Technical Data Sheet: Mercury Test Kit

Product Code: SS-HG-01
Brand: SURE Scientific
Application: Rapid screening for toxic mercury in skin-whitening cosmetics.

1. PRODUCT OVERVIEW

The **SURE Scientific Mercury Test Kit** for cosmetics is a rapid, qualitative screening tool engineered for on-site preliminary detection of toxic mercury contaminants in cosmetic products, such as skin-lightening and whitening creams. Developed to maximize public safety, this field-ready kit allows consumers, retailers, and health enforcement officers to instantly isolate hazardous, adulterated cosmetics via an unambiguous colorimetric reaction.

2. KEY FEATURES

- **Rapid Results:** Provides an almost instantaneous chromogenic reaction, officially validated to read within 1–2 minutes.
- **High-Fidelity Screening Calibration:** Calibrated to a Limit of Detection (LOD) of approximately 10 mg/kg (ppm). This threshold specifically protects the user from triggering false positives on harmless, legally permitted trace contaminants (<1 ppm) while accurately identifying dangerous toxic loads.
- **Field Optimization:** Requires zero specialized laboratory infrastructure or electrical power; designed entirely for ambient temperature operation.
- **Optimized Capability:** Fully provisioned to screen up to 20 samples per single kit package.

3. KIT COMPONENTS

Each kit contains specialized materials designed for 20 independent screenings:

- **Mercury Test Reagent** (1 Dropper Bottle): A proprietary, stabilized indicator solution optimized to complex colorimetrically with mercury ions.
- **Test Vessels**: Disposable, plastic polystyrene spoons designed for clean sampling and containing the isolated reaction.
- **Standard Color Chart:** A calibrated visual reference matrix printed directly on the exterior packaging envelope for direct field comparison.
- **Instruction Manual:** Step-by-step operational manual for non-laboratory personnel.

4. TECHNICAL SPECIFICATIONS

Parameter	Specification
Detection Method	Colorimetric (Visual Color Development)
Limit of Detection (LOD)	~10 mg/kg (ppm) [Tuned to exclude regulatory background traces]
Testing/Reaction Time	1-2 minutes
Kit Capacity	20 samples per kit
Optimized sample pH range	pH 3.5 to 7.5
Sample Matrix	Whitening creams and lotions
Operating Temperature	20–35 °C (Ambient)
Shelf Life	12 months from manufacture (at 2–8 °C, unopened)

5. INSTRUCTIONS FOR USE

1. **Sample Collection:** Using a clean, dry testing spoon, place a pea-sized scoop of the cosmetic cream into the center of the spoon bowl.
2. **Reagent Addition:** Dispense 1 drop of the Mercury Test Reagent solution directly onto the cream sample.
3. **Mixing:** Mix the reagent thoroughly into the cosmetic matrix using the tip of a clean sampling tool for 10–20 seconds.
4. **Incubation:** Allow the mixture to stand at ambient temperature for 1–2 minutes.
5. **Evaluation:** Immediately evaluate the color of the developed mixture against the standard color chart printed on the envelope.

6. RESULT INTERPRETATION

Read the test results under natural light or a bright white LED light source to ensure accurate color matching:

- **NEGATIVE:** No significant color change occurs; the mixture retains its initial baseline color or becomes clear. This indicates mercury is either completely absent or safely below the critical screening threshold of 10 ppm.
- **POSITIVE:** The solution shifts distinctly from a colorless sample into a vibrant pink color. This visually marks the presence of heavy-metal contamination above the safety baseline, or an extreme structural pH imbalance within the product.

7. STORAGE AND STABILITY

- **Transport Status:** Stable at ambient temperatures during standard shipping transit.
- **Long-Term Storage:** Keep refrigerated at 2–8°C immediately upon arrival. Do not freeze.
- Keep away from direct sunlight and extreme heat to prevent reagent degradation.
- Ensure the caps of Reagent bottles are tightly sealed immediately after use to prevent evaporation and air oxidation.

8. SAFETY AND HANDLING

- **First Aid:** In case of skin or eye contact, rinse immediately with plenty of water. If irritation persists, seek medical advice.
- **Disposal:** Dispose of used test spoons and chemical waste in accordance with local environmental regulations.

9. LIMITATIONS AND LEGAL DISCLAIMER

- **Presumptive Screening Only:** This kit serves exclusively as a qualitative screening tool for preliminary on-site detection. It is NOT a confirmatory analytical device, a quantitative validation tool, or legally binding evidence of contamination.
- **pH Sensitivity & False Interferences:** This test is explicitly optimized for a standard cosmetic range (pH 3.5 to 7.5). Extremely acidic formulations (very low pH) may independently force a false-positive pink reaction irrespective of mercury presence.
- **Matrix Effects:** High concentrations of dense, opaque structural metal oxides (e.g., Titanium Dioxide or Zinc Oxide), which are heavily utilized in sunscreens and foundations, can physically shield or mask the visual color distribution.
- **Confirmatory Testing Required:** A positive screening result must be independently verified by a certified testing laboratory using quantitative analytical equipment
- **Liability Limitation:** SURE Scientific's corporate liability is rigorously restricted to product replacement or a direct refund of the kit's purchase price. The manufacturer explicitly assumes no responsibility for external health events, operational revenue losses, or legal liabilities arising from field testing activities.

MANUFACTURER INFORMATION

SURE Scientific Co., Ltd.
Contact/Support: www.facebook.com/mercurytestkit