

# HEALTH-CHEM DIAGNOSTICS, LLC

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## URICHECK

**Ten Parameter Multistrip: pH, Protein, Glucose, Ketones, Bilirubin, Blood, Nitrite, Urobilinogen, Specific gravity, Leucocyte esterase (smaller combinations also available).**

### INTRODUCTION

The UriCheck urine testing device consists of a firm plastic film to which several separate reagent patches are affixed. The list below outlines the particular parameters used for each specific UriCheck:

UriCheck 1	Glucose
UriCheck 2	Ketone, Glucose
UriCheck 2S	Protein, Glucose
UriCheck 3	Protein, Blood, Glucose
UriCheck 3L	Leucocytes, Protein, Blood, Glucose
UriCheck 4L	Leucocytes, Nitrite, Protein, Blood, Glucose
UriCheck 5	Protein, pH, Blood, Ketone, Glucose
UriCheck 5N	Nitrite, Protein, pH, Blood, Ketone, Glucose
UriCheck 9L	Leucocytes, Nitrite, Urobilinogen, Protein, pH, Blood, Ketone Bilirubin, Glucose
UriCheck 10L	Leucocytes, Nitrite, Urobilinogen, Protein, pH, Blood, Specific Gravity, Ketone, Bilirubin, Glucose

### OPERATING INSTRUCTIONS

- Ensure the urine is less than 4 hours old and at room temperature.
- Check the expiry date on the strip can.
- Remove, one strip at a time and replace the lid immediately.
- Do not touch the test patch - hold by the handle.
- Dip the test strip into fresh urine for approximately 2 seconds.
- Remove excess urine by briefly blotting the side of the strip on absorbent tissue.
- After 30-60 seconds, compare the test strip with the colour scale.
- Colour changes after 2 minutes are of no significance.

## **STORING INSTRUCTIONS**

### ***STRIPS***

- Store the can in a dry place below 30°C.
- Replace the cap immediately after use.
- Check the expiry date.

### ***URINE***

- Urine can be stored up to 4 hours in the refrigerator.
- After 4 hours the urine might produce false results.
- Allow the urine to warm to room temperature before use.

## **PARAMETERS**

### ***NITRITE***

**Chemical Principle:** Gram-negative bacteria in the urine are able to reduce dietary nitrate to nitrite. The test is based on the principle of the Greiss reagent whereby the nitrite forms a diazonium compound with the  $\alpha$ -Naphthylamine in an acidic medium.

This results in a colour change from cream to pink.

**Reagents:**  $\alpha$ -Naphthylamine and non-reactive ingredients.

**Sensitivity:** 0,06 - 0,1 mg/dL Nitrite ion.

**Interfering Substances:** Ascorbic Acid, Specific Gravity.

### ***UROBILINOGEN***

**Chemical Principle:** p-(dimethylamino) benzaldehyde and a colour enhancer react with the urobilinogen at an acidic pH to produce pink/red colours.

**Reagents:** p-(dimethylamino) benzaldehyde, malonyl urea, buffer and non-reactive ingredients.

**Sensitivity:** 0,15 - 0,4 mg/dL Urobilinogen.

**Interfering Substances:** p-Aminosalicylic acid and sulfonamides p-Aminobenzoic acid, Forutin and temperature.

### ***PROTEIN***

**Chemical Principle:** The test is based on the 'Protein-error' of the indicator. The protein in the urine combines with the blue divalent anionic form of the indicator. This results in the dissociation of the yellow monovalent anion into the blue divalent anion. Although the test patch is buffered to a constant pH, a colour change from yellow through green to blue will occur in the presence of protein.

**Reagents:** Tetrabromophenolphthalein, bromophenol blue, buffer and non-reactive ingredients.

**Sensitivity:** 15-30 mg/dL albumin.

**Interfering Substances:** Quaternary ammonium compounds and chlorhexidine, Alkaline urines.

## *pH*

**Chemical Principle:** A dual indicator system allows for a colour change from orange, through green to blue over a pH range.

**Reagents:** Methyl red, bromothymol blue and buffer.

**Sensitivity:** pH 5,0 - 8,5.

**Interfering Substances:** No known substances.

## *BLOOD*

**Chemical Principle:** Pseudoperoxidative activities of the haemoglobin and myoglobin components of blood are responsible for the catalytic oxidation of the indicator, in the presence of the organic hyperoxide. This results in a colour change from yellow through green to blue. Whole red blood cells (RBC) produce a mottled colour while haemoglobin produces a uniform colour

**Reagents:** 0-Toluidine, quinoline sulphate, cumene hydroperoxide, buffer and non-reactive ingredients.

**Sensitivity:** 0,015 - 0,062 mg/dL haemoglobin.

**Interfering Substances:** Oxidising and peroxidising agents, microbial peroxidase, temperature, Captopril®.

## *KETONE*

**Chemical Principle:** Acetoacetic Acid (the physiological ketone) reacts with Sodium Nitroprusside to produce a pink or mauve colour.

**Reagents:** Sodium nitroprusside and buffer.

**Sensitivity:** 5-10 mg/dL Acetoacetic Acid.

**Interfering Substances:** Mesna- and Sulfhydryl groups, exposure to moisture.

## *BILIRUBIN*

**Chemical Principle:** Diazotized dichloroaniline couples with the bilirubin, in an acidic medium, to produce tan to brown colours.

**Reagents:** 2, 4-Dichloroaniline, 1,5-naphthalenedisulfonic acid, sodium nitrite.

**Sensitivity:** 0,4-0,8 mg/dL bilirubin.

**Interfering Substances:** Indoxyl sulfate, Ascorbic acid and metabolites of Etodolac.

## *GLUCOSE*

**Chemical Principle:** The test is based on the glucose oxidase/oxidase chromogen reaction. The glucose oxidase oxidises the glucose to form hydrogen peroxide. The peroxidase then catalyses the hydrogen peroxide with a potassium iodide chromogen. The extent to which the chromogen is oxidised determines the colour which is produced - ranging from green to brown.

**Reagents:** Glucose oxidase, peroxidase, potassium iodide, buffer and non-reactive ingredients.

**Sensitivity:** 75-125 mg/dL Glucose.

**Interfering Substances:** Ketone bodies, ascorbic acid, gentistic acid, specific gravity and temperature.

## ***LEUCOCYTES***

**Chemical Principle:** Granulocyte esterases are contained within the leucocytes bodies (white blood cells). These enzymes cleave the indoxyl ester in the patch. The liberated indoxyl portion then reacts with the diazonium salt to give the colour formation.

**Reagents:** Derivatized pyrrole amino acid ester, Diazonium salt, Buffer.

**Sensitivity:** 5 - 15 cells/ $\mu$ L in clinical urine.

**Interfering Substances:** Vaginal discharge, intensely coloured urine, high glucose, protein and specific gravity values.

## ***SPECIFIC GRAVITY***

**Chemical Principle:** Cations in the urine induce the release of protons from a complexing agent in the patch. This results in a non pH dependent colour change in the bromothymol blue indicator over the range of yellow through green to blue.

**Reagents:** Bromothymol Blue indicator, Buffer.

**Sensitivity:** 1,000 - 1,030.

**Interfering Substances:** High protein and ketone values. Highly buffered alkaline urine.

Manufactured in the USA by:  
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