target	Level (cells/mL)	Platform	Percent Agreement	95% Confidence Interval	Mean Ct Score	Standard Deviation Ct Score	Difference in Mean Ct Score (90% CI)	Equivalence Established
SiHa Cells (HPV16)	High Negative (1.2)	BD COR™	84.0% (84/100)	75.6–89.9%	38.28	0.38	0.31 (-0.15, 0.46)	YES
		BD Viper™ LT	67.0% (67/100)	57.3–75.4%	37.97	0.44		
	Low Positive (12.6)	BD COR™	95.0% (95/100)	88.8–97.9%	36.69	0.57	-0.08 (-0.24, 0.08)	YES
		BD Viper™ LT	94.0% (94/100)	97.5–97.2%	36.77	0.77		
	Moderate Positive (37.8)	BD COR™	100% (100/100)	96.3–100%	35.16	0.48	-0.29 (-0.41, -0.16)	YES
		BD Viper™ LT	100% (100/100)	96.3–100%	35.45	0.58		
Hela Cells (HPV18)	High Negative (16)	BD COR™	54.0% (54/100)	44.3–63.4%	34.30	0.38	0.10 (-0.10, 0.15)	YES
		BD Viper™ LT	44.0% (44/100)	34.7–53.8%	34.19	0.47		
	Low Positive (51)	BD COR™	100% (100/100)	96.3-100%	32.90	0.25	-0.18 (-0.26, -0.11)	YES
		BD Viper™ LT	100% (100/100)	96.3-100%	33.08	0.38		
	Moderate Positive (153)	BD COR™	100% (100/100)	96.3-100%	31.60	0.32	-0.05 (-0.14, 0.04)	YES
		BD Viper™ LT	99.0% (99/100)	94.6-99.8%	31.65	0.40		
MS751 Cells (HPV45)	High Negative (70)	BD COR™	87.0% (87/100)	79.0-92.2%	34.69	0.49	0.03 (-0.10, 0.15)	YES
		BD Viper™ LT	81.0% (81/100)	72.2–87.5%	34.66	0.56		
	Low Positive (305)	BD COR™	100% (100/100)	96.3–100%	32.85	0.23	-0.29 (-0.36, -0.23)	YES
		BD Viper™ LT	99.0% (99/100)	94.6–99.8%	31.14	0.34		
	Moderate Positive (915)	BD COR™	100% (100/100)	96.3–100%	31.16	0.19	-0.33 (-0.39, -0.26)	YES
		BD Viper™ LT	100% (100/100)	96.3–100%	31.49	0.33		

Table 11: Analytical Sensitivity Confirmation in Self-Collected Vaginal Samples

Target	Level (cells/mL)	Platform	Percent Agreement	95% Confidence Interval	Mean Ct Score	Standard Deviation Ct Score	Difference in Mean Ct Score (90% CI)	Equivalence Established
SiHa cells (HPV16)	Low Positive (9.7)	BD COR™	100% (90/90)	95.9–100%	36.39	0.52	-0.11 (-0.27, 0.05)	YES
		BD Viper™ LT	93.3% (84/90)	86.2–96.9%	36.50	0.77		
Hela cells (HPV18)	Low Positive (51)	BD COR™	100% (90/90)	95.9–100%	33.08	0.24	0.29 (0.22, 0.36)	YES
		BD Viper™ LT	98.9% (89/90)	94.0–100%	32.79	0.35		
MS751 cells (HPV45)	Low Positive (305)	BD COR™	100% (90/90)	95.9–100%	32.83	0.25	-0.16 (-0.23,-0.08)	YES
		BD Viper™ LT	98.9% (89/90)	94.0–100%	32.99	0.35		

Cross-Reactivity

The BD Onclarity™ HPV Assay formulation for the BD COR™ System has not changed from that used with the BD Viper™ LT System. Cross-Reactivity was conducted on the BD Viper™ LT System and is presented in the “BD Onclarity™ HPV Assay” product insert (Catalog Number 442946), and can be accessed at: bd.com/e-labeling.

Interfering Substances

The BD Onclarity™ HPV Assay formulation for the BD COR™ System has not changed from that used with the BD Viper™ LT System. A sub-set of the interfering substances were tested on the BD COR™ System to assess any interference to address any hardware and systematic differences. To see the full list of substances refer to the “BD Onclarity™ HPV Assay” product insert (Catalog Number 442946), at: bd.com/e-labeling.

The potential for interference in the BD Onclarity™ HPV Assay was determined with exogenous and endogenous substances that may be present in clinical cervical or vaginal specimens. Contrived HPV negative and positive specimens were tested in the presence or absence of each potential interfering substance that may be present in clinical cervical or vaginal specimens. The levels of exogenous and endogenous substances tested represent concentrations that could potentially occur during specimen collection. Substances tested are described in Table 12. The concentrations tested represent the highest level of a substance assessed with the BD Onclarity™ HPV Assay that did not result in interference.

Potential Interfering Substances

A sub-set of substances was tested on the BD COR™ System. The complete set of substances was evaluated with the BD Onclarity™ HPV Assay on the BD Viper™ LT. For the full list of potential interfering substances, refer to the “BD Onclarity™ HPV Assay” product insert (Catalog Number 442946), at: bd.com/e-labeling.

Table 12: Potential Interfering Substances

Substance	BD SurePath™	PreservCyt® Media	BD Onclarity™ HPV Cervical Brush Diluent	Vaginal Self-Collection
	Concentration Tested	Concentration Tested	Concentration Tested	Concentration Tested
KY® Personal Lubricant	6% (w/v)	10% (w/v)	10% (w/v)	8% (w/v)
Monistat® 3	2.0% (w/v)	1.4% (w/v)	1.8% (w/v)	1.8% (w/v)
Zorivax® (Acyclovir) Cream	7% (w/v)	10% (w/v)	10% (w/v)	10% (w/v)
Bovine Mucin	8% (v/v)	8% (v/v)	8% (v/v)	7.8% (w/v)
Whole Blood	4% (v/v)	5% (v/v)	1% (v/v)	1% (v/v)
Replens™ Moisturizer	10% (w/v)	10% (w/v)	3% (w/v)	2.8% (w/v)

Precision

An in-house precision study was performed utilizing contrived panels consisting of HPV negative clinical specimen matrix spiked with HPV cell lines (SiHa, HeLa, or MS751). For BD SurePath™ and PreservCyt® only, pooled negative and positive specimens were also tested. The contrived panel members consisted of High Negative, Low Positive, and Moderate Positive HPV target levels diluted into a background of clinical matrix (BD SurePath™ and PreservCyt®) or HPV negative C33A cells (BD Onclarity™ HPV Cervical Brush Diluent and vaginal self-collection). The positive clinical panel members were prepared with pooled high risk positive specimens (HPV16, HPV18, HPV45, HPV31, HPV33/58, and HPV52) in BD SurePath™ and PreservCyt® media. Tables 13 and 14 show the outcome for the HPV positive and negative panel members (performed only for BD SurePath™ and PreservCyt®) with the BD Onclarity™ HPV Assay on the BD COR™ System. For BD SurePath™ media, the overall CV (%) for contrived samples ranged from 0.57% to 1.57%. The overall CV (%) for pooled HPV positive clinical specimens ranged from 2.11% to 7.76%. For PreservCyt® media, the overall CV (%) for contrived samples ranged from 0.57% to 1.43%. The overall CV (%) for pooled HPV positive clinical specimens ranged from 2.69% to 8.90%. For BD Onclarity™ HPV Cervical Brush Diluent, the overall CV (%) in contrived samples ranged from 0.57% to 1.62%. For self-collected vaginal samples, the overall CV (%) in contrived samples ranged from 0.67% to 1.86%.

Table 13: Summary of Precision Panel (Contrived Specimens) and Agreement Rates for BD Onclarity™ HPV Assay Precision Study

Media	Cell Line (Genotype)	HPV Panel Level (cells/mL)	Expected Result	Percent Agreement	95% Confidence Interval	Mean Ct Score	Within Run		Between Run		Total	
							SD	% CV	SD	% CV	SD	% CV
BD SurePath™	SiHa cells (HPV16)	High Negative (8.8)	>94% Negative	90.3% (65/72)	81.3–95.2%	38.19	0.56	1.46	0.00	0.00	0.56	1.46
		Low Positive (220)	>94% Positive	100% (72/72)	94.9–100%	35.70	0.44	1.22	0.25	0.71	0.56	1.57
		Moderate Positive (660)	>98% Positive	100% (72/72)	94.9–100%	33.92	0.40	1.17	0.14	0.42	0.44	1.28
	HeLa cells (HPV18)	High Negative (101)	>94% Negative	75.0% (54/72)	63.9–83.6%	34.55	0.49	1.41	0.00	0.00	0.53	1.53
		Low Positive (915)	>94% Positive	100% (72/72)	94.9–100%	31.48	0.17	0.55	0.00	0.00	0.18	0.57
		Moderate Positive (2,745)	>98% Positive	100% (72/72)	94.9–100%	29.96	0.13	0.42	0.12	0.41	0.18	0.60
	MS751 cells (HPV45)	High Negative (396)	>94% Negative	100% (72/72)	94.9–100%	36.30	0.65	1.80	0.00	0.00	0.65	1.80
		Low Positive (3,793)	>94% Positive	100% (72/72)	94.9–100%	32.64	0.32	0.97	0.10	0.31	0.37	1.14
		Moderate Positive (11,379)	>98% Positive	100% (72/72)	94.9–100%	31.04	0.18	0.56	0.08	0.26	0.20	0.66

Media	Cell Line (Genotype)	HPV Panel Level (cells/mL)	Expected Result	Percent Agreement	95% Confidence Interval	Mean Ct Score	Within Run		Between Run		Total	
							SD	% CV	SD	% CV	SD	% CV
PreservCyt®	SiHa cells (HPV16)	High Negative (4)	>94% Negative	98.6% (71/72)	92.5–99.8%	38.57	0.49	1.28	0.00	0.00	0.57	1.47
		Low Positive (717)	>94% Positive	100% (72/72)	94.9–100%	35.26	0.50	1.43	0.00	0.00	0.50	1.43
		Moderate Positive (2,151)	>98% Positive	100% (72/72)	94.9–100%	33.34	0.30	0.89	0.00	0.00	0.33	0.99
	HeLa cells (HPV18)	High Negative (84)	>94% Negative	97.2% (70/72)	90.4–99.2%	35.20	0.69	1.95	0.00	0.00	0.69	1.95
		Low Positive (1,786)	>94% Positive	100% (72/72)	94.9–100%	30.64	0.13	0.42	0.07	0.24	0.17	0.57
		Moderate Positive (5,358)	>98% Positive	100% (72/72)	94.9–100%	29.18	0.16	0.56	0.11	0.39	0.20	0.69
	MS751 cells (HPV45)	High Negative (365)	>94% Negative	100% (72/72)	94.9–100%	36.23	0.58	1.59	0.34	0.93	0.67	1.85
		Low Positive (5,425)	>94% Positive	100% (72/72)	94.9–100%	31.99	0.26	0.80	0.00	0.00	0.28	0.88
		Moderate Positive (16,275)	>98% Positive	100% (72/72)	94.9–100%	30.53	0.15	0.50	0.07	0.23	0.19	0.63
BD Onclarity™ HPV Cervical Brush Diluent	SiHa (HPV16)	Negative	>95% Negative	100% (240/240)	98.4–100%	NA	NA	NA	NA	NA	NA	NA
		High Negative (1.2)	>94% Negative	85.8% (206/240)	80.9–89.7%	38.25	0.44	1.14	0	0	0.44	1.14
		Low Positive (12.6)	>94% Positive	95% (228/240)	91.5–97.1%	36.73	0.59	1.60	0.08	0.22	0.59	1.62
		Moderate Positive (37.8)	>98% Positive	100% (240/240)	98.4–100%	35.19	0.48	1.36	0.05	0.15	0.49	1.40
	HeLa (HPV18)	Negative	>95% Negative	100% (240/240)	98.4–100%	NA	NA	NA	NA	NA	NA	NA
		High Negative (16)	>94% Negative	48.8% (117/240)	42.5–55%	34.22	0.43	1.27	0.00	0.00	0.44	1.29
		Low Positive (51)	>94% Positive	100% (240/240)	98.4–100%	32.89	0.25	0.76	0.01	0.04	0.25	0.76
		Moderate Positive (153)	>98% Positive	100% (240/240)	98.4–100%	31.59	0.25	0.80	0.07	0.23	0.26	0.84
	MS751 (HPV45)	Negative	>95% Negative	100% (240/240)	98.4–100%	NA	NA	NA	NA	NA	NA	NA
		High Negative (70)	>94% Negative	83.8% (201/240)	78.6–87.9%	34.63	0.44	1.26	0.00	0.00	0.44	1.28
		Low Positive (305)	>94% Positive	100% (240/240)	98.4–100%	32.84	0.22	0.66	0.00	0.00	0.22	0.67
		Moderate Positive (915)	>98% Positive	100% (240/240)	98.4–100%	31.16	0.18	0.57	0.00	0.00	0.18	0.57

Media	Cell Line (Genotype)	HPV Panel Level (cells/mL)	Expected Result	Percent Agreement	95% Confidence Interval	Mean Ct Score	Within Run		Between Run		Total	
							SD	% CV	SD	% CV	SD	% CV
FLOQSwabs®	SiHa (HPV16)	Negative (0)	>95% Negative	100% (240/240)	98.4–100%	NA	NA	NA	NA	NA	NA	NA
		High Negative (1.2)	>94% Negative	80.4% (193/240)	74.9–84.9%	38.45	0.55	1.44	0.00	0.00	0.56	1.47
		Low Positive (9.7)	>94% Positive	98.3% (236/240)	95.8–99.4%	36.78	0.67	1.83	0.06	0.16	0.68	1.86
		Moderate Positive (29.1)	>98% Positive	100% (240/240)	98.4–100%	34.96	0.46	1.31	0.00	0.00	0.48	1.37
	HeLa (HPV18)	Negative (0)	>95% Negative	100% (240/240)	98.4–100%	NA	NA	NA	NA	NA	NA	NA
		High Negative (16)	>94% Negative	97.5% (234/240)	94.7–98.9%	34.85	0.38	1.09	0.00	0.00	0.39	1.13
		Low Positive (51)	>94% Positive	99.6% (239/240)	97.7–99.9%	32.84	0.26	0.80	0.19	0.58	0.34	1.03
		Moderate Positive (153)	>98% Positive	100% (240/240)	98.4–100%	31.66	0.17	0.53	0.07	0.23	0.22	0.70
	MS751 (HPV45)	Negative (0)	>95% Negative	100% (240/240)	98.4–100%	NA	NA	NA	NA	NA	NA	NA
		High Negative (70)	>94% Negative	95.8% (230/240)	92.5–97.7%	34.71	0.35	1.01	0.11	0.32	0.38	1.09
		Low Positive (305)	>94% Positive	100% (240/240)	98.4–100%	32.51	0.20	0.62	0.05	0.16	0.22	0.67
		Moderate Positive (915)	>98% Positive	100% (240/240)	98.4–100%	30.91	0.22	0.72	0.20	0.66	0.32	1.02

Table 14: Summary of Precision Panel (Clinical Specimens) and Agreement Rates for BD Onclarity™ HPV Assay Precision Study

Media	HPV Genotype	HPV Target Source	HPV Panel Level	Percent Agreement	95% Confidence Interval	Mean Ct Score	Within-Run		Between Run		Total	
							SD	% CV	SD	% CV	SD	% CV
BD SurePath™	NA	Pooled Clinical	Negative	100% (72/72)	94.9–100%	NA	NA	NA	NA	NA	NA	NA
	HPV16	Pooled Clinical 16	Positive	95.8% (69/72)	88.5–98.6%	34.83	1.95	5.61	0.16	0.46	2.08	5.98
	HPV18	Pooled Clinical 18	Positive	97.2% (70/72)	90.4–99.2%	32.12	2.46	7.67	0.00	0.00	2.49	7.76
	HPV31	Pooled Clinical 31	Positive	100% (72/72)	94.9–100%	30.48	0.64	2.10	0.05	0.16	0.64	2.11
	HPV33/58	Pooled Clinical 33/58	Positive	100% (72/72)	94.9–100%	31.42	1.57	5.01	0.00	0.00	1.57	5.01
	HPV45	Pooled Clinical 45	Positive	100% (72/72)	94.9–100%	31.33	0.94	2.99	0.33	1.07	1.05	3.36
	HPV52	Pooled Clinical 52	Positive	91.7% (66/72)	83.0–96.1%	31.83	1.86	5.84	0.00	0.00	1.91	6.00
PreservCyt®	NA	Pooled Clinical	Negative	98.6% (71/72)	92.5–99.8%	NA	NA	NA	NA	NA	NA	NA
	HPV16	Pooled Clinical 16	Positive	88.9% (64/72)	79.6–94.3%	36.58	1.01	2.76	0.00	0.00	1.01	2.76
	HPV18	Pooled Clinical 18	Positive	41.7% (30/72)	31.0–53.2%	33.64	2.99	8.88	0.00	0.00	2.99	8.90
	HPV31	Pooled Clinical 31	Positive	100% (72/72)	94.9–100%	31.29	1.67	5.32	0.00	0.00	1.67	5.32
	HPV33/58	Pooled Clinical 33/58	Positive	64.8% (46/71)	53.2–74.9%	33.11	2.04	6.17	1.07	3.23	2.30	6.96
	HPV45	Pooled Clinical 45	Positive	100% (72/72)	94.9–100%	31.14	0.84	2.69	0.00	0.00	0.84	2.69
	HPV52	Pooled Clinical 52	Positive	100% (72/72)	94.9–100%	31.69	1.57	4.96	0.74	2.35	1.86	5.88

Reproducibility

Site-to-Site and Lot-to-Lot Reproducibility

Panels consisting of BD SurePath™ or PreservCyt® HPV negative clinical specimen matrix spiked with HPV cell lines (SiHa, HeLa, or MS751), and pooled negative and positive clinical specimens were tested for evaluation of reproducibility at three sites.

The Site-to-Site Reproducibility design included two operators per site testing one panel per day, over a total of 5 days. This reproducibility study utilized one reagent lot for a total of ten runs performed at each site.

The Lot-to-Lot Reproducibility design included two operators testing one panel per day, over a total of 5 days per lot. This reproducibility study utilized three reagent lots for a total of ten runs per lot.

All valid test results were included for calculation of negativity or positivity rates. The number of replicates per panel member ranged from 89 to 90 due to excluded data from operator error, a negative control failure, and an extraction error on the BD COR™ System. Percent negative and positive results along with 95% confidence intervals are shown in Tables 15–17.

Site-to-Site

Analysis of variance of the Ct score results from valid tests performed on BD SurePath™ positive panel members (see Table 18) yielded overall CV (%) for contrived samples ranged from 0.64% to 1.43%. The overall CV (%) for pooled HPV positive clinical specimens ranged from 2.38% to 6.95%.

Analysis of variance of the Ct score results from valid tests performed on PreservCyt® positive panel members (see Table 18) yielded overall CV (%) for contrived samples ranged from 0.49% to 1.53%. The overall CV (%) for pooled HPV positive clinical specimens ranged from 2.89% to 9.21%.

Lot-to-Lot

Analysis of variance of the Ct score results from valid tests performed on BD SurePath™ positive panel members (see Table 19) yielded overall CV (%) for contrived samples ranged from 0.58% to 1.57%. The overall CV (%) for pooled HPV positive clinical specimens ranged from 2.10% to 7.67%.

Analysis of variance of the Ct score results from valid tests performed on PreservCyt® positive panel members (see Table 19) yielded overall CV (%) for contrived samples ranged from 0.63% to 1.69%. The overall CV (%) for pooled HPV positive clinical specimens ranged from 3.59% to 9.21%.

Table 15: Results by Sample Type and Negative Panel Member for Lot and Site

Media	Sample Type	Panel Member	Number Negative/Total Number of Results					
			Lot	Percent Negative	95% CI	Site	Percent Negative	95% CI
BD SurePath™	SiHa cells HPV16	High Negative (8.8 cells/mL)	1	90.0% (27/30)		1	83.3% (25/30)	
			2	90.0% (27/30)		2	93.3% (28/30)	
			3	66.7% (20/30)		3	63.3% (19/30)	
			All	82.2% (74/90)	73.1–88.8%	All	80.0% (72/90)	70.6–87.0%
	HeLa cells HPV18	High Negative (101 cells/mL)	1	63.3% (19/30)		1	76.7% (23/30)	
			2	60.0% (18/30)		2	56.7% (17/30)	
			3	90.0% (27/30)		3	66.7% (20/30)	
			All	71.1% (64/90)	61.0–79.5%	All	66.7% (60/90)	56.4–75.6%
	MS751 cells HPV45	High Negative (396 cells/mL)	1	100% (30/30)		1	100% (30/30)	
			2	100% (30/30)		2	100% (30/30)	
			3	100% (30/30)		3	100% (30/30)	
			All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
	Pooled negative clinical sample	Negative	1	100% (30/30)		1	100% (30/30)	
			2	100% (30/30)		2	100% (30/30)	
			3	100% (30/30)		3	100% (30/30)	
			All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
PreservCyt®	SiHa cells HPV16	High Negative (4 cells/mL)	1	93.3% (28/30)		1	96.7% (29/30)	
			2	96.7% (29/30)		2	100% (30/30)	
			3	96.7% (29/30)		3	93.3% (28/30)	
			All	95.6% (86/90)	89.1–98.3%	All	96.7% (87/90)	90.7–98.9%
	HeLa cells HPV18	High Negative (84 cells/mL)	1	100% (30/30)		1	93.3% (28/30)	
			2	93.3% (28/30)		2	96.7% (29/30)	
			3	100% (30/30)		3	96.7% (29/30)	
			All	97.8% (88/90)	92.3–99.4%	All	95.6% (86/90)	89.1–98.3%
	MS751 cells HPV45	High Negative (365 cells/mL)	1	100% (30/30)		1	100% (30/30)	
			2	100% (30/30)		2	100% (30/30)	
			3	100% (30/30)		3	100% (30/30)	
			All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
	Pooled negative clinical sample	Negative	1	100% (30/30)		1	100% (30/30)	
			2	93.3% (28/30)		2	100% (30/30)	
			3	96.7% (29/30)		3	90.0% (27/30)	
			All	96.7% (87/90)	90.7–98.9%	All	96.7% (87/90)	90.7–98.9%

Table 16: Results by Sample Type and Positive Panel Member for Lot and Site in BD SurePath™

Sample Type	Panel Member	Number Positive/Total Number of Results					
		Lot	Percent Positive	95% CI	Site	Percent Positive	95% CI
SiHa cells HPV16	Low Positive (220 cells/mL)	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
	Moderate Positive (660 cells/mL)	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
HeLa cells HPV18	Low Positive (915 cells/mL)	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
	Moderate Positive (2,745 cells/mL)	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
MS751 cells HPV45	Low Positive (3,793 cells/mL)	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
	Moderate Positive (11,378 cells/mL)	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
Pooled clinical sample	HPV16	1	100% (30/30)		1	100% (30/30)	
		2	90.0% (27/30)		2	96.7% (29/30)	
		3	96.7% (29/30)		3	100% (30/30)	
		All	95.6% (86/90)	89.1–98.3%	All	98.9% (89/90)	94.0–99.8%
	HPV18	1	96.7% (29/30)		1	96.7% (29/30)	
		2	96.7% (29/30)		2	96.7% (29/30)	
		3	76.7% (23/30)		3	96.7% (29/30)	
		All	90.0% (81/90)	82.1–94.7%	All	96.7% (87/90)	90.7–98.9%
	HPV31	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
	HPV33/58	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
	HPV45	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
	HPV52	1	96.7% (29/30)		1	90.0% (27/30)	
		2	96.7% (29/30)		2	100% (30/30)	
		3	100% (30/30)		3	96.7% (29/30)	
		All	97.8% (88/90)	92.3–99.4%	All	95.56% (86/90)	89.1–98.3%

Table 17: Results by Sample Type and Positive Panel Member for Lot and Site in PreservCyt®

Sample Type	Panel Member	Number Positive/Total Number of Results					
		Lot	Percent Positive	95% CI	Site	Percent Positive	95% CI
SiHa cells HPV16	Low Positive (717 cells/mL)	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
	Moderate Positive (2,151 cells/mL)	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
HeLa cells HPV18	Low Positive (1,786 cells/mL)	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
	Moderate Positive (5,358 cells/mL)	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
MS751 cells HPV45	Low Positive (5,425 cells/mL)	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
	Moderate Positive (16,275 cells/mL)	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
Pooled clinical sample	HPV16	1	86.7% (26/30)		1	93.3% (28/30)	
		2	90.0% (27/30)		2	90.0% (27/30)	
		3	96.7% (29/30)		3	96.7% (29/30)	
		All	91.1% (82/90)	83.4–95.4%	All	93.3% (84/90)	86.2–96.9%
	HPV18	1	30.0% (9/30)		1	50.0% (15/30)	
		2	50.0% (15/30)		2	53.3% (16/30)	
		3	36.7% (11/30)		3	33.3% (10/30)	
		All	38.9% (35/90)	29.5–49.2%	All	45.6% (41/90)	35.7–55.8%
	HPV31	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
	HPV33/58	1	76.7% (23/30)		1	72.4% (21/29)	
		2	60.0% (18/30)		2	46.7% (14/30)	
		3	66.7% (20/30)		3	70.0% (21/30)	
		All	67.8% (61/90)	57.6–76.5%	All	62.9% (56/89)	52.6–72.2%
	HPV45	1	100% (30/30)		1	100% (30/30)	
		2	100% (30/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	100% (90/90)	95.9–100%	All	100% (90/90)	95.9–100%
	HPV52	1	100% (30/30)		1	100% (30/30)	
		2	93.3% (28/30)		2	100% (30/30)	
		3	100% (30/30)		3	100% (30/30)	
		All	97.8% (88/90)	92.3–99.4%	All	100% (90/90)	95.9–100%

Table 18: Overall Mean, Standard Deviation, and Coefficients of Variation (%) for Cycle Threshold for Site-to-Site Reproducibility

Media	Sample Type	Panel Member	N	Mean Ct Score	Within Run		Between Run		Between Site		Total	
					SD	%CV	SD	%CV	SD	%CV	SD	%CV
BD SurePath™	SiHa cells HPV16	High Negative	27	38.22	0.42	1.09	0.23	0.61	0.43	1.13	0.65	1.70
		Low Positive	90	35.47	0.45	1.28	0.23	0.64	0.00	0.00	0.51	1.43
		Moderate Positive	90	33.86	0.34	1.00	0.16	0.47	0.00	0.00	0.37	1.10
	HeLa cells HPV18	High Negative	90	34.44	0.42	1.21	0.22	0.63	0.00	0.00	0.47	1.37
		Low Positive	90	31.45	0.26	0.82	0.04	0.14	0.10	0.31	0.28	0.89
		Moderate Positive	90	29.84	0.16	0.52	0.11	0.37	0.01	0.05	0.19	0.64
	MS751 cells HPV45	High Negative	90	36.31	0.81	2.23	0.00	0.00	0.30	0.83	0.87	2.38
		Low Positive	90	32.62	0.26	0.78	0.10	0.32	0.13	0.41	0.31	0.94
		Moderate Positive	90	31.08	0.17	0.56	0.10	0.33	0.19	0.60	0.29	0.92
	Clinical Specimen Pools	HPV16	90	35.13	2.02	5.76	0.48	1.36	0.75	2.13	2.22	6.32
		HPV18	90	32.43	2.16	6.65	0.00	0.00	0.61	1.88	2.25	6.95
		HPV31	90	30.38	0.70	2.32	0.00	0.00	0.16	0.53	0.72	2.38
		HPV33/58	90	31.35	1.44	4.59	0.56	1.77	0.00	0.00	1.54	4.92
		HPV45	90	31.13	1.22	3.92	0.00	0.00	0.00	0.00	1.22	3.92
		HPV52	90	31.74	1.53	4.82	0.21	0.65	0.00	0.00	1.56	4.90
PreservCyt®	SiHa cells HPV16	High Negative	6	38.43	0.15	0.39	0.00	0.00	0.43	1.13	0.46	1.19
		Low Positive	90	35.28	0.53	1.49	0.00	0.00	0.02	0.04	0.54	1.53
		Moderate Positive	90	33.33	0.29	0.88	0.07	0.22	0.14	0.42	0.33	1.00
	HeLa cells HPV18	High Negative	90	35.22	0.70	1.98	0.15	0.43	0.00	0.00	0.71	2.03
		Low Positive	90	30.55	0.14	0.46	0.00	0.00	0.02	0.06	0.15	0.49
		Moderate Positive	90	29.14	0.10	0.36	0.08	0.29	0.04	0.15	0.14	0.49
	MS751 cells HPV45	High Negative	90	36.50	0.66	1.81	0.32	0.89	0.27	0.75	0.78	2.15
		Low Positive	90	32.01	0.24	0.75	0.00	0.00	0.17	0.53	0.29	0.91
		Moderate Positive	90	30.54	0.15	0.48	0.06	0.19	0.12	0.40	0.22	0.71
	Clinical Specimen Pools	HPV16	88	36.46	1.24	3.39	0.00	0.00	0.00	0.00	1.24	3.39
		HPV18	90	33.50	3.08	9.21	0.00	0.00	0.00	0.00	3.08	9.21
		HPV31	90	31.19	1.84	5.90	0.00	0.00	0.00	0.00	1.84	5.90
		HPV33/58	89	33.15	2.04	6.16	0.83	2.50	0.22	0.65	2.21	6.68
		HPV45	90	31.03	0.80	2.58	0.00	0.00	0.00	0.00	0.90	2.89
		HPV52	90	31.39	1.87	5.95	0.00	0.00	0.47	1.49	1.92	6.13

Note: Only replicates with detected viral load (Ct Score <40.0) were included in the variance components analysis.

Table 19: Overall Mean, Standard Deviation, and Coefficients of Variation (%) for Cycle Threshold for Lot-to-Lot Reproducibility

Media	Sample Type	Panel Member	N	Mean Ct Score	Within Run		Between Run		Between Lot		Total	
					SD	%CV	SD	%CV	SD	%CV	SD	%CV
BD SurePath™	SiHa cells HPV16	High Negative	32	38.20	0.52	1.36	0.00	0.00	0.00	0.00	0.52	1.36
		Low Positive	90	35.55	0.49	1.38	0.00	0.00	0.00	0.00	0.56	1.56
		Moderate Positive	90	33.93	0.46	1.36	0.00	0.00	0.00	0.00	0.46	1.36
	HeLa cells HPV18	High Negative	89	34.55	0.68	1.96	0.00	0.00	0.08	0.23	0.69	2.00
		Low Positive	90	31.46	0.18	0.56	0.00	0.00	0.07	0.21	0.21	0.65
		Moderate Positive	90	29.92	0.15	0.52	0.00	0.00	0.09	0.29	0.19	0.64
	MS751 cells HPV45	High Negative	90	36.16	0.59	1.63	0.00	0.00	0.00	0.00	0.59	1.63
		Low Positive	90	32.58	0.28	0.87	0.07	0.20	0.06	0.18	0.30	0.91
		Moderate Positive	90	31.01	0.16	0.52	0.08	0.25	0.03	0.08	0.18	0.58
	Clinical Specimen Pools	HPV16	87	35.36	2.14	6.06	0.00	0.00	0.00	0.00	2.20	6.22
		HPV18	90	32.42	2.39	7.38	0.00	0.00	0.60	1.84	2.49	7.67
		HPV31	90	30.30	0.62	2.06	0.00	0.00	0.13	0.43	0.64	2.10
		HPV33/58	90	31.19	1.36	4.37	0.32	1.02	0.52	1.67	1.50	4.79
		HPV45	90	31.09	0.93	2.99	0.43	1.38	0.10	0.33	1.03	3.32
		HPV52	90	31.78	1.65	5.21	0.39	1.23	0.00	0.00	1.70	5.35
PreservCyt®	SiHa cells HPV16	High Negative	8	38.27	0.31	0.82	0.22	0.58	0.00	0.00	0.68	1.77
		Low Positive	90	35.28	0.57	1.60	0.00	0.00	0.08	0.24	0.57	1.62
		Moderate Positive	90	33.41	0.55	1.64	0.12	0.35	0.07	0.22	0.56	1.69
	HeLa cells HPV18	High Negative	90	35.31	0.58	1.65	0.00	0.00	0.00	0.00	0.62	1.77
		Low Positive	90	30.73	0.14	0.45	0.07	0.24	0.07	0.22	0.19	0.63
		Moderate Positive	90	29.22	0.16	0.53	0.05	0.17	0.08	0.27	0.19	0.65
	MS751 cells HPV45	High Negative	89	36.39	0.76	2.09	0.22	0.61	0.00	0.00	0.79	2.18
		Low Positive	90	32.09	0.29	0.92	0.00	0.00	0.09	0.29	0.31	0.96
		Moderate Positive	90	30.68	0.13	0.43	0.00	0.00	0.08	0.26	0.20	0.66
	Clinical Specimen Pools	HPV16	88	36.06	1.99	5.52	0.00	0.00	0.24	0.66	2.01	5.56
		HPV18	90	33.88	2.50	7.37	0.87	2.57	0.00	0.00	2.65	7.81
		HPV31	90	31.47	1.57	4.99	0.00	0.00	0.33	1.06	1.61	5.10
		HPV33/58	90	32.78	1.94	5.92	0.94	2.86	0.00	0.00	2.15	6.57
		HPV45	90	31.08	1.10	3.53	0.00	0.00	0.00	0.00	1.12	3.59
		HPV52	90	31.48	2.03	6.46	0.00	0.00	0.00	0.00	2.03	6.46

Note: Only replicates with detected viral load (Ct Score <40.0) were included in the variance components analysis.

Carryover and Cross-Contamination

The contamination study was performed to evaluate the risk of producing a false positive result in either the same run (within run cross contamination) or in a subsequent run (between run carryover contamination) on the BD COR™ System. At least thirty runs were tested for each sample type: BD SurePath™, PreservCyt®, BD Onclarity™ HPV Cervical Brush Diluent, and vaginal self-collection devices. Each run, arranged in an alternating checkerboard pattern, consisted of specimens containing an HPV negative cell line (C33A) with and without CasKi cells spiked at a level covering ≥95% of diseased patients in the intended use population. The overall contamination rate observed was 0.00% for BD SurePath™, 0.00% for PreservCyt®, 0.22% for BD Onclarity™ HPV Cervical Brush Diluent, and 0.22% for vaginal self-collection devices.

INTERPRETATION OF TABLES

Symbols and Abbreviations

Symbols

#	Number
%	Percentage

Abbreviations

CBD	Cervical Brush Diluent
CI	Confidence interval
CIN	Cervical intraepithelial neoplasia
Ct	Cycle Threshold
DNA	Deoxyribonucleic acid
FDA	Food and Drug Administration
GT	Genotype
HPV	Human Papillomavirus
HR	High Risk
mL	milliliter
NA	Not applicable
NEG	Negative
PCR	Polymerase Chain Reaction
POS	Positive
QC	Quality Control
SD	Standard Deviation

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For regions outside of the United States, contact your local BD representative or bd.com.

EU Only: Users shall report any serious incident related to the device to the Manufacturer and National Competent Authority.

Outside EU: Contact your local BD representative for any incident or inquiry related to this device.

Refer to the Eudamed website: https://ec.europa.eu/tools/eudamed for Summary of Safety and Performance.

Change History

Revision	Date	Change Summary
09	2023-01	Updated GHS information. Updated waste disposal statement. Added on-board stability for PCR plates, Extraction Reagent Trough, and HPV Assay Diluent Bottle. Added option to recap BD Onclarity™ HPV LBC Diluent Tubes and BD Onclarity™ HPV Self Collection Diluent Tubes after manually adding a sample in order to prevent potential bubbles around cap. Added instruction to replace punctured caps prior to storage or prior to retesting for BD Onclarity™ HPV Cervical Brush Diluent Tubes. Added additional symbol definitions. Updated Swiss authorized representative address. Added EU and Swiss Importer(s) address(es). Made typographical and formatting updates.
10	2023-05	Updated GHS information. Replaced catalog number 443996 with 440330. Added BD catalog number 440331, BD Pierceable Caps Pink, in Materials Required but not Provided. Clarified note regarding option to recap BD Onclarity™ LBC Diluent Tubes and BD Onclarity™ Self Collection Tubes. Updated Symbols Glossary. Removed Australian and New Zealand sponsors addresses. Made typographical and formatting updates.
11	2023-10	Replaced catalog number 440330 with 443996. Updated Symbols Glossary.

SYMBOLS GLOSSARY

Please refer to product labeling for applicable symbols.

Symbol	Meaning
	Manufacturer
	Authorized representative in the European Community
	Authorised representative in Switzerland
	Date of manufacture
	Use-by date
	Batch code
	Catalogue number
	Serial number
	Sterile
	Sterilized using aseptic processing techniques
	Sterilized using ethylene oxide
	Sterilized using irradiation
	Sterilized using steam or dry heat
	Do not resterilize
	Non-sterile
	Do not use if package is damaged and consult *instructions for use*
	Sterile fluid path
	Sterile fluid path (ethylene oxide)
	Sterile fluid path (irradiation)
	Fragile, handle with care
	Keep away from sunlight
	Keep dry
	Lower limit of temperature
	Upper limit of temperature
	Temperature limit
	Humidity limitation
	Biological risks
	Do not re-use
	Consult *instructions for use* or consult electronic *instructions for use*
	Caution
	Contains or presence of natural rubber latex
	In vitro diagnostic medical device
	Negative control
	Positive control
	Contains sufficient for <*n*> tests
	For IVD performance evaluation only
	Non-pyrogenic
	Patient number
	This way up

Symbol	Meaning
	Do not stack
	Single sterile barrier system
	Contains or presence of phthalate: combination of bis(2-ethylhexyl) phthalate (DEHP) and benzyl butyl phthalate (BBP)
	Collect separately Indicates separate collection for waste of electrical and electronic equipment required.
	CE marking; Signifies European technical conformity
	Device for near-patient testing
	Device for self-testing
	This only applies to US: "Caution: Federal Law restricts this device to sale by or on the order of a licensed practitioner."
	Country of manufacture "CC" shall be replaced by either the two letter or the three letter country code.
	Collection time
	Cut
	Peel here
	Collection date
	Keep away from light
	Hydrogen gas is generated
	Perforation
	Start panel sequence number
	End panel sequence number
	Internal sequence number
	<Box #> / <Total Boxes>
	Medical device
	Contains hazardous substances
	Ukrainian conformity mark
	Meets FCC requirements per 21 CFR Part 15
	UL product certification for US and Canada
	Unique device identifier
	Importer
	Place patient label in framed area only
	Magnetic resonance (MR) safe
	Magnetic resonance (MR) conditional
	Magnetic resonance (MR) unsafe
This Product Contains Dry Natural Rubber	This Product Contains Dry Natural Rubber
For Export Only	For Export Only

Note: Text layout in symbols is determined by label design.

L006715(09) 2023-08

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