RB

Royal Biotech

# PROTOCOL

## Multi Heavy Metal Test for Liquid & Solid Sample

## 1. DESCRIPTION

It uses chemical reagents to show the presence of heavy metals. The Free metal ions of the heavy metals, if present, stimulate a color change to the reagents. Accordingly, the more metal ions are present, the stronger the resultant color change.

Safely Dispose of the Used Vials. Because the regents are made with bio-degradable Chemicals and do not further contaminate the environment, especially if disposed of properly after use. It is recommended that the used solutions be flushed down the toilet as a good disposal guide.

## 2. APPLICATION

Any liquid medium incl. drinking and tap water, urine, tap water, saliva, breast milk etc., provided that the liquid is clear preferably without suspended solids or sediments.

Solids such as food supplements, raw fish, etc. can be tested after it has been soaked in distilled water for 24 hours or treated. For example, raw fish, place it in incubation for 30 sec. to extract juices from it. The juice from the fish can be tested for the presence of heavy metal ions. If the samples include the solids or suspended sediments, please contact our technical support for special protocol.

## 3. ANALYTICS CATALOG

Mn (Manganese), Ni (Nickel), Cu (Cooper), Hg (Mercury), Cd (Cadmium), Co(Cobalt), Pb(Lead), Zn(Zinc)

## 4. LIMIT OF DETECTION

5 ppm ( Can be adjusted to 0.01 ppm if OEM requested )

## 5. INSTRUCTIONS FOR USE

1) Open the vial and pour the liquid test solution into the test tube.
2) Cap the test tube, turn it upside down and shake vigorously until the liquid turns green. The test solution is now activated and is ready for testing. (Note: Ignore any black spec that may show in the solution.
3) Open the cap and with the help of the pipette provided, transfer 3-4 ml of the sample solution to be tested to the green solution in the test tube. (Note: This should fill the test tube to about 2/3 rds.)
4) Cap the test tube and shake vigorously by manual to make sure that the 2 solutions are well. Either shaking by Royal Incubator Shaker for 30 sec. 2500 rpm speed.
5) Stand the test tube on the cap and allow at least 15 minutes for the final results. (Note: A small band of about 1 cm will form just below the surface of the solution.)
6) Observe this band taking notes of the color changes until the final color is seen. Compare the result to the color chart provided. Please see enclosed the explanation of color changes.
7) If by Royal Vial Lab Reader, the final test report will be texted to your App/Laptop automatically.

## 6. INTERPRETATION OF THE TEST RESULTS - COLOR CHANGES

A Strong color is indicative of the presence of the metal indicated to at least 5 ppm. If there is no heavy metal present, the ring or band just below the surface of the test solution remains **green**.

A **Green** color indicates no heavy metal present.

A **Gray** color indicates a combination of several heavy metals present at the same low concentration.

A **Yellow Green** to **Olive Green** indicates the presence of manganese and or nickel.

An **Orange** color indicates the presence of mercury and this is usually seen only where no masking by other metals can occur such as in saliva and often breast milk.

A **Brownish Orange** to coral color indicates the presence of cadmium and or cobalt.

A **Brownish Pink** or rust pink color indicates the presence of lead.

A **Strong Pink** color indicates the presence of zinc.

If you need more info or helps, please do not hesitate to contact us:

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