



**MINUTES**  
**BOARD OF DIRECTORS' MEETING BY CONFERENCE CALL**  
**INTERNATIONAL CADMIUM ASSOCIATION**  
**Thursday, July 25, 2013 – 1600 Hours (4:00 PM) Brussels Time**

**CALL TO ORDER**

The conference call meeting of the Board of Directors of the International Cadmium Association was called to order by its Chairman, Mark Edwards of Teck Resources, at 4:05 PM (1605 Hours Brussels Time). Those participating in the Board of Directors conference call included the following:

**DIRECTOR**

Maxime Cossette  
Laurent Smits  
Rolf Rodermund  
Howard Winbow  
Benedict Janssens  
Patrick de Metz  
Mitsunori Takao (Proxy to Colin Thirlaway)  
Eric Nottez (Proxy to Laurent Smits)  
Colin Thirlaway  
Mark Edwards

**MEMBER COMPANY**

5N Plus  
Floridienne Chimie  
Glencore for IZA  
James M Brown Ltd.  
Nyrstar B.V. for IZA  
SAFT S.A.  
SANYO  
SNAM  
Stanley Black & Decker  
Teck Resources for IZA

**APOLOGY**

Albert Hardies

**MEMBER COMPANY**

INMETCO, Inc.

**STAFF**

Christian Canoo  
Hugh Morrow  
Frank Van Assche  
Stephen Wilkinson

**ORGANIZATION**

International Cadmium Association  
International Cadmium Association  
International Zinc Association  
International Zinc Association

**APOLOGY**

Noomi Lombaert

**ORGANIZATION**

International Cadmium Association

## **MEETING AGENDA AND STATEMENT OF COMPLIANCE**

General Manager Christian Canoo noted that ten of the association's eleven Directors were either present or were represented by Proxy and thus a quorum was established for the transaction of business. The complete slide presentation of all materials presented during the conference call is attached to these Minutes as Annex I. The agenda for the conference call is shown as Slide 2 in Annex I. Dr. Canoo reviewed the proposed agenda for the Board of Directors' meeting and asked if there were any additions or corrections to the agenda as presented in Slide 2. No changes were made to the proposed agenda.

Christian Canoo then read and reviewed the Statement of Compliance for the conduction of the association's meetings under Belgian law. This Statement of Compliance is shown on Slide 3 of Annex I. For the convenience of ICdA Members, a Glossary of Acronyms and Abbreviations contained in these Minutes is also attached as Annex II.

## **APPROVAL OF THE MINUTES OF THE JULY 18, 2012 BOARD MEETING**

Dr. Canoo next reviewed the Minutes of the July 18, 2012 Board of Directors' meeting and asked for approval of these Minutes as issued. These minutes are outlined in Slide 4 of Annex I attached. Chairman Mark Edwards asked if there were any additions, corrections or comments with regard to these minutes. With no further comments forthcoming, **the Minutes of the July 18, 2012 Board of Directors meeting were approved as issued to the membership.**

## **MEMBERSHIP REPORT AND OFFICERS AND DIRECTORS REPORT**

Christian Canoo reviewed the membership of the International Cadmium Association as of July 2013. He noted that EDI-SARP Industries had applied for membership in 2012 and had been approved by the Board of Directors. However, since that time, no further communication has been received from EDI. Thus, the present membership of the International Cadmium Association now stands at sixteen members with the EDI membership still pending confirmation. The Membership Report is shown in Slide 5 of Annex I attached.

Dr. Canoo also reviewed recent changes in the Directors of the International Cadmium Association. He noted that Directors Anne Dekker of Nystar and Emil Josendal of Boliden, both representing the International Zinc Association on the Board of Directors, had resigned their positions, and that Rolf Rodermund of Glencore had been nominated to replace Mr. Josendal and Benedict Janssens of Nyrstar had been nominated to replace Ms. Dekker as the International Zinc Association's representatives, along with Mark Edwards of Teck Resources, on the ICdA Board of Directors. **Upon motion duly made and seconded, these changes in the ICdA Board of Directors were unanimously approved by the Board of Directors.** No changes were made in the officers of the association with Mark Edwards of Teck Resources as Chairman, and Patrick de Metz of SAFT S.A. and Laurent Smits of Floridienne Chimie S.A. as Vice-Chairmen. The Officers and Directors of the International Cadmium Association for 2013 are summarized in Slide 6 of Annex I attached. Christian Canoo indicated that these changes would be reported to *Moniteur Belge* as required under Belgian association law.

## **FINANCIAL REPORT**

Christian Canoo reviewed the un-audited final accounts of the association for the calendar year 2012 which are shown in Slides 7 and 8 of Annex I attached. The total expenses for ICdA for 2012 were 235,621 Euros compared to a budget of 208,284 Euros. Higher expenses (Slide 8) were attributed to ongoing legal costs associated with the ICdA lawsuit against the European Commission with regard to EU Directive 494/2011 and to higher-than-expected costs for outside scientific support. Total

income for 2012 was 191,591 Euros compared to expected income of 185,200 Euros. Un-audited results for 2012 indicate that the association's overall balance brought forward on January 1, 2012 of 123,163 Euros was decreased by 44,030 Euros during 2012, resulting in a balance brought forward into 2013 of 79,133 Euros.

Dr. Canoo also reviewed the 2013 budget and projected 2013 income and expenses based on financials for the first half of the year. These comparisons are shown in Slide 9 of Annex I attached. Total expenses for the year are expected to be somewhat higher than originally budgeted due to continued costs associated with the lawsuit against the European Commission. However, higher than expected income is also forecast in 2013 due to contributions from pigment manufacturers for the 2012-2013 legal case against the European Commission regarding Directive 494/2011/EC. Thus, the final 2013 income and expenses are now expected to closely balance, leaving the association's 2013 end-of-year surplus carried forward at approximately the same level as the amount carried forward at the close of 2012. **Upon motion duly made, seconded and carried by the Board of Directors, the un-audited financial accounts for 2012 were approved as presented.** Approval of the final audited accounts for 2012 will be formally presented at the ICdA General Assembly of Members on October 9, 2013 in London, UK.

### **NORTH AMERICAN REGULATORY AFFAIRS**

Hugh Morrow reviewed the current status of cadmium-related regulatory affairs in North America as of July 2013. The issues covered included both revision and enhancement of the USA's Toxic Substances Control Act (TSCA), cadmium in consumer products and especially children's jewelry, and the present status of the U.S. EPA's Integrated Risk Information System (IRIS) file on cadmium. These issues are covered in Slides 11 through 16 of Annex I attached.

*Toxic Substances Control Act (TSCA)* – In April 2013, Senator Frank Lautenberg (D-NJ) introduced Senate Bill 696 (S.696) for the complete revision of TSCA. This bill was essentially the same as the bills he introduced in 2011 and 2012, neither of which were enacted into legislation, and did not address any of the concerns previously voiced by industry and Senate Republicans. In May 2013, a joint bi-partisan bill (S.1009) to revise TSCA was introduced by Senator Lautenberg and Senator Vitter (R-LA). S. 1009 was considerably changed from Lautenberg's earlier bills and did address industry and Senate Republican concerns. However, Senator Lautenberg died on June 3, 2013, and Senator Barbara Boxer (D-CA) has now assumed the Chairmanship of the Senate's Environment and Public Works Committee. Senate Democrats now appear to be assuming an uncompromising partisan position and wish only to work to enact S.696 whereas Senate Republicans will only consider the bi-partisan S. 1009 bill. In the meantime, hearings are being held in the Republican-controlled House of Representatives on issues of concern to industry and House Republicans which include the registration of "new" chemicals and confidential business information.

While Congress has been attempting for the past three years to accomplish legislative revision of TSCA, the Democratic administration's U.S. EPA has been quietly "enhancing" TSCA by application or expansion of existing TSCA legislation. During the summer 2012, EPA included all-cadmium containing substances in consumer products in its Priority Testing List under TSCA Section 4(e). In December 2012, EPA issued a Direct Final Rule under TSCA Section 8(d) requiring copies of all studies on cadmium in consumer products. This Rule was quickly withdrawn in January 2013 after widespread industry comment in opposition to the rule. In light of the TSCA Section 8(d) attempted ruling, ICdA offered to meet with EPA's Office of Pollution Prevention and Toxic Substances (OPPT) on February 21, 2013 to discuss information on cadmium in consumer products, offer to share information with OPPT, and try to preclude the issuance of future rules which might be of high concern to industry.

The February 21, 2013 meeting was attended by six top managers in the OPPT and by Christian

Canoo, Christine Spirlet, Hugh Morrow and Lynn Bergeson of Bergeson & Campbell. EPA's chief concerns were cadmium in consumer products, and cadmium pigments in plastics, cadmium pigments in glass ("Shrek" glasses), and what EPA characterized as minor or unintended uses of cadmium which did not fall into the main cadmium product categories. Dr. Canoo presented information on the International Cadmium Association and the Cadmium REACH Consortium, their memberships, and their activities. Hugh Morrow presented background on cadmium in consumer products, while Dr. Spirlet reviewed information on the scientific data available in the Cadmium REACH dossiers. It was agreed that ICdA would provide information to EPA on the types of plastic resins in which cadmium pigments were utilized. After review with the ICdA's pigment manufacturer members, this information was supplied to OPPT. It was also agreed that ICdA would at some future point organize a webinar with EPA and OPPT to review data availability from the Cadmium REACH dossiers. No firm commitment was made regarding "minor or unintended" uses of cadmium in consumer products, although ICdA did indicate that it would try to determine if such information could be produced. After the February 21, 2013 meeting with OPPT, Hugh Morrow sent copies of the *Proceedings of the Eighth International Cadmium Conference* to all OPPT meeting attendees, and a list of other available ICdA publications.

*Cadmium in Consumer Products* – In June 2010, the Sierra Club petitioned the US Consumer Product Safety Commission (CPSC) and the US EPA to prohibit cadmium in children's jewelry, although the petition was vaguely worded and seemed to imply all consumer products as well. The petition was granted by US EPA pending the development of a voluntary industry standard to limit cadmium in children's jewelry. Such a standard was developed by ASTM International as F2923-11 which was issued in 2012 and which specified a 75 ppm maximum soluble cadmium content in surface coatings, a 300 ppm maximum total cadmium content in substrates, and a provision that if the total cadmium content exceeded 300 ppm, then the maximum soluble cadmium content from the substrate must be less than 200 ppm. In addition, a lawsuit and subsequent settlement between the California Center for Environmental Health (CEH) and twenty suppliers of children's jewelry established a voluntary limit of 300 ppm total cadmium, irrespective of location as surface coating or substrate. Based on the development of the ASTM standard, CPSC denied the Sierra Club's petition. However, at present, many USA States and Canadian Provinces are developing separate legislation many of which do not agree with the ASTM Standard. The Fashion Jewelry and Accessories Trade Association (FJATA) is working with US states in an attempt to develop uniform standards which agree with the voluntary ASTM standard.

*Status of EPA's Integrated Risk Information System (IRIS) Cadmium File* – The last full update of the IRIS Cadmium File was conducted in 1999. For several years now, cadmium has been listed as a Priority Pollutant but its scheduled review has not occurred and no draft revision has yet been issued. In the meantime, the IRIS review procedure has been under heavy industry criticism, particularly in the case of the arsenic review, and the National Academy of Sciences has conducted a review of the IRIS procedures. A meeting was held on June 12, 2013 between personnel from the EPA IRIS office and the National Center for Environmental Assessment (NCEA) and representatives from the metals industry, including the North American Metals Council (NAMC), the International Cadmium Association and a number of other metals associations. Individual presentations were made by EPA and the nickel, manganese, molybdenum, antimony and copper associations. Specific objections to the IRIS profiles included issues of bioavailability, REACH data sharing, and specific modeling for pathways for specific metals. IRIS/NCEA promised to issue a revised and updated schedule for the revision of the IRIS files within the next two months.

## **INTERNATIONAL REGULATORY AFFAIRS**

Hugh Morrow summarized the current status of international programs and agreements affecting cadmium. These include the United Nations Economic Commission for Europe (UNECE) Long Range Trans-boundary Air Pollution (LRTAP) Heavy Metals Protocol on Lead, Cadmium and

Mercury; the United Nations Environment Program (UNEP) Heavy Metals Programs on Lead and Cadmium; the Strategic Approach to International Chemicals Management (SAICM); and the Transatlantic Trade and Investment Partnership (TTIP) between the USA and the EU. These issues are covered in Slides 17 through 21 of Annex I attached.

UNECE LRTAP Heavy Metals Protocol – Hugh Morrow noted that the most recent amendments to the Heavy Metals Protocol had been ratified by the UNECE Executive Body in December 2012 in Geneva. These included coordinating the requirements of the Heavy Metals and Gothenburg Protocols with respect to particulate matter air emissions, and introducing mercury product restrictions for consistency with the UNEP Intragovernmental Negotiating Committee (INC) Instrument on Mercury. Mr. Morrow also noted that no cadmium product restrictions existed in the UNECE Heavy Metals Protocol although ones were in place on lead and mercury products.

Hugh Morrow reported that a Best Available Technology (BAT) Guidance Document had been introduced to replace the former requirements of Annex III. The only concern in this regard was that the BAT Guidance Document should be consistent with the EU's BREF Document for Nonferrous Metals. Measures had also been introduced into the Heavy Metals Protocol to permit increased flexibility for economies in transition which were directed primarily at Eastern Europe, Central Asia and the Caucasus. Mr. Morrow also added that the USA and Canada had taken different positions with respect to the Heavy Metals Protocol in order to be consistent with their own national legislation while at the same time achieving the same results as the Heavy Metals Protocol.

Finally, it was reported that an EMEP study issued in 2012 for heavy metal air emissions and depositions in the UNECE area indicated that cadmium emissions and depositions had decreased 50% to 60% in the time period from 1990 to 2010.

UNEP Program on Cadmium – Hugh Morrow reported that little or no new work has been carried forward under the UNEP Programs on Lead and Cadmium. The 2010 *Scientific Review on Cadmium* has not been further revised or updated in spite of numerous industry and national delegations objections to that draft. Likewise, no further work has been carried out on the UNEP DTIE reports on Trade in Cadmium Products in Africa, Asia and Latin America, in spite of widespread commentary and opposition to the reports. At the most recent UNEP Governing Council meeting (GC27) held in Nairobi in February 2013, the Council authorized the continuation of only three initiatives with respect to cadmium, all subject to the availability of sufficient funding:

- Environmentally sound management (ESM) of nickel-cadmium batteries throughout their entire life cycle
- Global VOLUNTARY partnerships on cadmium with governments, intra-governmental organizations, and non-governmental organizations. While this initiative had been announced as early as 2011 and ICdA volunteered to participate, no activities have occurred in this area.
- Encouragement of information on cadmium emissions abatement and cadmium substitution in products.

SAICM Emerging Policy Issues – Hugh Morrow reported that the International Conference on Chemicals Management (ICCM3) under the Strategic Approach to International Chemicals Management (SAICM) had been held in September 2012 in Nairobi. However, real progress appeared to be impeded by concerns over funding, duplication of efforts, and over-lapping jurisdictions. There was little specific mention of cadmium in products. The only possible areas of concern to the metals industries appeared in the Emerging Policy Issues programs which included:

- Lead in Paint – Program to eliminate lead in all paints by 2018
- Chemicals in Products – Program to expand and improve chemicals information and labeling
- Hazardous Substances in Electrical and Electronic Equipment – Programs to Substitute for hazardous materials in EEE or properly dispose or recycle them.
- Nanotechnologies and Nanomaterials – Characterization and health effects

- Endocrine Disrupting Chemicals – Identify presence in consumer products

Transatlantic Trade and Investment Partnership (TTIP) – Hugh Morrow described upcoming negotiations between the European Union’s DG Trade and the USA Department of Commerce to improve trade and commerce between the EU and the USA. Among the topics to be discussed will be health and environmental regulations which may be different between the two and how these differences might be minimized to improve trade and investment to the mutual benefit of both the EU and the USA. Both Eurometaux, representing the European metals industry, and the North American Metals Council (NAMC), representing the North American metals industry, are interested in filing a joint statement with DG Trade and the Department of Commerce. Mr. Morrow reviewed some of the advantages (see Slide 21) of filing such a joint statement, but indicated that there were different viewpoints being expressed by different members of Eurometaux and NAMC, and that the final wording of the joint statement had not yet been established.

## **EUROPEAN REGULATORY AFFAIRS**

Christian Canoo reviewed in detail the status of several European regulatory affairs programs affecting cadmium. These included the extensive activity currently underway due to the EU’s Registration, Evaluation, and Authorization of Chemicals (REACH) Directive; the legal action filed by the association against the European Commission regarding Directive 494/2011/EC; and the activities of the ICdA Health & Safety Committee in updating the ICdA Guidance Document on occupational exposure to cadmium, gathering biological exposure indices data on cadmium-exposed workers, and developing the 2017/2020 Initiative. Dr. Frank Van Assche also discussed the EU’s Water Framework Directive, its requirements with regard to cadmium, and the need for ICdA to support the cadmium part of a study currently being conducted on the bioavailability of metals in waters. These issues are presented in detail in Slides 22 through 47 of Annex I attached.

Activities of the Cadmium REACH Consortium – Dr. Canoo first reviewed the status of the chemicals which had been registered under the REACH process. As of May 2013, 10 substances and 1 intermediate had been registered. The latest registrations which occurred in May 2013 were for the substances cadmium sulfoselenide red, cadmium zinc sulfide yellow and cadmium telluride, and for the intermediate cadmium sulphate.

**Authorization:** Under the authorization phase, Dr. Canoo stated that the REACH regulation requires implementation of “authorization” or “restriction” procedures for substances that may generate unacceptable risks in certain uses. These procedures are normally applied to substances classified as carcinogenic, mutagenic or reproductive toxins (CMRs); substances classified as persistent, bioaccumulative and toxic (PBTs); or substances classified as very bioaccumulative and very toxic (vBvTs). The normal “authorization” procedure is initiated by a declaration of intent (registration of intention, ROI) by either an EU Member State (MS) or the EU Council of Ministers (COM) to register a particular substance. This ROI is then followed by the issuance of an Annex XV dossier of well-defined format which documents the dispersive uses of that substance and its associated risks to human health and the environment. Issuance of the Annex XV dossier is followed by a public consultation period and a decision by the REACH Committee to include the substance in a candidate list of “Substances of Very High Concern (SVHC)”. Eventually, after prioritization by the European Chemicals Agency (ECHA), a decision may be taken to initiate the Authorization procedure which will include publication in the *Official Journal* and an effective or application date (AD) and a sunset date (SSD).

In the specific case of the two substances, cadmium and cadmium oxide, Sweden announced its intention early in 2013 to propose them for the candidate list of “substances of very high concern.” A public consultation on the Annex XV dossier was carried out from 4 March to 18 April 2013 to which ICdA members and staff responded with extensive comments and visits to key Member States with scientific arguments refuting the statements in the Swedish Annex XV dossier. Nevertheless, the

REACH Committee agreed at the end of June 2013 to add cadmium and cadmium oxide to the “SVHC Candidate List.” These decisions were based largely on both substances being identified as Category 1B Carcinogens and therefore meeting the criterion of Article 57(a) of the REACH Directive. Sweden also claimed that both substances met the criterion of Article 57(f) of the REACH Directive based on adverse health effects on the kidney and bone tissues after repeated exposures and the related classification for specific target organ toxicity after repeated exposures (STOT RE1).

The first major concern of the Cadmium REACH Consortium and the International Cadmium Association with the conclusions of the Swedish Annex XV dossiers was the assumption that the general population in the European Union was exposed and potentially at risk through environmental exposure to cadmium and cadmium oxide. The second major concern of industry was that the general population in the EU was exposed and at risk due to the presence of cadmium and cadmium oxide in manufactured articles. The third major concern was that occupational exposure of workers was not sufficiently controlled in the European Union to prevent adverse human health effects. It was even alleged in an appendix that cadmium “might” induce some “endocrine disrupting” effects, an allegation which has not been scientifically established. ICdA’s comments were organized to respond to each incorrectly documented or undocumented allegation, to stress the inadequacy of the Authorization procedure to reduce, minimize or eliminate any of the alleged risks, and to provide elements that should be taken into account or otherwise prove to be mitigating factors in the subsequent prioritization phase. In summary, the main points established by the ICdA comments were:

- Challenge the REACH 57(f) criterion due to the inadequacy of cadmium-in-urine data below 1 µg cadmium per gram creatinine levels for the general population as a reliable indicator of adverse kidney effects.
- Cadmium exposure to the general population through the main transfer pathways (food) is lower than the WHO JECFA standards and even lower than the more conservative EU (EFSA) standards.
- Cadmium ingested by the general population is derived from the food chain, and is essentially due to (1) cadmium’s presence in fertilizers and (2) atmospheric deposition from fossil fuel combustion. The Authorization procedure will have no effect at all on these principal exposure routes.
- Incorrect citation of end uses and intermediate uses were challenged when undocumented or incorrectly documented throughout the dossiers.
- The Swedish Annex XV dossiers claimed that 200,000 workers were occupationally exposed to cadmium in the European Union. ICdA estimates that number to be 2500-3500 for industries intentionally utilizing cadmium in their facilities. The cadmium industry also believes that those workers are adequately protected against cadmium exposure risks (cfr. OCdBio data).
- ICdA also noted that the “Endocrine Disrupting Effects” alleged in the Swedish dossiers were insufficiently documented or undocumented.

**Restriction:** Former restrictions which existed in Directives prior to the enactment of the REACH Directive were automatically incorporated into Annex XVII of REACH. When a new restriction in use is now proposed, a Member State or the Council of Ministers must prepare an Annex XV (Restriction) dossier which documents the need for the restriction on the basis of new evidence of risk to human health or the environment. For cadmium pigments, an Annex XV dossier is currently being prepared by ECHA at the request of the COM with regard to the legal issues associated with EU Directive 494/2011/EC. ICdA and the Cadmium REACH Consortium are cooperating with ECHA to provide the required information, and met with them on June 27, 2013 in Helsinki for this purpose.

The Helsinki meeting with ECHA was well attended and included six ECHA officers including two

Heads-of-Units. The industry delegation included representatives from ICdA, Eurometaux, the lobbying group EPPA, and a representative each from the cadmium pigment industry and the nickel-cadmium battery industry. The three main concerns expressed by the industry delegation to ECHA were:

- Cadmium and cadmium compounds are considered together as a single group and yet individual cadmium-containing substances have different hazard classifications.
- With regard to the 1988 Council of Ministers Resolution for a Cadmium Action Programme, selective references are made without regard to the entire program.
- The position taken by the Scientific Committee for Occupational Exposure Limits (SCOEL) with regard to a carcinogenicity threshold for cadmium has been ignored by ECHA.

With respect to the current Annex XV dossier being prepared by ECHA on cadmium pigments in plastics, it was noted that these current uses are difficult to trace in detail but that in general cadmium pigments are utilized in engineering plastics requiring certain characteristics. It was further added that due to their insolubility and encapsulation in plastics, industry had not noted any adverse risk scenarios for this application. Complete REACH registration dossiers were filed for cadmium pigments in May 2013, but it now appears that KEMI has also initiated an Annex XV dossier for cadmium pigments in artists' paints.

As previously noted in ICdA's comments on Sweden's Annex XV dossier, industry does not agree that the Authorization procedure is appropriate for or will reduce general population exposure to cadmium which arises predominantly from food. Further, ICdA and the Cadmium REACH Consortium asked for specific information from ECHA citing articles containing cadmium and the specific numbers of persons exposed so that specific levels of risks could be determined. The industry delegation pointed out that the main uses of cadmium and cadmium oxide were for nickel-cadmium batteries which are increasingly being utilized for industrial applications. ECHA personnel confirmed that the information contained in the REACH registration files would be most important in their ranking determinations.

Following the meeting of June 27<sup>th</sup>, ECHA published an "intermediate report" and issued a call for evidence regarding the need to classify and restrict cadmium and cadmium compounds, and most specifically cadmium-containing pigments. While this intermediate report did take into account some of the information provided by industry, it did not develop the specific risk scenario requested by industry and did not contain any information from downstream users of plastics other than those utilizing the sixteen resins in which cadmium pigments have long been prohibited. Information was also presented in the intermediate report regarding uncontrolled sources of cadmium such as products in which cadmium may be present as an impurity. The report also appeared to imply that an even larger restriction on cadmium was feasible. ICdA responded to ECHA noting the poor quality of the intermediate report and repeating industry's earlier concerns. A letter was also sent to the Klaus Berend, the new Head of the European Commission's DG Enterprise and Industry, reiterating that cadmium pigments are classified as non-hazardous substances with no identified risks, and proposing that the entries for cadmium and cadmium compounds be split into three categories: cadmium metal, cadmium compounds classified as CMR, and cadmium compounds not classified.

ICdA Legal Initiative vs. European Commission regarding Directive 494/2011/EC – Christian Canoo reviewed the background and present status (Slides 33 through 36) of the lawsuit initiated by the International Cadmium Association and two cadmium pigment producers with regard to Directive 494/2011/EC which would have prohibited the use of cadmium and cadmium compounds in all plastics and not just the sixteen specific plastic resins prohibited in the original legislation. The lawsuit asked for annulment of 494/2011/EC, and has been in the High Court in Luxemburg since August 2011.



Dr. Canoo stated that, because of the ICdA lawsuit, the Commission had issued Directive 835/2012/EC in April 2012 as an amendment to Directive 494/2011/EC. The new Directive reverted to the cadmium pigment restrictions on the original sixteen resins, but also requested ECHA to initiate an Annex XV restriction dossier to examine the benefits of expanding those restrictions to all plastics with special attention to cadmium pigments in plastics. With the issuance of 835/2012/EC, the European Commission proposed to the High Court that legal action with respect to 494/2011/EC be terminated as having “no further interest.” However, ICdA and the two pigment producers voted to continue the case. An oral hearing on the case was held on June 27, 2013 at which the European Commission admitted that it had used the wrong procedures in developing 494/2011/EC; the judge hearing the case also repeated that there was a clear need for an adequate risk assessment on these applications before any restriction could be applied. The pigment manufacturers have also been invited to gather evidence of monetary damages such as lost sales as a result of the issuance of 494/2011/EC in case they wish to consider legal actions to recover such damages.

Finally, Christian Canoo reviewed the legal expenses incurred by the association with respect to the lawsuit. Legal expenses recorded in 2012 were 27,850 Euros. The remaining expenses, including those for the oral hearing through the final ruling are estimated to be approximately 25,000 Euros. In 2012, the ICdA Board had authorized continuation of the lawsuit based on an estimate of expenses of 30,000 + 10,000 Euros = 40,000 Euros total. Expected expenses are now estimated to be 53,000 Euros (27,850 + 25,000 = 52,850 Euros total). Dr. Canoo asked for a Board resolution to support this higher-than-expected 2012 legal expense with regard to the 494/2011/EC lawsuit. **Upon motion duly made, seconded and carried, the Board of Directors voted to support the 494/2011/EC Lawsuit expenses as outlined above.** He did add that, in the event of a favorable final ruling, the association and the pigment producers would be entitled to recover most of their incurred costs for the case.

Activities of the ICdA Health and Safety Committee – Christian Canoo and Patrick de Metz reviewed several aspects of the current activities of ICdA’s Health & Safety Committee. These are summarized in Slides 37 through 43 of Annex I attached. Activities discussed at the latest meeting of the committee on June 5, 2013 include an update of the ICdA guidance document, *Management of the Risk Related to the Chronic Occupational Exposure to Cadmium and Its Compounds* (ICdA/Eurometaux 2006); data collection of cadmium biological indicators under OCdBio-5; and discussion of the ICdA “Initiative 2017/2020” to meet challenging biological indicator objectives for occupationally-exposed cadmium workers. The Committee also agreed to organize the gathering of data on “respirable fraction” cadmium air concentration measurements from its European members beginning in the third quarter of 2013.

**Revision of the ICdA Guidance Document:** It was decided previously that ICdA should issue a simplified and updated version of the 2006 joint Eurometaux-International Cadmium Association document, *Management of the Risk Related to the Chronic Occupational Exposure to Cadmium and Its Compounds*. This revision would be intended to supply guidance to occupational medical doctors and plant managers to establish risk management practices such that cadmium exposure levels of all employees would fall below the cadmium-in-air default no effect level (DNEL) of 4 µg/m<sup>3</sup> and with revised allowable cadmium-in-blood levels.

**OCDBio Data Collection:** Dr. Canoo reviewed the data showing cadmium-in-blood and cadmium-in-urine levels of more than 2000 cadmium-exposed workers in Europe for the period from 2008 through 2012. These trends are shown in Slides 38 and 39 of Annex I attached, and show separate curves to indicate workers with levels either above 2 or above 5 µg/g creatinine in the case of cadmium-in-urine, and 2 or 5 µg/L in the case of cadmium-in-blood. Both sets of curves for both sets of parameters (CdU and CdB) exhibit clear downward trends over the time period from 2008 through 2012.

**The ICdA 2017/2020 Initiative:** The aim of this initiative would be a collective industry

commitment to achieve very low and very challenging biological indicator (CdB and CdU) levels for all workers occupationally exposed to cadmium. This objective would be achieved by further implementation of the 2013 revised ICdA Guidance Document. The specific goals envisioned for the European Cadmium Industry would be that 95% of European workers occupationally exposed to cadmium would achieve cadmium-in-urine levels below 2 µg/g creatinine by the end of 2017, and that 98% of those workers would achieve levels below 2 µg/g creatinine by the end of 2020.

**Workplace Respirable Fraction Air Monitoring:** Dr. Canoo noted that, in order for industry to demonstrate compliance with the DNEL of 4 µg/m<sup>3</sup>, measured as a respirable fraction, and the efficiency of its risk management systems, it must continue to exhibit improvements in the metrics which measure the health of occupationally-exposed workers. The CdB and CdU results obtained under the OCdBio Program have been very positive and encouraging, but Dr. Canoo noted that industry must also collect data on respirable cadmium-in-air levels and eventually must demonstrate that these values were decreasing in the workplace. To this end, the Health & Safety Committee has begun a campaign to collect respirable cadmium-in-air data along with total cadmium-in-air data from European plants with cadmium-exposed workers. The first set of data in this campaign is expected by the end of the third quarter in 2103. It was suggested that any existing guidance available to Member Companies regarding the measurement of respirable fractions be sent to all members in August or September to help everyone involved.

European Union's Water Framework Directive – Dr. Frank Van Assche reviewed the present status of the EU's Water Framework Directive, its requirements with respect to cadmium, and the need for ICdA to participate in an on-going study to assess the effects of certain factors on the ecotoxicity of cadmium in waters which might then lead to a reassessment of a bioavailability correction for cadmium in regulatory arenas. He noted that WCA Environment Limited in the United Kingdom was currently carrying out an extensive study on copper, nickel and zinc and their bioavailability, and that the cadmium portion of that study was approximately 18,000 Euros which is to be divided between costs in 2013 and 2014.

Dr. Van Assche noted that the purpose of the Water Framework Directive (2000/60/EC) is to protect inland surface waters, transitional waters, coastal waters and groundwater in the European Union. The Directive requires that the Commission establish Environmental Quality Standards (EQS) or safe concentrations for Priority Hazardous Substances (PHS). Under EU Directive 2008/105/EC, EU Member States must achieve certain EQSs for their inland waters. Cadmium is regarded as a Priority Hazardous Substance under the Water Framework Directive and its EQS levels have been established for various water hardness levels. The current EQS values for cadmium for various water hardness levels are summarized in Slide 46 of Annex I attached and range from 0.08 µg dissolved cadmium per liter for very soft waters (<40 mg CaCO<sub>3</sub>/L) to 0.25 µg dissolved cadmium per liter for hard waters (>200 mg CaCO<sub>3</sub>/L). These EQS values have also been used under REACH to derive the PNEC values for cadmium.

Frank Van Assche pointed out that these EQS values derived under the Water Framework Directive and utilized for the REACH PNEC values are not scientifically correct, and do not take into account other factors, such as dissolved organic carbon and pH, which may have an effect on cadmium ecotoxicity. His proposal is that a literature review be conducted to determine the extent to which these parameters influence cadmium ecotoxicity, and to determine revised cadmium bioavailability correction factors for various geographical areas. **Upon motion duly made, seconded and carried, the Board of Directors voted to support the cadmium portion of the WCA Environment Limited program in the amount of 9,000 Euros in 2013 and 9,000 Euros in 2014.**

## **NEXT MEETING DATES**

The next General Assembly of Members of the International Cadmium Association is tentatively

scheduled for Thursday, October 10, 2013 in London, United Kingdom at a time and place to be announced. Some Board members suggested that a full day (e.g. Wednesday, October 9<sup>th</sup>) be utilized for the meeting rather than just half a day, and that perhaps one half day be devoted to informational reports and the other half be devoted to discussions and decisions regarding future association activities. Alternately, it was proposed that a full four-hour meeting be conducted rather than the three-hour meeting presently utilized. It was also agreed that the General Manager would conduct written consultations with the Board of Directors prior to the General Assembly to establish the format and content of the General Assembly meeting.

The next meeting of the ICdA Health and Safety Committee is proposed for early 2014. The next meeting of the North American Regulatory Affairs Committee is to be determined dependent upon interest and availability of committee members. The next meeting of the ICdA Board of Directors was tentatively proposed as a webinar-conference call in December 2013.

### **ADJOURNMENT**

With no further business before the Board of Directors, Chairman Mark Edwards adjourned the meeting at 1754 Hours (5:54 PM) Brussels Time.

Respectfully Submitted,

Approved,

Hugh Morrow  
Secretary, Pro-Tempore

Mark Edwards  
Chairman



## ICdA - Board meeting

July 25<sup>th</sup>, 2013, 4 pm

*For the meeting, link to*  
<https://www1.gotomeeting.com/join/617447184>

*For audio, dial +32 2 404 03 05, or national number,  
and Pin code 84414579#*

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### Agenda

- Introduction by the chairman & statement of Compliance
- Approval of the minutes - Board meeting July 18, 2012 + written consultations 2012
- Resignation and proposed new Board members
- Review of final P&L-2012 and forecast P&L-2013
- Regulatory affairs report North America
  - Review of TSCA Revision and TSCA Enhancement
  - Status of Cadmium in Consumer Products Issues
  - Follow-up of Revision of Cadmium IRIS File
- Regulatory affairs report International programs
  - UNEP/UNECE/SAICM
  - EM/NAMC Initiative on EU-USA Trade Negotiations
- Update on the EU-regulatory issues
  - REACH-developments and Authorization-procedure
  - REACH-developments and Restriction-procedure
  - Legal case (T-456/11): update
  - H&S committee (June 2013)
    - ✓ OCCBIO-S bio-monitoring campaign
    - ✓ Guidance revision
    - ✓ Initiative ICdA 2017/2020
- Next Meeting Date

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## STATEMENT OF COMPLIANCE

- The purpose of the meeting is to address, under the applicable confidentiality rules, issues concerning Cadmium and Cadmium compounds producers and importers and more particularly their obligations under the several regulations.
- The minutes kept during the meeting will have to reflect all significant matters discussed during the meeting.
- No discussions will be held, formally or informally, during specified meeting times or otherwise, involving, directly or indirectly, express or implicit agreements or understandings related to: (a) any company's price; (b) any company's terms or conditions of sale; (c) any company's production or sales levels; (d) any company's wages or salaries; (e) the division or allocation of customers or geographic markets; or (f) customer or suppliers boycotts; or (g) any disclosure of information which may affect applicable rules on Competition Law.
- The International Cadmium Association (ICdA), as a group will make no recommendations of any kind and will not try to reach any agreements or understandings with respect to an individual company's prices, terms or conditions of sale, production or sales levels, wages, salaries, customers or suppliers.

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## Approval of the Minutes – Board Webinar Meeting of 18 July 2012

- Call to order (9/11 directors attending or represented) and reminder of statement of Compliance
- Review and approval of the minutes of the Board meeting of April 7<sup>th</sup> 2011
- Membership report: EDI's application for membership is approved
- Review of the final accounts of 2011, together with forecasts years 2012 & following
- Review of European Cd-related dossiers:
  - ✓ ICdA Health & Safety Committee and OCdBIO reports
  - ✓ Cd REACH Consortium activities; follow-up of initialization of Authorisation and Restriction procedures
  - ✓ Legal case 494/2011; continuation of the case despite amendment announced
- Follow-up and proceedings of the Cadmium Conference in China
- Review of North-American regulations: TSCA, CPSC, IRIS, NA-Reg.Com.(B&C-reports)
- Update on the Cd-International issues: UNEP, SAICM, UNECE LRATP
- Cadmium market report
- Next Meeting: exchange of written comments on the resolutions to be proposed to the General Assembly on October 6, 2012

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# Membership report



## Current membership:

- |                         |  |
|-------------------------|--|
| 1. ACME Aerospace Inc.  | - Ni-Cd Battery manufacturer                 |
| 2. Accurec              | - Ni-Cd Battery recycler                     |
| 3. Black & Decker       | - Article-user > Ni-Cd Battery user          |
| 4. EnerSys / Gaz        | - Ni-Cd Battery manufacturer                 |
| 5. Floridienne Chimie   | - Cd compounds manufacturer                  |
| 6. Hoppecke             | - Ni-Cd Battery manufacturer                 |
| 7. Inmetco              | - Ni-Cd Battery recycler                     |
| 8. IZA                  | - Zinc Association representing Cd producers |
| 9. JMIA                 | - Japanese Association > Miners & smelters   |
| 10. James M Brown       | - Cd pigment manufacturer                    |
| 11. SN Plus             | - Cd-compounds for PhotoVoltaic applications |
| 12. Rockwood pigments   | - Cd pigment manufacturer                    |
| 13. SAFT Batteries      | - Ni-Cd Battery manufacturer & recycler      |
| 14. Sanyo               | - Ni-Cd Battery manufacturer                 |
| 15. SNAM                | - Ni-Cd Battery recycler                     |
| 16. First Solar         | - CdTe Solar Cell manufacturer               |
| > EDI – Sarp.Industries | - Ni-Cd Battery recycler                     |

No further contacts since Membership approval

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## Directors & Officers for 2013

- Mr Rolf Rodermund (Glencore) accepted to represent IZA on the ICdA Board; he will replace Mr Emil Josend (Boliden).
- Mr Benedict Janssens (Nyrstar) accepted to represent IZA on the ICdA Board; he will replace Mrs Anne Decker
- Proposal is made to formally confirm (+ communication to the OJ) the nomination of following Officers and Directors for 2013

|               |                   |                            |
|---------------|-------------------|----------------------------|
| Chairman      | Mark Edwards      | IZA (Teck Resources)       |
| Vice Chairman | Patrick de Metz   | SAFT S.A.                  |
| Vice Chairman | Laurent Smits     | Floridienne Chimie         |
| Director      | Benedict Janssens | IZA (Nyrstar)              |
| Director      | Rolf Rodermund    | IZA (Glencore)             |
| Director      | Howard Winbow     | JMB (UK) Ltd               |
| Director      | Mitsunori Takao   | Sanyo Electric Co., Ltd.   |
| Director      | Colin Thirlaway   | Black & Decker Corporation |
| Director      | Al Hardies        | INMETCO                    |
| Director      | Eric Nottez       | SNAM                       |
| Director      | Maxime Cossette   | SN Plus                    |

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## Review Final 2012–Accounts (un-audited)

| Final accounts 2012 - to be reviewed<br>(t. UK)       |              |             |            |
|---|--------------|-------------|------------|
|   | 2011 Audited | 2012 Budget | 2012 Final |
| <b>STAFFING</b>                                       |              |             |            |
| Staff & scientific support                            | 124,949      | 127,345     | 144,023    |
| Legal support   | 8,239        | 10,000      | 13,591     |
| Administration / accounting / secretariat             | 8,233        | 8,575       | 10,036     |
| <b>Total Staff Costs</b>                              | 152,221      | 145,920     | 167,650    |
| <b>OPERATIONS</b>                                     |              |             |            |
| Renting & other classical operational costs           | 2,552.4      | 26,667      | 26,755     |
| Meetings / travel & subsistence                       | 3,589.5      | 20,797      | 13,096     |
| <b>Total Operation Costs</b>                          | 6,141.9      | 47,464      | 39,851     |
| - Conference & other special projects e.g. legal case | 65,525       | 15,000      | 27,550     |
| <b>TOTAL EXPENSES</b>                                 | 261,938      | 208,384     | 235,051    |
| Membership fees                                       | 177,152      | 154,000     | 159,047    |
| Other   | 4,241.7      | 1,200       | 2,544      |
| <b>TOTAL INCOME</b>                                   | 210,569      | 185,200     | 191,591    |
| <b>BALANCE</b>  | -62,369      | -23,184     | -43,460    |
| <b>SURPLUS/(LOSS) BROUGHT FORWARD</b>                 | 18,553.2     | 123,163     | 123,163    |
| <b>SURPLUS/(LOSS) CARRIED FORWARD</b>                 | 123,163      | 100,079     | 79,703     |

\* Reviewed by Deloitte-touche-rohmatsu

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## Review Final 2012–Accounts (un-audited)

| Final accounts 2012 - to be reviewed<br>(t. UK)       |              |             |            |
|---|--------------|-------------|------------|
|   | 2011 Audited | 2012 Budget | 2012 Final |
| <b>STAFFING</b>                                       |              |             |            |
| Staff & scientific support                            | 124,949      | 127,345     | 144,023    |
| Legal support   | 8,239        | 10,000      | 13,591     |
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| <b>TOTAL INCOME</b>                                   | 210,569      | 185,200     | 191,591    |
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| <b>SURPLUS/(LOSS) BROUGHT FORWARD</b>                 | 18,553.2     | 123,163     | 123,163    |
| <b>SURPLUS/(LOSS) CARRIED FORWARD</b>                 | 123,163      | 100,079     | 79,703     |

\* Reviewed by Deloitte-touche-rohmatsu

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## Review P&L 2013 –forecast vs. budget

| P&L 2013 - Forecast vs. Budget July 2013 (EUR) |                     |             |                  |
|--|---------------------|-------------|------------------|
|  | 2012 Final Forecast | 2013 Budget | 2013 H1 Forecast |
| <b>STAFFING</b>                                |                     |             |                  |
| Staff & scientific support                     | 144,023             | 138,202     | 138,202          |
| Legal support                                  | 13,881              | 7,578       | 8,578            |
| Administration / accounting / secretariat      | 10,026              | 8,575       | 8,575            |
| <b>Total Staff Costs</b>                       | 167,930             | 154,354     | 155,354          |
| <b>OPERATIONS</b>                              |                     |             |                  |
| Renting & other classical operational costs    | 28,755              | 25,541      | 25,541           |
| Meetings / travel & subsistence                | 13,098              | 15,545      | 15,545           |
| <b>Total Operation Costs</b>                   | 39,853              | 41,086      | 41,086           |
| - Special projects e.g. Legal case             | 27,850              | 12,190      | 25,000           |
| <b>TOTAL EXPENSES</b>                          | 235,633             | 207,630     | 221,440          |
| Membership fees                                | 182,047             | 191,188     | 201,499          |
| Other  | 2,544               |             | 18,700           |
| <b>TOTAL INCOME</b>                            | 191,591             | 191,188     | 220,199          |
| <b>BALANCE</b>                                 |                     |             |                  |
| SURPLUS/ (LOSS) BROUGHT FORWARD                | -44,039             | -16,702     | -2,541           |
| SURPLUS/ (LOSS) CARRIED FORWARD                | 79,313              | 8,2431      | 76,992           |

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## Regulatory Affairs Report North America and International July 2013

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## North American Regulatory Issues

- ❑ **Toxic Substances Control Act (TSCA)**
  - Revision of TSCA
  - Enhancement of TSCA
- ❑ **Cadmium in Consumer Products and Particularly Children's Jewelry**
  - CPSC and EPA Actions
  - ASTM Voluntary Standard
  - State and Provincial Actions
- ❑ **Integrated Risk Information System (IRIS) Cadmium Update**

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## Revision of TSCA

- ❑ **Lautenberg Democratic Bill S. 696** reintroduced in April 2013 – No Changes from His 2011 and 2012 Bills
- ❑ **Bipartisan Lautenberg-Vitter Bill S. 1009** Introduced in May 2013 – Large Changes
- ❑ **Senator Frank Lautenberg Dies on 3 June 2013**
- ❑ **Democrats** in Senate Want to Enact S.696 in Honor of Lautenberg
- ❑ **Republicans** in Senate Will Only Work on the Bipartisan Bill S. 1009
- ❑ **Hearings Held in US House Covering:**
  - Registration of 'New' Chemicals
  - Confidential Business Information

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## Enhancement of TSCA

- ❑ **2012 Inclusion of All Cadmium-Containing Substances** in Consumer Products to Priority Testing List under TSCA Section 4(e)
- ❑ **Issuance of Dec 2012 Final Rule** under TSCA Section 8(d) to Provide Copies of Studies on Cd in Consumer Products
- ❑ **Withdrawal of Final Rule in Jan 2013** After Widespread Industry Opposition
- ❑ **ICdA Meeting with EPA on 21 Feb 2013** to Share Information on Cadmium in Products and Preclude Future Rules

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## ICdA Meeting with EPA OPPT

- ❑ Canoo, Spirlet, Morrow, & Bergeson Met with Top Management at OPPT
- ❑ **EPA Concerns: Cd in Consumer Products**
  - Cadmium in Plastics, Cadmium in 'Shrek' Glasses, Minor and 'Unintended' Consumer Applications
- ❑ **ICdA Presentations:**
  - ICdA and The Cadmium REACH Consortium
  - Applications for Cadmium in Products
  - Information in the Cadmium REACH Data
- ❑ **Future Actions:**
  - Information on Plastics in Which Cadmium is Used
  - Organize Webinar to Share Cadmium REACH Data
  - Information on Possible 'Unintended' Cd Uses

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## Cadmium in Consumer Products

- ❑ **2010 Sierra Club Petition to EPA & CPSC**
- ❑ **Granted by EPA**, pending Voluntary Standard
- ❑ **ASTM F2923-11:** Adopted in 2012
  - 75 ppm Maximum Soluble Cd in Surface Coatings
  - 300 ppm Maximum Total Cd in Substrates
  - If Total > 300 ppm, Maximum Soluble < 200 ppm
- ❑ **California Center for Environmental Health (CEH)** and 20 Suppliers Agree to Limit of 300 ppm Total Cadmium
- ❑ **Sierra Club Petition Denied by CPSC**
- ❑ **States and Provinces: Individual Laws**
- ❑ **FJATA Working for Uniform Standards**

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## Update of EPA IRIS Cadmium File

- ❑ Last Full Toxicological Review in 1999
- ❑ Cadmium Listed as Priority Pollutant in 2012 But No Draft Revision Yet Issued
- ❑ IRIS Review Procedure Has Been Under Attack (Arsenic), NAS Review Held
- ❑ NAMC and Metals Associations Met with EPA/NCEA on 12 June 2013
  - Presentations by Ni, Mn, Mo, Sb and Cu Groups
  - Discussions of Industry Objections to IRIS Profiles – Bioavailability, REACH Data, Specific Modeling
  - IRIS/NCEA Promise to Issue Update Schedule in the Next Two Months

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## International Regulatory Issues

- ❑ United Nations Economic Commission for Europe (**UNECE**) Long Range Transboundary Air Pollution (**LRTAP**) Heavy Metals Protocol for Pb, Cd and Hg
- ❑ United Nations Environment Program (**UNEP**) Heavy Metals Programs on Lead and Cadmium
- ❑ Strategic Approach to International Chemicals Management (**SAICM**)
- ❑ Transatlantic Trade and Investment Partnership (**TTIP**) Between USA and EU

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## UNECE - LRTAP Heavy Metals Protocol

- ❑ Proposed Amendments Finalized in Dec 2012
  - Coordinate HM and Gothenburg Protocols (PM)
  - Introduce Hg Product Prohibitions Consistent with UNEP INC on Hg. No Cd Product Prohibitions.
- ❑ BAT Guidance Document on Heavy Metals Emissions Replaces Annex III Requirements
- ❑ Introduce Flexibility to Increase Ratifications in Eastern Europe, Central Asia and the Caucasus
- ❑ Canada and USA Adopt Different Positions for Consistency with National Laws
- ❑ EMEP: Cadmium Emissions & Depositions Have Decreased 50%-60% from 1990 to 2010

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## UNEP Program on Cadmium

- ❑ No Further Work on 2010 Scientific Review on Cadmium Despite Objections
- ❑ UNEP DTIE Reports on Trade in Cadmium Products Not Revised
- ❑ GC 27 in Nairobi 2013 Cd Conclusions
  - Environmentally Sound Management (ESM) of Nickel-Cadmium Batteries Throughout Life Cycle
  - Global VOLUNTARY Partnership on Cadmium with Governments, IGOs and NGOs, Subject to Budget
  - Encourages Information on Cadmium Emissions Abatement and Cadmium Substitution in Products

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## SAICM Emerging Policy Issues

- ❑ International Conference on Chemicals Management (ICCM3) Sept 2012 Nairobi
- ❑ Concerns are Funding, Duplication of Efforts, Over-lapping Jurisdictions
- ❑ Emerging Policy Issues
  - Lead in Paint – Eliminate Pb in Paint by 2018
  - Chemicals in Products – Information and Labeling
  - Hazardous Substances in Electrical/Electronic
  - Nanotechnologies and Nanomaterials
  - Proposed Work on Endocrine Disrupting Chemicals
  - Little Direct Reference to Cadmium in Products

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## Position Paper on USA-EU TTIP

### □ Joint Statement by Eurometaux and NAMC to DG Trade and US Dept of Commerce

- Allow Industry Participation in Negotiations
- Will Not Affect Existing Legislation, Only Considerations for Future Joint Legislation
- Exchange and Information Sharing – REACH Data
- Common EPA-ECHA Principles for Prioritization of Chemicals for Future Risk Review and Assessment
- Harmonization on Chemical Classification
- ICdA Supports Joint EM-NAMC Statement

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## European programs report July 2013

- REACH Cadmium
  - Registration
  - Authorisation procedure
  - Restriction procedure
- Legal case Reg. 494/2011/EU
- H&S committee

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## I – REACH Cadmium Consortium

### a) Registered substances (status May 2013)

|    | Name  | EINECS    | Lead Registrant       |
|----|---|-----------|-----------------------|
|    | <i>Substances</i>                               |           |                       |
| 1  | Cadmium metal                                   | 231-152-8 | Xstrata               |
| 2  | Cadmium oxide                                   | 215-146-2 | La Floridienne Chimie |
| 3  | Cadmium hydroxide                               | 244-168-5 | SAFT                  |
| 4  | Cadmium nitrate                                 | 233-710-6 | La Floridienne Chimie |
| 5  | Cadmium chloride                                | 233-296-7 | SNPlus                |
| 6  | Cadmium carbonate                               | 208-168-9 | Rockwood Pigments     |
| 7  | Cadmium sulphide                                | 215-147-8 | SNPlus                |
| 8  | Cadmium S <sub>2</sub> Se (red)                 | 261-218-1 | Rockwood Pigments     |
| 9  | Cadmium Zn <sub>3</sub> S <sub>2</sub> (yellow) | 232-466-8 | Rockwood Pigments     |
| 10 | Cadmium telluride                               | 215-149-9 | SNPlus                |
|    | <i>Intermediates</i>                            |           |                       |
| 1  | Cadmium Sulphate                                | 233-331-6 | SNPlus                |

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## I - REACH Regulation:

### b) Authorisation and Restriction

REACH regulation requires implementation of “authorisation” or “restriction” procedures for substances that may generate unacceptable risks in certain uses.

□ Authorisation (usually CMR, PBT, vBvT) procedure starts with:

- Intention declared by a MS or the COM (ROI) to list a particular substance for the Authorisation-procedure, followed by the
- Issuance of an Annex XV dossier (Authorisation) –well-defined format documenting the (dispersive) uses and associated risks for human health and the environment
- After Public Consultation, the REACH Committee have to agree to incorporate the substance in the SVHC “Candidate List”
- Eventually, after prioritization by ECHA-services, the proposal/decision (can be several years after) is made to start the Authorization procedure: publication to the OJ, with an Application Date(AD) and Sunset Date (SSD)

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## b) Authorisation: Cd & CdO

- ❑ Earlier in 2013, Sweden announced its intention to propose Cadmium and Cadmium Oxide for the “SVHC - Candidate List” and to post Annex XV-dossiers
- ❑ A Public Consultation was opened from 4 March to 18 April
- ❑ ICdA members and staff:
  - Prepared and submitted, during the Public Consultation, extensive comments to the Swedish Annex XV-dossiers to challenge some of the allegations and to also introduce early in the process, elements for subsequent lower prioritization
  - Visited, with support of EPPA consult. (cf. agreed budget item), Member States in order to personally present and try to convince them of the validity of some of our key arguments
- ❑ End of June, the Reach-Committee (MSC) agreed to add Cadmium and Cd Oxide to the “SVHC - Candidate List”

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## ... About the Annex XV dossiers submitted by Sweden -SVHC

- The 2 Swedish Annex XV-dossiers start with the proposal to identify both substances:
  - As meeting the criterion of Article 57 (a) of the REACH Regulation because of its **classification as a Category 1B Carcinogen** and
  - As meeting the criterion of Article 57 (f) of REACH due to their adverse effects on kidney and bone tissue after repeated exposure and the **related classification STOT RE1** (for specific target organ toxicity after repeated exposure)

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## Concerns developed in the Annex XV dossiers

- First Major Concern: General population exposed and potentially at risk through Environmental Exposure
- Second Major Concern: General population exposed and at risk due to cadmium presence in Manufactured Articles
- Third Major Concern: Occupational exposure of workers to cadmium
- In an appendix, it is even alleged that cadmium might induce some 'endocrine disrupting' effects

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## ICdA comments were structured in order...

- To respond to each of the incorrectly documented or undocumented allegations
- To stress the inadequacy of the Authorisation procedure to reduce, minimize or eliminate any of the alleged risks
- To provide elements that might be taken into account or otherwise prove to be mitigating factors in a subsequent prioritization phase:

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## Summary of ICdA comments

- No discussion about the 57 (a) criterion, but we challenged the 57 (f) criterion due to the inadequacy of CdU-data at  $<1\mu\text{g Cd/g creatinine}$  levels for the general population as a reliable indicator of adverse kidney effects
- Cadmium exposure to the general population through the main transfer pathways (foods) is lower than the WHO JECFA standards and even lower than the more conservative EU (EFSA) standards
- Cadmium ingested by the general population is derived from the food chain, essentially due to (1) cadmium's presence in fertilizers and (2) atmospheric deposition of cadmium from fossil fuel combustion. The Authorization procedure will have no effect at all on these principal exposure routes
- Examples of uses were commented on or challenged when incorrectly referenced e.g. some 'Intermediate uses', automobile brake pads, portable Ni-Cd batteries, ...
- 200,000 workers are claimed to be occupationally exposed to cadmium in the EU. ICdA estimates the number today at 2500-3500, for industries intentionally utilizing cadmium in their facilities. We claim those workers are adequately protected against cadmium exposure risks (cfr. OCdBIO data).
- Comments on insufficiently-documented alleged 'Endocrine Disrupting Effects'

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## REACH Cadmium:

### c) Authorisation and Restriction -

- **Restrictions:** former restrictions were automatically included in REACH - Annex XVII
  1. When a new restriction-in-use is proposed, the MS or COM prepares an Annex XV (restriction) dossier documenting the need for such restriction on basis of (new) evidence of risk to human health or environment.
  2. For cadmium pigments, an Annex XV dossier is currently being prepared by ECHA on request of the COM (cfr. Amendment on reg. 494/2011).
  3. ICdA and the Cadmium REACH Consortium seek to interact with ECHA services to provide the needed information for an Annex XV dossier. A meeting was held on 27 June 2013 in Helsinki for this purpose.

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## Summary of Helsinki Meeting with ECHA

- > Well attended meeting:
  - > 6 ECHA officers including two Heads-of-Units (D3-Matti Vainio and D2-Elina Karhu)
  - > Industry delegation: ICdA, EM, EPPA, pigment sector representative and battery-sector representative
- > Introduction of ICdA and the Cadmium REACH Consortium and Summary of our Basic Concerns:
  - > Consideration of cadmium and compounds as one group yet with different hazard classifications
  - > Selective reference to some phrasing of the 1988 –Council Resolution for an EU Cadmium Action Programme
  - > Threshold status advanced by SCOEL but generally ignored by ECHA
- > Restriction of Cd-pigments in 16 plastics is applicable to Cd-pigments
  - > Current uses of Cd-pigments are difficult to trace in detail; characteristics are described
  - > We have not encountered any risk-scenarios
  - > Registration dossiers were filed in May 2013
  - > KEMI appears to have initiated an Annex XV for restriction of Cd-pigments in artist-paints
- > Authorisation procedure started by incorporating Cd and CdO in the candidate list
  - > Cd and CdO are classified CMR, hence meeting criterion 57 (a) for candidate listing
  - > Industry does not agree that Authorisation procedure is appropriate for reducing General Population exposure to cadmium through food
  - > Industry asks for specific information to be used (examples of articles, number of workers...)
  - > Main uses of cadmium and cadmium oxide are in the battery sector (e.g. industrial batteries)
  - > ECHA confirmed that the registration files will be key information in their ranking exercise

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## Follow-up of the meeting with ECHA

- > Intermediate report has been published by ECHA + ‘call for evidence’
  - > Some information we gave has been taken into account
  - > No detail at all about the identified risk
  - > Lack of direct information from downstream-users in plastics other than the 16 restricted resins
  - > Download of information from the Classification-inventory (uncontrolled sources)
  - > Intermediate assumption that an enlarged restriction is feasible
- > A letter has been sent to ECHA to comment the poor « Intermediate report » and to repeat our expectations from the agency
- > A letter will be sent to the Commission (new Head-of-unit Klaus Berend)
  - > No risks identified for Cd-pigments (non hazardous substances)
  - > Proposal to start the process of splitting the entry 23: cd-metal, cd-compounds CMR, cd-compounds not classified

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## II - ICdA legal case vs. Commission concerning Reg. 494/2011/EU

- In the regular process of transferring recommendations from the former regulation system (Risk Assessment and Risk reduction measures) to the REACH regulation, the Commission had to propose and document an amendment, to be referred to as 'Annex XVII entry'
  - A draft proposal was presented to the CARACAL meeting of June 2010 and accepted by Industry
  - The publication of the voted amendment in the Official Journal in May 2011 was quite different

### Consequence of 494/2011/EU :

Cadmium and compounds were prohibited in all plastics

- starting from December 11th 2011

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## II - ICdA legal case vs. Commission T-456/11 for annulment of Reg. 494/2011/EU

- ICdA and two cadmium pigment manufacturers initiated, due to the urgency and importance for the entire Cadmium industry, a legal action with the High Court in Luxemburg:
  - Annulment action of Reg.494/2011
  - Submitted on our behalf by legal representatives: Field Fisher Waterhouse, Bergeson & Campbell and now Steptoe & Johnson
    - Expense of 40.000 € (1/3 share) was agreed for 2011
    - Continuation was decided in July 2012, with forecast expense
      - Of 30000 €, (actually 27850 €), in 2012
      - And another 10000 €, in 2013

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## II - ICdA legal case vs. Commission : T-456/11

The current situation is the following:

- an amendment to EU 494/11 was proposed and adopted by the REACH Committee, in April 2012: >> EU 835/2012
- It reverted back to cadmium pigment restrictions in original 16 resins
- In the same amendment EU 835/2012, ECHA was requested to start an Annex XV-Restriction dossier
  - ✓ Looking at the benefits of widening the Restriction to all plastics
  - ✓ With a special attention to Cd-pigments used in plastics
- Commission informed the Court and suggested that we cease our legal action (no interest anymore); the 3 applicants responded negatively
- An 'Oral Hearing' held on 27 June 2013. The Hearing went well:
  - ✓ Commission's admission of having used the wrong procedure (Art. 137)
  - ✓ Clear reference to "the need for Risk Assessment before any Restriction"
- A follow-up letter will be sent to the Court
- Pigments manufacturers are invited to gather evidence of damages (lost sales) in case they wish to consider actions for damages

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## II - ICdA legal case vs. Commission: T-456/11

- The legal expenses recorded in 2012 = 27.850 €
  - The remaining expenses, including the 'Oral Hearing' costs till the final ruling are estimated at ~25.000 €
  - Last year, the continuation of the case was decided on the basis of an estimate of 30000 + 10000 €
- 
- We ask for the support of the Board for this higher expenditure (53000 € vs. the previously estimated 40000 €)
  - In case of positive ruling, we are entitled to recover most of the incurred costs for the case

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### III -ICdA H&S Committee

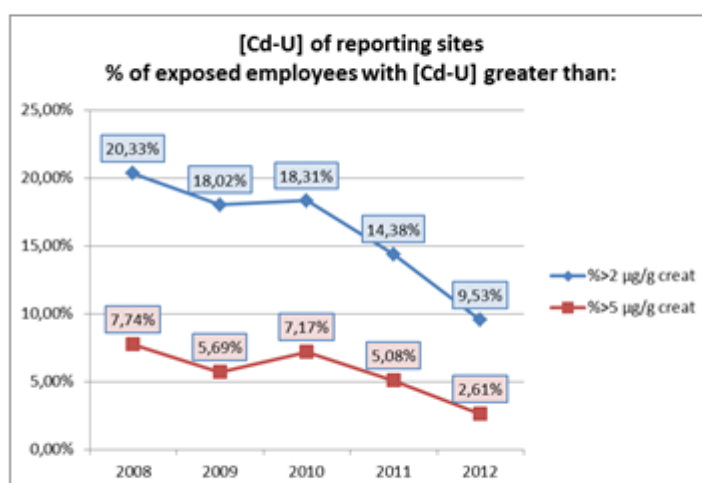


- Agenda last meeting –June 5th-:  
**“Risk control improvements & commitment”**
  - Update ICdA guidance document: *Management of the risk related to the chronic occupational exposure to cadmium and its compounds* (ICdA/Eurometaux 2006)
  - OCdBio-5 data-collection: report and recommendations by Prof Bernard
  - Discussion of an “initiative 2017/2020”: a collective commitment targeting challenging objectives

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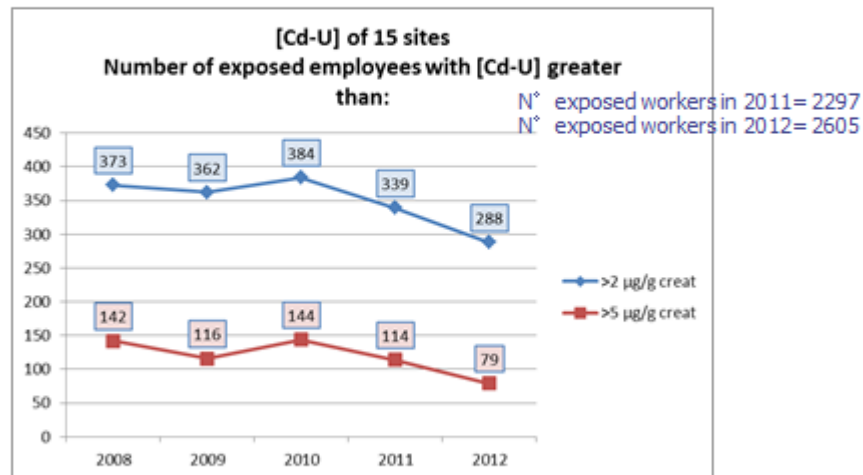
### OCdBio data set (2008-2012)



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## OCdBio data set (2008-2012)



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## Actions agreed...

For a transparent communication about our management system and its efficiency, it was agreed:

- To edit, end of July, the revised "Guidance ICdA"
- To promote, inside and outside the membership, the "Initiative ICdA 2017/2020"
- To organize "respirable fraction measurements" on our sites during Q3-2013

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## (1) Revised « Guidance ICdA »

It was decided some time ago to issue a simplified and updated version of our former « EM-ICdA Guidance on Risk Management of Cadmium »

The revision aims at supplying guidance to occupational medical doctors and management of plants with the purpose of bringing cadmium exposure of all employees

- With reference to the now generalised (REACH registrations) DNEL of 4 µg/m<sup>3</sup>
- With revised targets for Cd<sub>B</sub>

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## (2) The ICdA- 2017/2020 initiative

- **Aim**
  - Not an individual but **a collective commitment** to achieve challenging targets in terms of biomonitoring results of the workers potentially exposed to cadmium
- **How ?**
  - Further implementation of the revised ICdA guidance (2013) with the goal of further reducing occupational exposure of their employees
- **Goal:**
  - **95% of European employees** subject to medical surveillance and bio-monitoring as required by their occupational medical doctor, below the urinary cadmium level of: **2 µg Cd/g creatinine by the end of 2017,**
  - **98% of European employees** subject to medical surveillance and bio-monitoring as required by their occupational medical doctor, below the urinary cadmium level of: **2 µg Cd/g creatinine by the end of 2020,**

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### (3) Workplace air monitoring

In order to show compliance with the DNEL (respirable) of **4µg/m<sup>3</sup>** and efficiency of our management system, we will have to be able to show results and improvements

- We are on a good track with our database 'OCdBio' but we need to further refine according to best practice
- We need to start a systematic measurements campaign of cadmium-in-air >> « **Respirable fraction** » vs total/inhalable fraction
- A first data-collection is expected by end of Q3-2013

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### Other business (1)

- Follow-up on Water Framework Directive (WFD) and a suggestion to finance (18000 €) the cadmium-specific part of the study at WCA-Environment (UK)

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## Water Framework Directive (2000/60/EC)

### □ Aim: Art(1):

Protection of inland surface waters, transitional waters, coastal waters and groundwater

### □ How:

- ✓ The WFD requires from the EC to establish EQS (= safe concentration) for Priority substances and Priority Hazardous Substances (PHS)
- ✓ MS have to achieve a good chemical and ecological status of their inland waters (cfr EQS) (EQS Directive (2008/105/EC))

**→ Cd is PHS under WFD and EQS is hardness-corrected**

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## Current Cadmium EQS under WFD

| AA-EQS for inland surface waters<br>(lakes and rivers)<br>(µg Dissolved Cd/L) |
|---|
| <=0.08 (H: <40 mg CaCO3/L)  |
| 0.08 (H: 40 to < 50 mg CaCO3/L)   |
| 0.09 (H: 50 to < 100 mg CaCO3/L)  |
| 0.15 (H: 100 to 200 mg CaCO3/L)   |
| 0.25 (H: >= 200 mg CaCO3/L)   |

**→ This EQS has also been used under REACH (=PNEC for Cd)**

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# Proposal of WCA-Environment

EQS derived under WFD (= PNEC used under REACH) is **not scientifically** correct → other factors like Dissolved Organic Carbon (DOC) and pH may have an influence on cadmium ecotoxicity

- proposal: literature review to determine if those parameters influence Cd ecotoxicity
- assess the likely level of regulatory support for the adoption and use of an amended (bio)availability correction for cadmium in Europe, Australia, Canada and the Far East.

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## Next meetings

- The next GA is fixed on October 10<sup>th</sup>, London
- The next H&S-EU meeting is proposed for early 2014
- The next H&S-NA meeting is still to be determined
- The next Board meeting:
  - Written exchange before the GM ?
  - Next webinar-meeting in December?

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## GLOSSARY OF ACRONYMS AND ABBREVIATIONS

|                |  |
|----------------|--|
| <b>ACGIH</b>   | American Conference of Governmental Industrial Hygienists                  |
| <b>AD</b>      | Application Date or Effective Date under EU REACH Directive                |
| <b>AGS</b>     | Ausschuss für Gefahrstoffe (German Committee on Hazardous Substances)      |
| <b>ASTM</b>    | American Society for Testing and Materials International                   |
| <b>ATSDR</b>   | Agency for Toxic Substances and Disease Registry (USA)                     |
| <b>BAT</b>     | Best Available Technology  |
| <b>BI</b>      | Biological Indicator(s)  |
| <b>CARACAL</b> | Competent Authorities for REACH and Classification, Labeling and Packaging |
| <b>CdB</b>     | Cadmium in Blood   |
| <b>CDC</b>     | Center for Disease Control (USA)   |
| <b>CdU</b>     | Cadmium in Urine   |
| <b>CEH</b>     | Center for Environmental Health (California USA)                           |
| <b>ChAMP</b>   | Chemicals Assessment and Management Program (USEPA)                        |
| <b>COM</b>     | Council of Ministers (EU)  |
| <b>CMR</b>     | Carcinogenic, Muta-genetic and Reproductive Toxicant                       |
| <b>CPSC</b>    | Consumer Product Safety Commission (USA)                                   |
| <b>CRT</b>     | Cathode Ray Tube   |
| <b>CSA</b>     | Chemical Safety Assessments  |
| <b>CSR</b>     | Chemical Safety Report   |
| <b>D</b>       | Democrat (USA Political Party)   |
| <b>DG</b>      | Directorate General of the European Commission                             |
| <b>DEQ</b>     | Department of Environmental Quality  |
| <b>DNEL</b>    | Default No Effect Level  |
| <b>DOC</b>     | Dissolved Organic Carbon   |
| <b>DTIE</b>    | Division of Trade, Industry and Economics (of UNEP)                        |
| <b>DU</b>      | Downstream User  |
| <b>E</b>       | Environment  |
| <b>EB</b>      | Executive Body (of the UNECE LRTAP Treaty)                                 |
| <b>EC</b>      | European Commission  |

|                |  |
|----------------|--|
| <b>ECHA</b>    | European Chemicals Agency  |
| <b>EEE</b>     | Electrical and Electronic Equipment                                    |
| <b>EFSA</b>    | European Food Safety Authority of the European Union                   |
| <b>EINECS</b>  | European Inventory of Existing Chemical Substances                     |
| <b>ELV</b>     | Emission Limit Value   |
| <b>EM</b>      | Eurometaux   |
| <b>EMEP</b>    | European Monitoring and Evaluation Programme of UNECE LRTAP            |
| <b>EPA</b>     | Environmental Protection Agency (United States)                        |
| <b>EQS</b>     | Environmental Quality Standards in EU's Water Framework Directive      |
| <b>ERB</b>     | Exposure-Risk-Relationship (Germany)                                   |
| <b>EU</b>      | European Union   |
| <b>FAO</b>     | Food and Agricultural Organization (United Nations)                    |
| <b>FJATA</b>   | Fashion Jewelry and Accessories Trade Association (USA)                |
| <b>GA</b>      | General Assembly of Members of the International Cadmium Association   |
| <b>GACT</b>    | Generally Available Control Technology                                 |
| <b>GC</b>      | Governing Council (of the United Nations Environment Program)          |
| <b>GES</b>     | Generic Exposure Scenario  |
| <b>GHS/CLP</b> | Globally Harmonized System of Classification, Labeling and Packaging   |
| <b>HH</b>      | Human Health   |
| <b>HM</b>      | Heavy Metals   |
| <b>H&amp;S</b> | Health and Safety Committee of International Cadmium Association       |
| <b>IARC</b>    | International Agency for Research on Cancer                            |
| <b>IBRC</b>    | International Battery Recycling Congress                               |
| <b>ICCM</b>    | International Conference on Chemicals Management (of SAICM)            |
| <b>ICMM</b>    | International Council on Metals and Mining                             |
| <b>ICdA</b>    | International Cadmium Association                                      |
| <b>IFCS</b>    | Intergovernmental Forum for Chemical Safety                            |
| <b>IGO</b>     | Intergovernmental Organization   |
| <b>ILA</b>     | International Lead Association   |
| <b>INC</b>     | Intergovernmental Negotiating Committee of UNEP Mercury Program        |
| <b>i-OEL</b>   | Inhalable Occupational Exposure Limit (Based on Respirable Fraction)   |
| <b>IOMC</b>    | International Organization for Management of Chemicals                 |
| <b>IPSRM</b>   | International Panel for Sustainable Resource Management (of UNEP)      |
| <b>IRIS</b>    | Integrated Risk Information System (USEPA)                             |
| <b>ISO</b>     | International Standards Organization                                   |
| <b>IUCLID</b>  | International Uniform Chemical Information Database                    |
| <b>IZA</b>     | International Zinc Association   |
| <b>IZA-E</b>   | International Zinc Association - Europe                                |
| <b>JECFA</b>   | Joint Expert Committee on Food Additives (World Health Organization)   |
| <b>JMIA</b>    | Japan Mining Industry Association                                      |
| <b>KEMI</b>    | Swedish Chemicals Agency   |
| <b>LRTAP</b>   | Long Range Transboundary Air Pollution Treaty under UNECE              |
| <b>MAK</b>     | Maximale Arbeitsplatzkonzentrationen = Maximum Workplace Concentration |
| <b>MG</b>      | Microglobulin  |

|                 |   |
|-----------------|---|
| <b>MS</b>       | Member States (of the European Union)   |
| <b>MSW</b>      | Municipal Solid Waste   |
| <b>NAMC</b>     | North American Metals Council   |
| <b>NCEA</b>     | National Center for Environmental Assessment (of U.S. EPA)  |
| <b>NCOM</b>     | Nordic Council of Ministers   |
| <b>NESHAPS</b>  | National Emission Standards for Hazardous Air Pollutants (USEPA)  |
| <b>NGO</b>      | Non-Governmental Organization   |
| <b>NOEL</b>     | No Observable Effect Level  |
| <b>NTP</b>      | National Toxicology Program (USA)   |
| <b>OCdBio</b>   | Occupational Cadmium Biological Indicators Program  |
| <b>OECD</b>     | Organization for Economic Cooperation and Development   |
| <b>OJ</b>       | <i>Official Journal</i> of the European Commission  |
| <b>OPPT</b>     | Office of Pollution Prevention and Toxic Substances (USEPA)   |
| <b>OSPAR</b>    | Oslo-Paris Convention   |
| <b>PBT</b>      | Persistent, Bioaccumulative and Toxic   |
| <b>PHS</b>      | Priority Hazardous Substances under EU's Water Framework Directive  |
| <b>P&amp;L</b>  | Profits and Losses  |
| <b>PNEC</b>     | Predicted No-Effect Concentration   |
| <b>PRBA</b>     | Portable Rechargeable Battery Association (USA)   |
| <b>PRTR</b>     | Pollutant Release and Transfer Registry   |
| <b>PTMI</b>     | Provisional Tolerable Monthly Intake (WHO JECFA)  |
| <b>PTWI</b>     | Provisional Tolerable Weekly Intake (WHO JECFA)   |
| <b>PVC</b>      | Polyvinylchloride   |
| <b>R</b>        | Republican (USA Political Party)  |
| <b>RA</b>       | Risk Assessment   |
| <b>RBRC</b>     | Rechargeable Battery Recycling Corporation (North America)  |
| <b>RBT</b>      | Retinol Binding Protein   |
| <b>REACH</b>    | Registration, Evaluation & Authorization of Chemicals (EU)  |
| <b>RIP</b>      | REACH Implementation Projects   |
| <b>ROI</b>      | Registration of Intention (EU)  |
| <b>RPA</b>      | RPA Ltd. (formerly Risk Policy Analysts), Consultant for EU   |
| <b>RRS</b>      | Risk Reduction Strategy (European Commission)   |
| <b>SAICM</b>    | Strategic Approach to International Chemicals Management  |
| <b>SCOEL</b>    | Sub-Committee on Occupational Exposure Levels   |
| <b>SEE</b>      | South East Europe   |
| <b>SGCDpro</b>  | Society of Glass & Ceramic Decorated Products (USA)   |
| <b>SIEF</b>     | Substances Information Exchange Forum   |
| <b>SMM</b>      | Shanghai Metals Market (China), Co-Organizer of the Eighth International Cadmium Conference in Kunming, China (November 2011) |
| <b>SSD</b>      | Sunset Date under EU REACH Directive  |
| <b>STOT RE1</b> | Specific Target Organ Toxicity after Repeated Exposures (EU REACH Classification)   |
| <b>SUMDOC</b>   | Summary Document  |
| <b>SVHC</b>     | Substance of Very High Concern (EU)   |
| <b>TCNES</b>    | Technical Committee on New and Existing Chemicals   |

|              |  |
|--------------|--|
| <b>TFHM</b>  | Task Force on Heavy Metals (UNECE LRTAP Heavy Metals Protocol) |
| <b>TRGS</b>  | Technical Rules for Hazardous Substances (Germany)             |
| <b>TSCA</b>  | Toxic Substances Control Act (United States)                   |
| <b>TTIP</b>  | Transatlantic Trade and Investment Partnership (USA-EU)        |
| <b>UCL</b>   | Universite Catholique Louvain (Belgium)                        |
| <b>UNECE</b> | United Nations Economic Commission for Europe                  |
| <b>UNEP</b>  | United Nations Environment Programme                           |
| <b>USEPA</b> | United States Environmental Protection Agency                  |
| <b>USGS</b>  | United States Geological Survey                                |
| <b>vBvT</b>  | Very Bioaccumulative and Very Toxic                            |
| <b>WBMS</b>  | World Bureau of Metal Statistics                               |
| <b>WFD</b>   | Water Framework Directive                                      |
| <b>WGs</b>   | Working Groups   |
| <b>WGSR</b>  | Working Group on Strategies and Review (of UNECE LRTAP Treaty) |
| <b>WHO</b>   | World Health Organization                                      |
| <b>WSSD</b>  | World Summit on Sustainable Development                        |
| <b>WVM</b>   | Wirtschafts Vereinigung Metalle (German Association of Metals) |