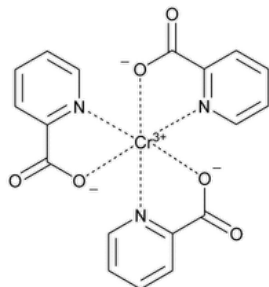


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## Chromium Picolinate



$C_{18}H_{12}N_3O_6Cr$  418.30

Chromium Tripicolinate CAS RN®: 14639-25-9.

### DEFINITION

Chromium Picolinate contains NLT 98.0% and NMT 102.0% of chromium picolinate ( $C_{18}H_{12}N_3O_6Cr$ ), calculated on the dried basis.

### IDENTIFICATION

#### Change to read:

- A. [▲ SPECTROSCOPIC IDENTIFICATION TESTS \(197\), Infrared Spectroscopy: 197M ▲](#) (CN 1-MAY-2020)
- B.

**Sample solution:** 4 mg/mL

**Analysis:** To 5 mL of the *Sample solution* add 1 mL of 5 N sodium hydroxide and 10 drops of 30% hydrogen peroxide, and heat gently for 2 min.

**Acceptance criteria:** A yellow color develops.

### ASSAY

#### PROCEDURE

**Standard stock solution:** 100 µg/mL of chromium. Transfer 0.283 g of potassium dichromate, previously dried at 120° for 4 h, to a 1000-mL volumetric flask, and dilute with water to volume. Store in a polyethylene bottle.

**Standard solutions:** 1.0, 2.0, 3.0, and 4.0 µg/mL of chromium. Separately transfer 1.0 and 2.0 mL of the *Standard stock solution* to 100-mL volumetric flasks, and transfer 1.5 and 2.0 mL of the *Standard stock solution* to separate 50-mL volumetric flasks. Add 1.0 mL of nitric acid to each flask, and dilute the contents of each flask with water to volume.

**Sample solution:** Transfer 200 mg of Chromium Picolinate to a 100-mL beaker, and add 25 mL of water. Slowly add 10 mL of nitric acid, and boil for 10 min with constant swirling. Cool the solution, quantitatively transfer to a 500-mL volumetric flask, and dilute with water to volume. Filter a portion of the solution, and transfer 5.0 mL of the filtrate to a 100-mL volumetric flask. Add 1 mL of nitric acid, and dilute with water to volume.

#### Instrumental conditions

(See [Atomic Absorption Spectroscopy \(852\)](#).)

**Mode:** Atomic absorption spectrophotometry

**Analytical wavelength:** 357.9 nm

**Lamp:** Chromium hollow-cathode

**Flame:** Air–acetylene

**Blank:** Diluted nitric acid

#### Analysis

**Samples:** *Standard solutions* and *Sample solution*

Determine the absorbances of the *Standard solutions* and the *Sample solution*. Plot the absorbances of the *Standard solutions* versus the chromium concentration, in µg/mL, and draw the straight line best fitting the four plotted points. From the graph so obtained, determine the chromium concentration, in µg/mL, in the *Sample solution*.

Calculate the percentage of chromium picolinate ( $C_{18}H_{12}N_3O_6Cr$ ) in the portion of Chromium Picolinate taken:

$$\text{Result} = (C_{Cr}/C_U) \times (M_r/A_r) \times 100$$

$C_{Cr}$  = concentration of chromium in the *Sample solution*, obtained from the graph (µg/mL)

$C_U$  = concentration of Chromium Picolinate in the *Sample solution* (µg/mL)

$M_r$  = molecular weight of chromium picolinate, 418.31

$A_r$  = atomic weight of chromium, 51.996

**Acceptance criteria:** 98.0%–102.0% on the dried basis

#### IMPURITIES

##### • [CHLORIDE AND SULFATE, Chloride \(221\)](#)

**Sample solution:** Dissolve 30 mg of Chromium Picolinate in 30–40 mL of water, and heat to 70°. Cool overnight, and filter to remove the precipitate.

**Analysis:** Add 1 mL each of nitric acid and silver nitrate TS, and add sufficient water to make 50 mL. Mix, and allow to stand for 5 min, protected from direct sunlight.

**Acceptance criteria:** Any turbidity formed is NMT that produced in a similarly treated control solution containing 0.25 mL of 0.002 N hydrochloric acid (NMT 0.06%).

##### • [CHLORIDE AND SULFATE, Sulfate \(221\)](#)

**Sample solution:** Dissolve 100 mg of Chromium Picolinate in 30–40 mL of water, and heat to 90°. Cool overnight, and filter to remove the precipitate.

**Analysis:** Add 1 mL of 3 N hydrochloric acid, 3 mL of barium chloride TS, and sufficient water to make 50 mL. Mix, and allow to stand for 10 min.

**Acceptance criteria:** Any turbidity formed is NMT that produced in a similarly treated control solution containing 0.2 mL of 0.02 N sulfuric acid (NMT 0.2%).

#### SPECIFIC TESTS

- [Loss on Drying \(731\)](#): Dry a sample at 105° for 4 h: it loses NMT 4.0% of its weight.

#### ADDITIONAL REQUIREMENTS

- **PACKAGING AND STORAGE:** Preserve in tight containers.
- [USP REFERENCE STANDARDS \(11\)](#)  
[USP Chromium Picolinate RS](#)

**Auxiliary Information** - Please [check for your question in the FAQs](#) before contacting USP.

| Topic/Question      | Contact                                                                       | Expert Committee                           |
|---------------------|-------------------------------------------------------------------------------|--------------------------------------------|
| CHROMIUM PICOLINATE | <a href="#">Nagaphani Batchu</a><br>Senior Scientist I, Documentary Standards | NBDS2020 Non-botanical Dietary Supplements |

**Chromatographic Database Information:** [Chromatographic Database](#)

#### Most Recently Appeared In:

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