

Urinalysis Worksheet

Chemistry Dip Stick

Test Pad	Principle	Interference / Comment
Glucose		
Bilirubin		
Ketone		
Specific Gravity		
Blood		
pH		
Protein		
Urobilinogen		

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Nitrite		
Leukocyte Esterase		

Specimen Collection

Specimen Type	Purpose
Random	
First morning collection	
24 hrs.	
Catheterized/ Midstream	

Urine Volume and terminology

Terminology	Expected Volume
Anuria	
Oliguria	

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Polyuria	
Nocturia	
Normal	

Confirmatory Testing

Test	Clinical Significance
Sulfosalicylic acid	
Clinitest	
Ace Test	
Ictotest	

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DIPSTICK PRINCIPLE

Glucose Glucose oxidase catalyzes the formation of gluconic acid and hydrogen peroxide from the oxidation of glucose. Peroxidase catalyzes the reaction of hydrogen peroxide with a potassium iodide chromogen to oxidize the chromogen to colors ranging from green to brown.

Bilirubin Bilirubin couples with diazotized dichloraniline in a strongly acid medium. Colors range through various shades of tan.

Ketone Acetoacetic acid reacts with nitroprusside. Colors range from buff-pink for a negative reading, to maroon for a positive reading.

Specific Gravity pKa changes occur for certain pretreated polyelectrolytes in relation to ionic concentration. In the presence of an indicator, colors range from deep blue-green in urine of low ionic concentration through green and yellow-green in urines of increasing ionic concentration.

Blood Hemoglobin catalyzes the reaction of diisopropylbenzene dihydroperoxide and 3,3', 5, 5'-tetramethylbenzidine. Colors range from orange through green; very high levels of blood may cause the color development to continue to blue.

pH The double indicator principle gives a broad range of colors covering the entire urinary pH range. Colors range from orange through yellow and green to blue.

Protein At a constant pH, the development of any green color is due to the presence of protein (protein error-of-indicators principle). Colors range from yellow for "Negative" through yellow-green and green to green-blue for "Positive" reactions.

Urobilinogen In a modified Ehrlich reaction, p-diethylaminobenzaldehyde in conjunction with a color enhancer reacts with urobilinogen in a strongly acid medium to produce a pink-red color.

Nitrite Nitrate (derived from the diet) is converted to nitrite by the action of Gram negative bacteria in the urine. At the acid pH of the reagent area, nitrite in the urine reacts with p-arsanilic acid to form a diazonium compound. This diazonium compound couples with 1,2,3,4-tetrahydrobenzo(h)quinolin-3-ol to produce a pink color.

Leukocytes Esterases in granulocytic leukocytes catalyze the hydrolysis of the derivatized pyrrole amino acid ester to liberate 3-hydroxy-5-phenyl pyrrole. This pyrrole then reacts with a diazonium salt to produce a purple product.