



TECHNICAL CIRCULAR No. 892 of 4th October 2025

To	All Surveyors/Auditors. All flags
Title	Battery Technologies
Reference	IMO

Battery Technologies-Maritime Industries

As the International Maritime Organization regulations continue to evolve, driving the shipping industry toward reduced emissions, industry leaders are increasingly evaluating hybrid and all-electric systems for their potential to help meet compliance targets. Among the myriad technologies shaping the future of marine and offshore operations, battery technology stands out as a potentially transformative solution. Researchers and developers are working on a range of efficient and sustainable battery technologies capable of delivering the required power without compromising the safety of personnel and assets.

Beyond reducing emissions, advanced battery technologies also have the potential to support the adoption of alternative fuels by improving efficiency and reducing fuel costs. For example, peak-shaving in hybrid systems can optimize engine loading and enhance efficiency.

This publication examines the latest advancements in rechargeable battery technology, including lithium-ion (Li-ion) and six next-generation batteries, from different perspectives. It begins by comparing the working mechanisms and technological maturity of different battery types.

The initial evaluation indicates that most next-generation batteries require further technological advancements for widespread adoption. In addition to enhancing battery design, the industry needs to develop effective strategies for fire prevention, mitigation and rapid response to support safe operations.

Exploration of next-generation batteries for marine applications reveals a promising future characterized by technological advancements, improved performance and enhanced safety. Despite their advantages, Li-ion batteries face challenges such as safety risks, limited range and high initial costs, all driving the development of alternative solutions. Emerging battery technologies offer great potential. These innovations are crucial for meeting the growing energy demands of marine vessels and reducing environmental impact.

By overcoming the limitations of current technologies and embracing emerging solutions, the marine industry can achieve greater efficiency, sustainability and safety, paving the way for a cleaner and more reliable energy future.

CONARINA Head Office

6505 Blue Lagoon Dr. Suite 455

Miami, FL., 33126

Tel: 1 (786) 558 5288,

Fax: 1 (786) 325 0200,

Joel@conarinagroup.com



REFERENCES:

- IMO withABS

ATTACHMENTS: No.

Kindest Regards,
CONARINA Technical Office

CONARINA Head Office

6505 Blue Lagoon Dr. Suite 455
Miami, Fl., 33126
Tel: 1 (786) 558 5288,
Fax: 1 (786) 325 0200,
Joel@conarinagroup.com