Hexavalent Chromium Test Swabs
Instructions for Use

HEXChecks™
• DETECT • MONITOR • ELIMINATE •

General Instructions

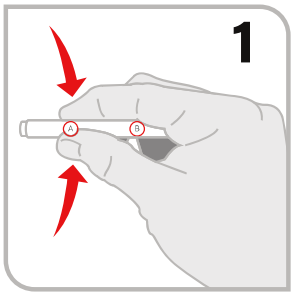
Figure Engineering's HexChecks™ Test Swabs are an instant field test for the detection of hexavalent chromium ions, also called Chrome (VI) or Cr(VI), on most surfaces. Chemicals containing Cr(VI) are frequently used in industry and are frequently found when materials such as chromium containing alloys, e.g. stainless steels, are exposed to high temperatures. Cr(VI) can enter the environment through many processes such as plating operations, paint primers, abrasive blasting, sanding/grinding processes, welding, laser/plasma/oxyfuel cutting, and precipitate on alloys exposed to high temperatures, e.g. turbines and exhaust manifolds.

When Hex Checks™ swabs come into contact with Cr(VI), the swab tip turns a pink/purple color. The intensity of the color development is directly related to the amount of hexavalent chromium present.

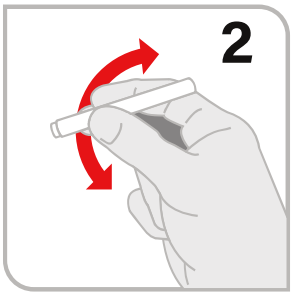
Sensitivity: < 0.1 microgram on solid surfaces
Specificity: Specific for hexavalent chromium ions ($CrO_4$2-)
Substrate Temperature: 32°F (0°C) - 150°F (65°C)
Stability: Indefinite shelf life
Interferences: low; see Cr6 Test Swabs Technical Data Sheet for interference table

How To Use Swab

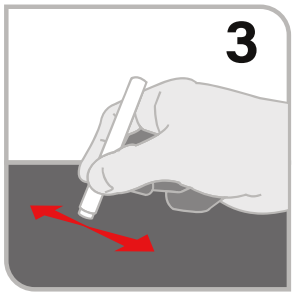
Surface Preparation: Do not clean the surface before testing. The surface of the part may contain dust or other impurities that contain hexavalent chromium. If testing a cured paint, primer, or coating for Cr(VI), you may roughen the surface with a fine grit sandpaper or Scotch-Brite type pad.



1. CRUSH:
Remove plastic tube from cardboard sleeve and insert it in the opposite direction to expose the wick. Wearing latex or nitrile gloves, hold swab vertically with WICK UP. Squeeze and crush points "A" and "B" to break the 2 glass ampules.

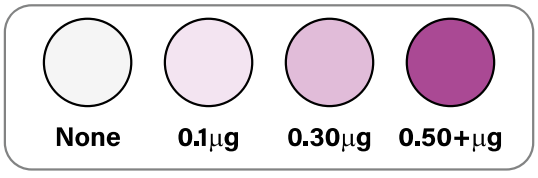


2. SHAKE AND SQUEEZE:
With the wick facing UP, shake to mix reagents. Turn swab to wick DOWN, and squeeze gently until the liquid saturates the tip of the swab.



3. RUB:
Gently rub the swab on the test area, preferably covering the entire surface of an approximately 3x3in (8x8cm) square. Very porous surfaces may be dabbed/blotted.

4. Wait: Within two to three minutes a pink to purple color appears on the tip of the swab if Cr(VI) is present. Higher concentrations of Cr(VI) will develop within seconds.



5. Identify: The intensity of the color provides an estimation of the Cr(VI) content inside the sample. If the swab tip is heavily soiled obscuring color, hold the swab wick-down over a white paper towel and pinch the wick to extract a few drops of fluid onto the towel.
NOTE: Wicks may turn pink upon drying, which DOES NOT indicate Cr(VI). All readings should be made within the faster of 3min or wick drying.

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Please Read Carefully

Common Surfaces to Test

Materials: metals, paints, primers, galvanized, passivated, plastic, rubber, concrete, cloth, and more

General Surfaces: Tables, walls, door handles, floors, tools, equipment, lockers, PPE, engines, turbines, furnaces

Areas: Break room facilities, food preparation areas, keyboards, shop floor, equipment rooms, industrial laundry

Work Surfaces: surrounding abrasive blast booths, paint facilities, welding and grinding areas, plating shops, engine/turbine shops, PPE lockers

Testing Precautions

- **Wear latex or nitrile gloves. DO NOT touch swab tip – wash hands after use.**
- **Surfaces which become pink or purple during testing may be washed with an all purpose cleaner.**
- **Pretest on an inconspicuous area to assess damage or staining that may occur on surfaces. Liquid contains dilute acetone.**

Dangers of Hexavalent Chromium

Hexavalent chromium is a toxic form of the element chromium. Hexavalent chromium compounds are generally man-made and widely used in many different industries.

Some major industrial sources of hexavalent chromium are:

- chromate pigments in dyes, paints, inks, and plastics
- chromates added as anti-corrosive agents to paints, primers and other surface coatings
- chrome plating by depositing chromium metal onto an item's surface using a solution of chromic acid
- particles released during abrasive blasting or sanding of aerospace parts
- fume from welding stainless steel or nonferrous chromium alloys, e.g. stainless steels
- naturally present in portland cement
- residue that collects on the surface of alloys in high-heat applications, e.g. turbines, exhaust manifolds, furnaces.

Hexavalent Chromium is known to cause cancer. NIOSH considers all Cr(VI) compounds to be occupational carcinogens. Health effects associated with Cr(VI) exposure include occupational asthma, eye irritation and damage, perforated eardrums, respiratory irritation, kidney damage, liver damage, pulmonary congestion and edema, upper abdominal pain, nose irritation and damage, respiratory cancer, skin irritation, and erosion and discoloration of the teeth. Some workers can also develop an allergic skin reaction, called allergic contact dermatitis. Allergic contact dermatitis is long-lasting and more severe with repeated skin exposure. Furthermore, contact with non-intact skin can lead to ulceration of the skin sometimes referred to as chrome ulcers. Chrome ulcers are crusted, painless lesions showing a pitted ulcer covered with fluid.

HexChecks is a registered trademark of Figure Engineering

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