



New from Goodfellow

6 New Products for Use in Li-ion Batteries

Huntingdon (UK) ... 6 October 2020 ... Goodfellow is pleased to announce the addition of six chemical compounds for use in Li-ion batteries. Each of these materials offers something different in terms of the variables associated with Li-ion batteries, such as energy density, potential safety, cost, recharging time, cycle life, scalability, etc. Customers are encouraged to contact a member of the Goodfellow [technical team](#) to discuss specific application requirements.

A lithium-ion battery consists of a cathode (positive electrode), an anode (negative electrode), and an electrolyte (used as a conductor) with a charge-discharge cycle.

Cathode materials*

LiCoO₂ Lithium Cobalt Oxide

As one of the most common oxide cathode materials for traditional Li-ion batteries, LiCoO₂ (LCO) is also under consideration for use in all solid-state batteries.

LiMn₂O₄ Lithium Manganese Oxide

The spinel lithium manganese oxide (LiMn₂O₄ or LMO) is an exceptional cathode material for aqueous and organic lithium-ion batteries due to its low cost, environmental friendliness and suitable potential capabilities.

LiNi_{0.5}Mn_{1.5}O₄ Lithium Nickel Manganese Oxide (LNMO)

Lithium nickel manganese oxides are promising, being nontoxic while having high thermal stability. They currently are attracting attention as alternative cathode electrode materials to the commercial LiCoO₂ electrode.

Anode materials*

Li₄Ti₅O₁₂ Lithium Titanium Oxide

LTO (Li₄Ti₅O₁₂) has been highlighted as anode material for next-generation lithium ion secondary batteries due to advantages such as a high rate capability, excellent cyclic performance, and safety.

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Solid electrolytes*

Li₇La₃Zr₂O₁₂ Lithium Lanthanum Zirconium Oxide (LLZO)
Solid-state electrolyte lithium lanthanum zirconium oxide garnet (LLZO) has attracted a great deal of attention due to its high room temperature conductivity of lithium ions and stability against lithium metal electrodes.

Li₄SiO₄ Lithium Orthosilicate
This is a solid-state electrolyte for lithium-ion batteries and specifically for the production of solid-state thin film batteries (TFB).

Other products available from Goodfellow which can be used in lithium batteries

Li₃PO₄ Lithium Phosphate – a thin film solid electrolyte material known as LiPON used in thin film lithium batteries (TFB).

Copper foils (as current collectors), **nickel foils**, **cobalt foils**, **aluminium foils** (battery slurry)

Graphite – for negative electrodes

Silicone elastomer in any form

PVDF films – used as binders, depending on the battery

*Available as sputtering targets, or in powder form upon request.

About Goodfellow

For more than 50 years, Goodfellow has been a leading supplier of metals, polymers, ceramics and other materials to meet the needs of science and industry worldwide. The company specialises in supplying small quantities (a few grams to a few kilos) of metals and materials for research, prototype development and specialised manufacturing applications. Standard products can be found online at the comprehensive [Goodfellow Catalogue](#). Custom products and materials in larger quantities are available upon request at info@goodfellow.com.



Li-ion battery technology

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