POTASSIUM (K)

Diagnostic reagent for determination of Potassium concentration.
Liquid. Dual Reagents. Store at +2°C/+8°C. For in Vitro Diagnostic Use. Do not freeze**.**

Ref No	Pack
MH-452	40 mL
VH-452	40 mL

Changes made in the instructions for use are marked as grey.

INTENDED USE

The test is applied for the in vitro quantitative determination of potassium in serum, plasma and urine.

TEST SUMMARY AND PROCEDURE [1, 2, 3, 4, 5]

Potassium is determined enzymatically via potassium dependant pyruvate kinase activity using phosphoenol-pyruvate as substrate. The formed pyruvate reacts with NADH in the presence of LDH to form Lactate and NAD. The corresponding decrease in absorbance at 340 nm is proportional to the potassium concentration.

$$PEP + ADP \xrightarrow{K+/(PK)} Piruvat + ATP + PK + LDH$$

$$Piruvat + NADH + H^+ \xrightarrow{LDH} Laktat + NAD^+$$

TEST PARAMETERS

Method : Enzymatic Colorimetric
Wavelength : 340 nm
Linearity : 10 mmol/L

REAGENT COMPONENTS

Reagent 1. Buffer/Enzymes

Tris buffer	≤ 280 mmol/L PH8.2
Cryptand	≤ 14 mmol/L
PET	≥ 3.3 mmol/L
ADP	≥ 3.15 mmol/L
α-oxoglutarrte	≥ 1.2 mmol/L
NADH	≥ 0.35 mmol/L
GLDH	≥ 11 U/mL
PK	≥ 1.2 U/mL

Reagent 2. Enzyme

LDH	≥ 65 U/mL

Low Standard	3 mmol/L
High Standard	7 mmol/L

REAGENT PREPARATION

Reagents are ready for use.

REAGENT STABILITY AND STORAGE [6]

Reagents are stable at +2/+8˚C till the expiration date stated on the label which is only for closed vials.

Reagents must not be stored on the instrument. Upon completion of the analysis, promptly cap the reagent vial and transfer it to a refrigerator. Ensure that the vial cap is free from any cross-contamination with other reagents prior to use. When stored at +2°C to +8°C under the specified handling and usage conditions, the reagent maintains stability for up to 20 days.

Reagent stability and storage data have been verified by using Clinical and Laboratory Standards Institute (CLSI) EP25-A protocol.

SAMPLE

Serum and plasma treated with lithium heparinate are collected according to the standard procedures.

Potassium in serum is stable for:
1 week at +20/+25°C,
1 week at +2/+8ºC,
1 year at -20°C.

Potassium in urine is stable for:
45 days at +20/+25°C,
2 week at +2/+8ºC,
1 year at -20°C.

Unit Conversion:
mmol/L x 3.9682 = mg/dL

REFERENCE INTERVAL (NORMAL VALUES) [7]

3.5 -5.1 mmol/L

It is recommended that each laboratory establish its own normal range.

Reference interval has been verified by using CLSI EP28-A3c protocol.

CALIBRATION and QUALITY CONTROL

Calibration: The assay requires the use of Arcal Auto Calibrator.

Arcal Auto Calibrator-Lyophilized
Ref.No: VT-003

When reagents are properly stored (tightly capped) at +2°C to +8°C after analysis, calibration stability is maintained for up to 2 days. For reagents kept onboard the instrument, calibration stability is limited to 1 day.

Any change in the reagent lot number requires recalibration. If quality control results fall outside the acceptable range, recalibration must be performed. Calibration stability depends on the application characteristics and cooling capacity of the autoanalyzer used.

Control: Commercially available control material with established values determined by this method can be used. We recommend:

Arcon N Level 1 Control- Lyophilized
Ref.No: VT-001

Arcon P Level 2 Control- Lyophilized
Ref.No: VT-002

At least two level controls must be run once in every 24 hours. Each laboratory should determine its own quality control scheme and procedures. If quality control results are not within acceptable limits, calibration is required.

PERFORMANCE CHARACTERISTICS

Limit of Detection (LoD): The limit of the test detection is 0.8 mmol/L.

Limit of Quantitation (LoQ) [LoQ values are based on Coefficient of Variation Percentage (CV) ≤ 20%]**:**[8] 2 mmol/L

LoD and LoQ values have been verified by using CLSI EP17-A protocol.

High Linearity: *The method is linear up to 7,5 mmol/L.*

For values above high linearity, dilute sample with 0.9% saline, repeat the test and multiply the result by the dilution factor.

Linearity may considerably vary depending on the instrument used.

Precision Studies:[9]

Repeatability (Within Run) (Intra-Assay)

Mean Concentration	SD*	CV%	n
4.04	0.04	0.93	20
6.14	0.04	0.59	20

Repeatability (Day to Day) (Inter-Assay)

Mean Concentration	SD	CV%	n
3.98	0.046	1.16	20
6.05	0.106	1.76	20

*SD: Standard Deviation

Precision Studies data have been verified by using CLSI EP05-A3 protocol.

Method Comparison:[10, 11]
Correlation with a comparative method is: r= 1.0
According to Passing-Bablok Fit:
Slope: 0.94
Intercept: 0.20

Interference:[3, 4, 12]
No significant interactions were observed for hemoglobin, conjugated bilirubin, lipemia up to the interferent concentration given.

Bilirubin	≤ 665 µmol/L
Hemoglobin	≤ 1.0 g/L
Lipemia	≤ 24.2 mmol/L

The acceptable interference limit is set 10% below the highest interference concentration within ± 10% recovery of the target.

Interferences may affect the results due to medication or endogenous substances.

These performance characteristics have been obtained by using an analyzer. Results may vary if a different instrument or a manual procedure is used.

WARNINGS AND PRECAUTIONS

IVD**:** For in Vitro Diagnostic use only.
Do not use expired reagents.
Reagents with two different lot numbers should not be interchanged.
For professional use.
Follow Good Laboratory Practice (GLP) guidelines.

CAUTION: Human source samples are processed with this product. All human source samples must be treated as potentially infectious materials and must be handled in accordance with OSHA standards.

Danger

EUH032	:Releases a very toxic gas if contacts with acid.
H317	:May cause allergic skin reaction.

Precaution

P280	:Use protective gloves / clothes / glasses / mask.
P264	:Wash your hands properly after using.
P272	:Contaminated work clothes should not be allowed to be used outside of the workplace.

Intervention

P302+P352	:Wash with plenty of water and soap if it contacts with skin.
P333+P313	:Seek medical help if it irritates your skin or develops rash.
P362+P364	:Remove contaminated clothes and wash properly before using.

Disposal

P501 :Dispose the vials and contents according to the local regulations.

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SYMBOLS

IVD	In Vitro Diagnostic Medical Device
LOT	Lot Number
R1	Reagent 1
R2	Reagent 2
GTIN	Global Trade Item Number
REF	Reference Number
GLP	Good Laboratory Practices
FOR USE WITH	Identifies Products to Be Used Together
PRODUCT OF TURKEY	Product of Turkey
	Manufacturer
	Expiration Date
	Temperature Limits
	Consult Instructions for Use
	Caution
	Number of Tests