MAYO CLINIC LABORATORIES

# Test Definition: UPHB

pH, Body Fluid

## Overview

### Useful For
Indicating the presence of infections or fistulas

Verifying the effectiveness of treatment to reduce stomach pH

Diagnosing disease states characterized by abnormal stomach acidity

This test is **not appropriate for** measurement of pleural fluid pH, as that measurement should be made using a blood gas analyzer locally due to specimen stability and transport requirements.

### Method Name
pH Meter

### NY State Available
Yes

## Specimen

### Specimen Type
Body Fluid

### Ordering Guidance
To measure pH of a urine specimen, order PHU_ / pH, Random, Urine.

### Necessary Information
1. Date and time of collection.
2. Specimen source
-Identify source name from the following list with location (if appropriate):
 -Peritoneal fluid (peritoneal, abdominal, ascites, paracentesis)
 -Drain fluid (drainage, JP drain)
 -Synovial fluid
-Write in source name with source location (if appropriate)

### Specimen Required
**Container/Tube:** Sterile container
**Submission Container/Tube:** Plastic vial
**Specimen Volume:** 5 mL

### Specimen Minimum Volume
1 mL

### Reject Due To

| | |
|---|---|
| Spinal fluid | Reject |
| Chest (thoracic) fluid | Reject |
| Thoracentesis | Reject |
| Pleural fluid | Reject |
| Urine | Reject |

### Specimen Stability Information

| Specimen Type | Temperature | Time | Special Container |
|---|---|---|---|
| Body Fluid | Refrigerated (preferred) | 7 days | |
| | Ambient | 24 hours | |
| | Frozen | 7 days | |

## Clinical & Interpretive

### Clinical Information

The pH value is a measure of hydrogen ion concentration. Increased metabolic activity and production of acidic byproducts (eg, lactic acid) due to infection are known to decrease pH. A variety of disease processes can alter pH values; therefore, low pH has reduced specificity. Gastric content typically has a low pH, and measurement of pH has been used to help identify gastric fluid. Determining the pH value of a body fluid may help characterize the nature of the fluid.

### Reference Values

An interpretive report will be provided.

### Interpretation

Normal gastric fluid has a pH below 3.0; any higher pH is abnormal.

Low peritoneal fluid pH (<7.35) may be observed in spontaneous bacterial peritonitis.(1)

### Cautions

Specimens should be collected, maintained anaerobically, and tested as soon after collection as possible, as exposure to air and time causes pH to increase since carbon dioxide is lost from the sample.

### Clinical Reference

1. Wong CL, Holroyd-Leduc J, Thorpe KE, Straus SE. Does this patient have bacterial peritonitis or portal hypertension? How do I perform a paracentesis and analyze the results?. JAMA. 2008;299(10):1166-1178
2. Menezes CJ, Worcester EM, Coe FL, Asplin J, Bergsland KJ, Ko B. Mechanisms for falling urine pH with age in stone formers. Am J Physiol Renal Physiol. 2019;317(7):F65-F72
3. Ilyas R, Chow K, Young JG. What is the best method to evaluate urine pH? A trial of three urinary pH measurement

methods in a stone clinic. J Endourol. 2015;29(1):70-74
4. Davidson I, Henry JB, eds. Todd-Sanford Clinical Diagnosis by Laboratory Methods; 15th ed. Elsevier; 1974:43-44
5. Free AH, Free HBS. Urodynamics, concepts relating to urinalysis. Ames Co; 1974:57-61
6. Kaplan, LA, Pesce AJ, eds: Clinical Chemistry Theory, Analysis, Correlation. 3rd ed. Mosby-Year Book Inc; 1996:823

## Performance

### Method Description
The pH meter is composed of a glass electrode, calomel electrode, and voltmeter. The glass electrode has a fixed acid concentration, yielding a corresponding voltage. The calomel electrode is the reference electrode. Its voltage is independent of the hydrogen ion concentration. The two electrodes constitute a galvanic cell whose electromotive force is measured by the voltmeter. The meter is calibrated to read in pH units, reflecting the hydrogen ion concentration. The meter is used to determine pH in 0 to 14 range.(Instruction manual: Fisher Scientific accumet Basic (AB) Benchtop Meters. Fisher Scientific; 07/2018)

### PDF Report
No

### Day(s) Performed
Monday through Sunday

### Report Available
Same day/1 day

### Specimen Retention Time
7 days

### Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

## Fees & Codes

### Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

### Test Classification
This test has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

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## CPT Code Information

83986

## LOINC® Information

| Test ID | Test Order Name | Order LOINC® Value |
|---|---|---|
| UPHB | pH, BF | 2748-2 |

| Result ID | Test Result Name | Result LOINC® Value |
|---|---|---|
| U_PHB | pH, BF | 2748-2 |
| SRC18 | Source | 14725-6 |
| CMT36 | Comment | 48767-8 |