New investigation of 25 kitchen products on the Hong Kong market

Greenpeace East Asia and IPEN
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Previous studies of painted glasses and kitchen mugs in the Philippines and USA revealed high levels of lead presumably due to the use of lead paint on the ceramic or glass surface. To investigate kitchen products on the Hong Kong market, Greenpeace East Asia and IPEN tested 25 kitchen glasses, cups, and mugs to follow-up on their investigation of toxic metals in children's products, accessories, and jewelry. The choice of products was deliberately inclined toward products with painted surfaces to test whether they would contain high levels of lead.

- 25 products from 10 different stores were tested using an XRF analyzer
- The measurements of metals were made on the outside of the glasses, cups, and mugs where contact is commonly made with the lips and/or hands
- The products primarily consisted of ceramic mugs and painted glasses
- Thirteen products (52%) contained lead greater than the 90 ppm standard for lead in paint used in some countries
- Ten of these lead-containing products contained surprising lead levels of more than 10,000 ppm, more than 100 times the 90 ppm standard
- Two glasses contained more than 40,000 ppm lead
- Two products contained high levels of cadmium but did not contain lead
- Three products did not contain lead or other toxic metals; a white plastic mug, a white ceramic mug, and a plain unpainted glass
- Price was not an indicator of the likelihood of purchasing a lead-containing product; the three products that did not contain toxic metals were similar or cheaper than the cost of lead-containing products in this study
- Many products contained other toxic metals such as antimony, arsenic, cadmium, and chromium.
- None of the products were labeled to reveal lead content or to say that the product did not contain lead or other toxic metals

Kitchen products containing greater than 90 ppm lead on the Hong Kong market

Sample	Place of purchase	Product	Lead (ppm)
505PRC12082011	137-143 Fa Yuen Street, Mongkok.	Garfield kitchen glass	2446
507PRC12082011	137-143 Fa Yuen Street, Mongkok.	My Melody - Ceramic Mug with Lid	11406
508PRC12082011	137-143 Fa Yuen Street, Mongkok.	Sesame Street - Ceramic Mug with Lid	11686

510PRC12082011	MANIS: Shop NOS 15-17, Level 11 Langham Place, 8 Argyle Street, Mongkok, Kowloon.	Minna No TABO kitchen mug	11126
511PRC12082011	MANIS: Shop NOS 15-17, Level 11 Langham Place, 8 Argyle Street, Mongkok, Kowloon.	KERO KEROKE ROPPI - Jumbo Glass Mug	14920
513PRC12082011	Times:137-143 Fa Yuen Street, Mongkok.	Smile kitchen mug	12644
514PRC12082011	Times:137-143 Fa Yuen Street, Mongkok.	My Mommy kitchen mug	11257
515PRC12082011	Times:137-143 Fa Yuen Street, Mongkok.	Miki's good friends kitchen glass	41586
517PRC12082011	TAM CHOI KEE: 175 Sai Yee Street, Mongkok, KLN	Tumbler Orange kitchen glass	49036
518PRC12082011	TAM CHOI KEE: 175 Sai Yee Street, Mongkok, KLN	N/A kitchen glass	2165
519PRC12082011	167 Sai Yee Street, Mongkok, KLN	Santa Claus kitchen mug	14351
520PRC12082011	167 Sai Yee Street, Mongkok, KLN	Meerket kitchen mug	4820
522PRC12082011	167 Sai Yee Street, Mongkok, KLN	Happy birthday kitchen glass	19383

Kitchen products purchased in Hong Kong with non-detectable or low-levels of toxic metals of concern

Sample	Place of purchase	Product name
607PRC12122011	G.O.D. Shop B02, Silvercord, 30 Canton Road	White basics ceramic kitchen mug
608PRD12122011	G.O.D. Shop B02, Silvercord, 30 Canton Road	Gibraltar 12Oz Rocks Tumbler
609PRC12122011	G.O.D. Shop B02, Silvercord, 30 Canton Road	Starred A white plastic mug

Recommendations

1. Consumers should stop using painted mugs, cups, and glasses and refrain from buying these types of items unless labeled as being lead-free.

2. Manufacturers have the primary responsibility for the content and safety of their products. They should immediately substitute lead-free paint on glasses, mugs, cups, and other kitchenware and label them appropriately. Other toxic metals should also be eliminated.

3. Government regulators should investigate this issue and strengthen regulations surrounding lead and other toxic metals in kitchenware. The government should adopt a more protective lead concentration limit in kitchen products and other consumer products.

4. Retailers selling lead-containing glasses, mugs, and cups identified in this study should remove them from sale to protect consumers from lead exposure.

Annex 1: Information about the metals

The metals measured in this study can have a variety of harmful impacts. These substances can cause exposure during manufacture, use, and later during waste handling. Landrigan et al.[1] summarized these as follows: infants and children have disproportionately heavy exposures to many environmental agents because they drink more water, eat more food and breath more air per unit body weight compared to adults; children's metabolic pathways especially in fetal life and in the first months after birth, are immature; developmental processes are easily disrupted during rapid growth and development before and after birth; and children have more years of future life and thus more time to develop diseases initiated by early exposures.

Metal	Impacts
Antimony	The USA State of California classifies antimony trioxide as a carcinogen.[2] Animal studies show that exposure to antimony causes skin irritation, fertility problems, and lung cancer.[3] Toxic side effects of antimony treatment for leishmaniasis and schistosomiasis in humans include cardiotoxicity and pancreatitis.[4] Antimony can mimic estrogen in laboratory experiments.[5]

Arsenic	Inorganic arsenic is a known human carcinogen with links to lung, skin, and bladder cancers.[6] Studies of human exposure show increased incidence of lung, liver, and heart diseases, lung cancer, and infant mortality.[7] Arsenic exposure in humans is also associated with diabetes.[8] Low to moderate exposures in humans are associated with skin lesions, high blood pressure, and neurological dysfunction.[9] Arsenic exposure is correlated with lower IQ in children.[10]
Cadmium	Cadmium is a known human carcinogen and associated with cancers of the breast, kidney, lung, pancreas, prostate and urinary bladder.[11] The State of California recognizes cadmium as a reproductive toxicant.[12] [13] Cadmium is taken up by various crops including potatoes, root crops, leafy vegetables, and fruits. Other toxic endpoints include lung damage, renal dysfunction, hepatic injury, bone deficiencies, and hypertension.[14]
Chromium	XRF does not distinguish between the two common forms of chromium; chromium III and chromium VI. Chromium III is an essential element in humans but can display moderate toxicity in acute animal tests.[15] Chromium VI is a known human carcinogen.[16] Dermal exposure to chromium VI can cause dermatitis and ulceration of the skin and chronic inhalation or oral exposure can decrease lung function and affect the liver, kidney and immune systems. [17] Lab studies link chromium VI to birth defects and reproductive problems.[18]
Lead	Lead is a well-known neurotoxicant with no safe level of exposure.[19] The harms from childhood lead exposure are irreversible and persist into adolescence and adulthood.[20] Lead has sensory, motor, cognitive and behavioral impacts, including learning disabilities; attention deficits; disorders in a child's coordination, visual, spatial and language skills, and anemia.[21] The US Centers for Disease Control points out that the safest level for lead in children's blood is zero.[22]
Mercury	Mercury is a well-known neurotoxicant which damages the kidneys and many body systems including the nervous, cardiovascular, respiratory, gastrointestinal, hematologic, immune, and reproductive systems.[23] The developing nervous system is especially vulnerable to damage from mercury and exposure can lead to loss of IQ, abnormal muscle tone, and losses in motor function, attention, and visual – spatial performance.[24]

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