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演讲者: 供职于埃克森美孚国际公司的美国试验材料学会委员会主任兼成员 Wenning Han 博士

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工业卫生: 中国化学品暴露的评估与限制

Speaker: Lead Chian Ambassador to American Industrial Hygiene Association, **William Zhu**, CIH

演讲者: 供职于国际健康中心 (CIH) 的中国驻美国工业卫生协会大使 William Zhu

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演讲者: 污染预防技术与新材料中心主任 Xing Weibing
—中国电子技术标准化研究所 (CESI)

ASTM Committee F40 Standard Test Methods and Guidance Documents Supporting Regulation Compliance

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Speaker: **Ruilin Zhao**, Senior Director of Marketing, Thermo Fisher
Andy Hu, Director of Chemical Analysis Division, Thermo Fisher

演讲者: Ruilin Zhao, 资深营销主任, 赛默飞世尔科技公司
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Speaker: **Stanislaw Piorek**, Director, Applied Research and Method Development, Thermo NITON Analyzers, LL

演讲者: Stanislaw Piorek, 应用研究与方法开发主任, Thermo NITON Analyzers 公司

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Agenda

会议议程

**U.S.-China Standards and Conformity Assessment Cooperation
Program (SCACP)**

The United States Trade and Development Agency (USTDA)

**U.S. – China Provisions on Environmental Administration of New
Chemical Substances**

Workshop Agenda and Featured Speakers

Wednesday, March 12, 2014

8:00am – 5:00pm, Thermo Fisher, Shanghai

8:00am – 9:45am **F40 Workshop on Provisions on Environmental
Administration of New Chemical Substances – Part I**

Welcome and Opening Remarks:

- ASTM Committee F40 Chairman, Taco Van Der Maten, PanAlytical, Inc.
- Chief Representative, China, US Trade and Development Agency
- Standards Attaché, U.S. Embassy to China, Cathy Feig

**Introduction to Committee F40 and the Importance of Demonstrating Compliance to
Global Chemical Regulations**

- ASTM Committee Officer and Member, Wenning Han, PhD, ExxonMobil

Industrial Hygiene: Evaluating and Setting Limits for Chemical Exposure in China

- Lead China Ambassador to American Industrial Hygiene Association, William Zhu, CIH

10:00am – 12:00pm **F40 Workshop on Provisions on Environmental
Administration of New Chemical Substances – Part II**

**RoHS Chemical Regulation implementation in China, Catalog Enforcement and IEC
62321 Method Update**

- Director, Center for Pollution Prevention Technology and New Materials, –Xing Weibing
o CHINA Electronics Standardization Institute (CESI)

ASTM Committee F40 Standard Test Methods and Guidance Documents Supporting Regulation Compliance

- Subcommittee F40.01 on Test Methods – Chairman, Scott MacLeod
- Subcommittee F40.02 on Management Practices and Guides – Chairman, Dick Casali

2:00pm – 5:00pm

F40 Workshop on Provisions on Environmental Administration of New Chemical Substances – Part III

Industrial Perspective on Regulatory Environment and Critical Regulations impacting International Corporations

- Director of Chemical Analysis Division, Thermo Fisher, Shanghai, Andy Hu

Compliance: Experiences and Issues with Addressing new Product Testing Requirements

- Director, Applied Research and Method Development, Thermo NITON Analyzers, LLC, Stanislaw Piorek

Closing Remarks:

- Manager, Standards Development, ASTM International, Alyson Fick

**美国贸易开发署(USTDA)
中国-美国标准与合格评定合作项目(SCACP)**

中美新化学物质环境管理研讨会

会议议程与特邀演讲嘉宾

2014 年 3 月 12 日，星期三

上午 8: 00——下午 5: 00

上午 8: 00——上午 9: 45 《F40 新化学物质环境管理规定研讨会》——第一部分

欢迎与开幕致辞：

- 供职于荷兰帕纳科公司的美国试验与材料国际协会F40委员会主席Taco Van Der Maten。
- 美国贸易发展署的中国首席代表
- 美国驻中国大使馆标准专员Cathy Feig

《F40 委员会简介与证明符合全球化学品规定的重要性》

- 供职于埃克森美孚国际公司的美国试验与材料国际协会委员会主任兼成员 Wenning Han 博士。

《工业卫生：中国化学品暴露的评估与限制》

- 供职于国际健康中心（CIH）的中国驻美国工业卫生协会大使 William Zhu。

上午 10: 00——中午 12: 00 《F40 新化学物质环境管理规定研讨会》——第二部分

《中国对 RoHS 限制令的实施、目录执行与 IEC 62321 方法更新》

- 污染防治技术与新材料中心主任 Xing Weibing
 - o 中国电子技术标准化研究所（CESI）

《美国试验与材料国际协会 F40 委员会测试方法与合规支持指导文件》

- F40.01 测试方法子委员会——主席 Scott MacLeod
- F40.02 管理实例与指导子委员会——主席 Dick Casali

下午 2: 00——下午 5: 00 《F40 新化学物质环境管理规定研讨会》——第三部分

《监管环境的工业视角与影响国际公司的重要法规》

- 上海赛默飞世尔科技公司化学分析部主任Andy Hu

《合规：解决新产品测试要求的经验与问题》

- Thermo NITON Analyzers公司应用研究与方法开发主任Stanislaw Piorek

闭幕致辞：

- 美国试验与材料国际协会标准开发经理Alyson Fick。

Sponsor and Organizer Overview

主办单位介绍



U.S.-China Standards and Conformance Cooperation Program

Sponsored by the U.S. Trade Development Agency (USTDA) and coordinated by the American National Standards Institute (ANSI), the **U.S.-China Standards and Conformance Cooperation Program (SCCP)** provides a forum through which U.S. and Chinese industry and government representatives can:

- Cooperate on issues relating to standards, conformity assessment, and technical regulations;
- Foster the relationships necessary to facilitate U.S.-China technical exchange on standards, conformity assessment, and technical regulations; and
- Exchange up-to-date information on the latest issues and developments relating to standards, conformity assessment, and technical regulations.

Beginning in 2013, ANSI will coordinate 20 workshops over a 3-year period in China under the SCCP. The workshops will cover a wide range of sectors, as proposed by interested U.S. private-sector organizations. Workshop topics will be chosen in coordination with relevant industry associations, ANSI, and USTDA.

To learn more about the U.S.-China SCCP or to express interest in sponsoring or participating in a workshop, please visit our website at:

www.standardsportal.org/us-chinasccp

FOR MORE INFORMATION

Ms. Madeleine McDougall
Program Manager
American National Standards
Institute (ANSI)
1899 L St. NW – Eleventh Floor
Washington, DC 20036

T: 202.331.3624

F: 202.293.9287

E: us-chinasccp@ansi.org



美中标准与合格评定合作项目

由美国贸易发展署 (USTDA) 提供资助、美国国家标准协会 (ANSI) 负责协调的美中标准与合格评定合作项目 (SCCP) 在以下几个方面为美国和中国相关行业和政府代表提供了一个论坛：

- 在标准、合格评定以及技术法规等领域的合作；
- 为促进美中在标准、合格评定以及技术法规等领域的技术交流建立必要的联系；
- 及时交流关于标准、合格评定以及技术法规等领域的最新议题和发展情况的相关信息

根据 SCCP 项目规定，从 2013 年开始的三年内，ANSI 将在中国协调举办20场研讨会。根据美国私营业界相关组织的建议，研讨会内容将覆盖不同的行业和领域。研讨会的主题将由相关行业组织、ANSI 以及 USTDA 协调选定。

欲了解该项目的更多情况或有意赞助或参与该项目，请访问下列网站：

www.standardsportal.org/us-chinasccp

了解其他信息，请联系

Ms. Madeleine McDougall

项目经理

美国国家标准协会(ANSI)

1899 L St. NW – Eleventh Floor

Washington, DC 20036

T: 202.331.3624

F: 202.293.9287

E: us-chinasccp@ansi.org



American National Standards Institute (ANSI)

As the voice of the U.S. standards and conformity assessment system, the American National Standards Institute (ANSI) empowers its members and constituents to strengthen the U.S. marketplace position in the global economy while helping to assure the safety and health of consumers and the protection of the environment.

The Institute oversees the creation, promulgation and use of thousands of norms and guidelines that directly impact businesses in nearly every sector: from acoustical devices to construction equipment, from dairy and livestock production to energy distribution, and many more. ANSI is also actively engaged in accrediting programs that assess conformance to standards – including globally-recognized cross-sector programs such as the ISO 9000 (quality) and ISO 14000 (environmental) management systems.

ANSI has served in its capacity as administrator and coordinator of the United States private sector voluntary standardization system for more than 90 years. Founded in 1918 by five engineering societies and three government agencies, the Institute remains a private, nonprofit membership organization supported by a diverse constituency of private and public sector organizations.

Throughout its history, ANSI has maintained as its primary goal the enhancement of global competitiveness of U.S. business and the American quality of life by promoting and facilitating voluntary consensus standards and conformity assessment systems and promoting their integrity. The Institute represents the interests of its nearly 1,000 companies, organization, government agency, institutional and international members through its office in New York City, and its headquarters in Washington, D.C.



美国国家标准协会

American National Standards Institute (ANSI——美国国家标准协会)是由公司、政府和其他成员组成的自愿组织,负责协商与标准有关的活动,审议美国国家标准,并努力提高美国在国际标准化组织中的地位。ANSI 是 IEC 和 ISO 的 5 个常任理事成员之一,也是 4 个理事局成员之一,参加 79%的 ISO/TC 的活动,参加 89%的 IEC/TC 活动。ANSI 是泛美技术标准委员会(COPANT)和太平洋地区标准会议(PASC)的成员。

美国国家标准学会(American National Standards Institute: ANSI)成立于 1918 年。当时,美国的许多企业和专业技术团体,已开始了标准化工作,但因彼此间没有协调,存在不少矛盾和问题。为了进一步提高效率,数百个科技学会、协会组织和团体,均认为有必要成立一个专门的标准化机构,并制订统一的通用标准。1918 年,美国材料试验协会(ASTM)、与美国机械工程师协会(ASME)、美国矿业与冶金工程师协会(ASMME)、美国土木工程师协会(ASCE)、美国电气工程师协会(AIEE)等组织,共同成立了美国工程标准委员会(AESC)。美国政府的三个部(商务部、陆军部、海军部)也参与了该委员会的筹备工作。1928 年,美国工程标准委员会改组为美国标准学会(ASA)。为致力于国际标准化事业和消费品方面的标准化,1966 年 8 月,又改组为美利坚合众国标准学会(USASI)。1969 年 10 月 6 日改成现名:美国国家标准学会(ANSI)。

美国国家标准学会是非赢利性质的民间标准化组织,是美国国家标准化活动的中心,许多美国标准化学协会的标准制修订都同它进行联合,ANSI 批准标准成为美国国家标准,但它本身不制定标准,标准是由相应的标准化团体和技术团体及行业协会和自愿将标准送交给 ANSI 批准的组织来制定,同时 ANSI 起到了联邦政府和民间的标准系统之间的协调作用,指导全国标准化活动,ANSI 遵循自愿性、公开性、透明性、协商一致性的原则,采用 3 种方式制定、审批 ANSI 标准。

ANSI 现有工业学、协会等团体会员约 200 个,公司(企业)会员约 1400 个。领导机构是由主席、副主席及 50 名高级业务代表组成的董事会,行使领导权。董事会闭会期间,由执行委员会行使职权,执行委员会下设标准评审委员会,由 15 人组成。总部设在纽约,卫星办公室设在华盛顿。



ASTM International

Established in 1898, ASTM International provides a global forum for the development and publication of international voluntary consensus standards and offers related products and services. Known for their high technical quality and market relevance, ASTM standards are used in research and development, product testing and quality systems. ASTM standards are a critical element of the information infrastructure that guides manufacturing and trade in the global economy.

Membership

ASTM membership includes more than 30,000 technical experts from 150 countries around the world. These experts serve on one or more of ASTM's 143 technical committees, developing standards for a broad range of areas including metals, paints, plastics, textiles, petroleum, construction, aviation, energy, the environment, consumer products, electronics, medical services and devices, computerized systems, homeland security and much more.

Products and Services

Approximately 12,000 ASTM standards are published each year and can be found in the 80-volume Annual Book of ASTM Standards or online on the ASTM website. ASTM International also facilitates the generation and dissemination of technical information through various specialized publications such as journals, manuals and monographs on specific technical standards topics, as well as continuing technical education and training programs for industry and government. Programs for Proficiency Testing, Interlaboratory Crosscheck, Environmental Product Declarations and Certification are also part of ASTM's standards related offerings.

Notable Facts

- Open: 150 countries are represented in the ranks of ASTM's membership.
- Transparent: ASTM's standard development process is available and open to all interested parties on an equal, 24/7 basis.
- Relevant: More than 7,000 ASTM standards have been adopted as the basis of national standards or referenced in regulations in countries outside the United States.
- Forward Looking: ASTM International has invested heavily in technology. Two examples are its work item registration and online balloting systems, which further increase the openness and transparency of its standards development process.
- Global: Approximately 50 percent of ASTM standards are distributed outside the U.S.; ASTM International has signed memorandums of understanding with the national standards bodies of 79 nations as well as with three regional groups worldwide.
- Collaborative: For 116 years, ASTM has been the forum where industry and government stakeholders come together to create standards that impact people everywhere. Newly formed ASTM technical Committee F44 on General Aviation Aircraft exemplifies this spirit.



ASTM 国际标准组织

ASTM 国际标准组织成立于 1898 年，为国际自愿一致性标准的制定和出版提供了一个全球论坛及相关的产品与服务。ASTM 标准以高技术质量和市场相关性著称，广泛应用于研发、产品检测和质量系统。ASTM 标准已成为在世界经济中引领生产和贸易的信息基础设施不可或缺的元素。

会员

ASTM 会员包括 30,000 多名技术专家，他们来自世界 150 多个国家。这些专家们在 ASTM 的 143 个技术委员会中的一个或多个委员会供职，志愿参与众多行业的标准制修订工作，这些行业包括：金属、涂料、塑料、纺织品、石油、建筑、航空、能源、环境、消费品、电子、医疗服务和医疗器械、计算机化系统、国土安全和其他众多行业。

产品和服务

ASTM 每年大约出版 12,000 多项标准，这些标准收录于 81 卷 ASTM 标准年鉴中，ASTM 网站上亦有在线版。ASTM 国际标准组织通过多种专业出版物促进了技术信息的生产和传播，这些出版物包括学术期刊、特定技术标准专题的手册和专著。ASTM 还通过为行业和政府提供技术继续教育和培训进行技术信息传播。此外，实验室能力验证项目、实验室比对项目、环保产品声明和认证项目也是 ASTM 基于其标准的信息服务。。

显著特点

公开：150 个国家的代表成为 ASTM 会员

透明：ASTM 标准制定流程在平等基础上，一周 7 天 24 小时向所有相关方公开

相关性：ASTM 有 7000 余项标准被美国以外的其他国家作为其国标的基础采用或引用到其法律法规中

前瞻性：ASTM 国际标准组织对于技术投资大量资金，比如这两个系统：标准草案在线注册系统和标准在线投票系统。这两个系统进一步加强了标准制定流程的公开和透明。

国际性：ASTM 标准大约有 50% 以上是销往美国以外国家和地区的。ASTM 与 79 个国家标准机构和三个地区性标准机构签订了谅解备忘录。

合作性：116 年来，ASTM 一直是行业和政府各利益相关方一起合作制定标准的论坛，普遍地影响了人们的生活。新成立的 ASTM F44 通用航空器技术委员会就充分证明了这一精神。



Thermo Fisher Scientific China

Thermo Fisher Scientific has been operating business in China for over 30 years. Headquartered in Shanghai, Thermo Fisher Scientific China has over 3800 employees.

In order to meet the local needs, we established 8 manufacturing sites respectively in Shanghai, Beijing and Suzhou. The 9 application centers in Shanghai and Beijing keep bringing cutting edge technology and products with application development and trainings service to local customers. The China Innovation Center in Shanghai develops products according to local requests with global advanced technology. We have a nation-wide maintenance network and China service training team, with over 2000 professionals. Our mission is to enable our customers to make the world healthier, cleaner and safer.

For more information, please visit www.thermofisher.cn



赛默飞世尔科技中国

赛默飞世尔科技进入中国已超过 30 年，在中国的总部设于上海，并在北京、广州、香港、台湾、成都、沈阳、西安、南京、武汉等地设立了分公司，员工人数超过 3800 名。为了满足中国市场的需求，现有 8 家工厂分别在上海、北京和苏州运营。我们在北京和上海共设立了 9 个应用开发中心，将世界级的前沿技术和产品带给国内客户，并提供应用开发与培训等多项服务；位于上海的中国创新中心结合国内市场的需求和国外先进技术，研发适合中国的技术和产品；我们拥有遍布全国的维修服务网点和特别成立的中国技术培训团队，在全国有超过 2000 名工程师提供售后服务。我们致力于帮助客户使世界更健康、更清洁、更安全。欲了解更多信息，请登录 www.thermofisher.cn

Speaker Biographies

演讲人介绍

Wenning Han

Member of F40 since 2009, currently serving as F40 Recording Secretary-elect and Technical Contact for ASTM Standard F2931

自 2009 年开始担任 F40 成员，目前担任 F40 当选记录秘书兼 ASTM 标准 F2931 的技术联络人



Ph.D. Chemist with ExxonMobil for twenty years with a primary focus on synthetic lube product, process, and product registration, including the recent registrations with EU, Japan, China, and the US regulatory issues on plasticizers.

服务于埃克森美孚国际公司 20 年的博士化学家，主要研究方向是合成润滑油产品、过程、产品注册（包括最近在欧盟、日本、中国的注册）以及美国增塑剂监督问题。

Xing Weibing

- o Vice Chief Engineer/Director of RoHS Lab /Secretary General
 - o China Electronics Standardization Institute(CESI) RoHS Testing Laboratory
 - o China RoHS Standards working Group under MIIT
 - o China National Technical Committee of Testing Methods of RoHS in EEE (SAC/TC297/SC3) (corresponding to IEC/TC111/WG3)
 - o MIIT Promotion Center for control of pollution caused by Electronics Information Products
 - o 1989-2004:
 - n Research of safety standard for electronics products
 - n international standards development of IEC/TC108(IEC TC74&TC92) (safety of AV,IT &Telecommunication products)
 - n Safety testing and certification of electronics products
 - o 2004~now:
 - n Research of China RoHS related policy
 - n Standardization and conformity assessment of China RoHS
 - n Standard development of Testing Methods for Hazardous Substances in Electrical and Electronic Products
 - n International Standards development of IEC/TC111 (Environmental standardization for electrical and electronic products and systems)
-
- RoHS 实验室副总工程师、主任兼总秘书
 - 中国电子技术标准化研究所（CESI）RoHS 测试实验室
 - 工业和信息化部中国 RoHS 标准工作组
 - 中国 RoHS 电子电气设备测试方法国家技术委员会（SAC/TC297/SC3）（对应于 IEC/TC111/WG3）
 - 工业和信息化部电子信息产品污染控制促进中心

- 1989 年——2004 年：
 - 电子产品安全标准研究
 - IEC/TC108（IEC TC74&TC92）国际标准开发（视听、信息技术与电信产品安全）
 - 电子产品安全测试与认证
- 2004 至今：
 - 中国 RoHS 相关政策研究
 - 中国 RoHS 标准化与合规审查
 - 电子电气产品有害物质测试方法标准开发
 - IEC/TC111（电子电气产品与系统环境标准化）国际标准开发

Scott MacLeod

UL LLC, Principal Chemist / Chemicals Division

美国保险商实验室化学品部主任化学师

scott.c.macleod@ul.com



Scott is an inaugural member of the Primary Designated Engineers at UL LLC. He is a Distinguished Member of Technical Staff working out of UL's Melville NY USA office. His responsibilities include technical competency, global consistency, integrity, and engineering quality in the development, maintenance and application of certification requirements in the material and analytical chemistry disciplines. His specialty areas include the compositional analysis of materials, liquid flammability and corrosion protection coatings.

Scott participates in standard development activities with multiple organization including ASHRAE, ASTM, IEC and of course UL. He is the Co-Convenor of the IEC Technical Committee 111 (Environmental standardization for electrical and electronic products and systems) Working Group 3 responsible for the “defacto” RoHS test method standard “IEC 62321”. Scott is also the test method subcommittee Chair of ASTM Internationals technical committee F40 on Declarable Substances in Materials

Scott 是美国保险商实验室首席工程师的首届成员，也是美国保险商实验室美国纽约梅尔维尔办公室杰出的外出技术人员，负责材料和分析化学领域认证要求的开发、维护和应用方面的技术胜任、全球一致性、完整性和工程质量工作。专长领域包括材料成分分析、液体可燃性和防腐涂料。

Scott 参与美国采暖、制冷与空调工程师学会（ASHRAE）、美国试验与材料国际协会（IEC）和美国保险商实验室（UL）等多家机构的标准开发工作。担任 IEC 技术委员会 111（电子电气产品与系统的环境标准化技术委员会）工作小组 3 的共同会议召集人，负责实际 RoHS 测试方法标准 “IEC 62321”，同时兼任 ASTM F40 材料中应申报物质技术委员会的子委员会主席。

Dick Casali

Member of F40 since 2008, currently serving as F40 Vice chairman and Subcommittee Chairman for F40.02 on Management Practices and Guides

自 2008 年开始担任 F40 成员，目前担任 F40 副主席兼 F40.02 管理惯例与指导子委员会主席



Analytical chemist with a BS in chemistry and an MS in materials science. Since 2000, I have been working at Intel Corp, conducting contamination analysis and electronic failure analysis. In 2008, begin to focus on product ecology and supporting in-house as well as outside analytical tests for regulatory compliance data. Prior experience in failure analysis on advanced polymers, analytical quality control procedures, and conductive polymers in the aerospace and electronics industry.

持有化学理学士学位与材料科学硕士学位的分析化学家。自 2000 年开始加入英特尔公司，从事污染分析与电子故障分析。2008 年开始集中研究产品生态学，支持公司内外合规数据的分析测试。此前有航空航天和电子行业的高级聚合物故障分析、质量控制程序分析、导电聚合物分析的经验。

Andy Hu (胡翔宇)

Director of Chemical analysisi Division, Thermo Fisher

于 2012 年 10 月加入赛默飞世尔科技中国，担任化学分析部商务总监。

Before joining Thermo Fisher Scientific, Andy worked for Hilti AG as a corporate development manager for Asia and China strategies, where his China strategy project was recognized by Chairman and CEO as the best strategy project in last 17 years . He later served as marketing director for Hilti China. From 2007 to 2010, He worked in IDEX as a Sales director, Asia Pacific, before 2007, he was in several sales and marketing leadership roles for Rockwell Automation and Emerson process management where he managed growth successfully.

He received his MBA with honors, concentrate in Finance from the University of Chicago, Booth school of business, and bachelor degree in process automation and mechanical from Zhejiang University

在加入赛默飞中国之前，胡翔宇在喜利得欧洲总部担任战略发展经理，负责公司亚洲和中国的战略项目，他的中国战略项目被公司主席和 CEO 评价为公司 17 年来最好的战略项目。他随后回到中国担任公司的中国区市场总监。在 2007 年至 2010 年间，胡翔宇在艺达思担任亚太销售总监，在此之前，他在罗克韦尔和艾默生承担一系列销售和市场领导职位并成功管理增长。胡翔宇以荣誉学生毕业于芝加哥大学商学院，金融定向，他早年在浙江大学的过程机械与自动化得到工程学士学位

Stanislaw Piorek

Stanislaw Piorek holds a Ph.D. in Nuclear Technology and Electronics. He has over 30 years of experience in X-ray and gamma spectrometric methods, specifically in instrument and software design, applications development, as well as in marketing and sales to key accounts. He is considered as



one of the pioneers of portable and handheld XRF Methods of Analysis. He authored over 50 papers dealing with various aspects of XRF as applied to analysis of alloys and contaminants in soil and air particulates. He also contributed four chapters to books on X-Ray Spectrometry.

As Director of Applied Research for Thermo Scientific Niton Analyzers, Dr. Piorek is responsible for the development and support of new analytical methods based on X-ray fluorescence and other,

complementary techniques. He is a member of Editorial Board of Journal of X-Ray Spectrometry. He is also active in ASTM, IEEE and IEC.

Presentations

演讲文稿

ASTM International Committee F40 and the Importance of Demonstrating Compliance to Global Chemical Regulations

F40 Workshop on Provisions on Environmental Administration
of New Chemical Substances – Part I

Wenning Han

March 12, 2014



美国试验与材料国际协会 《F40委员会与证明符合全球化学品 规定的重要性》

《F40新化学物质环境管理规定研讨会》——第一部分

Wenning Han

2014年3月12日



ASTM International

- Global forum for the development of voluntary consensus standards
- Focus on materials, products, systems, and services
- High technical quality and market relevancy
- Guides trade in global economy



美国试验与材料国际协会

- 全球自愿共识标准开发论坛
- 集中讨论材料、产品、系统与
服务
- 高技术质量与市场相关性
- 指导全球经济贸易



Committee F40

Declarable Substances in Materials

- Scope:
 - The development of standards for the evaluation of materials/products relative to RoHs and similar requirements.
- Goal:
 - Encourage research in this field and sponsor symposia, workshops, and publications to facilitate the development of such standards.



F40材料中应申报物质委员会

- 范围：
 - RoHS相关材料/产品评估标准与类似要求的开发
- 目标：
 - 鼓励此领域研究，赞助座谈会、研讨会和出版物，以便开发此类标准。



Importance of Demonstrating Compliance to Global Chemical Regulations

- Global Chemical Regulation
 - Chemical management
 - Protection of human health and environment safety
 - Risk assessments
 - Labeling and communication
 - Regulate chemical generation, trans boundary transporting, storage, spill, accident, disposal, etc.



《证明符合全球化学品规定的重要性》

- 全球化学品规定
 - 化学品管理
 - 人类健康与环境安全保护
 - 风险评估
 - 标记与传播
 - 管制化学品产品、跨界运输、储存、溢漏、事故、处理等



Importance of Demonstrating Compliance to Global Chemical Regulations (cont.)

- Compliance of Global Chemical Regulations
 - Shared responsibility
 - International trade parties and supply chain
 - Manufacturers, brands, and retailers
 - Compliance tests to ensure that products entering the market place are safe, fit for purpose and meet global legislation
 - Global market place
 - Region and timeline specific requirement



《证明符合全球化学品规定的重要性》 (续)

- 符合全球化学品规定
 - 共同责任
 - 国际贸易方与供应链
 - 制造商、品牌商与零售商
 - 进行合规测试以确保进入市场的产品安全、适用并符合国际法规
 - 全球市场
 - 地区与时间线具体要求



Importance of Demonstrating Compliance to Global Chemical Regulations (cont.)

- Importance of Demonstrating Compliance
 - Understand global and region specific requirements
 - Compliance process and timing
 - Technical testing – what and where
 - Stay informed on legislation to comply with product safety laws around the world
 - Plan for sensible testing regime for safe and uninterrupted product supply
 - Ensure safety in human and environment



《证明符合全球化学品规定的重要性》 (续)

- 证明合规的重要性
 - 了解全球与地区的具体要求
 - 合规过程与时间
 - 技术测试——内容与地点
 - 时刻了解世界各地符合产品安全法律的法规
 - 制定合理的测试计划，确保安全、连续的产品供应
 - 确保人类与环境安全





China RoHS and RoHS Standardization

Xing Weibing
China Electronics Standardization
Institute(CESI)
Oct 25, Beijing China



中国 RoHS 与 RoHS 标准化

中国电子技术标准化研究所 (CESI)
Xing Weibing
中国北京, 10 月 25 日

The Speaker's Profile

- Xing Weibing
- Vice Chief Engineer/Director of RoHS Lab /Secretary General
- China Electronics Standardization Institute(CESI) RoHS Testing Laboratory
- China RoHS Standards working Group under MIIT
- China National Technical Committee of Testing Methods of RoHS in EEE (SAC/TC297/SC3) (corresponding to IEC/TC111/WG3)
- MIIT Promotion Center for control of pollution caused by Electronics Information Products



演讲嘉宾简介

- Xing Weibing
- RoHS 实验室副总工程师、主任兼总秘书
- 中国电子技术标准化研究所 (CESI) RoHS 测试实验室
- 工业和信息化部中国 RoHS 标准工作组
- 中国 RoHS 电子电气设备测试方法国家标准委员会 (SAC/TC297/SC3) (对应于 IEC/TC111/WG3)
- 工业和信息化部电子信息产品污染控制促进中心



The Speaker's Profile(cont'd)

- Major career:
- 1989-2004:
 - Research of safety standard for electronics products
 - international standards development of IEC/TC108(IEC TC74&TC92) (safety of AV,IT &Telecommunication products)
 - Safety testing and certification of electronics products
- 2004~now:
 - Research of China RoHS related policy
 - Standardization and conformity assessment of China RoHS
 - Standard development of Testing Methods for Hazardous Substances in Electrical and Electronic Products
 - International Standards development of IEC/TC111 (Environmental standardization for electrical and electronic products and systems)

2014-03-10

China Electronics Standardization Institute(CESI)

3



Main Points

- Introduction of China RoHS
- China RoHS standardization
- Future work and Remarks.

2014-03-10

China Electronics Standardization Institute(CESI)

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演讲嘉宾简介 (续)

- 主要职业经验:
- 1989 年——2004 年:
 - 电子产品安全标准研究
 - IEC/TC108 (IEC TC74&TC92) 国际标准开发 (视听、信息技术与电信产品安全)
 - 电子产品安全测试与认证
- 2004 至今:
 - 中国 RoHS 相关政策研究
 - 中国 RoHS 标准化与合规审查
 - 电子电气产品有害物质测试方法标准开发
 - IEC/TC111 (电子电气产品与系统环境标准化) 国际标准开发

2014 年 3 月 10 日

中国电子技术标准化研究所 (CESI)



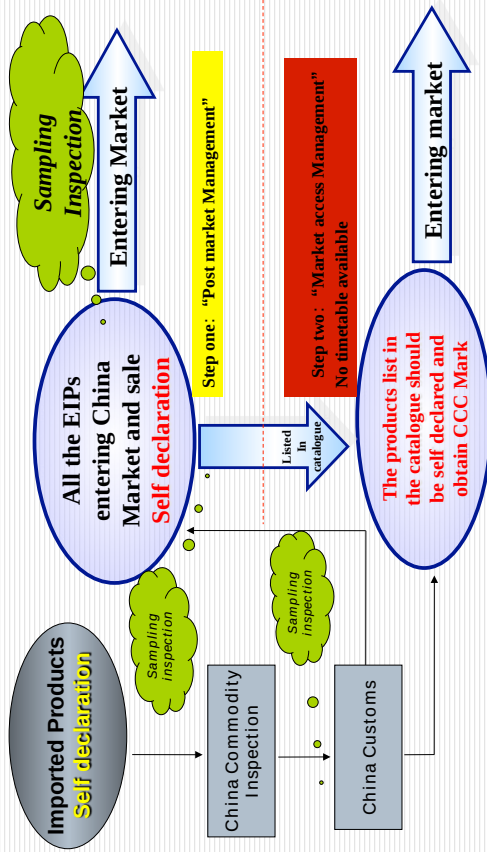
要点

- 中国 RoHS 简介
- 中国 RoHS 标准化
- 未来工作与摘要

2014 年 3 月 10 日

中国电子技术标准化研究所 (CESI)

Introduction of China RoHS



2014-10-22 RoHS will be China Electronics Standardization Institute (CESI) 1, 2007

中国 RoHS 简介

进口产品 自行申报	所有进入中国市场销售的电子信息产品 自行申报	抽样检验 进入市场
中国商品检验局	列入目录	第一步: “后市场管理”
	抽样检验	第二步: “市场准入管理” 无可用时间表
中国海关	列入目录的产品应该自行申报并获取 中国强制认证 (CCC)	进入市场

自 2007 年 3 月 1 日起, 中国 RoHS 将按两个步骤进行实施。

2014 年 3 月 10 日

中国电子技术标准化研究所 (CESI)

Introduction of China RoHS

items	China RoHS	China RoHS II (under revision)
Name	Administration of control of pollution caused by electronic information Products	Administration of Restriction of Hazardous substances in electrical and electronic Products
Scope	Electronic Information products	Electrical and electronic Products
Name of Catalogue	The focused catalogue of Electronic Information products for control of pollution	The catalogue of electrical and electronic products for benchmarking of Restriction of Hazardous Substances
Manner of Conformity assessment	Self declaration China Compulsory certification	Flexible manner of conformity assessment (CCC, Voluntary Certification, SDOC)

2014 年 3 月 10 日

中国电子技术标准化研究所 (CESI)

中国 RoHS 简介

项目	中国 RoHS	中国 RoHS II (修订中)
名称	电子信息产品污染控制管理办法	电子信息产品有害物质限制使用管理办法
范围	电子信息产品	电子电气产品
目录名称	污染控制电子信息产品的主要目录	有害物质限制管理电子电气产品目录
合规审查方式	自行申报 中国强制认证	合规审查方式灵活 (CCC 认证, 自愿认证, 合规声明)

Introduction of China RoHS

items	EU	China	Japan	South Korea	USA CA
Regulation	2011/65/EC	China RoHS	J-moss	the Act for Resource Recycling of Electrical and Electronic Equipment and Vehicles	SB 20 / 50
scope	EEE (8)	EIP	EEE(7)	EEE and vehicles	CED-> EEE
Banned substances	six regulated substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers)				Heavy Metal
Marking					
requirement	restricted	disclosing	disclosing	restricted	restricted
Exemption	expanding	Published with voluntary certification	Same as EU	Same as EU	Same as EU
Harmonized Standards	EN60581:2012 EN62321:2009	SJ/T 11364-2006 GBT 26125-2011 GBT 26572-2011	JIS C 0950:2008		
Effective date	2006.07.01	Step one 2007.03.01	2006.07.01	2008.01.01	2007.01.01



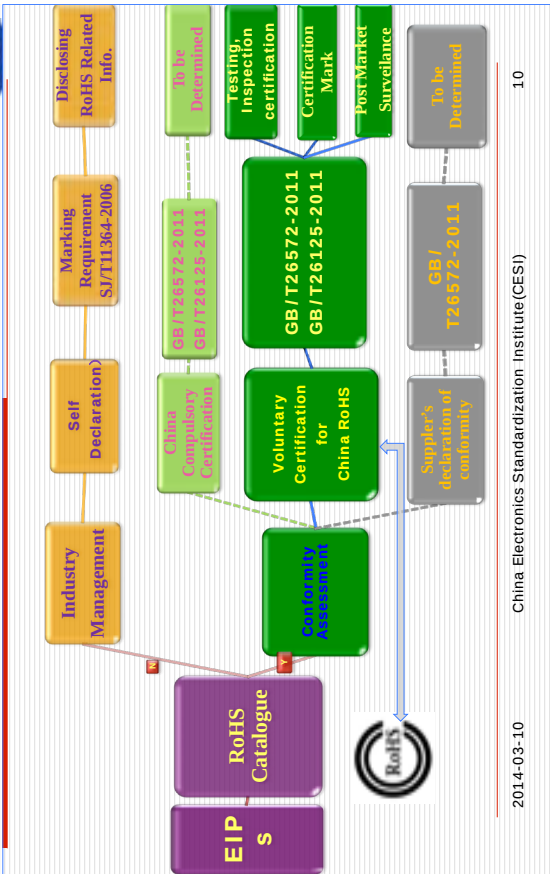
中国 RoHS 简介

项目	欧盟	中国	日本	韩国	美国与加拿大
法规	2011/65/EC	中国 RoHS	J-moss	《电子电气设备与汽车资源回收法案》	SB 20/50
范围	电子电气设备 (8)	电子信息产品	电子电气设备 (7)	电子电气设备与汽车	经济发展委员会电子电气设备
禁用物质	六大管制物质 (铅、汞、镉、六价铬、多溴联苯、多溴联苯醚)				重金属
标志					
要求	限制	公开	公开	限制	限制
免除	扩展	自愿认证公布	与欧盟一致	与欧盟一致	与欧盟一致
协调标准	EN60581:2012 EN62321:2009	SJ/T 11364-2006 GB/T 26125-2011 GB/T 26572-2011	JIS C 0950:2007		
生效日期	2006年7月1日	第一步 2007年3月1日起生效	2006年7月1日	2008年1月1日	2007年1月1日

2014年3月10日

中国电子技术标准化研究所 (CESI)

The Map of conformity assessment of China RoHS

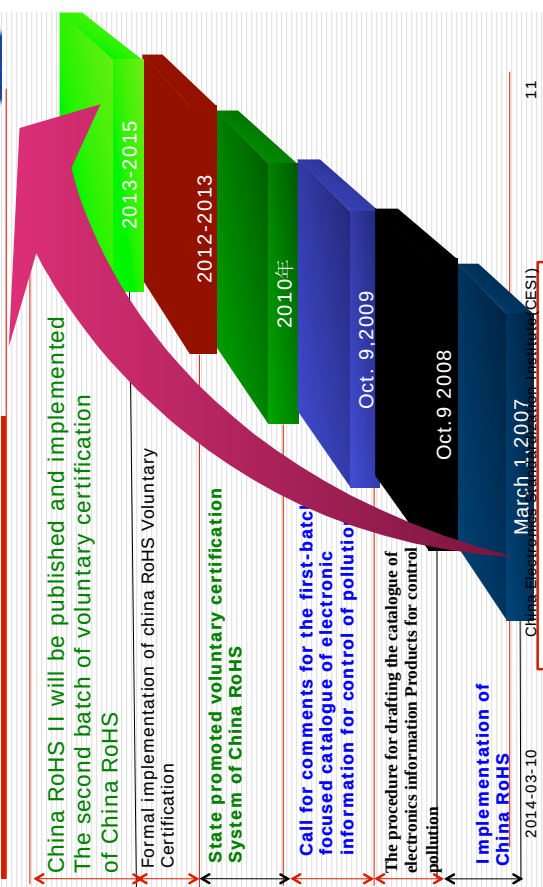


中国 ROHS 合规审查流程

电子信息产品	RoHS 目录	工业管理	自行申报	标志要求	公开 RoHS 相关信息
		中国强制认证	GB/T26572-2011 GB/T26125-2011	SJ/T11364-2006	特定
	合规审查	中国 RoHS 自愿认证	GB/T26572-2011 GB/T26125-2011		测试、检验、认证
		供应商合规声明	GB/T26572-2011		认证标志
					后市场监督
					特定

2014年3月30日

中国电子技术标准化研究所 (CESI)



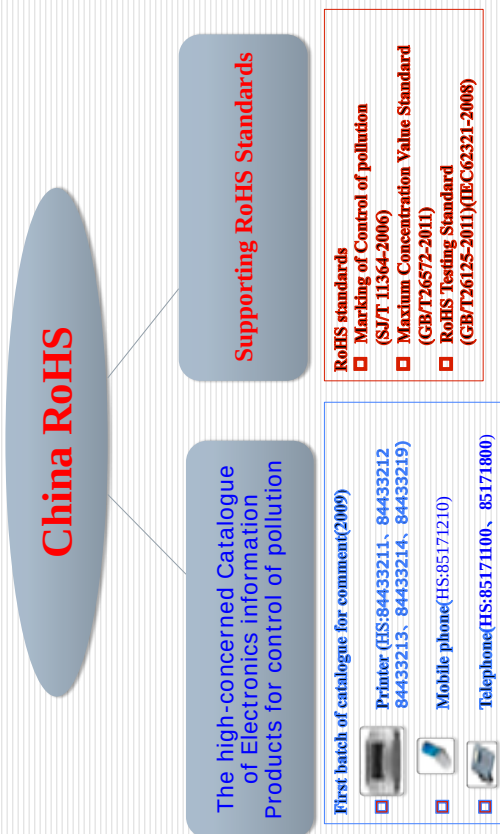
中国 RoHS 简介

中国 RoHS II 即将颁发并实施中国 RoHS 自愿认证第二批规定。	2013 年——2015 年
中国 RoHS 自愿认证正式实施	2012 年——2013 年
中国 RoHS 国家推行自愿认证	2010 年
进行污染控制的首批电子信息主要目录意见征集	2009 年 10 月 9 日
进行污染控制的电子信息目录制定程序	2008 年 10 月 9 日
中国 RoHS 实施	2007 年 3 月 1 日
中国 RoHS 发展线路图	

中国 RoHS 标准化与标准物质

中国 RoHS	进行污染控制的高度关注电子信息产品目录 征集意见的首批目录（2009 年） • 打印机（HS: 84433211、84433212、84433213、84433214、84433219） • 手机（HS: 85171210） • 电话（HS: 85171100、85171800）	支持 RoHS 标准
	RoHS 标准 • 污染控制标志（SJ/T 11364-2006） • 最大浓度值标准（GB/T 26572-2011） • RoHS 测试标准（GB/T 26125-2011）（IEC 62321-2008）	

China RoHS Standardization and reference material





China RoHS Standardization and reference material

No.	Standard Number	Standard name	Published date
2	SJ/T 11364-2006	Marking for Electronics information Products for control of pollution	2006.11.6
4	SJ/T 11186-2009	Series standards for Lead-free soldering	2009
5	SJ/Z 11388-2009		2009
6	SJ/T 11389-2009		2009
7	SJ/T 11390-2009		2009
8	SJ/T 11391-2009		2009
9	SJ/T 11392-2009		2009

2014-03-10

China Electronics Standardization Institute(CESI)

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China RoHS Standardization and reference material

No.	Standard Number	Name	Published date
1	GB/T 26125-2011	Electrical and electronic products - Determination of six regulated substances (lead, mercury, cadmium, hexavalent chromium, Polybrominated biphenyls, Polybrominated diphenylethers)	2011
2	GB/T 26572-2011	Requirements of concentration limits for certain restricted substances in electrical and electronic products	2011
3	GB/T 29783-2013	Determination of chromium(VI) in electrical and electronic products - Atomic fluorescence spectrometry	2013-10-10
4	GB/T 29784.1-2013	Determination of polycyclic aromatic hydrocarbons in electrical and electronic products - Part 1: High performance liquid chromatography	2013-10-10
5	GB/T 29784.2-2013	Determination of polycyclic aromatic hydrocarbons in electrical and electronic products - Part 2: Gas chromatographic method with mass spectrometric detection	2013-10-10
6	GB/T 29784.3-2013	Determination of polycyclic aromatic hydrocarbons in electrical and electronic products - Part 3: Liquid chromatography-mass	2013-10-10
7	GB/T 29784.4-2013	Determination of polycyclic aromatic hydrocarbons in electrical and electronic products - Part 4: Gas chromatography	2013-10-10
8	GB/T 29785-2013	Determination of hexabromocyclododecane in electrical and electronic products - Gas chromatography-mass spectrometry	2013-10-10
9	GB/T 29786-2013	Determination of phthalates in electrical and electronic equipments - Gas chromatography-mass spectrometry	2013-10-10

2014-03-10

China Electronics Standardization Institute(CESI)

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中国 RoHS 标准化与标准物质

序号	标准编号	标准名称	发布日期
2	SJ/T 11364-2006	《电子信息产品污染控制标识要求》	2006 年 11 月 6 日
4	SJ/T 11186-2009	《无铅焊接系列标准》	2009 年
5	SJ/Z 11388-2009		2009 年
6	SJ/T 11389-2009		2009 年
7	SJ/T 11390-2009		2009 年
8	SJ/T 11391-2009		2009 年
9	SJ/T 11392-2009		2009 年

2014 年 3 月 10 日

中国电子技术标准化研究所 (CESI)



中国 RoHS 标准化与标准物质

序号	标准编号	标准名称	发布日期
1	GB/T 26125-2011	《电子电气产品六种限用物质（铅、汞、镉、六价铬、多溴联苯和多溴二苯醚）的测定》	2011 年
2	GB/T 26572-2011	《电子电气产品中限用物质的限量要求》	2011 年
3	GB/T 29783-2013	《电子电气产品中六价铬的测定——原子荧光光谱法》	2013 年 10 月 10 日
4	GB/T 29784.1-2013	《电子电气产品中多环芳烃的测定——第一部分：高效液相色谱法》	2013 年 10 月 10 日
5	GB/T 29784.2-2013	《电子电气产品中多环芳烃的测定——第二部分：气相色谱质谱法》	2013 年 10 月 10 日
6	GB/T 29784.3-2013	《电子电气产品中多环芳烃的测定——第三部分：液相色谱质谱法》	2013 年 10 月 10 日
7	GB/T 29784.4-2013	《电子电气产品中多环芳烃的测定——第四部分：气相色谱法》	2013 年 10 月 10 日
8	GB/T 29785-2013	《电子电气产品中六溴环十二烷的测定——气相色谱质谱联用法》	2013 年 10 月 10 日
9	GB/T 29786-2013	《电子电气产品中邻苯二甲酸酯的测定——气相色谱质谱联用法》	2013 年 10 月 10 日

2014 年 3 月 10 日

中国电子技术标准化研究所 (CESI)



China RoHS standardization and Reference Material

NO.	Standard No.	Standard Name	Adoption of international standards
1	GB/T 15000.1-1994	Directives for the work of reference materials(1)--General rules for description of reference materials in technical standards	NEQ ISO GUIDE 6
2	GB/T 15000.2-1994	Directives for the work of reference materials(2)--The common terms and definitions of reference materials	NEQ ISO GUIDE 30-1994
3	GB/T 15000.3-2008	Directives for the work of reference materials - Reference materials - General and statistical principles for certification	IDT ISO GUIDE 35:2006
4	GB/T 15000.4-2003	Directives for the work of reference materials(4)--Contents of certificates and labels	IDT ISO GUIDE 31-2000
5	GB/T 15000.5-1994	Directives for the work of reference materials(5)--Technologic rules for reference materials of chemical composition	
6	GB/T 15000.6-1996	Directives for the work of reference materials(6)--General rules for package of certified reference materials	
7	GB/T 15000.7-2012	Directives for the work of reference materials(7) - General requirements for the competence of reference material producers	IDT ISO GUIDE:2009
8	GB/T 15000.8-2003	Directives for the work of reference materials(8)--Uses of certified reference materials	IDT ISO GUIDE 33:2000
9	GB/T 15000.9-2004 2014-03-10	Directives for the work of reference materials(9)--Calibration in analytical chemistry and use of certified reference materials China Electronics Standardization Institute(CESI)	IDT ISO Guide 32:1997



China RoHS standardization and Reference Material

List of certified reference material available for China RoHS from NIM(16 kinds)

No	CAT. No.	Name	Form
1.	GBW08404-08406	Reference Material series for RoHS Testing(Pb,Cd,Hg,Cr in PP)	Particle 30g×4
2.	GBW(E)081121~1123	Reference Material series for RoHS Screening (Pb,Cd,Hg,Cr in PP)	Slice40mm(d)>4mm, set(4)
3.	BW3078	Reference Material for RoHS Testing(Pb,Cd,Hg,Cr in PP)	Particle 10g
4.	GBW8407	Reference Material for RoHS Testing(Pb,Cd,Hg,Cr in ABS)	Particle 10g
5.	GBW8408	Reference Material for RoHS Testing(Pb,Cd,Hg,Cr in ABS)	Particle 10g
6.	GBW8409	Reference Material for RoHS Testing(Pb,Cd,Hg,Cr in ABS)	Particle 10g
7.	GBW8410	Reference Material for RoHS Testing(Pb,Cd,Hg,Cr in ABS)	Particle 10g

中国 RoHS 标准化与标准物质

序号	标准编号	标准名称	采用国际标准
1	GB/T 15000.1-1994	《标准样品工作导则(一)——在技术标准中描述标准样品的一般规定》	非等效采用 ISO GUIDE 6
2	GB/T 15000.2-1994	《标准样品工作导则(二)——标准样品常用术语及定义》	非等效采用 ISO GUIDE 30-1994
3	GB/T 15000.3-2008	《标准样品工作导则(三)——标准样品定值的一般原则和统计方法》	等同采用 ISO GUIDE 35:2006
4	GB/T 15000.4-2003	《标准样品工作导则(四)——标准样品证书内容的规定》	等同采用 ISO GUIDE 31-2000
5	GB/T 15000.5-1994	《标准样品工作导则(五)——化学成分标准样品技术通则》	
6	GB/T 15000.6-1996	《标准样品工作导则(六)——标准样品包装通则》	
7	GB/T 15000.7-2012	《标准样品工作导则(七)——标准样品生产者的能力的通用要求》	等同采用 ISO GUIDE:2009
8	GB/T 15000.8-2003	《标准样品工作导则(八)——有证标准样品的使用》	等同采用 ISO GUIDE 33:2000
9	GB/T 15000.9-2004	《标准样品工作导则(九)——分析化学中的校准和有证标准样品的使用》	等同采用 ISO GUIDE 32:1997
10	GB/T 22554-2010	《基于标准样品的线性校准》	修改采用 ISO 11095:1996



中国 RoHS 标准化与标准物质

中国计量科学研究院中国 RoHS 认证标准物质列表 (16 种)

序号	CAT 编号	名称	形式
1	GBW08404-08406	RoHS 检测用聚丙烯中铅、镉、汞、铬成分分析系列标准物质	微粒 30g×4
2	GBW(E)081121~1123	RoHS 筛查用聚丙烯中铅、镉、汞、铬成分分析系列标准物质	薄片 40mm (直径) ×4mm 每组 (4)
3	BW3078	RoHS 检测用聚丙烯中铅、镉、汞、铬成分分析标准物质	微粒 10g
4	GBW8407	RoHS 检测用聚丙烯-丁二烯-苯乙烯共聚物中铅、镉、汞、铬成分分析标准物质	微粒 10g
5	GBW8408	RoHS 检测用聚丙烯-丁二烯-苯乙烯共聚物中铅、镉、汞、铬成分分析标准物质	微粒 10g
6	GBW8409	RoHS 检测用聚丙烯-丁二烯-苯乙烯共聚物中铅、镉、汞、铬成分分析标准物质	微粒 10g
7	GBW8410	RoHS 检测用聚丙烯-丁二烯-苯乙烯共聚物中铅、镉、汞、铬成分分析标准物质	微粒 10g

No	CAT. No.	Name	Form
8.	GBW8411	Reference Material for RoHS Testing(Pb,Cd,Hg,Cr in ABS)	Particle 10g
9.	GBW (E) 081634~081638	Reference Material series for RoHS Screening(Pb,Cd,Hg,Cr in ABS)	SLICE 40mm(d)×4mm, set(6)
10.	GBW08412~08413	Reference material for Analysis (deca brominated diphenyl ethers in PE)	Particle 25g×3
11.	GBW(E)081124	Standard mixture solution of Industrial pentaBDE in 2,2,4-trimethylpentane	1.2mL
12.	BW3521-2	Standard mixture solution of Industrial pentaBDE in Toluene (Methylbenzene)	1.2mL
13.	GBW(E)081125	Standard mixture solution of Industrial octaBDE in 2,2,4-trimethylpentane	1.2mL
14.	BW3522-2	Standard mixture solution of Industrial octaBDE in Toluene (Methylbenzene)	1.2mL
15.	GBW08709	Standard solution of DecaBDE	1.2mL
16.	BW3523-2	Standard solution of DecaBDE in Toluene (Methylbenzene)	1.2mL



序号	CAT 编号	名称	形式
8	GBW8411	RoHS 检测用丙烯腈—丁二烯—苯乙烯共聚物中铅、镉、汞、铬成分分析标准物质	微粒 10g
9	GBW(E)081634~081638	RoHS 筛查用丙烯腈—丁二烯—苯乙烯共聚物中铅、镉、汞、铬成分分析系列标准物质	薄片 40mm（直径）X4mm 每组（6）
10	GBW08412~08413	分析用聚乙烯中十溴二苯醚成分分析标准物质	微粒 25gX3
11	GBW(E)081124	异辛烷中工业五溴二苯醚混合溶液标准物质	1.2mL
12	BW3521-2	甲苯中工业五溴二苯醚混合溶液标准物质	1.2mL
13	GBW(E)081125	辛烷中工业八溴二苯醚混合溶液标准物质	1.2mL
14	BW3522-2	甲苯中工业八溴二苯醚混合溶液标准物质	1.2mL
15	GBW08709	十溴二苯醚溶液标准物质	1.2mL
16	BW3523-2	异辛烷/甲苯中十溴二苯醚溶液标准物质	1.2mL





谢谢关注!

2014 年 3 月 10 日

中国电子技术标准化研究所 (CESI)



Thanks for your attentions

2014-03-10

China Electronics Standardization Institute(CESI)

21

Overview of F40.01: Test Methods

Scott MacLeod
F40 Workshop, Pudong, China
March 12, 2014



F40.01概述：测试方法

中国浦东F40研讨会
2014年3月12日



Scott MacLeod



Principal Chemist in the Chemicals Division of UL LLC. He is responsible for technical competency, global consistency, integrity, and engineering quality in the development, maintenance and application of certification requirements in the material and analytical chemistry disciplines.

Background:

Scott is an inaugural member of the Primary Designated Engineers at UL LLC and a Distinguished Member of Technical Staff. His specialty areas include the compositional analysis of materials, liquid flammability and corrosion protection coatings.

Standard Development:

- Chair of ASTM International Technical Committee F40 on Declarable Substances in Materials
- Co-Convenor of IEC TC 111 WG 3 responsible for the IEC 62321 test method standard
- Member of ASTM International D02 - Petroleum Products & Lubricants
- Member of ASTM International D20 - Plastics
- Member of AHRI Hydrocarbons Working Group
- Future Chair of ASHRAE SSPC34 - Designation & Safety Classification Of Refrigerants, (Flammability Sub-committee)



scott.c.macleod@ul.com

Scott MacLeod



Scott是美国保险商实验室化学品部的首席化学师，负责材料和分析化学领域认证要求的开发、维护和应用方面的技术胜任工作。全球一致性、完整性和工程质量工作。

Scott是美国保险商实验室首席工程师的首席成员和杰出的技术人员，专长领域包括材料成分分析、液体可燃性和防腐涂料。

标准开发:

- 美国试验与材料国际协会F40材料中申报物质技术委员会主席
- IEC技术委员会111工作小组3的共同会议召集人，负责IEC 62321 测试方法标准开发
- 美国试验与材料国际协会D02石油产品与润滑油委员会成员
- 美国试验与材料国际协会D20塑料委员会成员
- 美国空调、供热及制冷工业协会(AHRI) 碳氢化学物工作组成员
- 即将担任美国采暖、制冷与空调工程师学会(ASHRAE) SSPC34——制冷剂名称与安全分类(可燃性子委员会)的主席



scott.c.macleod@ul.com

F40.01 Purpose

- General Purpose: Establish test method standards for the evaluation of declarable substances in materials / products relative to RoHS (& similar) requirements.
- Recent Analytical Technique Focus:
 - Energy Dispersive X-ray Spectrometry (XRF)
 - Inductively Coupled Plasma Atomic & Optical Emission Spectrometry



F40.01 目的

- 总体目的：建立符合RoHS相关及类似要求的材料/产品中应申报物质评估的测试方法标准。
- 最近分析技术重点：
 - 能量色散X射线光谱测定法（XRF）
 - 电感耦合等离子体原子与光发射光谱法



Published Test Methods

1. F2617-08e1 Standard Test Method for Identification and Quantification of Chromium, Bromine, Cadmium, Mercury, and Lead in Polymeric Material Using Energy Dispersive X-ray Spectrometry
 - Applicable for a range from 20 mg/kg to approximately 1 wt % for chromium, bromine, cadmium, mercury, and lead in polymeric materials.



现已发布测试方法

1. F2617-08e1 采用能量色散X射线分析法鉴定和量化聚合物质中铬、溴、镉、汞和铅的测试方法
 - 适用于聚合物质中铬、溴、镉、汞和铅的含量约为20毫克/千克至1%重量比的测定



Published Test Methods (con't)

2. F2853-10 Standard Test Method for Determination of Lead in Paint Layers and Similar Coatings or in Substrates and Homogenous Materials by Energy Dispersive X-Ray Fluorescence Spectrometry Using Multiple Monochromatic Excitation Beams

- Quantitative determinations of Pb in painted and unpainted articles such as toys, children's products, and other consumer products.
- Commonly referred to as High Definition X-ray Fluorescence (HDXRF) or Multiple Monochromatic Beam EDXRF (MMB-EDXRF).
- Applicable for specific products / materials with a Pb mass fraction range of 14 to 1200 mg/kg for uncoated samples and 30 to 450 mg/kg for coated samples.



现已发布测试方法(续)

2.F2853-10 采用能量色散X射线荧光光谱仪测定基材和同质材料上油漆和涂层中铅含量的标准测试方法

- 量化测定上漆及未上漆物品中的铅含量，譬如玩具、儿童产品及其他消费品等
- 一般称为高清X射线荧光光谱法（HDXRF）或多单色光束能量色散X射线荧光光谱法（MMB-EDXRF）
- 适用于未上漆样品中铅含量为14至1200毫克/千克，上漆样品中铅含量为30至450毫克/千克的特定产品/材料



Published Test Methods (con't)

3. F2980-13 Standard Test Method for Analysis of Heavy Metals in Glass by Field Portable X-Ray Fluorescence (XRF)

- Analyses of arsenic and lead in glass compositions using field portable energy dispersive XRF spectrometers.
- The mass fraction range of arsenic within which this test method is quantitative from 240 – 2000 mg/kg.
- The mass fraction range of lead within which this test method is quantitative from 120 – 500 mg/kg. To obtain quantitative performance, lead results must consist of the average of four or more determinations.



现已发布测试方法（续）

3. F2980-13采用便携式X射线荧光光谱仪（XRF）分析玻璃中重金属的标准测试方法

- 采用便携式能量色散X射线荧光光谱仪分析玻璃成分中的砷和铅含量
- 该测试方法定量的砷质量分数范围为240 - 2000 毫克/千克
- 该测试方法定量的铅质量分数范围为120 - 500 毫克/千克。为获得定量测试结果，铅测试结果必须包括四次或以上测定的平均值。



Current Work Items: Not Published Yet

1. WK9866 New Test Method for Test Method for Analysis of Tin-Based Solder Alloys for Lead, Cadmium, Mercury, Antimony and Bismuth (and others) Using Inductively Coupled Plasma Atomic Emission Spectrometry
2. WK15434 New Test Method for Test Method for Analysis of Tin-based Solder Alloys Using Optical Emission Spectrometry (analysis of Ag, Al, As, Au, Bi, Cd, Co, Cu, Fe, Ge, In, Ni, P, Pb, Sb, and Zn)
3. WK21957 New Test Method for Identification and quantification of lead in paint and other coatings using energy dispersive x-ray spectrometry (EDXRF)



Thank You

ASTM F40.01 Welcomes Your Participation



当前工作项目：尚未发布

1. WK9866 采用感应耦合等离子体原子发射光谱法分析锡基焊料合金中铅、镉、汞、铋、铊（及其他）含量的新测试方法
2. WK15434 采用光发射光谱法分析锡基焊料合金成分的新测试方法（分析银、铝、砷、金、铋、镉、钴、铜、铁、铬、镍、磷、铅、铟、锌的含量）
2. WK21957 采用能量色散X射线光谱测定法（EDXRF）鉴定和量化油漆和其他涂料中铅含量的新测试方法



谢谢

欢迎加入ASTM F40.01



Overview of F40.02: Management Practices and Guides

Dick Casali
F40 Workshop, Pudong, China
March 12, 2014



F40.02概述：管理惯例与指南

中国浦东F40研讨会
2014年3月12日



F40.02 Purpose

- General Purpose: Establish standards for the management of information for the declaration via paper or electronic means of substances in materials.
- Recent Focus:
 - Recommending established analytical tests or tools to make a risk assessment for a SVHC. Emphasizing screening for SVHC.
 - Providing guidance on how to disassemble complex, non-homogenous assemblies.
 - Be useful for people new to REACH and without a chemistry background.



F40.02 目的

- 总体目的：建立材料中物质申报（书面或电子申报）信息管理的标准。
- 最近工作重点：
 - 推荐高度关注物质风险评估的既定分析测试或工具，强调高度关注物质的审查。
 - 为复杂非同质组合体的分解提供指导。
 - 帮助对REACH不熟悉且无化学背景的人员



Published Guides

1. F2577-06: Standard Guide for Assessment of Materials and Products for Declarable Substances
 - I. This guide uses case studies to illustrate the decision process to assess materials and products for declarable substances when evaluating conformance to relevant requirements. This may be accomplished by applying existing knowledge to determine the need for further action (for example, testing).
 - II. A case study for PVC is used to illustrate its use.



现已发布指南

1. F2577-06: 《应申报物质之材料与产品的评估标准指南》
 - I. 本指南采用案例分析说明评估相关要求符合性时，应申报物质之材料与产品评估的决策过程。或需要运用现有知识决定是否需要采取进一步行动，例如测试。
 - II. 采用聚氯乙烯的案例分析说明其使用。



Published Guides (con't)

2. F2725-11: Standard Guide for European Union's REACH Supply Chain Information Exchange
 - I. This guide recommends practices and solutions for global supply chain information exchange for substances, preparations, and articles as identified by REACH.
 - II. Case studies include information exchange by ...
 - a. EU-customer to non-EU supplier
 - b. EU-supplier to non-EU customer
 - c. Formulator (customer) to specialty formulator (supplier) involving confidential information
 - d. Article manufacturer



现已发布指南（续）

2. F2725-11: 欧盟REACH供应链信息交换标准指南
 - I. 本指南为REACH划定之物质、制剂、物品的全球供应链信息交换推荐惯例与解决方案。
 - II. 案例分析包括下列人员之间的信息交换：
 - a. 欧盟客户与非欧盟供应商
 - b. 欧盟供应商与非欧盟客户
 - c. 制定人（客户）与保密信息相关的专业制定人（供应商）
 - d. 物品制造商



Published Guides (con't)

3. F2931-13: Standard Guide for Analytical Testing of SVHC in Materials and Products
 - I. This guide contains a list of potential test methods for the analysis of SVHC. It is intended to assist in the identification of available test methods for quantitative analysis of the substance(s) of interest.
 - II. Screening methods are discussed.
 - III. For some SVHC no specific quantitative tests exists. This document recommends methods that may be useful for these SVHC.



现已发布指南（续）

3. F2931-13: 材料与产品中高度关注物质之分析测试标准指南
 - I. 本指南详细列明高度关注物质分析用的可能测试方法，旨在帮助确定物质定量分析的可用测试方法。
 - II. 本指南还讨论了筛选方法。
 - III. 对于某些高度关注物质，目前并无具体定量测试可用。故此，本指南推荐了可能有助于此等高度关注物质测定的方法。



Current Work Items: Not Published Yet

1. WK26792: New Guide for the Identification of Declarable Substances in Polymeric Materials
 - I. Used for risk assessments using a priori knowledge.
 - II. Contains a process flow that can be used to determine if a specific polymeric material has the potential of containing a declarable substance.
 - III. The output from this risk assessment would be used as the input to F2931.
2. WK44057: Update of F2931-13 to account for recently added SVHC in late 2013.



目前工作项目：尚未发布

1. WK26792: 关于确定聚合物材料中应申报物质的新指南
 - I. 运用先验知识进行风险评估。
 - II. 包括用于确定具体聚合物材料是否含有应申报物质的流程。
 - III. 本风险评估的结果将会用于F2931的已知信息。
2. WK44057: 2013年末新增高度关注物质的F2931-13更新内容



Not Published Yet (con't)

3. WK26792: Reauthorization of F2577-06, adding more examples.
 - I. Adding aluminum as a case study.
 - II. Once renewed, will work on adding more examples.



尚未发布（续）

3. WK26792: 新增示例的F2577-06的修订内容
 - I. 新增铝的案例分析
 - II. 更新完毕后继续新增示例



Compliance: Experiences and Issues with Addressing new Product Testing Requirements

Stanislaw Piorek, Ph.D.
Director, Applied Research and Methods Development,
Thermo Scientific, Portable Analytical Instruments (PAI)

ASTM Committee F40 on Declarable Substances in Materials
Meeting, March 10-13, Thermo Fisher, Shanghai, China

The world leader in serving science

Agenda

- Company Introduction; PAI place within Thermo
- New Regulations in EU change drastically compliance landscape
- Technological developments help in compliance efforts
- Concept of "Screening" and XRF
- Development of Test Methods
- Analytical and Regulatory Challenges
- Summary: What we Learned

Who we are?

The World Leader in Serving Science

The leading provider
of analytical instruments, equipment, reagents
and consumables, software and service for
research, analysis, discovery
and specialty diagnostics

Global Scale

- 50,000 employees in 50 countries
- Over \$17 billion in annual revenues
- Ab. 500, 000 customers worldwide
- Unparalleled commercial reach

Unmatched Depth

- Innovative technologies
- Applications expertise
- Laboratory productivity partner

Leading Brands



life
technologies™

Life Technologies is now a
Thermo Fisher Scientific brand

Our Mission:

We Enable Our Customers to Make the World....

Cleaner

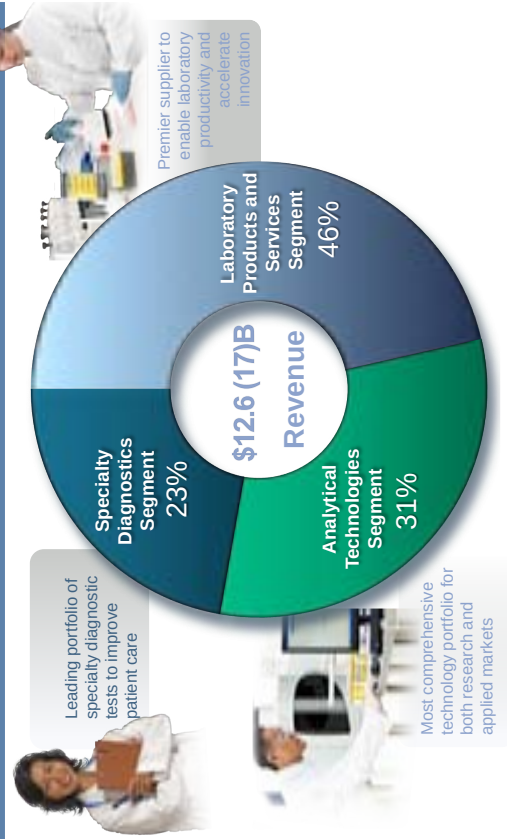
Safer

Healthier

5

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SCIENTIFIC

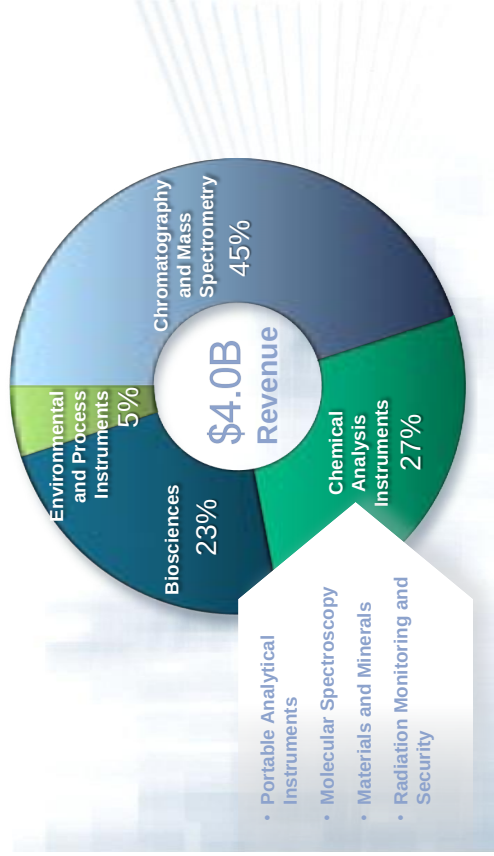
Our Unique Scale and Depth of Capabilities



6

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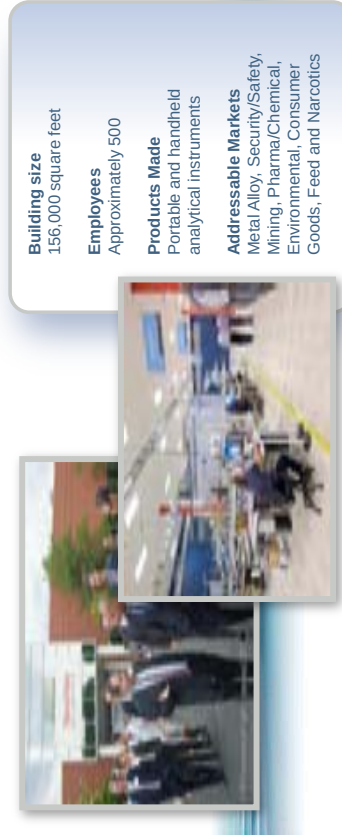
Analytical Technologies Segment



7

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Center of Excellence for Portable Analytical Instruments



Building size
156,000 square feet

Employees
Approximately 500

Products Made
Portable and handheld analytical instruments

Addressable Markets
Metal Alloy, Security/Safety, Mining, Pharma/Chemical, Environmental, Consumer Goods, Feed and Narcotics

- The Center of Excellence for Portable Analytical Instruments in Tewksbury officially opened on June 11, 2012.

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Portable Analytical Instruments – Our Approach



Following Industry Trend

Increasingly, the lab is moving to the field

Our Strategy

If you take a product that's historically been large, expensive and complicated to use and you make it small, affordable, rugged and easy-to-use, you can dramatically expand your addressable market

Our Solution

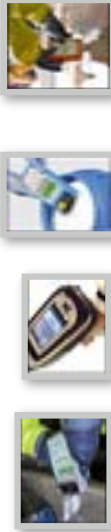
Deliver traditional laboratory quality testing results to the palm of the operator's hand, giving our customers low-cost, reliable, real-time results and transforming the way they do business

9

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Leading Technologies - Portable Analytical Instruments

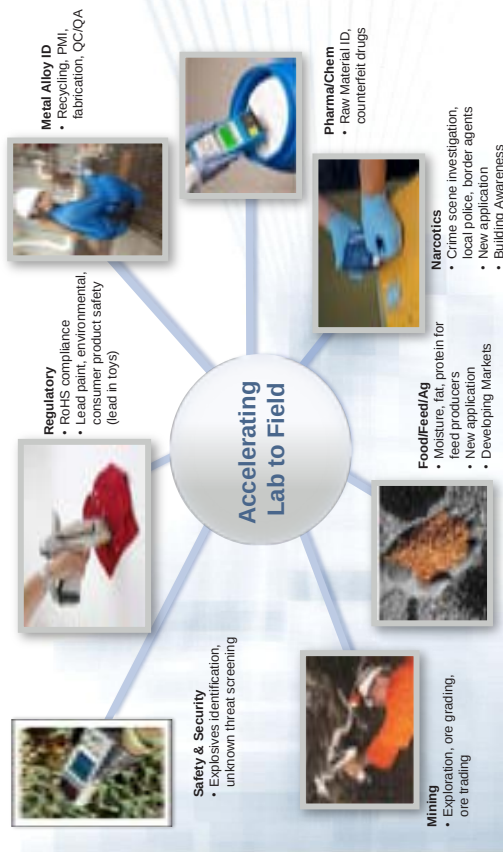
- **Elemental analysis** – The pioneer in X-ray fluorescence (XRF) analysis, bringing the lab to the field with speed, accuracy and ease of use
- **Molecular analysis** – Leading field-deployed analytical instruments for human health and public safety, delivering lab-accurate analysis at the point of need
- **Analyzer excellence recognized globally**
 - Molecular – More than 6,000 instruments deployed since 2005
 - Elemental – More than 35,000 analyzers deployed since 1994



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Meeting Growing Needs in Many Applications



11

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How did we get involved?

12

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Number of regulations issued by EU affected world manufacturing and trade

- The EC Directive 91/338/EC, sets the value of **100 [mg/kg]** as the maximum allowable concentration of cadmium in **consumer goods**.
- The EC Directive 91/457/EC of 18 March 1991 **on batteries and accumulators** containing certain dangerous substances (Hg, Cd and Pb). Followed by Commission Directives 93/86/EC of 4 Oct. 1993, and 98/101/EC of 22 Dec. 1998.
- The EC Directive 94/62/EC, Article 11, states that the sum of Cr⁺⁺⁶, Hg, Pb, and Cd in **packaging materials** may not be more than **100 [mg/kg]**
- European Parliament and Council Directive 2000/53/EC of 18 September 2000, so called **end-of-life vehicles (ELV Directive)**.
- European Parliament and Council Directive 2002/96/EC of 27 January 2003 on **waste electrical and electronic equipment** (The so called **WEEE Directive**).

- Targets responsible recycling of electronic equipment

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EU issues a number of regulations affecting world manufacturing and trade - ctd

- The Directive of immediate concern for the electronic and affiliated industries is the **RoHS Directive**:

- European Parliament and Council Directive 2002/95/EC of 27 January 2003 on the restriction of the use of certain **hazardous substances** in electrical and electronic equipment (The so called **RoHS Directive**).

- Targets maximum levels of Cr⁺⁺⁶, Hg, Cd, Pb, PBB and PBDE (all at 0.1% except for Cd for which it is 0.01%)

- **Electrical and Electronic Equipment (EEE)** is defined as all devices that depend on electric current or electromagnetic field to function properly, when powered with up to 1000 VAC or up to 1500 VDC.

We, Thermo Fisher, are affected as a manufacturer of products that need to comply and as a supplier of instruments used in testing for compliance.

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Industry's Great Dilemma – the costs of testing printer cable using classical methods!!!

Substance Tested	Test Method	Pretreatment	Equipment	Quantitation Limit for 0.5g sample	Price for analysis in Euro ⁴⁾
Lead	EPA SW-846: Method 3050B	Acid Decomposition, Filtration	ICP-AES ¹⁾	0.5 ppm	195
Cadmium	EN 1122	Acid Decomposition, Filtration	ICP-AES ¹⁾	0.5 ppm	+45 ⁵⁾
Chromium +6	Japanese Standard	Grinding, Water Extraction	ICP-AES ¹⁾	1.0 ppm	195
Mercury	Japanese Standard	Evaporation, Adsorption	AAS ²⁾	0.1 ppm	270
PBB	None	Grinding, Solvent Extraction, Column Cleanup	HRGCMS ³⁾	0.1 ppm	1,250
PBDE	None	Grinding, Solvent Extraction, Column Cleanup	HRGCMS ³⁾	0.1 ppm	1,250
Total/Sample:					3,205

1) Emission Spectrometer using an Inductively Coupled Plasma

2) Atomic Absorption Spectrometer

3) High Resolution Gas Chromatography/Mass Spectrometer

4) Price for a small number (250) of samples

5) 45 Euro is added for Cadmium when both Lead and Cadmium are measured.

Data from 2003

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Is there a help...



Yes!!!

Industry's Solution – SCREENING

- Contaminants are usually present at high concentrations (grossly exceeding regulatory or compliance levels) which are rather easy to detect and quantify, especially with nondestructive XRF *)
- Therefore, doesn't it just make sense to use XRF*) as the first stage of testing (that is "screening") in order to eliminate obvious "violators" from further testing with more accurate and more expensive methods?

For example: If screening test with XRF yields result of 12% lead with error of $\pm 3\%$, and a threshold of compliance is 0.1% do we really need to test it using more accurate procedure and method to learn from it that the lead concentration is 9.5% with error of $\pm 0.2\%$? **Does this more accurate result change the previous outcome in terms of compliance???**

*)Or any other suitable method

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Industry's Solution – SCREENING with ED-XRF

Why XRF?

Because as no other analytical method it offers in one package a combination of features:

- Robust (mature, field proven method, used in harsh industrial environments for over 35 years!)
- Robust calibration (via Fundamental Parameters)
- Simultaneously multielemental
- Truly nondestructive (to sample and to analyzed object)
- Fast, provides instantaneous "on-the-spot" results
- Can be operated by shop floor personnel
- Does not generate waste and requires no special maintenance
- Relatively inexpensive; the cost of instrument will amortize in very short time
- It is portable or handheld for field operation under the harshest conditions

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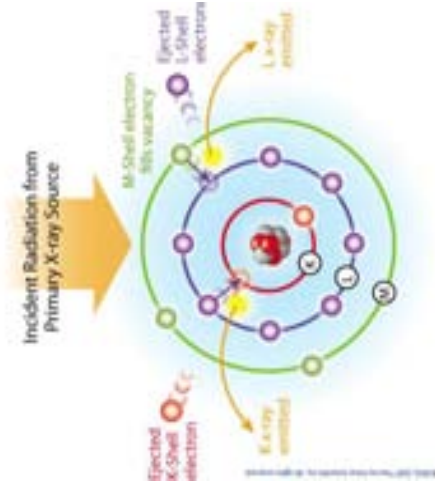
Industry's Solution – XRF Analyzer as Screening Tool

- Perceived and real deficiencies of XRF:**
 - For some elements may be less accurate than laboratory methods
- Portable, HHXRF** is by design not effective in analysis of light elements (that is below atomic number 12, Mg)
 - Sensitive to matrix and thickness of sample
- Measures only **TOTAL** of the element, i.e.
 - cannot distinguish Cr^{+6} from Cr^{+3} , reports total Cr only
 - cannot tell PCB from PCBE, reports total Br only

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What is XRF - Generation of Characteristic X-rays

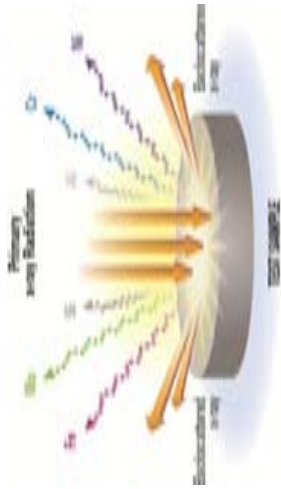


X rays emitted by atom as the result of electron transitions between inner energy shells are called characteristic X rays as their energies are specific and unique for each element

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X-ray Fluorescence Analysis



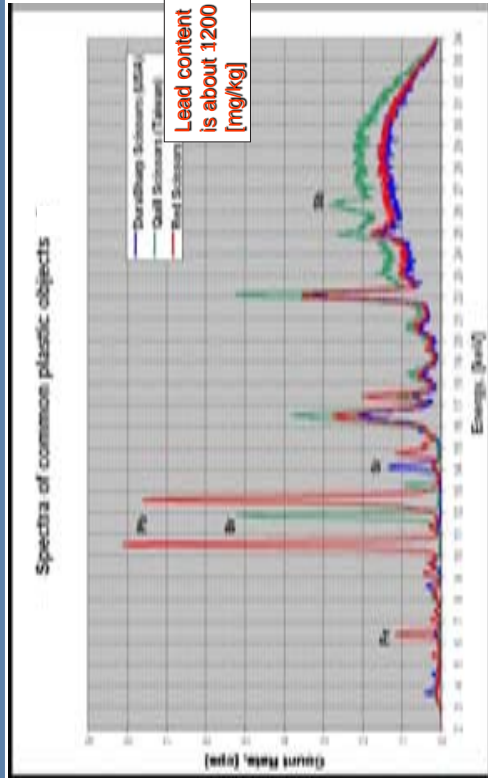
Each individual element produces its own set of characteristic x-rays; the basis for **qualitative** analysis

By counting the number of characteristic x-rays of a given element we can determine its concentration; the basis for **quantitative** analysis

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X-Ray Spectrum of Sample



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Advent of handheld technologies –

First HHXRF Analyzer

The developments on the regulatory arena were paralleled by rapid progress in semiconductor, electronics and information technologies which enabled the design and commercial availability of many analytical methods in a portable or handheld form factor, suitable for work in field.

- Major changes realized over the last 10-15 years:
 - Reduction in mass by at least a factor of 10 to 15
 - Reduction in volume/size by a factor of 10, **specifically breaking an “all in one piece” barrier**
 - Improvement in energy resolution by a factor of 10
 - Incorporating all the analytical features of high end stationary XRF systems for superb performance
 - Radioisotopes replaced by miniature X-ray tubes
 - Implementation of DSP
 - With all these improvement maintaining pretty much the same effective cost of ownership

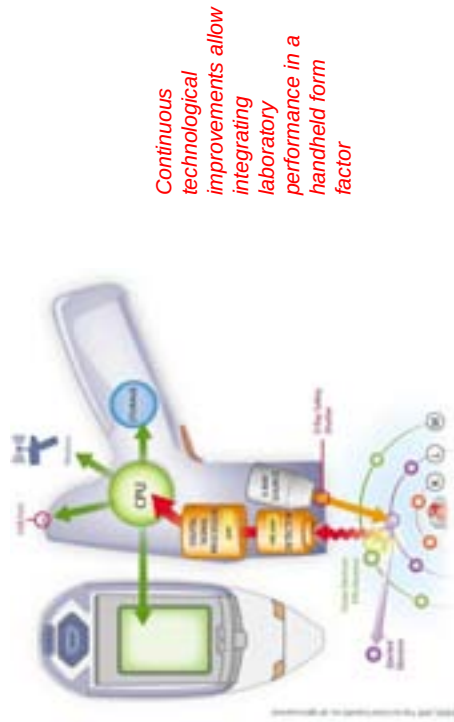


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HHXRF Analyzer –

a Lab-Quality Instrument in Palm of Your Hand



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The Magnificent Five, ready “to draw”

The latest generation of HHXRF analyzers unveiled in late 2008 features SDD detector replacing its less capable, older cousin, the p-i-n diode.



Industry's Solution – Test Method with Screening Step

Working Group 3 within TC 111 of IEC was formed to develop Standard Test Method(s) which would be used in testing products and materials for compliance with EU Directives.

One of the results of that work was introduction of concept of screening to the test procedure flow as well as the definition of the “screening” itself.

Definition as quoted from: IEC 62321-1, Determination of certain substances in electrotechnical products – Part 1: Introduction and Overview

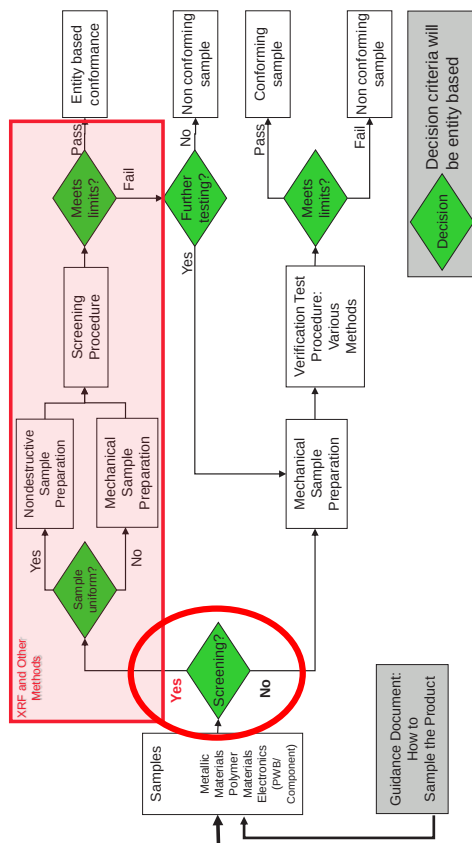
3.1.10 screening

screening analytical procedure to determine the presence or absence of substances in the representative part or section of a product, relative to the value or values chosen as the criterion for presence, absence or further testing

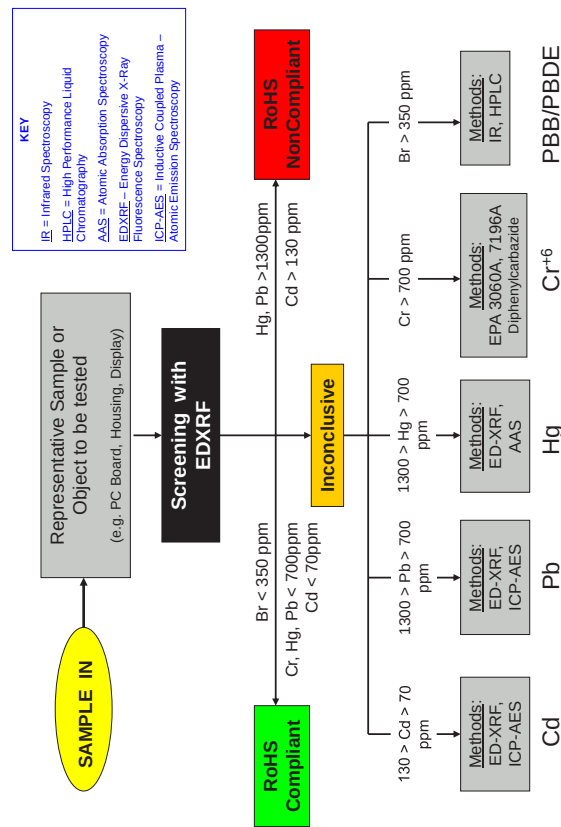
Note 1 to entry: If the screening method produces values that are not conclusive, then additional analysis or other follow-up actions may be necessary to make a final presence/absence decision.

Industry's Solution -

Testing Procedure Flow



Screening Procedure using XRF

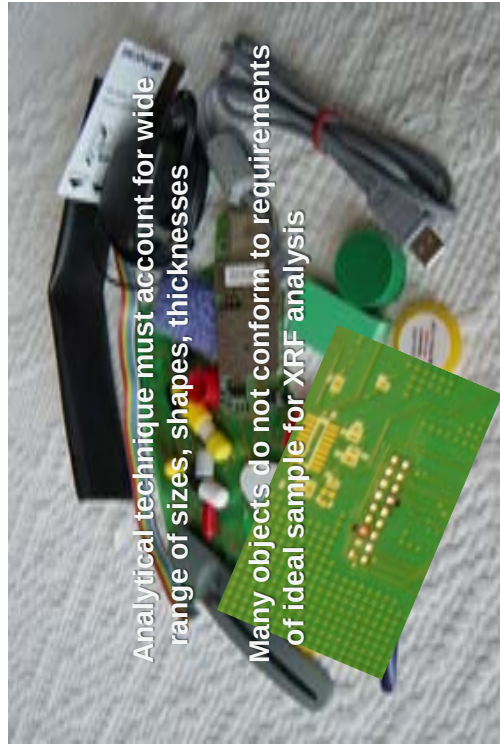


Family of IEC 62321 Standards, Ed. 1.0, 2013-06

IEC STANDARD	A Common Title for the Family: <i>Determination of certain substances in electrotechnical products -</i>
62321-1	Part 1: Introduction and overview
62321-2	Part 2: Disassembly, disjunction and mechanical sample preparation
62321-3-1	Part 3-1: Screening - Lead, mercury, cadmium, total chromium and total bromine using X-ray fluorescence spectrometry
62321-3-2	Part 3-2: Screening - Total bromine in polymers and electronics by Combustion - Ion Chromatography
62321-4	Part 4: Mercury in polymers, metals and electronics by CV-AAS, CV-AFS, ICP-OES and ICP-MS
62321-5	Part 5: Cadmium, lead and chromium in polymers and electronics and cadmium and lead in metals by AAS, AFS, ICP-OES and ICP-MS
62321-6	Part 6: Polybrominated biphenyls and polybrominated diphenyl ethers in polymers by gas chromatography-mass spectrometry (GC-MS), Ion Attachment Mass Spectrometry (IAMS) and High Pressure Liquid Chromatography – Ultra Violet detection (HPLC-UV)
62321-7-1	Part 7-1: Determination of the presence of hexavalent chromium (Cr(VI)) in colourless and coloured corrosion-protected coatings on metals by the colorimetric method
62321-7-2	Part 7-2: Determination of hexavalent chromium (Cr(VI)) in polymers and electronics by the colorimetric method

Note: Standards Parts 1 to 5 were published in June 2013; Parts 6 and 7 are in preparation.
This Standard prepared by WG3 of IEC TC111

But the Diversity of objects to be analyzed posed significant challenges



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Challenges... Challenges... Challenges...

- Final products to be tested are anything but proper sample for analysis
 - They are by design non-homogeneous - an anathema of representative analysis
- Diversity of shapes and sizes necessitated modifications in hardware and analytical software:
 - Small spot: ability to measure/analyze components of the board
 - Camera: to locate tested object and record its image
 - Correction for thickness of object tested: ability to dynamically account for sample thickness (foils, bulk objects)
- Lack of adequate Certified Reference Materials
- Existing laboratory test methods not always adequate to analyze diversity of polymers and their ingredients
- Need for new safety rules pertaining to portable and handheld XRF

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How to analyze, screen small parts?



Practical embodiment of primary beam collimation in commercially available, hand-held XRF analyzer; CCD color camera, composite output, @250x200 pixels image, white LED for illumination.

Visible in the center of the picture is the end tip of the primary beam collimator.

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Examples - electronics



Note again low Pb and high Br content measured on the body of capacitor (left image), indicating possibility of brominated flame retardant in the epoxy of the package. The terminal area (right image) shows v. high lead content rendering this capacitor "RoHS noncompliant".

This 60 sec long test illustrates the savings of time and expense one can realize by using XRF for screening.

Examples – Insensitivity to Sample Size

Solder wire of nominal composition 63Sn/37Pb was analyzed for 60 sec.



Sn = 63.85 ± 1.67
Pb = 34.58 ± 0.59



Sn = 63.57 ± 1.05
Pb = 35.58 ± 0.36

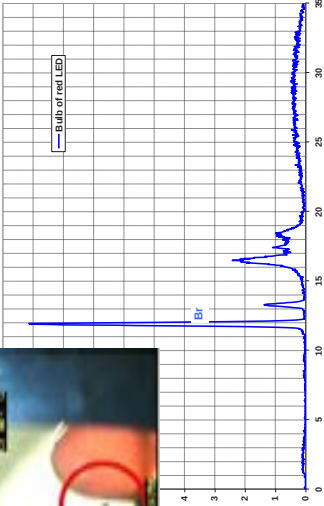


Sn = 59.53 ± 2.94
Pb = 37.11 ± 1.06
Mass = 1.1 mg

Examples - electronics

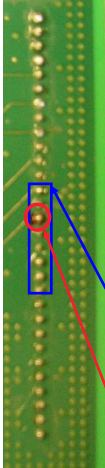


Red LED needs further testing with method specific for flame retardants (GC or other)

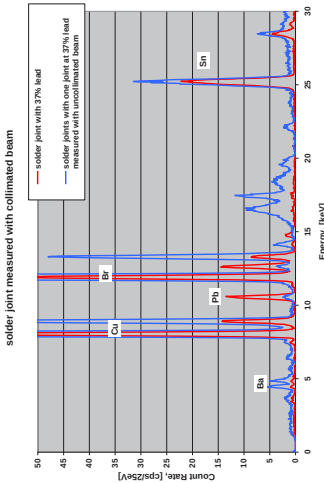


Examples - electronics

Measurement of solder joints with collimated X-ray beam



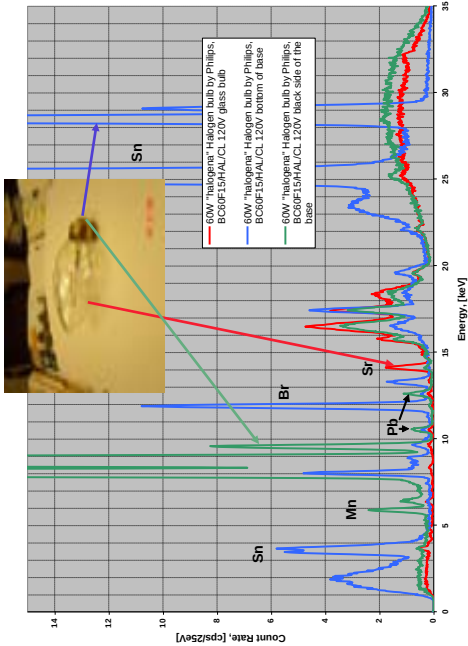
Sn63Pb37 solder joint is marked with reddish aureole. Joints at 0.1" (2.54 mm) pitch



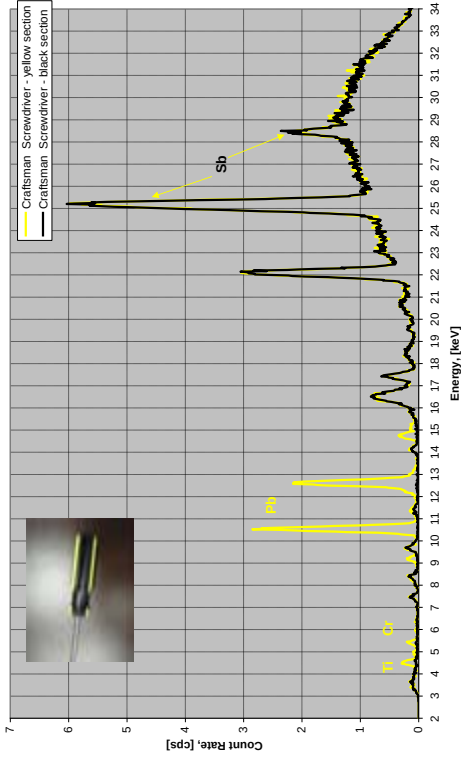
Rectangle marks the area measured by probe with uncollimated beam
Red circle marks area measured by probe with collimated beam

The ratio of lead peak to that of tin measured with collimated beam is more in line with what it is for the Sn63Pb37 alloy

More Examples - “Halogena” bulb

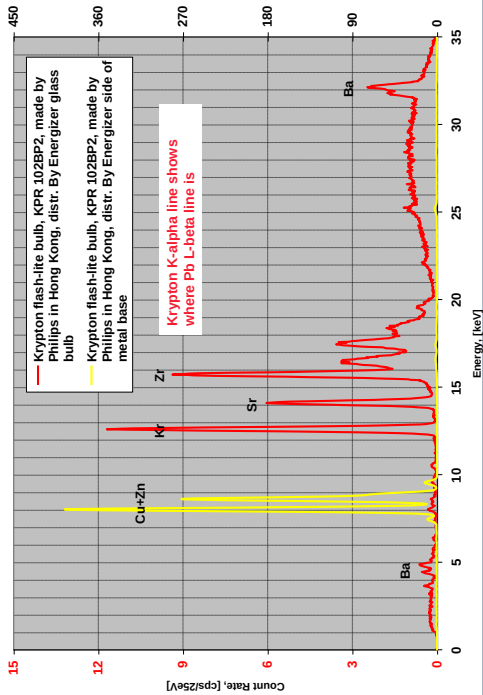


More examples - lead in yellow paint



False Positives –

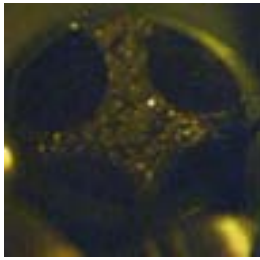
Krypton gas in halogen light bulbs



Toys and Consumer Products Regulations Followed:

- EU Toy Directive 2009/48/EC on the Safety of Toys; EN 71-3
- | Safety of toys | |
|---|----------------|
| Part 3: Migration of certain elements
(includes Amendment A1 : 2000 + Corrigendum AC : 2002)
English version of DIN EN 71-3 + A1 : 2000 + AC : 2002 | DIN
EN 71-3 |
- US Congress Bill HR 1040, On August 14, 2008, President Bush signed into law a “Consumer Product Safety Improvement Act of 2008” (**Public Law 110-314**), limits lead in paint on toys and children products to 90 ppm and in any bulk material in toys or children products to 100 ppm

Rapid Pass/Fail Screening



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Small Spot Feature – Analysis of Plastic Button



Test button
plastic only
- not holes
- not thread



Test parts 3mm and smaller

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Measurement tactics - Using Handheld or test stand



Large, extended objects

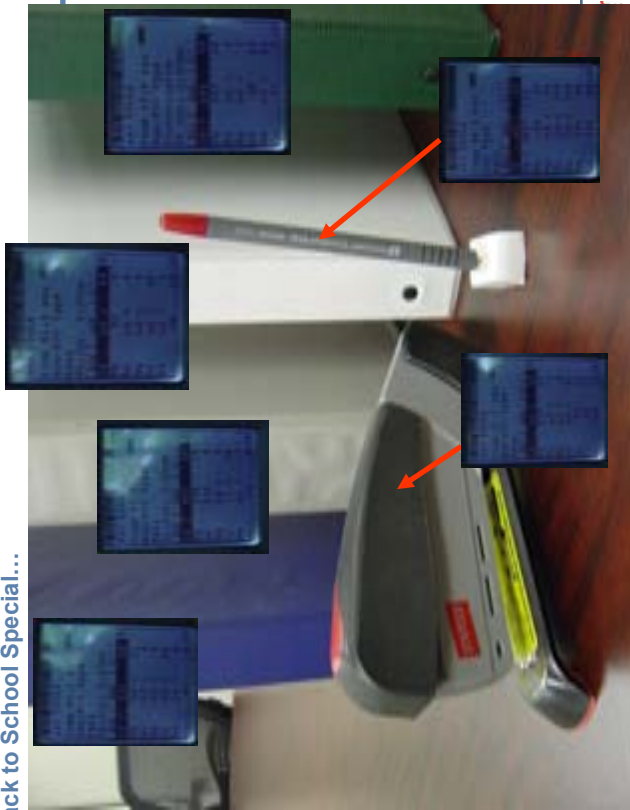
Irregular shape and small objects

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Metallic Contaminants in Plastics – using thickness correction



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Results

Product	Cadmium	Lead	Mercury	Bromine	Chromium
White binder	<150	65 ± 9	<9	<4	<60
Blue Binder	660 ± 70	<11	<8	<4	<50
Green binder	370 ± 60	1200 ± 40	<7	<4	50 ± 20
Grey binder	900 ± 60	300 ± 20	<9	450 ± 20	<40
Pen	<36	3827 ± 155	<40	64 ± 10	<280
Stapler	<49	174 ± 16	<8	<3	<91
Desk trim	<88	(1.77 ± 0.1)%	<125	65 ± 37	<600

Furniture



Some laboratory analytical methods were not ready ...

Original Data		ICP-OES Analysis			
Serial Number	4-105-3	Sub-sample A of Sample SN 4-105-3	Sub-sample B of Sample SN 4-105-3		
Element	Conc. added, [mg/kg] ^{a)}	Results, [mg/kg] ^{a)}	One Sigma Error, [mg/kg] ^{a)}	Results, [mg/kg] ^{a)}	One Sigma Error, [mg/kg] ^{a)}
Br	2.23	1.90			
Sb	1.99	2.00	0.04	2.01	0.04
Ti	0.51	0.497	0.01	0.497	0.01
Cr	998	837	17	843	17
Pb	800	921	18	965	19
Cd	502	512	10	504	10

We have prepared the sample of polyethylene doped with six elements at concentrations as indicated in table "Original Data", and asked the commercial lab to analyze it. We have told the lab the elements to look for and order of magnitude of concentration. After the first pass the lab reported less than 20 mg/kg chromium!!! Only after they were told what type of compound was Cr in, were they able to repeat the analyzes.

ASTM Test Methods



Designation: F 2617 – 08

Standard Test Method for Identification and Quantification of Chromium, Bromine, Cadmium, Mercury, and Lead in Polymeric Material Using Energy Dispersive X-ray Spectrometry¹



Designation: F 963 – 03

Standard Consumer Safety Specification for Toy Safety¹

WK21957 (Draft, 04-12-2012)

Standard Test Method for Identification and Quantification of Lead in Paint and Similar Coating Materials using Energy Dispersive X-ray Fluorescence Spectrometry (EDXRF)

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ASTM Test Methods, ctd.



Designation: F2853 – 10¹

Standard Test Method for Determination of Lead in Paint Layers and Similar Coatings or in Substrates and Homogenous Materials by Energy Dispersive X-Ray Fluorescence Spectrometry Using Multiple Monochromatic Excitation Beams¹



Designation: F2923 – 11

Standard Specification for Consumer Product Safety for Children's Jewelry¹



Designation: F2980 – 13

Standard Test Method for Analysis of Heavy Metals in Glass by Field Portable X-Ray Fluorescence (XRF)¹

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IEC Standard addressing safe operation of Portable and HHXRF



IEC 62495

Edition 1.0 2014-04

**INTERNATIONAL
STANDARD**



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Summary

- Numerous new EU Directives drastically expanded the range of products, materials and substances testing for compliance, making it virtually impossible with traditional laboratory methods.

Positives:

- A concept of screening procedure has been defined and introduced as a vital, initial step of the test method for compliance developed for industry by IEC. The screening procedure, especially if performed nondestructively to the tested object (like with HHXRF), vastly reduces the need for lab testing. It complements laboratory test methods for the overall better compliance....
- The success of screening with XRF contributed to increased acceptance of this approach when using other analytical techniques, especially those that can be realized as portable or handheld instruments for field use (Raman, FTIR, NIR, etc.).

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Summary, ctd.

- New analytical challenges of testing for compliance forced the instrument manufacturers to improve the performance of their products which in turn benefited all users of these instruments and in many instances opened new market opportunities.
- The widespread acceptance and use of HHXRF instruments exposed the void existing in regulations pertaining to the safe use of x-ray generating equipment.

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Summary, ctd.

Areas in need of improvement:

- The parties tasked with writing regulations should work closer and consult with all stakeholders in order to avoid creating rules which cannot be complied with (Cr⁺⁶, definition of homogeneous material, "leachability" in EN 71-3).
- Differences in state regulations create additional difficulty when planning for compliance and testing. (EU Toy Safety Directive and US CPSIA are prime examples).

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Thank You!

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Registered Attendee List

注册参会人员名单

Name	Title	Company	Email
Alyson Fick	Manager, Standards Development	ASTM International	afick@astm.org
Andy Hu	Director of Chemical Analysis Division	Thermo Fisher, Shanghai	Hu, Andy (andy.hu@thermofisher.com)
Ronald Battema	President	Compliance Consulting Inc	rbattema@gmail.com
Carrie Shey	Director of Provincial Electronics	Guan Dong Province	TBD
Dick Casali	Product Ecology Technical Manager	Intel Corp	DICK.CASALI@INTEL.COM
Chen, Huiming	Director of Chemical Safety Research Institute	Chinese Academy of Inspection and Quarantine	chenhm@aqsiqch.ac.cn
Susan J Evans Norris	Senior Executive Vice President, LGC Standards	VHG Labs Inc., LGC Standards	SUE@VHGLABS.COM
Gao Lan	Secretary General, TC 229	Standardization Administration of China (SAC)	xtbwh@163.com
Wenning W. Han	Senior Staff Chemist, Intermediates/Synthetics Division	Exxonmobil	WENNING.W.HAN@EXXONMOBIL.COM
Jackie Hao	Material Engineer CTC	Delphi	Hao, Jackie (Jackie.Hao@delphi.com)
Jenny Feng	Meetings Coordinator	Thermo Fisher, Shanghai	Feng, Jenny <jenny.feng@thermofisher.com>
Joey Yang	Deputy Ambassador, China	American Industrial Hygiene Association	Yang, Joey X. -ND <Joey.X.Yang.-ND@disney.com>
Lilly Lu	Program Coordinator	American National Standards Institute (ANSI)	llu@ansi.org
Lionel Trouilleux	Application Laboratory Manager, Asia Pacific Region	PanAlytical, China	lionel.trouilleux@panalytical.com
Liu Fei	Chief Representative, China	ASTM International	Liu, Fei <fliu@astm.org>
Scott C. MacLeod	Principal Chemist, Chemicals Division	Underwriters Laboratories	SCOTT.C.MACLEOD@UL.COM

	Name	Title	Company	Email
17	Kevin M. Moran	Director	Rare Earth Technology Alliance	kevin_moran@rareearthtechalliance.com
18	Owen Wu	Sales Director, China	PanAlytical, China	Owen.Wu@panalytical.com;
19	Ruilin Zhao	Senior Director of Marketing	Thermo Fisher, Shanghai	Zhao, Ruilin (ruilin.zhao@thermofisher.com)
20	Siqi Tan	Vice President, Laboratory Solutions China	Thermo Fisher, Shanghai	Tan, Siqi <siqi.tan@thermofisher.com>
21	Hans Song	Material engineering supervisor	Delphi	Hans.Song@delphi.com
22	Stan Piorek	Director, Applied Research and Method Development	Thermo NITON Analyzers, LLC	Piorek, Stanislaw <stan.piorek@thermofisher.com>
23	Taco Van Der Maten	Product Manager, XRF Spectrometers	Panalytical	TACO.VAN.DER.MATEN@PANALYTICAL.COM
24	William Zhu	Lead Ambassador, China	American Industrial Hygiene Association	William Zhu <william_zhu@golder.com.cn>
25	Dirk Wissmann	Senior Product Manager, XRF	SPECTRO ANALYTICAL INSTRUMENTS	dirk.wissmann@ametek.com
26	Cathy Xiao	Material Engineer	Delphi	Cathy.Xiao@delphi.com
27	Xing Weibing	Director, Center for Pollution Prevention Technology and New Materials	CHINA Electronics Standardization Institute (CESI)	xingwb88@126.com
28	Xu Fang	Chief Representative, China	American National Standards Institute (ANSI)	xfang@ansi.org
29	Yun Cai	Sales Manager	IMR Test labs	wendy.cai@imrsuzhou.com
30	Gale Gao	Support	TUV Rheinland (Shanghai) Co., Ltd.	Gale.Gao@tuv.com
31	Liang Pan	Support	Rockwell Automation(China) Co., Ltd	lpan@ra.rockwell.com
32	Sally Zhu	Support	TUV Rheinland (Shanghai) Co., Ltd.	Sally.Zhu@tuv.com

Name	Title	Company	Email
Weihong Song	Support	Rockwell Automation(China) Co., Ltd	wsong@ra.rockwell.com
Yanan Hu	Operations Manager, China	ASTM International	Hu, Nancy <nhu@astm.org>
Cathy Feig	Standards Attache	US Embassy	TBD
Youjiang Chen	Materials Engineer	Intel Corp	youjiang.chen@intel.com
Wai Hung Yuen	Materials Engineer	DPI Laboratory	tommyyuen@qpp.com
Yu Yang	EA team	Apple China	yu_yang@apple.com
Monica Yu	Support	Medtronic	monica.yu@medtronic.com
Haiyun WU	Secretary , TC 297/sc3	CHINA Electronics Standardization Institute (CESI)	wuhy@cesi.cn

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