

# ICBR 2010

## 15<sup>th</sup> International Congress for Battery Recycling ICBR

September 15 – 17, 2010, Brussels, Belgium



### Patronage:

Call 2 Recycle®

European Battery Recycling Association (EBRA)

The Rechargeable Battery Association (PRBA)



## WELCOME ADDRESS



### PROFESSOR BRUNO SCROSATI

Chairman of  
the Steering Committee  
International Congress for  
Battery Recycling

Welcome to the 15<sup>th</sup> anniversary of these fortunate and important congress series devoted to technical, economical and legislative aspects of battery collection and recycling! The continuously growing success of ICBRs clearly reflects the interest of recyclers, engineers and municipality operators in this field.

Indeed, the battery market has not suffered depression but rather experienced a dramatic expansion in the latest years. Batteries of any type and chemistry are now produced by several billions per year and all them need to be collected and recycled at their exhausted state; accordingly, directives are in force worldwide to regulate this action. However, despite this growing concern, the number of batteries that reach the recycling plants are still a minor fraction of those entering

in the market. This poor recycling to production ratio holds for either "conventional" batteries, such as lead-acid, nickel-cadmium and alkaline batteries and, in particular, for the new, "exotic" systems, such as nickel-metal hydride, lithium and lithium ion batteries. The growing environmental concern calls with urgency for an inversion of this tendency: it is now time to open the road for a cleaner world! ICBRs go along this road: the main task of these congress series is in fact to provide a forum where top experts in the area may present and discuss their views to reach this important goal.

This 15<sup>th</sup> edition will keep the line by presenting topical sessions aimed to explore and value the conditions for making battery collection and recycling a real and efficient business. In this fashion, the morning of the first

day will be structured with a session on legislation and treating battery directive implementation. In the afternoon the participants will be informed on new challenges and safety issues. This intensive and impressive day will be concluded with a Round Table Discussion focused on lithium batteries collection and recycling.

The morning of the second day will hold a session on collection opportunities, mainly focusing on lithium batteries. Indeed, the production of these "new" rechargeable batteries is booming, reaching levels of billion units per year and their end-of-life fate is still unclear. The afternoon will be devoted to the analysis of past and future recycling technologies.

In addition to this informative and exciting program, ICBR 2010 will keep the high social standard that has made

these elegant congress series famous worldwide. This social activity includes a unique Networking Dinner where participants may enjoy sophisticated and excellent food, pleasant entertainment and have a favourable, relaxed site for their business discussion. Finally, three plant tours have been organized in the morning of the third day, Friday, September 17<sup>th</sup>. I am sure that you will not be disappointed by having decided to be part of this important event and I extend to you all my warmest welcome to ICBR 2010 in Brussels.



## KEYNOTE SPEAKERS



### SOLEDAD BLANCO

European Commission  
DG Environment  
Industry  
Director  
Belgium

“THE GROWING IMPORTANCE OF  
RECYCLING FOR EUROPE”

### RUSKA KELEVSKA

European Commission  
DG Environment  
Unit Sustainable Production  
and Consumption  
Administrator  
Belgium

“UPDATE OF THE BATTERIES DIRECTIVE  
2006/66/EC IMPLEMENTATION”



### MICHEL CATINAT

European Commission  
DG Enterprise and Industry  
Chemicals, Metals, Forest-based &  
Textile Industries, Raw Materials  
Adviser  
Belgium

“THE ‘RAW MATERIALS INITIATIVE’:  
A NEW CHALLENGE FOR  
THE EU RECYCLING INDUSTRY!”



## INTERNATIONAL STEERING COMMITTEE



**PROFESSOR  
BRUNO SCROSATI**  
Chairman  
University La Sapienza (Rome)  
Department of Chemistry  
Italy



**JACQUES DAVID**  
SCRELEC  
Managing Director  
France



**CARL E. SMITH**  
Call2Recycle®  
operated by RBRC  
CEO/President  
USA



**DR JEAN-POL WIAUX**  
Chairman of the Scientific  
Committee  
RECHARGE  
Manager  
Belgium



**ANDREAS KREBS**  
Batrec Industrie AG  
Managing Director  
Representative of EBRA  
Switzerland



**MIKE TAKAO**  
Sanyo Electric Co., Ltd.  
Mobile Energy Company  
Senior Manager  
Japan



**JAN BARTELS**  
STIBAT  
Managing Director  
Netherlands



**JILL LEDGER**  
SAFT  
Corporate Communication  
and Investor Relations  
Director  
France



**MARK TOMASZEWSKI**  
Inmetco Inc.  
President  
USA



**MANFRED BECK**  
Recycling International  
Magazine  
Editor  
Netherlands



**TOSHIO MATSUOKA**  
Matsuoka Technical  
Consultant Ltd.  
Consultant  
Japan



**JOHAN VAN PEPERZEEL**  
Van Peperzeel B.V.  
President  
Netherlands



## LOCATION OF THE CONGRESS

## CHARMING BRUSSELS



The 15<sup>th</sup> International Congress for Battery Recycling will be held from **September 15 – 17, 2010** in the Hotel Conrad in charming Brussels.

**Hotel Conrad Brussels \*\*\*\*\***

Avenue Louise 71  
1050 Brussels, Belgium

Phone +32 2 542 42 42

Fax +32 2 542 42 00

[www.conradhotels1.hilton.com](http://www.conradhotels1.hilton.com)



Brussels comprises 19 communes forming one of the three regions of the federal Belgian state: the capital of the Kingdom of Belgium. The other two regions are the headquarters of the French and of the Flemish Communities.

The metropolitan area has a population of over 1.8 million, making it the largest in Belgium. Both French and Dutch are the official languages of the city. Street names and traffic signs are always in these two languages.

Since the end of the Second World War, Brussels has been a main centre for international politics. As the European capital the city is home to the European Commission and to the Council of ministers of the European Union (EU).

Notable culinary specialities include Brussels waffles (gaufres) and mussels (usually as "moules frites", served with fries). The city is a stronghold of chocolate and pralines manufacturers with renowned companies like Godiva, Neuhaus and Leonidas.

The heart of Brussels and the place to start getting to know the city is the Grand Place (Grote Markt). This historic market square with its splendid guild houses and the impressive Gothic beauty of the Town Hall, is widely considered to be one of the most beautiful town squares in Europe.



[www.brusselsinternational.be](http://www.brusselsinternational.be)

# CONGRESS PROGRAM ICBR 2010

WEDNESDAY, SEPTEMBER 15, 2010



09.30 – 09.45 "Welcome and Introduction"  
**Prof. Bruno Scrosati, Chairman of the Steering Committee**

## 09.45 – 11.00 KEYNOTE SPEAKERS

"The growing importance of recycling for Europe"  
**Soledad Blanco, European Commission, Belgium**

"The 'Raw Materials Initiative': A new challenge for the EU recycling industry!"  
**Michel Catinat, European Commission, Belgium**

"Update of the Batteries Directive 2006/66/EC Implementation"  
**Ruska Kelevska, European Commission, Belgium**

11.00 – 11.30 **Coffee break**

**Session 1:** Legislation  
**Session Chairman:** **Jill Ledger, SAFT, France**

11.30 – 12.00 "Implementing a battery take back program"  
**Jonathan Perry, Dell Corporation Ltd., United Kingdom**

12.00 – 12.30 "Recycling efficiency compliance and reporting"  
**Dr Alain Vassart, EBRA, Belgium**

12.30 – 14.00 **Lunch**

**Session 2:** New challenges  
**Session Chairman:** **Johan van Peperzeel, Van Peperzeel B.V., Netherlands**

14.00 – 14.30 "Fires involving lithium batteries"  
**Dr Timothy Snee and Dr Diego Lisbona, Health and Safety Laboratory, United Kingdom**

14.30 – 15.00 "Fast growing market of renewable energy: A comprehensive life cycle assessment of solar farm battery system demonstrating importance of recycling"  
**Clémence Siret, SAFT, France**

15.00 – 15.30 "The European portable power industry going forward"  
**Hans Craen, EPBA, Belgium**

15.30 – 16.00 **Coffee break**

**16.00 – 17.30** Panel Discussion  
"Lithium batteries collection and recycling: A worldwide challenge!"

**Moderator:** **Dr Jean-Pol Wiaux, RECHARGE, Belgium**

**Participants:**  
**Dr Steffen Haber, Chemetall, Germany**  
**Hector Timmers, Auto Recycling Nederland (ARN), Netherlands**  
**Johan van Peperzeel, Van Peperzeel B.V., Netherlands**  
**Dr Jan Vliegen, Umicore Battery Recycling, Belgium**

19.30 **Networking dinner**

# CONGRESS PROGRAM ICBR 2010

THURSDAY, SEPTEMBER 16, 2010



## Session 3: Collection Programs I Session Chairman: **Patrick de Metz, SAFT, France**

- 09.00 – 09.30 "The waste batteries & accumulators regulations start in the UK"  
**Julie-Ann Adams, Accumulator Recycling Ltd., United Kingdom**
- 09.30 – 10.00 "Survey for disposal term of rechargeable batteries and update of the rechargeable battery collection activity in Japan"  
**Mike Takao, Sanyo Electric Co., Ltd., Japan**
- 10.00 – 10.30 "The 10 obstacles to a successful battery recycling program: The North American experience"  
**Carl E. Smith, Call2Recycle®, USA**
- 10.30 – 11.00 Coffee break**

## Session 4: Collection Programs II Session Chairman: **Georgios Chryssos, Stiftung GRS Batterien, Germany**

- 11.00 – 11.30 "Collection and disposal of waste portable batteries in Turkey"  
**Savas Arna, Turkish Portable Battery Association (TAP), Turkey**
- 11.30 – 12.00 "The e-waste recycling – The Middle East experience"  
**Maroun Charabati, Beeatoona Organization, Lebanon**
- 12.00 – 12.30 "Obligations from battery legislation as a challenge for globally acting companies"  
**Hans-Jochen Lückefett, 1WEEE Services GmbH, Germany**
- 12.30 – 14.00 Lunch**

## Session 5: Recycling plants & processes I Session Chairman: **Mark Tomaszewski, Inmetco Inc., USA**

- 14.00 – 14.30 "The recycling of alkaline and zinc-carbon used batteries: A 17 years experience"  
**Michel Bauduin, REVATECH SA, Belgium**
- 14.30 – 15.00 "Progress with establishing dry cell battery recycling in Australia – An industry led initiative"  
**Alex Spillett, AusZinc Metals & Alloys, Australia**
- 15.00 – 15.30 "Processing of spent zinc-carbon and alkaline portable batteries"  
**Zdenek Kunicky, Kovohute Pribram nastupnicka, a.s., Czech Republic**
- 15.30 – 16.00 Coffee break**

## Session 6: Recycling plants & processes II Session Chairman: **Andreas Krebs, Batrec Industrie AG, Switzerland**

- 16.00 – 16.30 "Effective recycling of batteries?: A proven business for lead-acid!"  
**Daniel Chéret, Campine Recycling, Belgium**
- 16.30 – 17.00 "First process for recycling HEV Ni-MH batteries with high recycling rate including rare hearth"  
**Prof. Farouk Tedjar, RECUPYL SAS, France**
- 17.00 – 17.30 "Recycling efficiency: The new regulation context for batteries recycling"  
**Lyonel Picard and Mohamed Abid, Valdi, France**
- 17.30 Cocktail reception and poster presentations in the exhibition area**

## PLANT TOURS ICBR 2010

FRIDAY, SEPTEMBER 17, 2010



### CAMPINE RECYCLING, BEERSE

09.00	Departure by bus to Campine Recycling, Beerse
11.30	Arrival at Campine Recycling, Beerse
11.30 – 13.30	Visit of the lead battery recycling plant
16.00*	Arrival at the Brussels International Airport (Zaventem)
17.00	Arrival at the Hotel Conrad

Preserving the environment by recycling lead acid batteries?  
Yes, Campine Recycling does!

With an annual production capacity of 50,000 tons of refined lead and lead alloys, Campine Recycling is the largest battery recycler in the Benelux.

Thanks to its state of the art equipment and high technology – based on a continuous blast furnace production – Campine Recycling reaches high recycling yields while preserving the environment and ensuring the health and safety of its employees and neighbours.

A well-balanced combination of technology, treatment costs and respect of humankind and environment results in an outstanding customer's, supplier's and employee's satisfaction level as well as a constructive relationship with all other stakeholders.

Come and see how a Belgian company with a tradition of almost 100 years stands today at the forefront of the future of the European metal (recycling) industry.

More information at: [www.campine.be](http://www.campine.be)

\* No guarantee on arrival time due to traffic conditions.

## Campine Recycling ... ... Your best partner for recycling lead batteries

YES,  
the environmentally sound & responsible  
recycling of batteries is possible!



- Robust process (BAT)
- Strong technical expertise
- State of the art services
- Fully environmentally sound
- Financially strong and sustainable
- High recycling yields
- ...

## Together for a better future!



campine recycling

Campine Recycling nv - IZ Kanaal West, Nijverheidsstraat 2, 2340 Beerse, Belgium  
Tel: +32 (0) 14 60 15 89, Fax: +32 (0) 14 60 16 00, [www.campine.be](http://www.campine.be)



## PLANT TOURS ICBR 2010

FRIDAY, SEPTEMBER 17, 2010



### REVATECH SA, ENGIS AND MONSIN

08.00	Departure by bus to REVATECH SA, Engis
10.30	Arrival at REVATECH SA, Engis
10.30 – 13.00	Visit of the recycling plant of hazardous industrial waste by physical-chemical way
13.00	Departure by bus to REVATECH SA, Monsin
13.30 – 14.15	Visit of the recycling plant of hazardous waste and batteries
16.45*	Arrival at the Brussels International Airport (Zaventem)
17.45	Arrival at the Hotel Conrad

Belgian leader in the physico-chemical treatment, REVATECH SA is triple certified (ISO 14001 – ISO 19001 – OSHAS 18001), REVATECH SA belongs, equally to the companies SITA (GDF SUEZ) and ECOTECH FINANCES (SRIW – a financial public holding).

With more than 75 people, REVATECH SA manages yearly up to 160,000 tons of hazardous and non hazardous industrial among these 25% from foreign countries. During the tour, you will visit two plants: REVATECH Division Engis and REVATECH Division Monsin.

REVATECH Engis is the biggest physico-chemical waste treatment facility in Belgium. Three main activities are performed at this location:

- production of raw mineral materials for cement kilns (12,000 t/y)
- extraction and purification of metal by hydrometallurgy (12,000 t/y)
- general physico-chemical activities (up to 66,000 t/y)

REVATECH Monsin performs:

- a biological sewage plant coupled with a physico-chemical pretreatment (20,000 t/y)
- the production of alternative fuel for cement kilns (15,000 t/y)
- the solidification (mainly of flying ashes) ( 40,000 t/y)
- the recycling of contaminated glass (600 t/y)
- the recycling (mechanical step) of alkaline and zinc-carbon batteries

More information at: [www.revatech.be](http://www.revatech.be)

\* No guarantee on arrival time due to traffic conditions.

## RECYCLING OF ALKALINE AND ZINC-CARBON BATTERIES

# REVATECH

**REUSE  
RECOVERY  
RECYCLING  
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**Hazardous and non hazardous waste treatment (up to 160.000 t/y.).**

- Triple certified (ISO 9001 – ISO 14001 – OSHAS 18001) and fully licensed
- Belgian leader on its market (the physico-chemical treatment)
- Active in Europe and on other continents (one third of its turnover)
- Developing new market segments in the recycling of minor and major metals by hydrometallurgy

### REVATECH s.a.

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[www.revatech.be](http://www.revatech.be)



Precious metals recycling isn't always about profits

## PLANT TOURS ICBR 2010

FRIDAY, SEPTEMBER 17, 2010



### UMICORE BATTERY RECYCLING, HOBOKEN

08.00	Departure by bus to Umicore Battery Recycling, Hoboken
09.30	Arrival at Umicore Battery Recycling, Hoboken
09.30 – 13.30	Visit of the electronics and battery recycling plant
15.00*	Arrival at the Brussels International Airport (Zaventem)
16.00	Arrival at the Hotel Conrad

Umicore Precious Metals Refining operates as one of the world's largest precious metals recycling facility.

We offer eco-efficient recycling and refining services for precious metal bearing materials such as by-products from other non-ferrous industries, consumer and industrial recyclable products (e.g. electronic scrap, spent auto catalysts, spent industrial catalysts, sweeps & bullions).

We recover and sell precious metals (silver, gold, platinum, palladium, rhodium, iridium, ruthenium), special metals (indium, selenium, tellurium), secondary metals (antimony, tin, bismuth, arsenic) and base metals (lead, copper, nickel).

More information at: [www.batteryrecycling.umicore.com](http://www.batteryrecycling.umicore.com)

\* No guarantee on arrival time due to traffic conditions.



### It's about life.

Of course, as one of the world's largest precious metals recycling companies, Umicore Precious Metals Refining is proud to offer its clients the best overall service in recycling and refining of precious metal bearing materials such as by-products from other non-ferrous industries, consumer and industrial recyclable products (e.g. electronic scrap, spent auto and industrial catalysts). This service includes a high-quality customized benefit package (early metal pricing, financing, metal account management, ...), high business standards and ethics. It lays the basis for a beneficial long-term relationship.

But we are even more proud of our eco-efficient and total quality approach, our advanced and environmentally sound technology, our openness and transparency towards our customers, employees and society. This is how we view our responsibility in the field of sustainable development. We understand our real job: recycling precious metals to put them back in the cycle for a better life. A better life for you and for nature.



[www.preciousmetals.umicore.com](http://www.preciousmetals.umicore.com)  
Contact: [preciousmetals@umicore.com](mailto:preciousmetals@umicore.com)

Umicore Battery Recycling  
Contact: [batteryrecycling@umicore.com](mailto:batteryrecycling@umicore.com)  
[www.batteryrecycling.umicore.com](http://www.batteryrecycling.umicore.com)

In fact, it's not even about  
precious metals

## REGISTRATION FEES

Registration for the congress should be made by means of the registration form. Participants registering and paying **before July 31, 2010** will benefit from a reduced registration fee. The registration fee includes congress, entrance to the exhibition, proceedings and luncheons.

	<b>before July 31, 2010</b>	<b>after July 31, 2010</b>
<b>Congress Fee</b>		
Fee for participants	€ 1'290.-	€ 1'390.-
Fee for speakers	€ 690.-	€ 790.-
Fee for students	€ 490.-	€ 590.-
Networking dinner (Sept. 15, 2010)	€ 100.-	€ 110.-
 Plant tours (Sept. 17, 2010):		
- Campine Recycling	€ 30.-	€ 50.-
- REVATECH SA	€ 30.-	€ 50.-
- Umicore Battery Recycling	€ 30.-	€ 50.-
 <b>Accompanying Person (spouse)</b>		
Networking dinner (Sept. 15, 2010)	€ 110.-	€ 120.-

Registration on site € 100.- surcharge

### Additional Proceedings

If it is not possible for you to attend the congress, you may purchase the complete proceedings at EUR 350.-. Participants will get the proceedings free of charge.

### Payment

Payment should be made in EUR by bank transfer or by credit card. Wire payment to:

Beneficiary: ICM AG  
 Bank: Neue Aargauer Bank, 5400 Baden, Switzerland  
 Account number: 447941-72  
 IBAN: CH41 0588 1044 7941 7200 0  
 Clearing number: 5881  
 Swift code: AHHBCH22XXX

For the participants of the congress a number of rooms are held at a special rate if you register **before August 13, 2010**. If you wish, you may also extend your stay at these lovely hotels at the same special rate.

## HOTEL ACCOMMODATION



**Hotel Conrad Brussels \*\*\*\*\***  
 Avenue Louise 71, 1050 Brussels  
 Phone +32 2 542 42 42  
 Fax +32 2 542 42 00  
[www.conradhotels1.hilton.com](http://www.conradhotels1.hilton.com)

(congress place)



**Hotel Hilton \*\*\*\*\***  
 Boulevard de Waterloo 38, 1000 Brussels  
 Phone +32 2 504 37 30  
 Fax +32 2 504 37 50  
[www1.hilton.com](http://www1.hilton.com)

(15 min. walk to the congress place)

## NETWORKING DINNER



## EXHIBITION AND POSTER PRESENTATIONS



On Wednesday, September 15, a special networking dinner will be organized in charming Brussels.

Do not miss this perfect possibility to meet your business partners and register to this evening now!



Meet friends and business partners in a nice atmosphere!



A special exhibition will be organized for companies wishing to display their products or advertising materials.

The fee for an exhibition stand (2 m x 3 m) is € 2'500.- and for a poster presentation € 250.- for the full time of the conference.

Space is limited, so take the chance and book your exhibition stand or your poster presentation today!



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## WHO SHOULD ATTEND?

- Battery producers
- Recycling companies
- Waste management companies
- Battery collection companies
- Associations in the field of battery waste management
- Financing organization for battery recycling
- Environmental authorities
- Laboratories for material science
- Universities and research institutes
- Consultants

### ORGANIZER OF ICBR 2010



**JEANETTE  
DUTTLINGER**  
Congress Organizer



**SIBYLLE  
ZIMMERLI**  
Congress Assistant



**YING  
LIU REICHENBACH**  
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# The rise of Recycling



Mixed batteries sorting  
NiCd, NiMH, Li-Ion  
recycling batteries

Production wastes' treatment  
Nickel alloys and specialties selling

Photo: P. Pignatelli

Worldwide solutions



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Avenue Jean Jaurès  
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creating values



You and us:  
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GRS Batterien is your professional partner for battery recycling: many years of experience guarantee a professional collection, assorting and disposal of your used batteries. We dispose of portable batteries as well as industrial batteries in an eco-friendly way, and return the recyclable parts back to the production cycle.

[www.grs-batterien.de](http://www.grs-batterien.de)

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