

Lithium Process Chemistry: Resources, Extraction, Batteries, and Recycling

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Lithium Process Chemistry: Resources, Extraction, Batteries, and Recycling From Elsevier

Lithium Process Chemistry: Resources, Extraction, Batteries and Recycling presents, for the first time, the most recent developments and state-of-the-art of lithium production, lithium-ion batteries, and their recycling.

The book provides fundamental and theoretical knowledge on hydrometallurgy and electrochemistry in lithium-ion batteries, including terminology related to these two fields. It is of particular interest to electrochemists who usually have no knowledge in hydrometallurgy and hydrometallurgists not familiar with electrochemistry applied to Li-ion batteries.

It is also useful for both teachers and students, presenting an overview on Li production, Li-ion battery technologies, and lithium battery recycling processes that is accompanied by numerous graphical presentations of different battery systems and their electrochemical performances. The book represents the first time that hydrometallurgy and electrochemistry on lithium-ion batteries are assembled in one unique source.

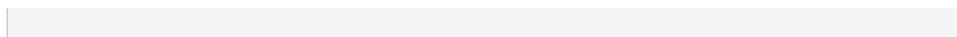
- Provides fundamental and theoretical knowledge on hydrometallurgy and electrochemistry in lithium-ion batteries
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- Ideal for both electrochemists who usually have no knowledge in hydrometallurgy and hydrometallurgists not familiar with electrochemistry applied to Li-ion batteries
- Presents recent developments, as well as challenges in lithium production and lithium-ion battery technologies and their recycling
- Covers examples of Li processes production with schematics, also including numerous graphical presentations of different battery systems and their electrochemical performances



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Editorial Review

About the Author

Dr. Alexandre Chagnes is the author or co-author of 52 open literature publications and 52 conferences in solution chemistry, thermodynamic, electrochemistry and separation sciences, Dr. Alexandre Chagnes uses his expertise in the fields of lithium-ion batteries and hydrometallurgy for managing research programs funded by international companies such as Areva, Renault, Eramet, Prayon, etc. He has recently joined the French energy and electrochemical storage network (RS2E) for working on lithium batteries recycling processes and he is vice-president of the extractive metallurgy section of the French mineral industry society (SIM). He has recently organized with Dr. Jolanta Swiatowska a symposium in New-Orleans (USA) entitled "Lithium Process Chemistry: Resources Extraction, Metal Production and Recycle" in the framework of the 245th ACS meeting and he has recently published a review on lithium battery recycling processes in Journal of Chemical and Biochemical Technology.

Dr Jolanta Swiatowska received her PhD (electrochemistry) in 2003 from the AGH University of Science and Technology in Cracow (Poland). She has joined the Chimie ParisTech (ENSCP) in 2005 first as a postdoctoral researcher and then in 2008 as a CNRS research associate. She has developed her scientific competences combining electrochemistry with surface science analytical techniques (XPS, ToF-SIMS) for application in different domains like energy storage, corrosion, material science. Since 2005 she has been participating in the numerous scientific projects in collaboration with industrial and academic partners on Li-ions batteries focused on understanding the reaction mechanisms related reactivity of electrode materials related to the process of lithium insertion/deinsertion, the formation of passive layer (Solid Electrolyte Interphase layer) and the mechanisms of electrode ageing. She has 40 publications in national and international journals, 65 conference presentations, and 13 seminars.

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