

PERFORMANCE OF CADMIUMCHECK™

BACKGROUND

Health Hazards of Cadmium

Cadmium is a carcinogen and a mutagen. It can cause severe health effects including damage to the liver, kidneys, lungs, G.I. tract, brain, nerves, bones, and blood. Toxic levels of cadmium can also cause congenital malformations in the fetus and may alter genetic material. Symptoms include: respiratory problems, nausea, headache, vomiting, and in severe cases convulsions and coma.

Properties of Cadmium (quoted from www.cadmium.org)

“Cadmium metal exhibits excellent resistance to corrosion, particularly in alkaline and seawater environments, possesses a low melting temperature and rapid electrical exchange activity, and has both high electrical and thermal conductivity. Cadmium compounds possess outstanding resistance to high stresses and high temperatures, and deter ultraviolet degradation of certain plastics. Some cadmium electronic compounds exhibit semi-conducting properties and are utilized in solar cells and many electronic applications. Cadmium pigments produce intense yellow, orange and red colors and are widely used in plastics, glasses, ceramics, enamels and artists’ colors.”

Sources of Cadmium Metal and Cadmium compounds

Cadmium metal is produced as a by-product from the extraction, smelting and refining of metals such as zinc, lead, and copper.

Because of the wide variety of unique properties, cadmium metal and cadmium compounds are used in pigments, stabilizers, coatings, specialty alloys, electronic compounds, and most of all in rechargeable nickel-cadmium batteries.

DETECTION OF CADMIUM IN DISHES AND SOLDER

Dishes

Dishes with known quantities of cadmium were obtained and tested with CadmiumCheck™ Swabs. The table and picture illustrate the results.

Testing Dishes with CadmiumCheck™

<u>Dish Sample</u>	<u>I.D. #</u>	<u>Cadmium Content</u> (AOAC 973.32)	<u>CadmiumCheck™ Results</u>
Rooster Plate	1910319	1.3 ppm	+
Flower Plate	D195088190	0.89-1.40 ppm	++
Small Bowl Flowered	D195088188	0.17-0.48 ppm	+/-
Large Bowl Flowered	D195088189	0.10-0.18	-
Gold Rimmed Bowl		(See Picture Below)	++++

Gold Rimmed Bowl (highly positive for Cadmium)



Solder

A sample of cadmium containing solder was tested with CadmiumCheck™. The composition of the solder was in the range given by the supplier. The solder contained

- Cadmium 5-25%
- Copper 15-63.5%
- Silver 17-50%
- Zinc 9.5-30%

Solder Sample Preparation

The sample to be tested must be clean and free of oils or other extrusion materials. The best results are obtained by flattening one end of the rounded solder as illustrated below. The CadmiumCheck™ Swab is then activated and as soon as the tip is moist, rub it on the flattened solder surface. If the swab turns peach color, cadmium is present.



Solder sample prepared for testing.



Blank swab on left; test swab on right immediately after test.



Blank swab on left; test swab on right. 20 minutes after test.



Blank swab on left; test swab on right. 30 minutes after test.