

## Method

Molybdate is used throughout the industrial water treatment and power generation industries as a corrosion inhibitor in both open- and closed-loop cooling water systems. In solution, molybdate anions complex with oxidized iron to form a protective film of molybdate and ferric-oxide. Molybdate is considered an effective, environmentally acceptable alternative to chromate treatment. Unlike many other transition elements, molybdenum exhibits low or even negligible toxicity.

### The Catechol Method

References: G. P. Haight and V. Paragamian, *Analytical Chemistry*, pp. 32, 642 (1960). H. Onishi and E. B. Sandell, *Photometric Determination of Trace Metals*, 4<sup>th</sup> ed., Part 1, p. 295 (1978).

The molybdate test method employs the catechol chemistry. In a mildly reducing alkaline solution, catechol reacts with hexavalent molybdenum to form a yellow-orange colored chelate in direct proportion to the hexavalent molybdenum concentration. Test results are expressed in ppm (mg/L) molybdenum (Mo).

## Visual Kits

**Range: 0-7 ppm as Mo**  
MDL: 0.5 ppm / Method: Catechol

	Cat#
<b>CHEMets Kit</b>	<b>K-6701</b>
CHEMets Refill, 30 ampoules	R-6702
Comparator 0, 1, 2, 3, 4, 5, 6, 7 ppm	C-6701

Kit comes in a plastic case and contains everything needed to perform 30 tests: Refill, Comparator, 25 mL sample cup and instructions.

**Range: 2-24 ppm as Mo**  
MDL: 2 ppm / Method: Catechol

	Cat#
<b>CHEMets Kit</b>	<b>K-6702</b>
CHEMets Refill, 30 ampoules	R-6702
Comparator 2, 4, 6, 8, 10, 12, 16, 20, 24 ppm	C-6702

Kit comes in a plastic case and contains everything needed to perform 30 tests: Refill, Comparator, 25 mL sample cup and instructions.

**Range: 20-200 ppm as Mo**  
MDL: 20 ppm / Method: Catechol

	Cat#
<b>CHEMets Kit</b>	<b>K-6720</b>
CHEMets Refill, 30 ampoules	R-6720
Comparator 20, 40, 60, 80, 100, 120, 140, 160, 200 ppm	C-6720

Kit comes in a plastic case and contains everything needed to perform 30 tests: Refill, Comparator, 25 mL sample cup and instructions.

## Instrumental Kit

### Multi-Analyte Photometers

V-2000 / V-3000 Series

(See page 14 for instrumental features)

**Range: 0-25.0 ppm as Mo**  
Method: Catechol

	Cat#
<b>Vacu-vials Kit</b>	<b>K-6703</b>

Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules, 25 mL sample cup, ampoule blank and instructions.

*Vacu-vials Kits require the use of a CHEMetrics Direct-Readout Photometer (photometers sold separately) or a spectrophotometer capable of accepting a 13 mm diameter round cell. See page 14 for details.*

### Kit Components common to Molybdate

Description	Cat#
Sample Cup Pack, 25 mL (6 ea)	A-0013
Ampoule Blank Pack (5 ea)	A-0023

*Instructions and MSDS(s) are posted on our website.*

*If no shelf-life is listed for a product, then the shelf-life is at least 2 years.*

