




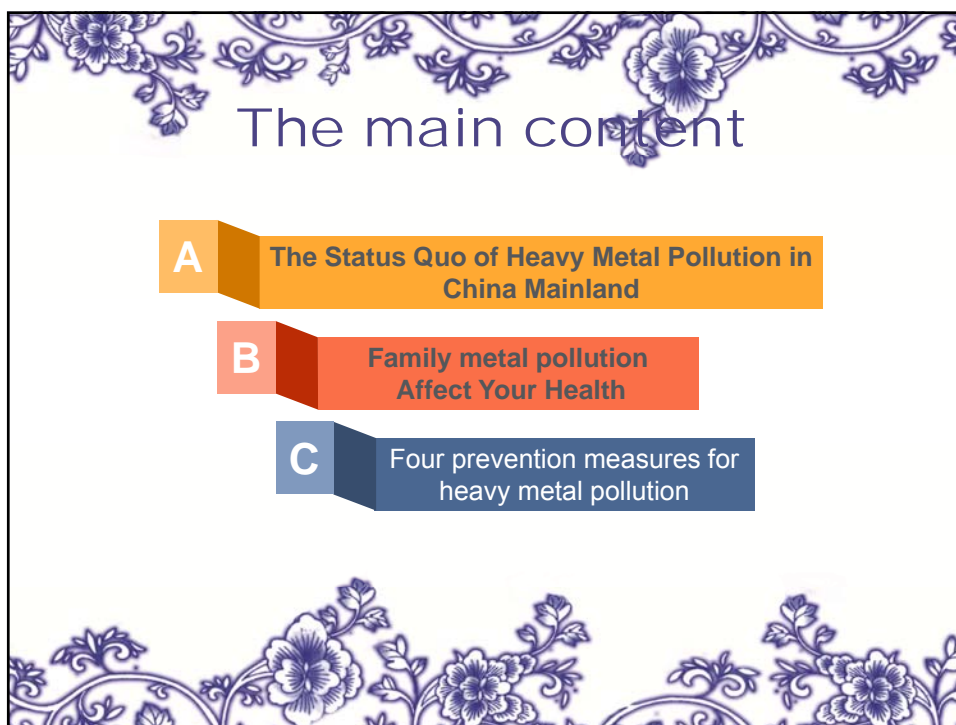
# Prevention of Heavy Metal Exposures at Home

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 Shandong Academy of Medical Sciences



## The main content

- A** The Status Quo of Heavy Metal Pollution in China Mainland
- B** Family metal pollution Affect Your Health
- C** Four prevention measures for heavy metal pollution

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## A The Status Quo of Heavy Metal Pollution in China Mainland

- In the past 30 years, economy has experienced rapid development in China, led to a massive increase in energy consumption and serious environmental pollution. Heavy metal pollution has become one of the main environmental problems in China.




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## The Status Quo of Heavy Metal Pollution in China Mainland

- ⊗ Not be biodegradable, discharged into the atmosphere, water and soil, involved in the food chain of biological amplification absorbed by the body.
- ⊗ Mainly come from mining, sewage irrigation, metal products manufacturing and other related activities.
- ⊗ Inorganic Chemical: lead, chromium, arsenic, cadmium, mercury, zinc, copper, cobalt, nickel.
- ⊗ Organic Chemical: organic mercury, organic tin and other organic matter.



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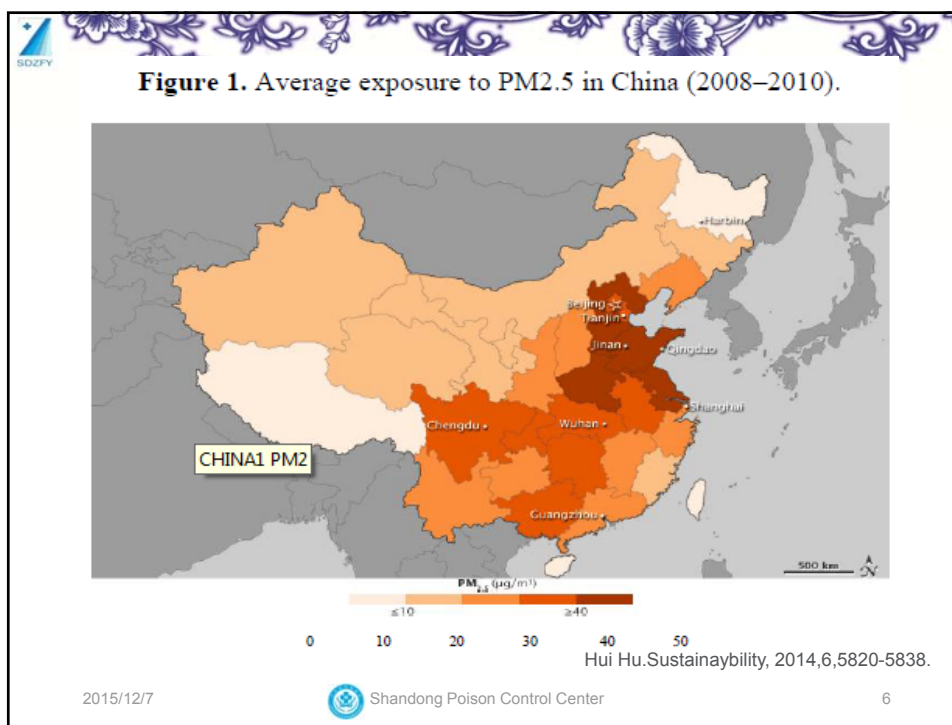
跳海 全身麻痹

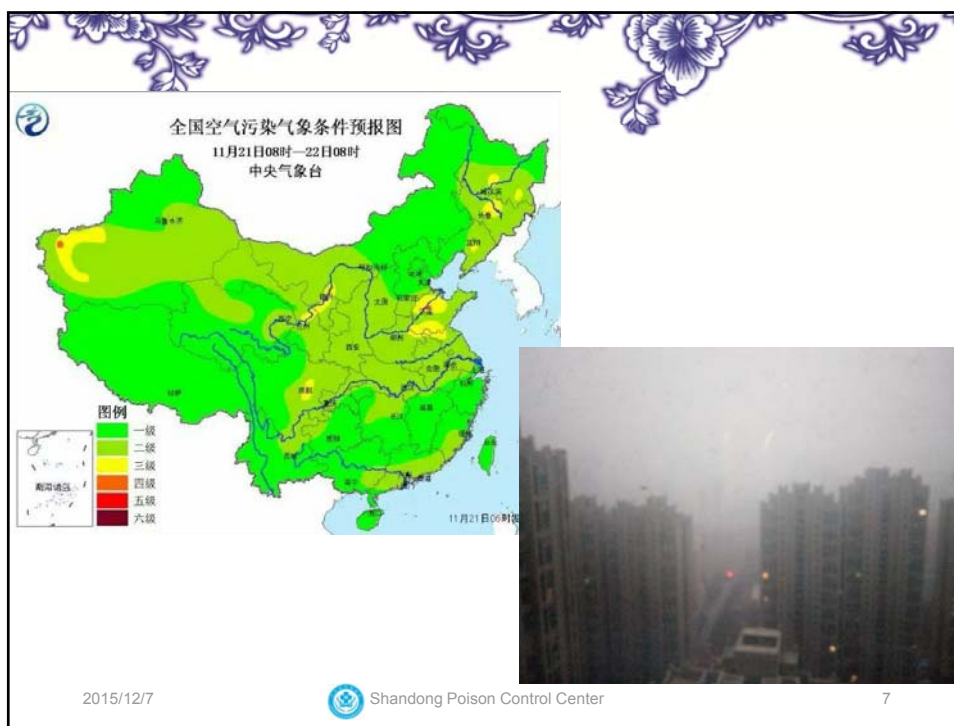
**The Status Quo of Heavy Metal Pollution in China Mainland**

- Agricultural soil pollution
  - ⊗ Food crops: root > leaf > stem
  - ⊗ Leaf vegetables > root vegetables > seeds class > rice class
  - ⊗ Cd, Pb, Cr, Hg, As
- Urban soil pollution
  - Junk, industrial pollution, traffic pollution
  - ⊗ Piled up waste: battery, waste fluorescent tubes, waste electrical appliance, metallized products
  - ⊗ Cu, Zn, Cd, Cr, Ni, Ta

⊗ 陈秀玲, 云南地理环境研究, 2009, 12, 8-11

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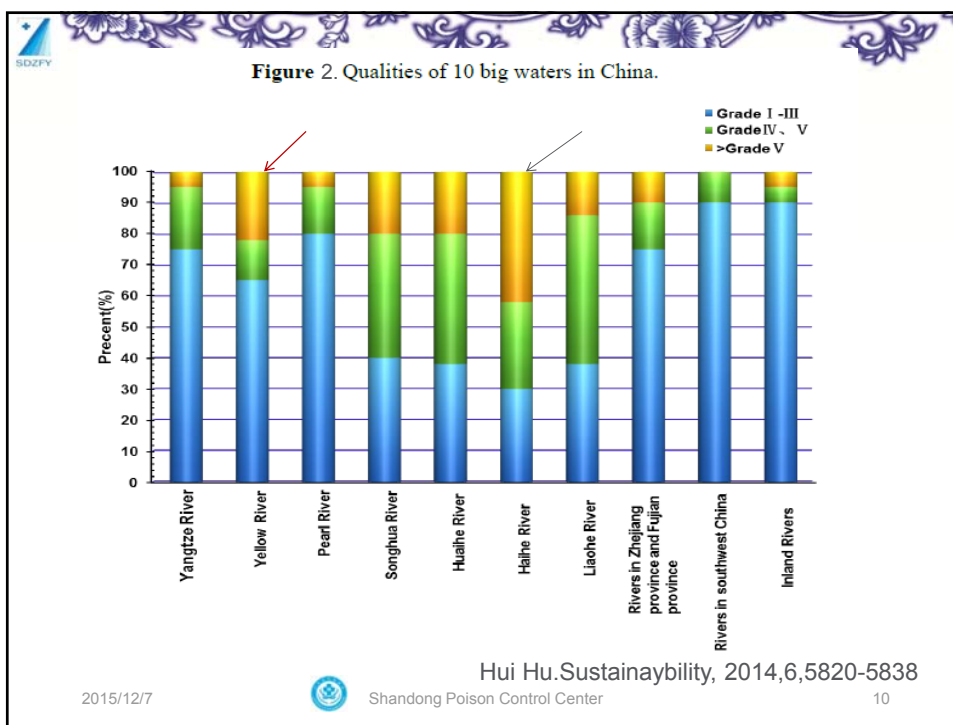
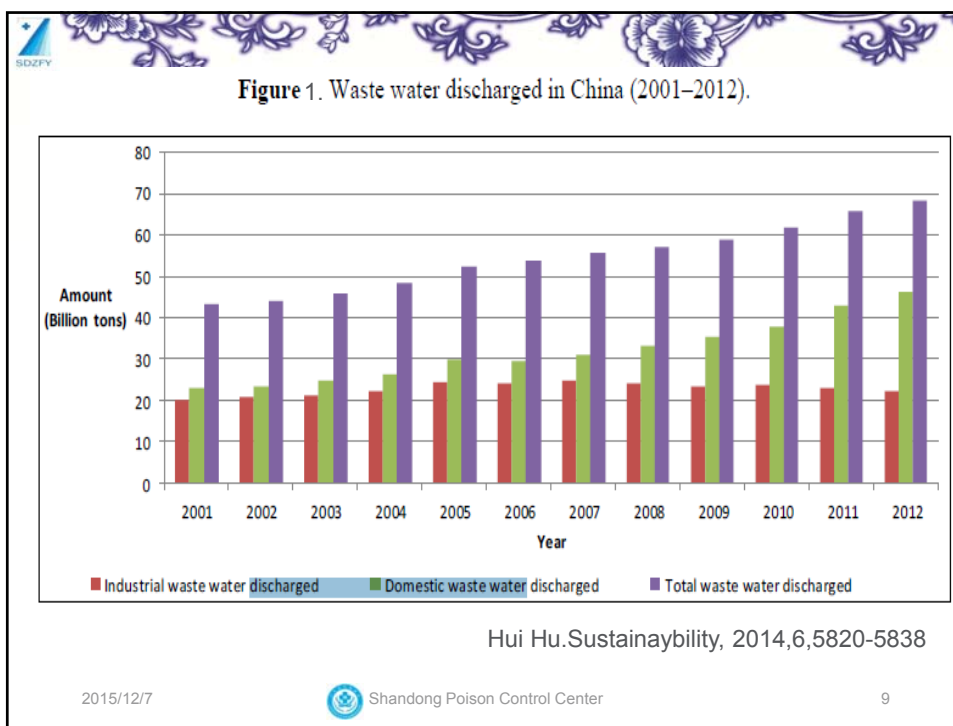




**Table 2. Emission of waste gas and dust in China (2003–2010) [8].**

Year	Total volume of waste gas emission (100 million m <sup>3</sup> )	Total volume of SO <sub>2</sub> emission (10,000 tons)	Total volume of soot emission (10,000 tons)	Total volume of dust emission (10,000 tons)
2003	198,906	2158.5	1048.5	1021.3
2004	237,696	2254.9	1095	904.8
2005	268,988	2549.4	1182.5	911.2
2006	330,990	2588.8	1088.8	808.4
2007	388,169	2468.1	986.6	698.7
2008	403,866	2321.2	901.6	584.9
2009	436,054	2214.4	847.7	523.6
2010	519,168	2185.1	829.1	448.7

Hui Hu. Sustainability, 2014, 6, 5820-5838



**Table 3. Key heavy metals in waste water by region (2011) [10].**

Region	Total volume of waste water discharged (10,000 tons)	Pb in waste water (kg)	Hg in waste water (kg)	Cd in waste water (kg)	Cr(VI) in waste water (kg)	Total Cr in waste water (kg)	As in waste water (kg)
<b>Total</b>	<b>6,591,922</b>	<b>155,242</b>	<b>2829</b>	<b>35,899</b>	<b>106,395</b>	<b>293,166</b>	<b>146,616</b>
Beijing	145,469	186.2	1.7	12.4	339.6	508.7	28.1
Tianjin	67,147	1450.4	1.1	9.8	105.9	285.2	22.8
Hubei	278,551	566.5	4.6	33.7	3141.3	8480.5	78.1
Shanxi	116,132	662.7	5.1	830.9	490.9	519.8	755.4
Inner Mongolia	100,389	3086.7	43.5	549.1	31.4	114.2	4529.6
Liaoning	232,247	982.0	10.5	96.4	463.8	692.5	478.8
Jilin	116,162	267.8	7.7	35.3	131.5	199.8	1028.7
Heilongjiang	150,661	37.9	1.7	5.6	195.3	875.4	78.5
Shanghai	214,155	175.5	3.4	18.2	1024.6	2548.9	38.0
Jiangsu	592,774	3608.5	98.0	147.8	5400.4	12,318.3	804.5
Zhejiang	420,134	568.4	98.3	281.2	10,008.9	21,660.5	218.1
Anhui	243,265	3026.1	9.6	777.7	5744.0	6965.2	7166.1
Fujian	316,178	5104.5	55.0	422.1	2906.8	15,327.6	1504.5
Jiangxi	184,432	9401.6	1537.1	2791.8	17,552.9	22,669.2	10,851.6
Shandong	443,331	1096.6	48.4	1097.6	754.1	13,959.0	2177.7
Henan	378,765	7140.8	27.3	2781.3	1606.9	37,379.5	1810.7
Hubei	293,064	4166.8	223.3	846.6	16,645.4	17,456.8	11,961.7
Hunan	278,811	42,466.5	279.6	14,518.2	3336.0	34,606.4	55,704.9
Guangdong	785,587	11,512.2	66.1	1147.7	27,986.6	75254.3	2287.7
Guangxi	222,439	15,639.6	81.1	2498.1	4300.4	4666.5	9070.5
Hainan	35,725	32.5	0.4	6.2	0.1	137.6	28.8
Chongqing	131,450	188.0	3.6	12.2	304.2	740.6	1418.3
Sichuan	279,852	1760.6	71.2	183.3	542.2	1809.1	3596.2
Guizhou	77,927	536.7	40.1	123.6	202.1	268.8	619.8
Yunnan	147,523	37,946.6	56.7	3343.6	46.8	134.7	15,580.8
Tibet	4635	0.2	0	0.1	0	1.0	2721.1
Shaanxi	121,815	4241.9	32.7	965.1	262.8	1655.1	965.6
Gansu	59,232	6884.8	72.5	1424.9	240.2	4672.3	5735.6
Qinghai	21,292	1120.0	11.0	148.0	1018.3	1033.3	2067.8


**Table 5. The state of solid waste in China (2000–2011) [10].**

Year	Solid waste generated (10,000 tons)	Solid waste discharged (10,000 tons)	Solid waste utilized (10,000 tons)	Stock of solid waste (10,000 tons)
2000	81,608	3186.2	37,451	28,921
2001	88,840	2893.8	47,290	30,183
2002	94,509	2635.2	50,061	30,040
2003	100,428	1940.9	56,040	27,667
2004	120,030	1762.0	67,796	26,012
2005	134,449	1654.7	76,993	27,876
2006	151,541	1302.1	92,601	22,399
2007	175,767	1302.1	92,601	22,399
2008	190,127	781.8	123,482	21,883
2009	203,043	710.5	138,186	20,929
2010	240,944	498.2	161,772	23,918
2011	322,772	433.3	195,214	60,376

Hui Hu.Sustainability, 2014,6,5820-5838

表3 中国成年男子膳食摄入量与最新国际估算值的比较

元 素	m/ (μg/ d)		m(A)/ m(B)
	我国平均估算值 A	最新国际估算值 B	
Pb	392.0	50~100	5.23
Cd	75.6	15~25	3.78
As	138.0	50~100	1.84
Hg	34.5	10	3.45

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## B Family metal pollution Affect Your Health

- Heavy metals show a higher incidence in diseases, particularly cancer
- intellectual, developmental disabilities
- reading and learning disabilities
- behavioral problems
- hearing loss
- attention problems
- damaging development of visual and motor function

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## Metal toxic effects

元素	损害部位或毒性反应
Pb	神经系统, 造血系统, 泌尿系统, 心血管系统, 生殖系统, 骨骼系统, 内分泌系统, 免疫系统, 胃肠道
Cd	肾脏毒性, 骨毒性, 生殖毒性, 呼吸系统毒性, 肝脏毒性, 神经毒性, 致癌性
As	周围血管病, 皮肤病, 癌症, 神经障碍, 视听觉障碍, 肝大, 贫血, 生殖和泌尿系统障碍, 致突变性和致畸胎
Hg	神经毒性, 肾、肝毒性, 遗传毒性, 致畸性, 心血管病变, 生殖系统障碍

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## Family metal pollution mainly comes from

- Food contamination, seafood and animal innards, preserved egg, tableware
- Chinese herbal medicine, health care products etc
- Household items: thermometer, cosmetics, toys, batteries
- Home decorate
- Water: the faucet, filling beverages
- Cadmium in cigarette
- Plenty of lead in the air from fossil fuels used in **cars and trucks**
- Suicide & murder

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**How They Affect Your Health**  
**\_Mercury**

- Acute mercury exposure :mining industry (thermometers and thermostats).
- Symptoms of acute exposure
  - ⊗ cough, sore throat, shortness of breath; metallic, belly ache, nausea, vomiting, diarrhoea; weakness, visible disturbances, tachycardia, hypertension.
- Long term exposure: destroy central, peripheral nerve system and kidneys. Three **trembling syndrom.** [MOV103.MOD](#)
- Mercury can also cross the placenta from mother to baby. Ewan et al. 1996



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**Whitening, freckle Cosmetics**

- ⊗ In all sampling products, 112 mercury levels exceeding the national standard (1ppm). The highest mercury content of five products up to 43988ppm to 17918ppm.
- ⊗ Some whitening, freckle cosmetics containing arsenic and lead.
- ⊗ "Hygienic standard for cosmetics" (GB7916 - 87): **arsenic and lead** in cosmetics limit were 10ppm and 40ppm.
- ⊗ 20 kinds of products exceed the national standards for the content of **lead** in cosmetics.
  - ⊗ 美白祛斑化妆品重金属含量报告 ( 201204 )



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## Data comes from my Consulting website-- Mercury Poisoning

- 584 Counseling patients, 87 cases(15%) consultation for Mercury poison
- ⊗ Thermometer break: 47 cases
- ⊗ 40 cases in other mercury poisoning(cosmetics, medicine, health care products, professional factors).



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## CASE 1 Traditional Chinese medicine (TCM) remedies -Mercury Poisoning




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Case 2 Thermometer broke-Mercury Poisoning




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Case 2 -Mercury Poisoning  
suicide



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## Case 3 Murder-Mercury Poisoning

- Female, 28 years old, pregnant mother
- 5.25 be injected mercury by syringes
- 6.15 Baby was born
- 6.29 X Ray
- 6.30-7.2 mercury in urine 30ug/L, mercury displacement treatment
- 10.16 nephrotic syndrome and hemodialysis
- 11.15 blood mercury 40ng/ml, urine 51ng/ml



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## Exposed to lead

- ⊗ **By air and food**
- ⊗ printing ink, gasoline and fertilizer comprise lead.
- ⊗ Before 2006y, lead emissions mainly due to petrol. Children are particularly susceptible to lead exposure.
- ⊗ The use of **lead-based paints** should be abandoned.
- ⊗ In particular, the public should be aware of glazed **food containers**, which may leach lead into food.
- ⊗ **The environmental pollution** [铅作业1 \(2\).3gp](#)

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## CASE 4 Children lead poisoning

- ⊗ 1 and 10 months years old
- ⊗ Lived in his father's storage battery factory when he was 7 months.
- ⊗ Vomiting, stomache, constipation, twitch, coma after 4 months.
- ⊗ PE

Disturbance of consciousness, reflex disappear, Hb 80g/L, hair lead 2200ug/g(2-95ug/g)

郑申华, 中华劳动卫生与职业病杂志, 2011, 19(6):482-483.

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## CASE 4 Children lead poisoning



图 1 双侧基底节,丘脑呈现均匀的密度增高影,右丘 54 HU, 双侧额叶、顶叶、枕叶皮层脑沟深处密质

图 2 双侧额叶、顶叶、部分枕叶皮层脑沟深处密度增高, 白质无密度增高

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## Kunming dongchuan children lead poisoning

- 2008/09/4
- 388/2006 children Bpb exceed 100ug/L
- 8/2006 exceed 200ug/L




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## 陕西凤翔县 数百儿童“血铅超标”

Shanxi children lead poisoning

- ⊗ 2009/08
- ⊗ 1016 children
- 851 Bpb↑, 166 moderate,severe toxic
- ⊗ Abdominal pain,irritability
- ⊗ malnutrition,stunting
- ⊗ Shaanxi Dongling Co.
- ⊗ 2006y,100,000T Lead and zinc smelting project
- ⊗ within 1000 meters,1396 residents move






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## Shanghai Cambridge children's blood lead levels

- ⊗ 2011/09
- ⊗ 1306 children Bpb were examined, 49 cases were excessive (1-3 years old).
- ⊗ 3 enterprises
  - Johnson Controls International Battery Co., LTD
  - Kang Shuo Waste Materials Using Co., LTD
  - Jiangyuan Auto Parts Co., LTD
- ⊗ 12/17, Lead-acid batteries enterprises were forced to be closed down by government.





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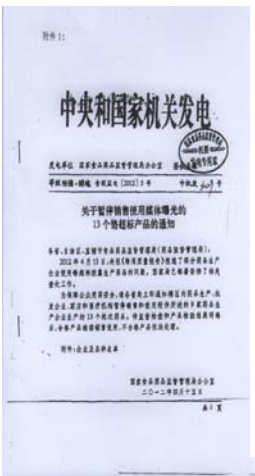
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## Uses and Sources of lead

- ⊗ Paint
- ⊗ Petrol (tetraethyl lead)(2006y )
- ⊗ Household dust (via settlement of air pollution)
- ⊗ Ceiling dust
- ⊗ Occupational
- ⊗ Solder
- ⊗ Ceramic glazes
- ⊗ Cigarettes
- ⊗ Mines, smelters
- ⊗ TV's, Computer monitors
- ⊗ Batteries, Bullets
- ⊗ X-ray shields
- ⊗ Crystal-ware (high levels in decanters)
- ⊗ Explosives
- ⊗ Non-stick linings of pots (in the past)
- ⊗ Plastic coloring (wire, blinds)
- ⊗ Toys

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## Chromium poisoning - Chromium capsules



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### 药用胶囊抽检铬超标企业名单

省份	企业序号	企业注册名称
浙江	1	新昌县卓康胶囊有限公司
	2	浙江新昌县华星胶囊厂
	3	新昌县瑞鑫胶囊有限公司
	4	浙江康南胶囊有限公司
	5	浙江新大中山胶囊有限公司
	6	新昌县天洲胶囊有限公司
	7	浙江林峰胶囊有限公司
	8	新昌县诚欣胶囊有限公司
	9	浙江省新昌县天林化工有限公司
重庆	10	重庆江祥胶囊有限公司
	11	重庆瑞迪胶囊有限公司
四川	12	成都正和药用胶囊有限公司
	13	成都全诚药用胶囊有限责任公司
河南	14	河南省焦作金箭实业总公司
	15	河南昊海药业有限公司

### 药用明胶抽检铬超标企业名单


省份	企业序号	企业注册名称
河南	1	河南省焦作金箭实业总公司

### 附件 2: 暂停销售使用媒体曝光的 13 个铬超标产品情况统计表

药品名称	规格	生产企业	生产日期	抽检日期	抽检结果	处理措施
盐酸左氧氟沙星注射液	100ml:50mg	浙江康南胶囊有限公司	20150901	20151207	铬超标	暂停销售
盐酸左氧氟沙星注射液	100ml:50mg	浙江康南胶囊有限公司	20150901	20151207	铬超标	暂停销售
盐酸左氧氟沙星注射液	100ml:50mg	浙江康南胶囊有限公司	20150901	20151207	铬超标	暂停销售
盐酸左氧氟沙星注射液	100ml:50mg	浙江康南胶囊有限公司	20150901	20151207	铬超标	暂停销售
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盐酸左氧氟沙星注射液	100ml:50mg	浙江康南胶囊有限公司	20150901	20151207	铬超标	暂停销售
盐酸左氧氟沙星注射液	100ml:50mg	浙江康南胶囊有限公司	20150901	20151207	铬超标	暂停销售

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## The drug capsule chromium exceed the standard



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### 药用胶囊抽检铬超标企业名单

生产企业	药品名称	产品规格	铬含量 (ppm)
新昌县天洲胶囊有限公司	盐酸左氧氟沙星注射液	200.10001	30ppm
新昌县天洲胶囊有限公司	盐酸左氧氟沙星注射液	200.10003	30ppm
新昌县天洲胶囊有限公司	盐酸左氧氟沙星注射液	080.1100	21ppm
新昌县天洲胶囊有限公司	盐酸左氧氟沙星注射液	200.10104 / 200.10002 / 200.10000	20ppm/17ppm/19ppm
新昌县天洲胶囊有限公司	盐酸左氧氟沙星注射液	1100008 / 1100004	40ppm/40ppm
新昌县天洲胶囊有限公司	盐酸左氧氟沙星注射液	1100005 / 1111000 / 1100009 / 1110000	80ppm/70ppm/74ppm/71ppm
新昌县天洲胶囊有限公司	盐酸左氧氟沙星注射液	1111002	75ppm
新昌县天洲胶囊有限公司	盐酸左氧氟沙星注射液	200.10001	40ppm
新昌县天洲胶囊有限公司	盐酸左氧氟沙星注射液	200.10000 / 200.10009 / 200.11007	80ppm/70ppm/70ppm
新昌县天洲胶囊有限公司	盐酸左氧氟沙星注射液	110701	40ppm
新昌县天洲胶囊有限公司	盐酸左氧氟沙星注射液	100.010	17ppm




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## Some Heavy Metals And How They Affect Your Health\_Arsenic

- **Exposure to arsenic happens**
  - ⊗ food and drinking
  - ⊗ homicides and suicide
  - ⊗ chinese herb(Arsenic trioxide)
- **Symptoms of acute arsenic poisoning**
  - ⊗ Sore throat from breathing, tomachache, vomiting, diarrhoea.
  - ⊗ Cardiovascular system disfunction.
- **Symptoms of Chronic arsenic poisoning**
  - Progressive peripheral and central nervous changes.
  - ⊗ needles and pins in hands and feet (砒宁)
  - ⊗ Damage liver, and malignancy
  - ⊗ skin cancer



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## Chinese herbal medicine-Arsenic poisoning



Arsenic trioxid poisoning 砒霜

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## Chinese herbal medicine-Arsenic poisoning




服用牛黄解毒片 3年

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## Cadmium compounds

- re-chargeable nickel-cadmium batteries.
- ♻ household waste.
- Cigarette smoking
- In non-smokers, food is the most important source of cadmium exposure.

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## Cadmium Rice Comes. What Should We Do?

www.news.cn  
新华网  
NEWS  
www.xinhuanet.com

新闻 | 时政 | 人才 | 法治 | 地方 | 评论 | 国际 | 港澳 | 台湾 | 华人 | 军事 | 财经 | 汽车 | 房产 | 视频 | 图片 | 直播 | 访谈

### “镉米”来了, 我们怎么办?

视频



【新闻+1】超标大米: 不仅仅是说说的事

图片

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“镉米”背后的危与机——从“鱼米乡”之殇看土壤污染之痛

大湖之南、鱼肥粮丰，湘水之滨、稻浪飘香……提及湖南，人们脑中首先浮现出的是“鱼米之乡”美景。然而，近段时间以来，湖南大米不时被检出镉超标，“鱼米之乡”光环被罩上一层阴影。事实上，不仅是湖南，国内多个省份出产的稻米被查出镉超标，土壤污染已成我国众多地方的“公害”。“镉米危机”的出现，再次敲响土壤污染警钟。[详细内容]

滚动报道

- 广东土壤重金属污染治理研究取得成果 “镉米”有救了 07-17 15:27
- “镉米”背后的危与机——从“鱼米乡”之殇看土壤污染之痛 06-13 13:04
- 明天，我们吃什么？ 06-09 18:32
- 工业污染给农业大国带来土地之殇 06-09 18:32
- 植物大战重金属：镉大米危机牵出土壤污染现实 06-03 11:29
- 进口米较去年同期大增近八成 不会影响我国粮食安全 06-02 15:48

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## Migration of heavy metals from recycled polyethylene terephthalate during storage and microwave heating

- Most recycled polyethylene terephthalate packaging materials contain heavy metal catalysts.
- Confirmed the presence of cadmium, chromium, lead, nickel and antimony in food packaging.
- 22 samples ,a very low percentage of the samples tested had heavy metals migrate above detectable levels indicating that most recycled polyethylene terephthalate packaging materials are relatively safe for direct food contact.

*J Plastic Film and Sheetting (2015) 0 (2015): 8756087915590190v1-8756087915590190*

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## The environmental pollution and Homicide-Thallium Poisoning

- ❖ Cases
  - The 1960s and 1970s, environmental chronic thallium poison in Southwest Guizhou, 1000 cases.
  - 1990s, fireworks salt, 716 poisoning poison.
  - ⊗ In May 1997, 94 grade student, Department of Chemistry in Peking University, two students had thallium poisoning (restored).

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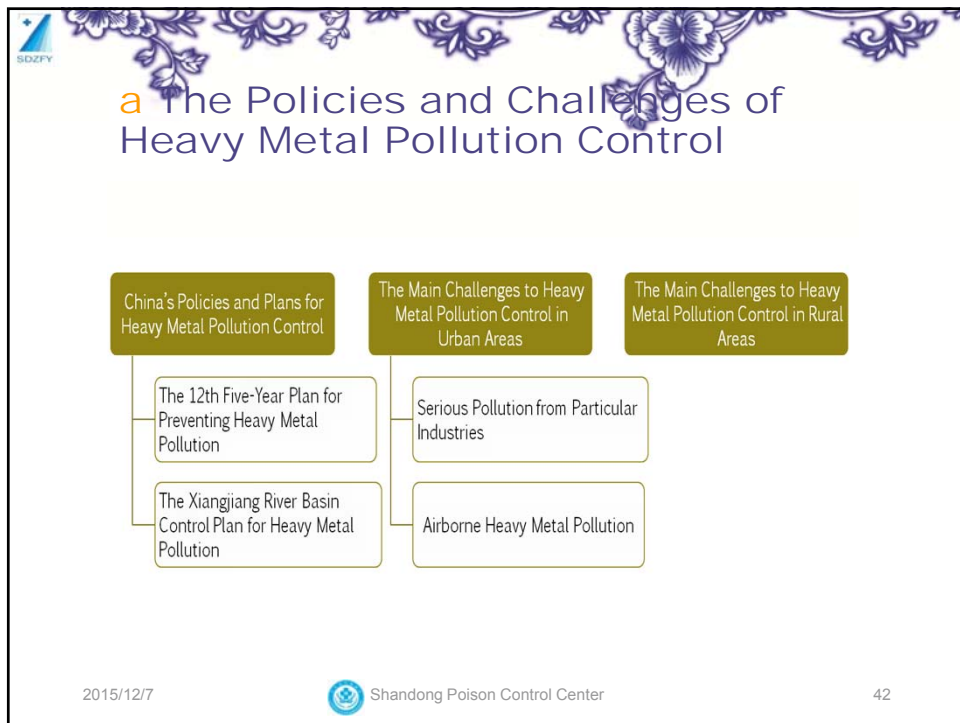
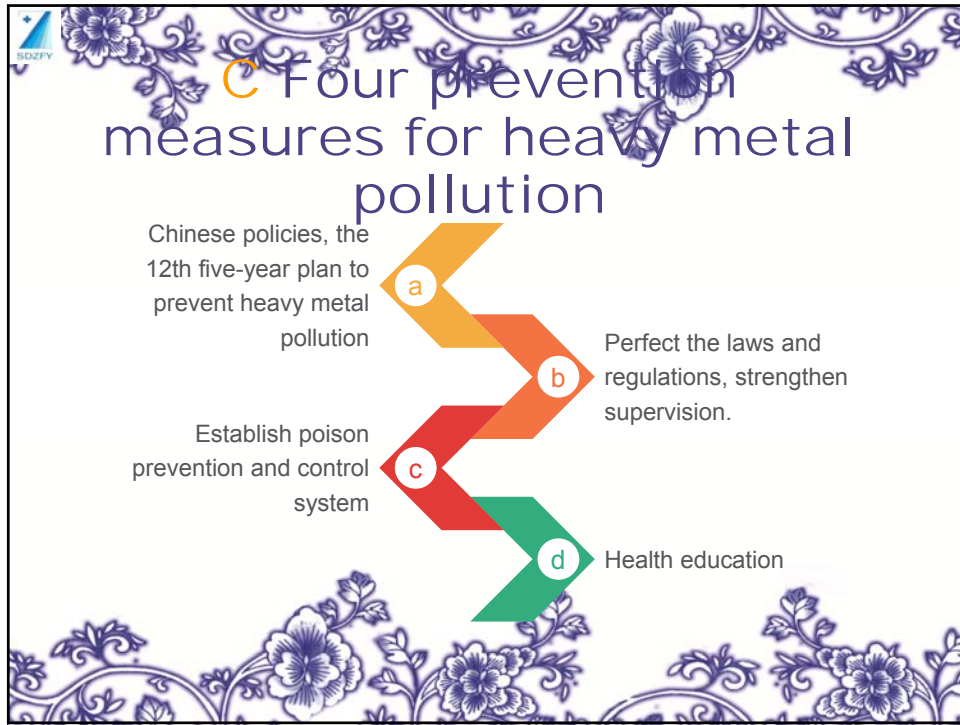
SDZFY

## Homicide-Thallium Poisoning- Laiwu. Shandong province-2008,9

- 2 bottles of thallium sulphate
- 97 cases, thallium poisoning
  - 2 died
  - 3 cases seriously injured
  - 4 cases slightly injured
  - 88 cases no extremely serious consequences




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## The Twelfth Five-year Plan (2010-2015)

- **The goal**
  - 14 main provinces and 138 main area of a heavy metal pollution
  - focus on prevention and control Industry of Arsenic, Lead, Mercury, Chromium, Cadmium pollution.
  - In the future 5 Years, invest 750,00 hundred million yuan
  - Reducing 15% of heavy metal pollutant emissions
- By the end of 2014, for the prevention and control of heavy metal pollution in key projects completed 72.4%
- The five main heavy metal contaminants emissions 20.8% lower than in 2007, but the environmental risks of heavy metals is still outstanding.

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## b Perfect the laws and regulations, strengthen supervision-for lead

废水排放执行《污水综合排放标准》(GB8978-1996)。

表 3-1 第一类污染物最高允许排放浓度 (单位: mg/L)

序号	污染物	最高允许排放浓度
1	总铅	1.0
2	总镉	0.1

附件:

铅蓄电池行业现场环境监督指南  
(试行)

表 3-6 《电池工业污染物排放标准》(送审稿) (单位: mg/Nm<sup>3</sup>)

序号	污染物	现有企业	新建企业	现有和新建企业边界	污染物排放监控位置
1	硫酸雾	10	5	1.2	
2	铅及其化合物	0.7	0.5	0.001	车间或生产设施排气筒
3	颗粒物	50	30	0.12	

卫生防护距离执行《铅蓄电池厂卫生防护距离标准》

(GB11659-1989)。

环境保护部  
2011 年 9 月

表 3-14 铅蓄电池厂卫生防护距离

卫生防护距离	生产规模 kV/A	近五年平均风速		
		<2	2~4	>4
	<100000	600m	400m	300m
	≥100000	800m	500m	400m

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Perfect the laws and regulations,  
strengthen supervision-for lead


表 3-4 铅蓄电池企业废气最高允许排放浓度限值


序号	污染物	最高允许排放浓度 mg/m <sup>3</sup>	最高允许排放速率, kg/h			无组织排放监控浓度限值		
			排气筒高度 m	一级	二级	三级	监控点	浓度 mg/m <sup>3</sup>
1	硫酸雾	70	15	禁排	1.8	2.8	周界外 浓度最 高点	1.5
			20		3.1	4.6		
			30		10	16		
			40		18	27		
			50		27	41		
			60		39	59		
			70		55	83		
			80		74	110		
			2		铅及其化合物	0.9		
20	0.007	0.011						
30	0.031	0.048						
40	0.055	0.083						
50	0.085	0.13						
60	0.12	0.18						
70	0.17	0.26						
80	0.23	0.35						
90	0.31	0.47						
100	0.39	0.60						

Closed lead enterprises

- ⊗ 2011-07-31
- ⊗ 1930 lead-acid battery production enterprises were screening
- ⊗ 82.8% of the lead-acid battery enterprises were shut down
- ⊗ Only 13% of companies on the production


⊗ <http://www.sina.com.cn>


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## Children with high blood lead and lead poisoning prevention guideline(China 2006)

- ⊗ Diagnosis and classification Bpb
- ⊗ High lead levels 100 ~ 199ug/L
- ⊗ mild 200 ~ 249ug/L
- ⊗ Moderate 250 ~ 449ug/L
- ⊗ severe ≥450mg/L

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## 《Heavy metal pollution guidelines (On a trial)》

卫生部 2010

- screening : children Bpb ≥100μg/L、 adult ≥400μg/L
- reexamination : children Bpb ≥100μg/L ; adult ≥400μg/L
- Examination item :


symptoms: nervous system, digestive system and symptoms of anemia

- physical examination
- laboratory and other inspection:


Children: Bpb;

Adult and blood lead was confirmed to be moderate or children with leadpoisoning


blood routine, liver function, venous blood lead, or adult urine lead; blood ZPP,blood EP


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 **Diagnostic Criteria of Occupational Chronic Lead Poisoning GBZ37-2002**

- **Mild intoxication**
  - blood lead $\geq$ 600ug/L or urine lead $\geq$ 120ug/L  
and one of  $\delta$ -ALA $\geq$ 8000ug/L,EP $\geq$ 2000ug/L,ZPP $\geq$ 13.0  $\mu$ g/gHb,  
abdominal pain,bloating,constipation and other symptoms.
  - Diagnostic removing lead test urine lead $\geq$ 800ug/L or 1000ug/24h
- **Moderate**  
on the basic of mild toxicationg,one of  
Colic anemia Mildly toxic peripheral neuropathy
- **Severe**  
on the basic of moderate toxicationg,one of  
Lead paralytic toxic encephalopathy

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 **Children with high blood lead and lead poisoning prevention guideline 2006**

- **Health education**
  - ⊗ Knowledge introduction
  - ⊗ Behavioral guidance
  - ⊗ Nutritional intervention
- **Screening and Monitoring**
  - ⊗ The presence or suspected industrial lead-contaminated areas;
  - ⊗ Living in the vicinity of the smelter,battery factory and other lead work;
  - ⊗ Parents or household engaged in lead;
  - ⊗ Partners have a clear diagnosis of children lead poisoning.

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表 15 中国居民头发铅、镉、砷、汞正常值上限建议值与国际临床实验室标准的比较

国 家		$\omega/(\mu\text{g/g})$			
		Pb	Cd	As	Hg
中国	估算值	10.39	0.39	1.03	1.56
	文献值	10.15	0.53	1.33	1.36
	建议值	10.0	0.5	1.0	1.5
美国	DDC	10.0	1.0	7.0	1.5
	A	10.0	0.8	10.0	1.2
	B	10.0	1.0	2.0	2.0
	C	20.0	1.0	2.0	3.0
	D	10.0	0.8	10.0	1.2
法国		6.0	1.0	7.0	-
英国		12.0	0.8	-	5.0
巴西		9.3.0	0.3.0	0.15	2.3.0

\* DDC —— Doctor's Data 公司。

秦俊法,2004,11(4)29-33

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## Laws and regulations of health care products(Food and health food)

- 法律
  - 中华人民共和国**食品安全法** 2009-06-01
- 法规
  - 中华人民共和国**食品安全法实施条例** 2009-07-20
  - 保健食品监督管理条例** 2009-2010
- 规章
  - 保健食品**管理办法** 1996-03-15
  - 保健食品**注册管理办法(试行)** 2005-04-30
  - 保健食品**生产许可管理办法**
- 规范性文件
  - 保健食品**检验与评价技术规范** 2003年版
  - 保健(功能)食品**通用标准** GB16740-1997

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# Imported food regulation



## 国家质量监督检验检疫总局

General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China

## 新闻频道

郑重声明：本表所列进口不合格食品、化妆品信息仅指所列批次食品、化妆品。表中所列批次食品、化妆品的问题是入境口岸检验检疫机构实施检验检疫时发现的，都已依法做退货或销毁处理。这些不合格批次的食品、化妆品未在国内市场销售。

序号	批次号	商检单号	产品名称	产地	制造商名称及注册编号	进口商名称及注册编号	数量(千克)	不合格原因描述	处理措施	产地
119	190200000	37040011006430	ACB0008火腿神猪肉香肠	美国	ABC FOOD CO. LTD. WYOMING FACTORY, USA	上海嘉分外贸有限公司	4000	菌落超标	销毁	山东
218	2201901000	150100115064409	富氧金气天然矿泉水	俄罗斯	俄罗斯富氧矿泉水公司	德州惠博洋进出口贸易有限公司	1800.6	砷超标	销毁	内蒙
219	2201901000	130100110068807	富氧金气天然矿泉水	俄罗斯	俄罗斯富氧矿泉水公司	德州惠博洋进出口贸易有限公司	1800.6	砷超标	销毁	内蒙
220	2201901000	442420110067116	新博品1907洗发水	新博品	Western Addition Ltd.	广州德安化妆品贸易有限公司	4432	菌落超标	销毁	广东
321	2201901000	442420110067116	新博品1907洗发水	新博品	Western Addition Ltd.	广州德安化妆品贸易有限公司	10760	菌落超标	销毁	广东
322	2201901000	442420110067116	新博品1907洗发水	新博品	Western Addition Ltd.	广州德安化妆品贸易有限公司	10760	菌落超标	销毁	广东
323	2201901000	442420110068248	新博品1907洗发水	新博品	Western Addition Ltd.	广州德安化妆品贸易有限公司	4128	菌落超标	销毁	广东
324	2201901000	442420110068248	新博品1907洗发水	新博品	Western Addition Ltd.	广州德安化妆品贸易有限公司	12228	菌落超标	销毁	广东
325	2201901000	442420110068248	新博品1907洗发水	新博品	Western Addition Ltd.	广州德安化妆品贸易有限公司	10760	菌落超标	销毁	广东

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# Cosmetic laws and regulations

- ⊗ 《化妆品卫生监督条例》1990年1月1日起正式实施
- ⊗ 化妆品生产企业卫生规范 (2007版)
- ⊗ 化妆品卫生规范 (2007版)

### 化妆品国家标准 (GB)

- 1. 《化妆品卫生标准》 GB 7916-87
- 2. 《化妆品卫生化学标准检验方法》 GB 7917.1~4-87
- 3. 《化妆品微生物标准检验方法》 GB 7918.1~5-87
- 4. 《化妆品安全性评价程序和方法》 GB 7919-87
- 5. 《化妆品皮肤病诊断标准及处理原则》 GB 17149.1-97
- 6. 《化妆品接触性皮炎诊断标准及处理原则》 GB 17149.2-97
- 7. 《化妆品痤疮诊断标准及处理原则》 GB 17149.3-97
- 8. 《化妆品毛发损害诊断标准及处理原则》 GB 17149.4-97
- 9. 《化妆品指甲损害诊断标准及处理原则》 GB 17149.5-97
- 10. 《化妆品光感性皮炎诊断标准及处理原则》 GB 17149.6-97
- 11. 《化妆品皮肤色素异常诊断标准及处理原则》 GB 17149.7-97

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## Standard for Heavy Metal of Toys

### WEALTHWISE PLASTIC FACTORY

各國玩具重金屬要求對照表: (Rev: 01 2008年10月21日)

項目 NO	元素	英文名稱	CSPC		ASTM F963-07		EN71 Part 3		加拿大 CHPA		美標 QSOP 3600 N版本											
			總含量要求	可轉移含量要求	總含量要求	可轉移含量要求	可轉移含量要求-1	可轉移含量要求-2	總含量要求	可轉移含量要求	總含量要求-1	總含量要求-2	總含量要求-3	可轉移含量要求-1	可轉移含量要求-2	可轉移含量要求-3						
1	鉛 Pb	Lead	600 ppm	300ppm	90 ppm	90 ppm	90 ppm	90 ppm	600 ppm	N/A	90 ppm	200 ppm	300 ppm	90 ppm	90 ppm	N/A						
2	鎘 Cd	Cadmium	N/A	N/A	75ppm	75 ppm	50 ppm	50 ppm	N/A	1000 ppm	N/A	40ppm	40ppm	75 ppm	50 ppm	1000 ppm						
3	鉻 Cr	Chromium	N/A	N/A	60 ppm	60 ppm	25 ppm	25 ppm	N/A	N/A	N/A	N/A	N/A	60 ppm	25 ppm	N/A						
4	鋇 Ba	Barium	N/A	N/A	1000 ppm	1000 ppm	250 ppm	250 ppm	N/A	1000 ppm	N/A	N/A	N/A	500 ppm	250 ppm	1000 ppm						
5	銻 Sb	Antimony	N/A	N/A	60 ppm	60 ppm	60 ppm	60 ppm	N/A	1000 ppm	N/A	N/A	N/A	60 ppm	60ppm	1000 ppm						
6	砷 As	Arsenic	N/A	N/A	25 ppm	25 ppm	25ppm	25ppm	N/A	1000 ppm	N/A	N/A	N/A	25 ppm	25 ppm	1000 ppm						
7	汞 Hg	Mercury	N/A	N/A	60 ppm	60 ppm	25 ppm	10 ppm	N/A	10 PPM	N/A	N/A	N/A	25 ppm	25 ppm	N/A						
8	硒 Se	Selenium	N/A	N/A	500 ppm	500ppm	500 ppm	500 ppm	N/A	1000 ppm	N/A	N/A	N/A	300 ppm	500 ppm	1000 ppm						
對照範圍			油漆和類似的表面塗料 由2011年5月14日開始,兒童產品將由鉛的總含量更改至100PPM.M.		除造型粘土和指畫顏料外的其它玩具材料.		造型粘土和指畫顏料		玩具表面裝飾或保護作用的漆層,油漆和類似的油漆的表面塗層		表面塗層		造型粘土和指畫顏料,其它物料		金屬部件,玻璃和陶瓷部件(不帶是否為小物件)		表面塗層		造型粘土和指畫顏料		屬於小物件或可能破片進入嘴的金屬部件和玻璃和陶瓷部件,其它物料	
電子類產品的附加要求																						
9	鎘 Cd	Cadmium										100ppm		100ppm								
10	汞 (Hg)	Mercury										N/A		1000ppm								
11	六价鉻 (Cr6+)											1000ppm		1000ppm								
注1. 總含量要求,即每一種重金屬元素含量所占玩具或玩具漆層質量的百分比不能超過規定的比值。 注2. 可轉移含量要求(可溶出含量要求),即每一種重金屬元素通過指定的配進行萃取,其可溶解出的量不能超過規定的數值。 注3. N/A 表示該要求對此元素的含量沒有要求,如CHPA中的Pb 元素只對總含量有要求為600PPM,對可轉移含量不作要求。 注4. 國際標準 ISO 8124-3 原 好文档,让好朋友也看到 注5. 美國CPSA關於鎘含量 原 好文档,让好朋友也看到 注6. 國際標準 AS/NZS IS O 8124-3 等關於玩具重金屬的要求與歐洲標準 EN71-3-1 一致。 注7. 美國CPSA關於鎘含量 原 好文档,让好朋友也看到 注8. 表面塗層的要求由 600PPM加嚴到90PPM,並增加對產品可接觸中部件作出限制要求 為100PPM																						

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## c Establish poison prevention and control net



原中国预防医学科学院中毒控制中心的网络单位有:

分中心:

- 河南分中心——河南省中毒控制中心;
- 广东分中心——广东省中毒急救中心;
- 河北分中心——河北省中毒控制中心;
- 天津分中心——天津化学中毒救援中心;
- 辽宁分中心——辽宁省职业病院;
- 黑龙江分中心——黑龙江省第二医院(黑龙江省职业病院)

网络医院:

- 北京网络医院——中国解放军军事医学科学院附属医院(全军中毒救治专科中心);
- 上海杨浦医院——上海市杨浦区中心医院;
- 沈阳医院——沈阳市第九人民医院;
- 石家庄医院——石家庄市急救中心;
- 徐州医院——徐州市第三人民医院(徐州市中毒控制研究所);

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Shandong Province Hospital of Occupational Diseases  
**山东省医学科学院第二附属医院**  
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**毒物知识**

发布时间:2013-11-11 11:00:43 阅读: 195 来源: admin

金属及其化合物	非金属元素及其化合物	脂肪族开链烃	脂肪族卤代烃类
铅	氟	甲烷	氟甲烷
四乙基铅	臭氧	乙烷	四氯化碳
汞及其无机化合物	一氧化碳	丙烷	二氯乙烯
锰及其化合物	二氧化碳	正己烷	氯乙烯
铊和五氧化二钨	氮氧化物	乙烷	三氯乙烯
镍、镍基镍	氯	丙烷	四氯乙烯

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 **d Health education**

- Education and training
  - ⊗ Carry out educational background education
  - ⊗ Study
  - ⊗ On-the-job training
  - ⊗ Staff training
- Publicity Education and consult
  - ⊗ "Chinese clinicians", "Health", "Pesticide information" etc.
  - ⊗ Newspapers and magazine,TV,internet.

what ,where, how

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# Be undertaken by Shandong poison control (2014)

## Education in whole Province

## The national forum of poison control



2015/12/7

Shandong Poison Control Center

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# Free clinic



2015/12/7

Shandong Poison Control Center

### 汞中毒

汞中毒的临床表现...

1. 急性中毒... 2. 慢性中毒...

3. 职业性中毒...

### 镉中毒

镉中毒的临床表现...

1. 急性中毒... 2. 慢性中毒...

### 铅中毒

铅中毒的临床表现...

1. 急性中毒... 2. 慢性中毒...

### 砷中毒

砷中毒的临床表现...

1. 急性中毒... 2. 慢性中毒...

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