



# **Virtual Lithium Metal and Lithium Metal Anode Free Extreme Energy Density Battery Seminar 17-19 February 2026 - 7 hours training**



Shmuel De-Leon Energy invites you to join 6 hours battery virtual seminar taking place as 3 parts on 17-19 February 2026.

**[Registration to seminar 3 parts \(Parts 1-3\) - \\$599 per person](#)**

- **Discount registration rate for group registration - Contact us for more details.**

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**17 September 2026 - Part 1 - (3 hours) - starting at 16:00 PM Central Europe Time,  
10:00 AM EST USA Time**

Part 1 includes 3 sections - Battery Essentials, Li-Ion Rechargeable batteries

**18 February 2026 - Part 2 - (2 hours) - starting at 16:00 PM Central Europe Time,  
10:00 AM EST USA Time**

Part 2 includes 2 sections – Lithium Metal and Lithium Metal Anode Free rechargeable Batteries

**19 February 2026 - Part 3 - (2 hours) - starting at 16:00 PM Central Europe Time,  
10:00 AM EST USA Time**

Part 3 includes 1 session - Battery Safety Training including lithium metal safety instructions

\* Registered attendants will receive the training presentation (Presentations are confidential for internal use only)

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Training Syllabus:

### **Battery Essentials**

- Battery History
- The strong need for batteries
- Cells & Battery Packs
- Cells classifications
- Internal cell components
- Anode and cathode structure
- Cell components affecting energy density
- Charge - Discharge operation

- Cells - Button & Coin Cells Shape
- Cells - Hard Case Cylindrical Shape
- Cells - Hard Case Prismatic Shape
- Cells - Prismatic Pouch Shape
- Batteries/Cells Standardization
- Cells - Common Size
- Cells Internal Construction - Bobbin and Spiral Types
- Li-Ion Energy Ver. Power Cell (Flat Plate Construction)
- Cells Internal Construction - Pin Type
- Cells Internal Construction - Flat Plates Type (Stacking)
- Cells Internal Construction – Flat Wound Type
- Cells Internal Construction – Z-Folding
- Cells – Internal Construction Thin Film Type
- Cells - Case Polarity, Seals
- Cell Voltage Definitions
- Internal Resistance/Impedance
- Operating Temperature – What Does it Mean?
- Storage Temperature
- Shelf Life, Cycle Life, Service/Calendar Life
- Factors Affecting Aging and State of Health
- Recommended Battery Storage Conditions
- State of Charge – State of Health
- What is a C-Rate (Apply to Charge and/or Discharge)
- Energy & Power Density

### **Rechargeable Batteries**

- Why Rechargeable Batteries?
- Rechargeable Lithium Batteries and systems
- Best Performance Li-Ion Cells
- Li-Ion Hard Case Cells Advantages, Limitations,

- Hard Case Cylindrical Cells, 18650, 21700 including tabless
- The Need for Larger Lithium Ion Cylindrical Cell Sizes
- 46MM Cylindrical cells
- Hard Case Prismatic Cells
- Li-Ion Pouch Cells Soft Packaging, Advantages, Limitations
- Li-Ion Liquid Electrolyte Pouch Cells
- Ballooned Li-Ion Pouch Cells (Swelling - Gassing)
- Li-Ion Cylindrical Pouch cells
- Lithium Iron Phosphate Batteries, Advantages, Limitations
- Why LFP is Highly Safe?
- Lithium Werks LFP Batteries
- LFP as a Replacement to Lead-Acid Batteries
- LMFP Cells
- LTO Cells, Advantages, Limitations
- Lithium Dendrite During Low Temperature Charging
- Toshiba LTO Battery – SciB
- Lithium-Ion cels with high silicon anode
- Li-Ion High Voltage Cells, Advantages, Limitations
- High Power Li-Ion High Voltage Cells

#### **Lithium Metal and Lithium Metal Anode Free Extreme Energy Density Batteries**

- Technology Background
- Why lithium metal batteries
- Main Challenges: Interface Instability
- Modern Mitigation Strategies
- Lithium Metal Cells Practical Status
- Lithium Metal Anode Free Batteries
- Lithium Metal Anode Free Energy Density Advantages
- Lithium Metal Anode Free Challenges
- Lithium Metal Anode Free Cells Practical Status

- Compare Anode Free vs. Lithium Metal
- Review of more than 20 leading companies to develop lithium metal and lithium metal anode free cells and battery packs, their technology and products

### **Battery Safety Including Lithium Metal Battery Safety Instructions**

Batteries have become daily use components for many applications. New growing segments like EV and Grid storage batteries extend the traditional ordinary battery applications. In the race for energy density, we shouldn't forget the safety – as an example the Samsung Galaxy Note 7 battery safety case. Unfortunately, we face daily safety events with injuries and severe damage. This tutorial focuses on portable, stationary, and automotive battery safety along the battery cycle life (acceptance, testing, assembly, use, transportation, and disposal). The training incorporates Shmuel De-Leon's and other experiences on battery safety representing over 30 years of work in the field. The motivation behind the training is to provide attendees with the knowledge needed to safely handle the batteries in their organization and to support reduction in safety events.

Topics to be covered:

- Battery Safety Hazards – Movies and examples
- Battery Safety Guidelines – recommendations on proper work with batteries (Acceptance, testing, battery pack design, use, transportation, disposal)
- What to do in case of a battery safety event - Recommendations
- Battery Safety Equipment – Check list for labs and warehouses



About Shmuel De-Leon:

Shmuel De-Leon is Founder and CEO of Shmuel De-Leon Energy, Ltd.

Shmuel is a leading international expert in the business of batteries.

Prior to founding the company, Shmuel held for over 20 years various positions as a battery, engineering and

quality control team manager. Shmuel holds BSc. in mechanical engineering from Tel-Aviv University and MBA in quality control and reliability

engineering from the Technion Institute in Haifa as well as an Electronic Technician's diploma.

Shmuel De-Leon/CEO

Shmuel De-Leon Energy, Ltd.

Mazal Arie 10, Hod-Hasharon, Israel 4536045

Tel/Fax: 972-77-5010792

Mobile: 972-52-8601517

E-Mail: [shmuel@sdle.co.il](mailto:shmuel@sdle.co.il)

Company web site: [www.sdle.co.il](http://www.sdle.co.il)

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