



CONSORTIUM FOR  
**BATTERY  
INNOVATION**

**CENELEC**  
EUROPEAN COMMITTEE  
FOR ELECTROTECHNICAL STANDARDIZATION

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## **Driving innovation in 12V lead battery technology: an automotive technical workshop**

**When: 22-23 May 2019**

**Where: Bruges, Belgium**

The *Consortium for Battery Innovation* (CBI, formerly ALABC) in collaboration with European Committee for electrotechnical standardization (CENELEC) are holding a workshop bringing together global technical experts from the advanced lead battery and automotive industries to discuss high temperature durability tests for automotive lead batteries. This follows meetings held Kloster Eberbach in 2017 and Alcalá de Henares in 2018.

### **EFB and Heat: High Temperature Durability Tests for Advanced Lead 12 V Batteries**

The “EFB and Heat” Workshop will trigger discussion and establish co-operation between battery experts working in all parts of the value-added chain, emphasizing:

- ◆ Battery durability data from the field and from laboratory testing for micro-hybrid vehicle application in hot climate
- ◆ Improved understanding of parasitic reactions in modern automotive batteries: gas evolution, oxygen cycle, corrosion
- ◆ New test methods and standards: high temperature durability, microcycling (stop/start) durability, dynamic charge acceptance (DCA)
- ◆ From small test cells to real batteries:  
How to evaluate performance and durability through R&D

Compact plenary talks will expose up-to-date material on each of the following 7 topics to all participants. In subsequent break-out sessions, each participant will have the opportunity to discuss in depth 2 of the topics and plan collaborative work streams associated with them.

## Automotive Battery Application Trends

Moderator:

*Christian Rosenkranz, Johnson Controls*

Plenary Talks

### **A carmaker's view on high temperature test methods for micro-hybrid batteries**

*Egbert Lodowicks, Audi*

### **Upcoming changes in 12V battery requirements**

*Christian Mondoloni, PSA Group*

## 1. Test methods for battery durability in hot climate

Moderators:

*Bernd Engwicht, East Penn Manufacturing,* and speakers listed below

Plenary Talks

### **Do we need a new key life test for corrosion and water consumption?**

*Eckhard Karden, Ford*

### **Laboratory simulation of hot climate driving cycles**

*Jonathan Wirth, RWTH Aachen Univ. ISEA*

### **Choosing parameters for new Key Life Test (nKLT), CENELEC 2019 draft**

*Luca Brisotto, Exide Europe*

Breakout Topics

- Deep Dive of test & teardown results for nKLT and reference drive cycles
- How can we launch field tests by OEMs and suppliers?
- Comparison of EFB and AGM with and without "high DCA" additives

## 2. Testing battery durability for stop/start microcycling

Moderators:

*Rainer Wagner, Moll Batterien,* and speakers listed below

Plenary Talks

### **Stop/start battery durability – Overview of OEM test methods and requirements**

*Roberto Aliberti, Fiamm FET*

### **Test development and parameter variation for MHT, 2019 draft**

*Torsten Hildebrandt, Johnson Controls*

*Christian Mondoloni, PSA Group*

Breakout Topics

- Review of MHT trial runs with parameter variation
- Planning 2019 validation of CENELEC draft Micro-Hybrid Test (MHT) v2.0
- Can we achieve global harmonization?

## 3. Measuring gas evolution directly

Moderators:

*Jörn Albers, Johnson Controls,* and speakers listed below

Plenary Talks

### **Development and applications of the new electronic gas analysis system (eGAS)**

*Heinz Rottmann, measX*

Breakout topics

- First eGAS user workshop for CBI's electronic gas analysis system (eGAS)
- Laboratory applications from Tafel slopes to drive cycles
- In-vehicle applications – first examples

## 4. Water loss and oxygen cycle in EFB real-world operation

Moderators:

*Francisco Trinidad, Exide Europe,* and speakers listed below

Plenary Talks

### **Oxygen intermediate storage as buffer for energy and charge in EFB microcycling operation**

*Eberhard Meissner, Battery Specialist*

### **Experimental study and model for the side reactions during steady-state overcharging**

*Plamen Nikolov, Bulgarian Acad. of Sciences*

### **Half-cell potential and gas measurements in EFB during simulated driving cycles**

*Daisuke Hosaka, Hitachi Chemical*

Breakout Topics

- Explaining the discrepancy between water loss rates during steady-state overcharging *versus* during microcycling
- Experimental investigation of the oxygen cycle in EFB – next steps
- What are implications for durability test methods?

## 5. Corrosion under PSoC microcycling conditions

Moderators:

Travis Hesterberg, RSR Technologies,  
Marcus Young, Univ. of North Texas, and speakers listed below

Plenary Talks

### **Corrosion behavior of positive grid under high temperature and overcharge condition**

*Jun Furukawa, Furukawa Battery*

### **A study on the PAM/grid corrosion layer during motive power cell cycling**

*Shawn Peng, Trojan Battery*

### **A grid corrosion study for AGM cells with varied negative active mass additives (to be confirmed)**

*Subhas Chalasani, EastPenn Manufacturing*

### **In-situ observation of corrosion layer by high-energy X-ray diffraction**

*Tim Fister, Argonne National Laboratory*

Breakout Topics

- Localized post-mortem results from lab test cells and actual 12V batteries
- How to measure corrosion during tests: in-situ (relative comparison) and ex-situ (sample preparation effects)?
- Recent results from ongoing XRD study – can it be used for corrosion?

## 6. Measuring DCA and water loss in test cells

Moderators:

Boris Monahov, CBI, and speakers listed below

Plenary Talk

### **Test cells and cell testing – from lab to reality**

*Matthew Raiford, RSR Technologies*

*Paul Everill, Black Diamond Structures*

*Benjamin Hübner, Moll Batterien*

*Shane Christie, ArcActive*

*Jesús Valenciano, Exide Europe*

*Sophia Matthies, Tech. Univ. Berlin*

*Begüm Bozkaya, Fraunhofer ISC Würzburg*

Breakout Topics

- Examples of test cell designs
- ALABC/CBI cell-test manual
- How can we sensibly scale down “fresh” and “run-in” DCA tests?
- Can we test high temperature durability in small lab cells

The “EFB&Heat” workshop will begin on Wednesday 22 May (12pm) with a working lunch and finish in the early afternoon of Thursday 23 May (3pm).

The “EFB&Heat” workshop will be followed on 23 May (3.30pm-6pm) and 24 May (9am-3pm) by a *Consortium for Battery Innovation* (CBI) European Technical Workshop, to discuss the launch of new projects to be funded under the 2019 CBI technical program.

Both events will take place at the [Crowne Plaza](#) Hotel in the ancient city centre of [Bruges](#), Belgium.

Further information, including updates on the workshop agenda, online registration for both meetings, and a discounted hotel room block, are available on this [link](#) or by visiting the CBI website here: [www.batteryinnovation.org/efb-and-heat-workshop/](http://www.batteryinnovation.org/efb-and-heat-workshop/). Hotel rooms must be booked by **1 April 2019**.

The registration fee covers the cost of seminar rooms and handout material, the cultural tour, as well as Wednesday dinner, lunches, coffee breaks. 50% discount is available to students attending the meetings. Please contact [Anita Wright](#) to obtain the student discount code.