

North America Immersion Cooling for EV Batteries Market Report (2021-2031) by Scope, Segmentation, Dynamics, and Competitive Analysis

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Abstracts

The North America immersion cooling market for electric vehicle (EV) batteries is projected to grow significantly, reaching approximately USD 85.9 million by 2031, up from just USD 762,750 in 2023. This growth represents a remarkable compound annual growth rate (CAGR) of 84.6% from 2026 to 2031.

Executive Summary and Market Analysis

The North American immersion cooling market for EV batteries is primarily divided into two segments: the United States and the Rest of North America. The anticipated increase in the adoption of immersion cooling technology for EV batteries is largely driven by the rising sales and production of electric vehicles in the region. According to a report by Cox Automotive published in October 2024, approximately 3.46 million EVs were sold in the third quarter of 2024, marking a 5% increase from the previous quarter. The share of EVs in total vehicle sales reached 8.9%, the highest recorded to date, up from 7.8% in the same quarter of 2023. Tesla remains a dominant player in the market, having sold over 16,000 Cybertrucks recently. Additionally, the Alliance for Automotive Innovation reported that EV sales surged from around 300,000 in the first quarter of 2023 to 375,000 by the third quarter.

This surge in EV sales is driving demand for battery manufacturing in North America. Automotive manufacturers are investing heavily in battery and EV production. For instance, in October 2022, ONE, an energy storage firm, announced a USD 1.6 billion investment in a new EV battery manufacturing facility in Michigan, expected to be operational by the end of 2027. This facility aims to achieve a 45% reduction in carbon emissions by 2028 through a circular manufacturing approach. The presence of major

automotive original equipment manufacturers (OEMs) in North America, many of whom are pursuing electrification initiatives, further supports this trend. For example, Stellantis announced plans to invest approximately USD 35.5 billion in vehicle electrification and new technologies by 2025, joining other major automakers like General Motors, Volkswagen, and Ford in committing substantial investments to EVs.

Governments in North America are also implementing various initiatives to boost EV production. California, a key automotive manufacturing hub, has introduced incentives and mandates for zero-emission vehicles, further encouraging the shift towards electric mobility.

Market Segmentation Analysis

The immersion cooling market for EV batteries is categorized based on type, cooling fluid, and vehicle type.

By Type: The market is divided into single-phase and double-phase immersion cooling systems. In 2023, single-phase immersion cooling held a larger market share.

By Cooling Fluid Type: The market is segmented into mineral oil, synthetic oil, fluorocarbon-based fluids, and others. Synthetic oil dominated the market in 2023.

By Vehicle Type: The market is classified into passenger vehicles, light commercial vehicles, and heavy commercial vehicles, with passenger vehicles holding the largest share in 2023.

Market Outlook

The increasing adoption of electric vehicles globally is driving the demand for high-capacity EV batteries. OEMs are focused on enhancing battery performance to achieve higher energy density and faster charging capabilities. For instance, researchers from POSTECH and Sogang University announced in March 2023 the development of a functional polymeric binder that could increase EV range significantly by replacing graphite with silicon anodes. General Motors is also transitioning from lithium-ion to lithium-metal technology, which promises greater energy density and faster charging times.

However, the development of high-capacity batteries poses risks such as thermal runaway, which can lead to overheating and potential hazards. Immersion cooling technology, which involves submerging battery packs in specialized dielectric fluids, is increasingly seen as a solution to manage heat effectively and prevent thermal runaway. This technology enhances heat transfer and provides uniform cooling across battery packs, thereby improving battery performance and safety.

For example, in September 2024, Xing Mobility introduced the Immersio XM28, a system designed to cool battery cells rapidly and prevent thermal propagation, showcasing the advancements in immersion cooling technology.

Country Insights

The North American immersion cooling market is primarily driven by the United States, which held the largest market share in 2023. The growing adoption of EVs in the US is expected to increase the demand for efficient cooling systems like immersion cooling. The US automotive sector is experiencing significant growth, supported by government investments aimed at achieving net-zero emissions by 2050. Under the Bipartisan Infrastructure Law, the US government announced substantial investments in EV infrastructure and battery components, further promoting EV adoption.

Company Profiles

Key players in the North American immersion cooling market include Shell Plc, GS Caltex Corporation, Engineered Fluids Inc, Cargill, Rimac Technology Ltd, The Lubrizol Corp, XING Mobility Inc, EXOES SAS, Mahle GmbH, and Ricardo Plc. These companies are pursuing various strategies, including product innovation, expansion, and mergers and acquisitions, to enhance their market presence and meet the growing demand for immersion cooling solutions in the EV battery sector.

Reason to buy

Save and reduce time carrying out entry-level research by identifying the growth, size, leading players, and segments in the North America Immersion Cooling for EV Batteries Market.

Highlights key business priorities in order to assist companies to realign their business strategies.

The key findings and recommendations highlight crucial progressive industry trends in the North America Immersion Cooling for EV Batteries Market, thereby allowing players across the value chain to develop effective long-term strategies.

Develop/modify business expansion plans by using substantial growth offering developed and emerging markets.

Scrutinize in-depth North America market trends and outlook coupled with the factors driving the North America Immersion Cooling for EV Batteries Market, as well as those hindering it.

Enhance the decision-making process by understanding the strategies that underpin commercial interest with respect to client products, segmentation, pricing, and distribution.

Contents

1. INTRODUCTION

- 1.1 Report Guidance
- 1.2 Market Segmentation

2. EXECUTIVE SUMMARY

- 2.1 Key Insights
- 2.2 Market Attractiveness

3. RESEARCH METHODOLOGY

- 3.1 Secondary Research
- 3.2 Primary Research
 - 3.2.1 Hypothesis formulation:
 - 3.2.2 Macroeconomic factor analysis:
 - 3.2.3 Developing base number:
 - 3.2.4 Data Triangulation:
 - 3.2.5 Country-level data:

4. NORTH AMERICA IMMERSION COOLING FOR EV BATTERIES MARKET LANDSCAPE

- 4.1 Overview
- 4.2 PEST Analysis
- 4.3 Ecosystem Analysis
 - 4.3.1 List of Vendors in Value Chain:

5. NORTH AMERICA IMMERSION COOLING FOR EV BATTERIES MARKET – KEY MARKET DYNAMICS

- 5.1 Market Drivers
 - 5.1.1 Increase in Demand for High-Capacity Batteries to Extend EV Driving Range
 - 5.1.2 Growing Demand for Electric Vehicles
- 5.2 Market Restraints
 - 5.2.1 Challenges Associated with Immersion Cooling
- 5.3 Market Opportunities

5.3.1 Advantages of Immersion Cooling

5.4 Future Trends

5.4.1 Growing Incorporation of Immersion-Cooled Battery into Road-Going Vehicles

5.5 Impact of Drivers and Restraints:

6. IMMERSION COOLING FOR EV BATTERIES MARKET – NORTH AMERICA MARKET ANALYSIS

6.1 North America Immersion Cooling for EV Batteries Market Revenue (US\$ Thousand), 2021–2031

6.2 North America Immersion Cooling for EV Batteries Market Forecast Analysis

7. NORTH AMERICA IMMERSION COOLING FOR EV BATTERIES MARKET ANALYSIS – BY TYPE

7.1 Single-Phase Immersion Cooling

7.1.1 Overview

7.1.2 Single-Phase Immersion Cooling: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

7.2 Double-Phase Immersion Cooling

7.2.1 Overview

7.2.2 Double-Phase Immersion Cooling: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

8. NORTH AMERICA IMMERSION COOLING FOR EV BATTERIES MARKET ANALYSIS – BY COOLING FLUID TYPE

8.1 Mineral Oil

8.1.1 Overview

8.1.2 Mineral Oil: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

8.2 Synthetic Oil

8.2.1 Overview

8.2.2 Synthetic Oil: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

8.3 Fluorocarbon-Based Fluid

8.3.1 Overview

8.3.2 Fluorocarbon-Based Fluid: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

8.4 Others

8.4.1 Overview

8.4.2 Others: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

9. NORTH AMERICA IMMERSION COOLING FOR EV BATTERIES MARKET ANALYSIS – BY VEHICLE TYPE

9.1 Passenger Vehicles

9.1.1 Overview

9.1.2 Passenger Vehicles: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

9.2 Light Commercial Vehicles

9.2.1 Overview

9.2.2 Light Commercial Vehicles: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

9.3 Heavy Commercial Vehicles

9.3.1 Overview

9.3.2 Heavy Commercial Vehicles: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

10. NORTH AMERICA IMMERSION COOLING FOR EV BATTERIES MARKET – COUNTRY ANALYSIS

10.1 North America

10.1.1 North America Immersion Cooling for EV Batteries Market – Revenue and Forecast Analysis – by Country

10.1.1.1 North America Immersion Cooling for EV Batteries Market – Revenue and Forecast Analysis – by Country

10.1.1.2 United States: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

10.1.1.2.1 United States: North America Immersion Cooling for EV Batteries Market Share – by Type

10.1.1.2.2 United States: North America Immersion Cooling for EV Batteries Market Share – by Cooling Fluid Type

10.1.1.2.3 United States: North America Immersion Cooling for EV Batteries Market Share – by Vehicle Type

10.1.1.3 Rest of North America: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

10.1.1.3.1 Rest of North America: North America Immersion Cooling for EV Batteries Market Share – by Type

10.1.1.3.2 Rest of North America: North America Immersion Cooling for EV Batteries Market Share – by Cooling Fluid Type

10.1.1.3.3 Rest of North America: North America Immersion Cooling for EV Batteries Market Share – by Vehicle Type

11. COMPETITIVE LANDSCAPE

11.1 Heat Map Analysis by Key Players

11.2 Company Positioning & Concentration

12. INDUSTRY LANDSCAPE

12.1 Overview

12.2 Market Initiative

12.3 Product Development

12.4 Mergers & Acquisitions

13. COMPANY PROFILES

13.1 Ricardo Plc

13.1.1 Key Facts

13.1.2 Business Description

13.1.3 Products and Services

13.1.4 Financial Overview

13.1.5 SWOT Analysis

13.1.6 Key Developments

13.2 Mahle GmbH

13.2.1 Key Facts

13.2.2 Business Description

13.2.3 Products and Services

13.2.4 Financial Overview

13.2.5 SWOT Analysis

13.2.6 Key Developments

13.3 EXOES SAS

13.3.1 Key Facts

13.3.2 Business Description

13.3.3 Products and Services

- 13.3.4 Financial Overview
- 13.3.5 SWOT Analysis
- 13.3.6 Key Developments
- 13.4 XING Mobility Inc
 - 13.4.1 Key Facts
 - 13.4.2 Business Description
 - 13.4.3 Products and Services
 - 13.4.4 Financial Overview
 - 13.4.5 SWOT Analysis
 - 13.4.6 Key Developments
- 13.5 The Lubrizol Corp
 - 13.5.1 Key Facts
 - 13.5.2 Business Description
 - 13.5.3 Products and Services
 - 13.5.4 Financial Overview
 - 13.5.5 SWOT Analysis
 - 13.5.6 Key Developments
- 13.6 Rimac Technology Ltd
 - 13.6.1 Key Facts
 - 13.6.2 Business Description
 - 13.6.3 Products and Services
 - 13.6.4 Financial Overview
 - 13.6.5 SWOT Analysis
 - 13.6.6 Key Developments
- 13.7 Cargill, Incorporated
 - 13.7.1 Key Facts
 - 13.7.2 Business Description
 - 13.7.3 Products and Services
 - 13.7.4 Financial Overview
 - 13.7.5 SWOT Analysis
 - 13.7.6 Key Developments
- 13.8 Engineered Fluids Inc
 - 13.8.1 Key Facts
 - 13.8.2 Business Description
 - 13.8.3 Financial Overview
 - 13.8.4 SWOT Analysis
 - 13.8.5 Key Developments
- 13.9 GS Caltex Corporation
 - 13.9.1 Key Facts

- 13.9.2 Business Description
- 13.9.3 Products and Services
- 13.9.4 Financial Overview
- 13.9.5 SWOT Analysis
- 13.9.6 Key Developments
- 13.10 Shell Plc
 - 13.10.1 Key Facts
 - 13.10.2 Business Description
 - 13.10.3 Products and Services
 - 13.10.4 Financial Overview
 - 13.10.5 SWOT Analysis
 - 13.10.6 Key Developments

14. APPENDIX

- 14.1 About The Insight Partners
- 14.2 Word Index

List Of Tables

LIST OF TABLES

Table 1. North America Immersion Cooling for EV Batteries Market Segmentation

Table 2. North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

Table 3. North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand) – by Type

Table 4. North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand) – by Cooling Fluid Type

Table 5. North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand) – by Vehicle Type

Table 6. North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand) – by Country

Table 7. United States: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021 – 2031 (US\$ Thousand) – by Type

Table 8. United States: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021 – 2031 (US\$ Thousand) – by Cooling Fluid Type

Table 9. United States: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021 – 2031 (US\$ Thousand) – by Vehicle Type

Table 10. Rest of North America: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021 – 2031 (US\$ Thousand) – by Type

Table 11. Rest of North America: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021 – 2031 (US\$ Thousand) – by Cooling Fluid Type

Table 12. Rest of North America: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021 – 2031 (US\$ Thousand) – by Vehicle Type

Table 13. Company Positioning & Concentration

Table 14. List of Abbreviation

List Of Figures

LIST OF FIGURES

Figure 1. North America Immersion Cooling for EV Batteries Market Segmentation – Country

Figure 2. PEST Analysis

Figure 3. Ecosystem: Immersion Cooling for EV Batteries Market

Figure 4. North America Immersion Cooling for EV Batteries Market – Key Market Dynamics

Figure 5. Impact Analysis of Drivers and Restraints

Figure 6. North America Immersion Cooling for EV Batteries Market Revenue (US\$ Thousand), 2021–2031

Figure 7. North America Immersion Cooling for EV Batteries Market Share (%) – by Type (2023 and 2031)

Figure 8. Single-Phase Immersion Cooling: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

Figure 9. Double-Phase Immersion Cooling: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

Figure 10. North America Immersion Cooling for EV Batteries Market Share (%) – by Cooling Fluid Type (2023 and 2031)

Figure 11. Mineral Oil: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

Figure 12. Synthetic Oil: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

Figure 13. Fluorocarbon-Based Fluid: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

Figure 14. Others: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

Figure 15. North America Immersion Cooling for EV Batteries Market Share (%) – by Vehicle Type (2023 and 2031)

Figure 16. Passenger Vehicles: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

Figure 17. Light Commercial Vehicles: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

Figure 18. Heavy Commercial Vehicles: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021–2031 (US\$ Thousand)

Figure 19. North America Immersion Cooling for EV Batteries Market Breakdown, by Key Countries, 2023 and 2031 (%)

Figure 20. United States: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021– 2031 (US\$ Thousand)

Figure 21. Rest of North America: North America Immersion Cooling for EV Batteries Market – Revenue and Forecast, 2021– 2031 (US\$ Thousand)

Figure 22. Heat Map Analysis by Key Players

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