



Chloride Assay Kit (Colorimetric)

Chloride Assay Kit (Colorimetric) is a detection kit for the quantification of Chloride in biological, food and environmental samples.

Catalog number: ARG82143

Package: 250 tests

For research use only. Not for use in diagnostic procedures.

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INTRODUCTION

The chloride ion is the anion (negatively charged ion) Cl^- . It is formed when the element chlorine (a halogen) gains an electron or when a compound such as hydrogen chloride is dissolved in water or other polar solvents. Chloride salts such as sodium chloride are often very soluble in water. It is an essential electrolyte located in all body liquids responsible for maintaining acid/base balance, transmitting nerve impulses and regulating liquid flow in and out of cells. Less frequently, the word chloride may also form part of the "common" name of chemical compounds in which one or more chlorine atoms are covalently bonded. For example, methyl chloride, with the standard name chloromethane (see IUPAC books) is an organic compound with a covalent C-Cl bond in which the chlorine is not an anion. [Provide by Wikipedia: Chloride]

PRINCIPLE OF THE ASSAY

This Chloride Assay Kit (Colorimetric) is a simple colorimetric assay that measures the amount of chloride present in biological samples. The Chloride Assay kit is designed to measure chloride directly in biological samples without any pretreatment. The improved Fried method utilizes mercuric 2,4,6-tripyridyl-s-triazine, which forms a colored complex specifically with chloride. The intensity of the color, measured at O.D. 610 nm, is directly proportional to the chloride concentration in the sample. The optimized formulation substantially reduces interference by substances in the raw samples.

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MATERIALS PROVIDED & STORAGE INFORMATION

The kit is shipped at room temperature. Store all components at 4°C upon receiving. Shelf life: 12 months after receipt.

Component	Quantity	Storage information
Reagent	50 mL	4°C
Standard (35 mg/dL Cl ⁻)	1 mL	4°C

MATERIALS REQUIRED BUT NOT PROVIDED

- Microplate reader capable of reading at O.D. 570-650 nm
- Centrifuge
- Clear flat-bottom 96 well microplate
- Deionized or Distilled water
- Pipettes, pipette tips and Multichannel micropipette reservoir

TECHNICAL NOTES AND PRECAUTIONS

- Wear protective gloves, clothing, eye, and face protection especially while handling blood or body fluid samples.
- Reagents are for research use only. Normal precautions for laboratory reagents should be exercised while using the reagents. Please refer to Material Safety Data Sheet for detailed information.
- All reagents should be mixed by gentle inversion or swirling prior to use. Do not induce foaming.

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- Before using the kit, spin tubes and bring down all components to the bottom of tubes.
- It is highly recommended assaying the Standards and samples in duplicates.
- Change pipette tips between the addition of different reagent or samples.

SAMPLE COLLECTION & STORAGE INFORMATION

The sample collection and storage conditions listed below are intended as general guidelines. Sample stability has not been evaluated.

Serum: Collect blood in a tube with no anticoagulant. Allow the blood to clot at room temperature for 30 minutes. Centrifuge at 2500 x g for 20 minutes at 4°C. Collect the serum and assay directly.

Plasma: Collect blood with heparin or citrate and centrifuge at 2000 x g for 10 minutes at 4°C. Collect the plasma layer and assay directly.

Other liquid biological sample: Assay directly.

Note: Serum, plasma, urine and milk samples should be diluted 20-fold in distilled water.

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REAGENT PREPARATION

- **Standard:** Dilute standards in distilled water as follows. Store diluted standards at 4°C for future use.

Standard tube	Cl ⁻ (mg/dL)	Distilled water (μL)	35 mg/dL Standard (μL)
S1	35	0	100
S2	28	20	80
S3	21	40	60
S4	14	60	40
S5	10.5	70	30
S6	7	80	20
S7	3.5	90	10
S8	0	100	0

ASSAY PROCEDURE

Equilibrate reagents to room temperature. Briefly centrifuge tubes before use.

1. Add **5 μL** of diluted **Standards** and **samples** into wells of clear bottom 96-well microplate.
2. Add **200 μL** of **Reagent** to each well. Tap lightly to mix.
3. Incubate for **5 minutes** at **room temperature** and read the absorbance at **O.D. 610 nm (550-650 nm)**

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CALCULATION OF RESULTS

1. Subtract blank OD (distilled water, S8) from the standard OD values and plot the OD against Cl⁻ standard concentrations. Determine the slope using linear regression fitting. Chloride concentration of the sample is calculated as follow:

$$\text{Cl}^- (\text{mg/dL}) = [(\text{OD}_{\text{SAMPLE}} - \text{OD}_{\text{BLANK}}) / \text{Slope}] \times n$$

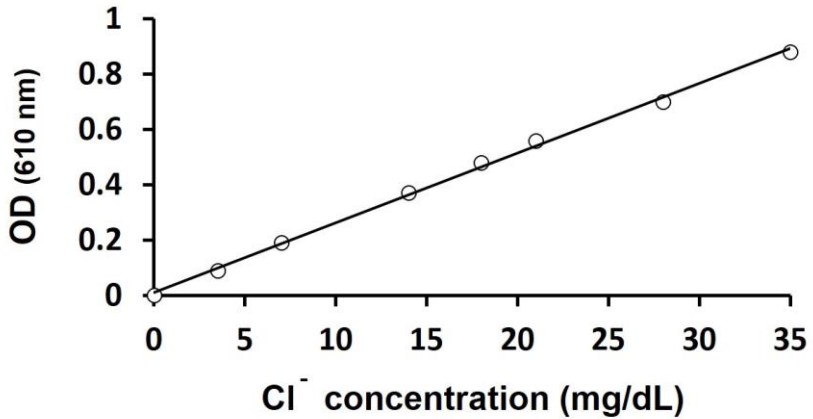
Note:

- OD_{SAMPLE}, OD_{BLANK}: the O.D. 610 nm values of the sample and sample blank.
 - n: the dilution factor (n = 20 for serum, plasma, milk, urine).
2. Conversions: 1 mg/dL Cl⁻ equals 282 μM, 0.001% or 10 ppm.

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EXAMPLE OF TYPICAL STANDARD CURVE

The following figures demonstrate typical results with the Chloride Assay Kit (Colorimetric). One should use the data below for reference only. This data should not be used to interpret actual results.



QUALITY ASSURANCE

Sensitivity

0.7 mg/dL (0.2 mM)