

### **Global Markets for Conformal Coatings in Electronics**

https://marketpublishers.com/r/G793607484BEN.html

Date: December 2022

Pages: 212

Price: US\$ 5,500.00 (Single User License)

ID: G793607484BEN

### **Abstracts**

#### Report Scope:

The scope of the report includes a detailed study of global and regional markets for various types of conformal coatings and coating equipment and the reasons for variations in industry growth by region. Definitive and detailed estimates and forecasts of the global market are provided, followed by a detailed analysis of the regions and end uses. Furthermore, the ongoing market trends, market growth drivers, and challenges impeding the market are discussed.

Market size and estimations will be provided in terms of volume and revenue considering 2021 as the base year. Market forecasts will be given from 2022-2027. The market size for different regions (material type by region, applications, and end use) will also be covered. The impact of COVID-19 was also considered when deriving market estimations.

Global markets, conformal coatings, coating equipment segments, and growth forecasts through 2027 are offered. Sales value estimates are based on prices in the supply chain. Market-driving forces and industry structure are examined. International aspects are analyzed for all global regions and profiles of major global manufacturers are presented.

This report considers the impact of COVID-19. In 2020, the growth rate of manufacturing industries around the world was severely affected by the pandemic. The COVID-19 pandemic halted progress in every regional economy. Various governments around the world are taking measures to contain the economic slowdown.

#### Report Includes:



45 data tables and 37 additional tables

A brief general outlook and up-to-date analysis of the global markets for conformal coatings and coating equipment in electronics industry applications

Analyses of the global market trends, with market revenue data for 2021, estimates for 2022 and 2023, and projections of compound annual growth rates (CAGRs) through 2027

Estimation of the actual market size in value and volumetric terms, revenue forecast in USD millions, and corresponding market share analysis by material type, technology, application, and region

In-depth assessment of the market drivers and opportunities for conformal coating materials, equipment and spares, key shifts and regulations, industry specific challenges, and other macroeconomic factors influencing the market demand in the coming years (2022-2027)

A look at the increased demand for conformal coatings driven by customers' expectations in diverse areas such as performance, ease of application, sustainability, quality, functionality, and environmental properties

Coverage of new technologies, R&D progress, market forecast and recent activities in the paints and coatings industry

Updated information on key mergers, acquisitions and other business relations in the global market for conformal coatings and coating equipment in electronics industry applications

Company profiles of major players within the industry, including Daikin Industries, Dow Inc., Henkel AG & Co. KGaA, and Shin-Etsu Chemical Co., Ltd.



#### **Contents**

#### **CHAPTER 1 INTRODUCTION**

- 1.2 Overview
- 1.3 Study Goals and Objectives
- 1.4 Reasons for Doing This Study
- 1.5 What's New in This Report?
- 1.6 Scope of This Report
- 1.7 Information Sources
- 1.8 Methodology
- 1.9 Intended Audience
- 1.10 Geographic Breakdown
- 1.11 Analyst's Credentials
- 1.12 BCC Custom Research
- 1.13 Related BCC Research Reports

#### **CHAPTER 2 SUMMARY AND HIGHLIGHTS**

2.1 Overview of the Conformal Coatings Industry

#### **CHAPTER 3 MARKET TRENDS**

- 3.1 Background
- 3.2 Types of Conformal Coatings
  - 3.2.1 Acrylic Resins (AR)
  - 3.2.2 Silicone Resins (SR)
  - 3.2.3 Urethane (Polyurethane) Resins (UR)
  - 3.2.4 Epoxy Conformal Coatings
  - 3.2.5 Parylene Conformal Coatings
  - 3.2.6 Thin Film/Nano Coatings
- 3.3 Benefits of Conformal Coatings
- 3.4 History of Conformal Coatings
- 3.5 History of Parylene Coatings
- 3.6 History of Atomic Layer Deposition
- 3.7 Megatrends
- 3.8 Growth Drivers
  - 3.8.1 Expanding Electronics Devices Market
  - 3.8.2 Semiconductor Industry



- 3.8.3 Aerospace and Defense
- 3.8.4 Automotive Industry
- 3.9 Restraints
  - 3.9.1 Miniaturization Trends Affecting Conformal Coatings Demand
  - 3.9.2 High Cost of Materials and Labor
- 3.10 Market Opportunities
  - 3.10.1 Growth in Nano-electronic Devices
  - 3.10.2 Widespread Adoption of 5G
- 3.11 Pricing Analysis
  - 3.11.1 Type AR
  - 3.11.2 Type UR
  - 3.11.3 Type SR
  - 3.11.4 Type ER
  - 3.11.5 Type XY

#### **CHAPTER 4 CONFORMAL COATING MATERIALS AND TECHNOLOGIES**

- 4.1 Conformal Coating Selection Criteria
- 4.2 Types of Conformal Coatings
  - 4.2.1 Polymeric Coatings
  - 4.2.2 Inorganic Hard Coatings
  - 4.2.3 Other Types of Conformal Coatings
- 4.3 Processes Involved in Conformal Coatings
  - 4.3.1 Cleaning Before Conformal Coating
  - 4.3.2 Masking the Assembly to Be Coated
  - 4.3.3 Conformal Coating of an Electronic Unit
  - 4.3.4 Curing Conformal Coatings
  - 4.3.5 Inspection of Conformal Coated Parts
- 4.4 Conformal Coating Challenges
  - 4.4.1 Conformal Coating Thickness
  - 4.4.2 Coverage At Points and Edges
  - 4.4.3 Bubbles
  - 4.4.4 De-wetting
  - 4.4.5 Orange Peel
  - 4.4.6 Fisheyes
  - 4.4.7 Corrosion
  - 4.4.8 Short-circuiting
- 4.5 Reliability of Conformal Coatings
- 4.5.1 Coating as a Reliable Protective Measure



- 4.6 Equipment Reliability in Coating Operation
- 4.7 Safety of the Conformal Coating Process
- 4.8 Environmental Issues in Conformal Coating
- 4.9 Developments in Conformal Coating Technology
  - 4.9.1 Biofunctional Nanocoatings
  - 4.9.2 Parylene Coating Applications in Medical Devices

#### **CHAPTER 5 CONFORMAL COATING END-USE INDUSTRIES**

- 5.1 Overview
- 5.2 Electronics and Semiconductor
- 5.3 Automotive
- 5.4 Aerospace and Military
- 5.5 Medical Devices
- 5.6 Other End Uses

## CHAPTER 6 IMPACT OF COVID-19 AND THE RUSSIA-UKRAINE WAR ON THE CONFORMAL COATINGS MARKET

- 6.1 Overview
  - 6.1.1 Aerospace
  - 6.1.2 Defense
  - 6.1.3 Electronics
  - 6.1.4 Medical and Healthcare
  - 6.1.5 Automotive
  - 6.1.6 Impact on the PCB Market
- 6.2 Impact of the Russian-Ukrainian War on the Coating Industry

# CHAPTER 7 LAWS, REGULATIONS, AND STANDARDS CONCERNING CONFORMAL COATINGS

- 7.1 Overview
- 7.2 VOC Legislation
- 7.3 REACH
- 7.4 RoHS
- 7.5 Environmental Policies
- 7.6 ISO Certification
- 7.7 Other Regulations and Standards
  - 7.7.1 IPC-CC-830B / MIL-I-46058C



- 7.7.2 Def Stan 59/47
- 7.7.3 IEC 61086
- 7.7.4 IPC-CC-830B
- 7.7.5 UL94V0
- 7.7.6 UL746E
- 7.7.7 OSHA
- 7.7.8 EPA
- 7.7.9 CARB
- 7.7.10 EU Solvents Emissions Directive
- 7.8 Compliance Actions
- 7.9 Coatings for Medical Electronics

# CHAPTER 8 MARKET BREAKDOWN BY CONFORMAL COATING MATERIAL, EQUIPMENT, AND SPARES

- 8.1 Global Conformal Coating Market
- 8.2 Global Market for Conformal Coating Materials
  - 8.2.1 Market by Coating Type
  - 8.2.2 Market by Geographical Region

#### **CHAPTER 9 MARKET BREAKDOWN BY COATING TYPE**

- 9.1 Acrylic Conformal Coatings
- 9.2 Silicone Conformal Coatings
- 9.3 Urethane Conformal Coatings
- 9.4 Epoxy Conformal Coatings
- 9.5 Parylene Conformal Coatings
- 9.6 DLC Conformal Coatings
  - 9.6.1 Other Types of Conformal Coatings
- 9.7 Global Market for Conformal Coatings by Coating Type and End Use
  - 9.7.1 Acrylic Conformal Coatings by End Use
  - 9.7.2 Silicone Conformal Coatings by End Use
  - 9.7.3 Urethane Conformal Coating by End Use
  - 9.7.4 Epoxy Conformal Coating by End Use
  - 9.7.5 Parylene Conformal Coating by End Use
  - 9.7.6 DLC Conformal Coating by End Use
  - 9.7.7 Other Types of Conformal Coating by End Use

#### **CHAPTER 10 MARKET BREAKDOWN BY APPLICATION**



- 10.1 Overview
- 10.2 Electronics
- 10.3 Automotive Industry
- 10.4 Aerospace
- 10.5 Medical Applications
- 10.6 Other End Uses

# CHAPTER 11 MARKET BREAKDOWN BY CONFORMAL COATING EQUIPMENT AND SPARES

- 11.1 Global Market of Conformal Coating Equipment by Type
- 11.2 Conformal Coating Equipment by Region
- 11.3 Conformal Coating Equipment by Type and Region
  - 11.3.1 Dip Coating Equipment
- 11.3.2 Spray Coating Equipment
- 11.3.3 Selective Coating Equipment
- 11.3.4 Automatic Coating Equipment
- 11.3.5 Parylene Coating Equipment
- 11.3.6 ALD Equipment
- 11.3.7 Other Types of Coating Equipment
- 11.4 Spare Parts for Conformal Coating Equipment
- 11.5 Types of Customer for Conformal Coating Equipment and Spares

#### **CHAPTER 12 PATENT REVIEW**

12.1 Patent Analysis

#### **CHAPTER 13 COMPETITIVE LANDSCAPE**

- 13.1 Overview
- 13.2 Manufacturers of Conformal Coating Raw Materials
- 13.3 Suppliers of Consumables Needed for Conformal Coating Formulation
- 13.4 Formulators of Conformal Coatings
- 13.5 Distributors of Various Conformal Coatings
- 13.6 Manufacturers of Conformal Coating Equipment
- 13.7 Vapor-Deposition Equipment Suppliers
- 13.8 Conformal Coating Removal, Rework, and Repair
- 13.9 Industries Using Conformal Coatings and Related Equipment



- 13.10 Conformal Coating/Parylene Application Specialists
- 13.11 Parylene Conformal Coating Companies
- 13.12 Company Market Share Analysis for Conformal Coatings
- 13.13 Major Mergers, Acquisitions, and New Product Developments

#### **CHAPTER 14 COMPANY PROFILES**

14.1 Conformal Coating Formulators

**ALTANA AG** 

CHASE CORP.

**CHEMTRONICS** 

**CHT GERMANY GMBH** 

DAIKIN INDUSTRIES LTD.

DOW INC.

DYMAX CORP.

**ELECTROLUBE** 

EPOXIES, ETC.

**EUROPLASMA NV** 

HENKEL AG & CO. KGAA

H.B. FULLER CO.

MASTER BOND INC.

MG CHEMICALS

MOMENTIVE PERFORMANCE MATERIALS INC.

PLASMA RUGGEDIZED SOLUTIONS

PANACOL-ELOSOL GMBH

SHIN-ETSU CHEMICAL CO. LTD.

TRANSENE CO. INC.

SPECIALTY COATING SYSTEMS INC.

14.2 Conformal Coating Equipment Manufacturers

FLUID RESEARCH

GLENRO INC.

NORDSON CORP.

PRECISION VALVE AND AUTOMATION

PYRADIA INC.

ULTRASONIC SYSTEMS INC.

VERTICAL SOLUTIONS INC.

14.3 Specialized Conformal Coating Applicators

JARO CORP.

VITEK RESEARCH



14.4 Specialized Parylene Coating Applicators
ADVANCED DEPOSITION & COATING TECHNOLOGIES INC.
CURTISS-WRIGHT SURFACE TECHNOLOGIES

**CHAPTER 15 APPENDIX: ACRONYMS** 



#### **List Of Tables**

#### LIST OF TABLES

Summary Table A: Global Market for Conformal Coating Materials, Equipment, and Spares, by Type, Through 2027

Summary Table B: Global Market for Conformal Coatings Materials, by Region,

Through 2027

Table 1: Global Military Expenditures, Top 10 Countries, 2020

Table 2: Selection Criteria for Choice of Conformal Coating Type

Table 3: Comparison of Polymeric Conformal Material Classes

Table 4: Summary of the Selection of Polymeric Materials

Table 5: Benefits of DLC Coatings

Table 6: Properties of DLC Coatings

Table 7: DLC-Coated Materials

Table 8: Comparison of Liquid Deposition Conformal Coating Systems

Table 9: Comparison of Curing Methods

Table 10: Global Market for Conformal Coating Materials, by End Use, Through 2027

Table 11: Global Market for Conformal Coating Materials in Electronics End Uses, by

Region, Through 2027

Table 12: Global Market for Conformal Coating Materials in Automotive End Uses, by Region, Through 2027

Table 13: Global Market for Conformal Coating Materials in Aerospace/Defense End

Uses, by Region, Through 2027

Table 14: Global Market for Conformal Coating Materials in Medical End Uses, by

Region, Through 2027

Table 15: Global Market for Conformal Coating Materials in Other End Uses, by Region, Through 2027

Table 16: Airbus and Boeing Aircraft Deliveries, Globally, 2016-2020

Table 17: Standards, Specifications, and Regulations for Conformal Coatings

Table 18: Global Market for Conformal Coating Materials, Equipment, and Spares, by

Type, Through 2027

Table 19: Global Market for Conformal Coating Materials, by Type, Through 2027

Table 20: Global Market for Conformal Coating Materials, by Region, Through 2027

Table 21: Global Market for Acrylic Conformal Coatings, by Region, Through 2027

Table 22: Global Market for Silicone Conformal Coatings, by Region, Through 2027

Table 23: Global Market for Urethane Conformal Coatings, by Region, Through 2027

Table 24: Global Market for Epoxy Conformal Coatings, by Region, Through 2027

Table 25: Global Market for Parylene Conformal Coatings, by Region, Through 2027



- Table 26: Global Market for DLC Conformal Coatings, by Region, Through 2027
- Table 27: Global Market for Other Conformal Coatings, by Region, Through 2027
- Table 28: Global Market for Acrylic Conformal Coatings, by End Use, Through 2027
- Table 29: Global Market for Silicone Conformal Coatings, by End Use, Through 2027
- Table 30: Global Market for Urethane Conformal Coatings, by End Use, Through 2027
- Table 31: Global Market for Epoxy Conformal Coatings, by End Use, Through 2027
- Table 32: Global Market for Parylene Conformal Coatings, by End Use, Through 2027
- Table 33: Global Market for DLC Conformal Coatings, by End Use, Through 2027
- Table 34: Global Market for Other Conformal Coatings, by End Use, Through 2027
- Table 35: Global Market for Conformal Coatings in Electronics, by Application, Through 2027
- Table 36: Global Market for Conformal Coatings in Automotive, by Application, Through 2027
- Table 37: Global Market for Conformal Coatings in Aerospace, by Application, Through 2027
- Table 38: Global Market for Conformal Coatings in Medical Uses, by Application, Through 2027
- Table 39: Global Market for Conformal Coatings in Other Applications, Through 2027
- Table 40: Global Market for Conformal Coating Equipment, by Type, Through 2027
- Table 41: Global Market for Conformal Coating Equipment, by Region, Through 2027
- Table 42: Global Market for Dip Coating Equipment, by Region, Through 2027
- Table 43: Global Market for Spray Coating Equipment, by Region, Through 2027
- Table 44: Global Market for Selective Coating Equipment, by Region, Through 2027
- Table 45: Global Market for Automatic Coating Equipment, by Region, Through 2027
- Table 46: Global Market for Parylene Coating Equipment, by Region, Through 2027
- Table 47: Global Market for ALD Coating Equipment, by Region, Through 2027
- Table 48: Global Market for Other Types of Coating Equipment, by Region, Through 2027
- Table 49: Global Market for Conformal Coating Spares, by Region, Through 2027
- Table 50: Global Market for Conformal Coating Equipment and Spares, by Customer
- Type, Through 2027
- Table 51: Conformal Coatings Patents, 2017-2022
- Table 52: Global Conformal Coatings Market Shares, by Leading Suppliers, 2021
- Table 53: Strategy Dashboard: Global Conformal Coating Market, 2019-2022
- Table 54: ALTANA AG.: Product Portfolio
- Table 55: Chase Corp.: Company Financial Highlights, 2019-2021
- Table 56: Chase Corp.: Product Portfolio
- Table 57: Chemtronics.: Product Portfolio
- Table 58: CHT Germany GmbH: Product Portfolio



Table 59: Daikin Industries: Company Financial Highlights, 2020-2022

Table 60: Daikin Industries: Product Portfolio

Table 61: Dow Inc.: Company Financial Highlights, 2019-2021

Table 62: Dow Inc.: Product Portfolio

Table 63: Dymax Corp.: Product Portfolio

Table 64: Electrolube: Product Portfolio

Table 65: Epoxies, Etc.: Product Portfolio

Table 66: Europlasma NV: Product Portfolio

Table 67: Henkel: Company Financial Highlights, 2019-2021

Table 68: Henkel: Product Portfolio

Table 69: H.B. Fuller Co.: Company Financial Highlights, 2019-2021

Table 70: H.B. Fuller Co.: Product Portfolio

Table 71: Master Bond Inc.: Product Portfolio

Table 72: MG Chemicals: Product Portfolio

Table 73: Momentive: Product Portfolio

Table 74: Plasma Ruggedized Solutions: Product Portfolio

Table 75: Panacol-Elosol GmbH.: Product Portfolio

Table 76: Shin-Etsu Chemical: Company Financial Highlights, 2020-2022

Table 77: Shin-Etsu Chemical: Product Portfolio

Table 78: Transene: Product Portfolio

Table 79: Specialty Coating Systems.: Product Portfolio

Table 80: Acronyms Used in This Report



### **List Of Figures**

#### LIST OF FIGURES

Figure A: Conformal Coating Properties

Figure B: Data Source

Figure C: Conformal Coatings Segments

Figure D: Conformal Coating on PCBs

Summary Figure: Global Market Shares of Conformal Coatings Materials, by Region,

2021

Figure 1: Global Conformal Coating Market Trends, 2021-2027

Figure 2: Megatrends

Figure 3: Market Dynamics: Global Conformal Coatings Industry

Figure 4: Global Market for Consumer Electronics, 2019 and 2026

Figure 5: Global Market for Semiconductors, by Region

Figure 6: New Airplane Demand, Distribution Share, by Region, Through 2036

Figure 7: Global Market Shares of Conformal Coating Materials, by End Use, 2021

Figure 8: Global Market Shares of Conformal Coating Materials in Electronics End

Uses, by Region, 2021

Figure 9: Global Market Shares of Conformal Coating Materials in Automotive End

Uses, by Region, 2021

Figure 10: Global Market Shares of Conformal Coating Materials in Aerospace/Defense

End Uses, by Region, 2021

Figure 11: Global Market Shares of Conformal Coating Materials in Medical End Uses,

by Region, 2021

Figure 12: Global Market Shares of Conformal Coating Materials in Other End Uses, by

Region, 2021

Figure 13: Worldwide Aircraft Deliveries, 2016-2020

Figure 14: Crude Oil Prices, December 2021 to March 2022

Figure 15: Global Market Shares of Conformal Coating Materials, Equipment, and

Spares, by Type, 2021

Figure 16: Global Market Shares of Conformal Coating Materials, by Type, 2021

Figure 17: Global Market Shares of Conformal Coating Materials, by Region, 2021

Figure 18: Global Market Shares of Acrylic Conformal Coatings, by Region, 2021

Figure 19: Global Market Shares of Silicone Conformal Coatings, by Region, 2021

Figure 20: Global Market Shares of Urethane Conformal Coatings, by Region, 2021

Figure 21: Global Market Shares of Epoxy Conformal Coatings by Region, 2021

Figure 22: Global Market Shares of Parylene Conformal Coatings, by Region, 2021

Figure 23: Global Market Shares of DLC Conformal Coatings, by Region, 2021



- Figure 24: Global Market Shares of Other Conformal Coatings, by Region, 2021
- Figure 25: Global Market Shares of Acrylic Conformal Coatings, by End Use, 2021
- Figure 26: Global Market Shares of Silicone Conformal Coatings, by End Use, 2021
- Figure 27: Global Market Shares of Urethane Conformal Coatings, by End Use, 2021
- Figure 28: Global Market Shares of Epoxy Conformal Coatings, by End Use, 2021
- Figure 29: Global Market Shares of Parylene Conformal Coatings, by End Use, 2021
- Figure 30: Global Market Shares of DLC Conformal Coatings, by End Use, 2021
- Figure 31: Global Market Shares of Other Conformal Coatings, by End Use, 2021
- Figure 32: Global Market Shares of Conformal Coatings in Electronics, by Application, 2021
- Figure 33: Global Market Shares of Conformal Coatings in Automotive, by Application, 2021
- Figure 34: Global Market Shares of Conformal Coatings in Aerospace, by Application, 2021
- Figure 35: Global Market Shares of Conformal Coatings in Medical Uses, by Application, 2021
- Figure 36: Global Market Shares of Conformal Coatings in Other Applications, 2021
- Figure 37: Global Market Shares of Conformal Coating Equipment, by Type, 2021
- Figure 38: Global Market Shares of Conformal Coating Equipment, by Region, 2021
- Figure 39: Global Market Shares of Dip Coating Equipment, by Region, 2021
- Figure 40: Global Market Shares of Spray Coating Equipment, by Region, 2021
- Figure 41: Global Market Shares of Selective Coating Equipment, by Region, 2021
- Figure 42: Global Market Shares of Automatic Coating Equipment, by Region, 2021
- Figure 43: Global Market Shares of Parylene Coating Equipment, by Region, 2021
- Figure 44: Global Market Shares of ALD Coating Equipment, by Region, 2021
- Figure 45: Global Market Shares of Other Types of Coating Equipment, by Region, 2021
- Figure 46: Global Market Shares of Conformal Coating Spares, by Region, 2021
- Figure 47: Global Market Shares of Conformal Coating Equipment and Spares, by Customer Type, 2021
- Figure 48: ALTANA AG.: Sales, 2020 and 2021
- Figure 49: ALTANA AG.: Revenue Share, by Business Divisions, 2021
- Figure 50: ALTANA AG.: Revenue Share, by Region, 2021
- Figure 51: Chase Corp.: Revenue Share, by Business Segment, 2021
- Figure 52: Chase Corp.: Revenue Share, by Region, 2021
- Figure 53: Daikin Industries: Revenue Share, by Business Segment, 2021
- Figure 54: Dow Inc.: Revenue Share, by Business Segment, 2021
- Figure 55: Dow Inc.: Revenue Share, by Region/Country, 2021
- Figure 56: Henkel: Revenue Share, by Business Segment, 2021



Figure 57: Henkel: Revenue Share, by Region/Country, 2021

Figure 58: H.B. Fuller Co.: Revenue Share, by Business Segment, 2021

Figure 59: H.B. Fuller Co.: Revenue Share, by Region, 2021

Figure 60: Shin-Etsu Chemical: Revenue Share, by Business Segment, 2021



#### I would like to order

Product name: Global Markets for Conformal Coatings in Electronics
Product link: <a href="https://marketpublishers.com/r/G793607484BEN.html">https://marketpublishers.com/r/G793607484BEN.html</a>

Price: US\$ 5,500.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer

Service:

info@marketpublishers.com

### **Payment**

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <a href="https://marketpublishers.com/r/G793607484BEN.html">https://marketpublishers.com/r/G793607484BEN.html</a>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:	
Last name:	
Email:	
Company:	
Address:	
City:	
Zip code:	
Country:	
Tel:	
Fax:	
Your message:	
	**All fields are required
	Custumer signature

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <a href="https://marketpublishers.com/docs/terms.html">https://marketpublishers.com/docs/terms.html</a>

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970