

Shape Memory Polymers 2016-2025

<https://marketpublishers.com/r/S558279F18DEN.html>

Date: April 2016

Pages: 0

Price: US\$ 3,995.00 (Single User License)

ID: S558279F18DEN

Abstracts

This report assesses the prospects for Shape Memory Polymers (SMPs). SMPs can be deformed, retain this deformation, but then revert to the original shape/configuration upon triggering by an external stimulus. The metallic equivalent of SMPs – Shape Memory Alloys (SMAs) have already been a success and SMPs offer significant advantages over SMAs in terms of low-weight, malleability, low cost and biocompatibility.

As a result, n-tech is publishing this report to forecast the market for SMPs over the next ten years. The report focuses on four key markets for SMPs – aerospace, automotive, medicine and healthcare and construction – as well niche markets for SMPs in areas such as robotics, textiles and brand protections. For each of these end user markets, the report includes detailed revenue forecasts with breakouts by product types with in each of these markets.

The report also includes a technical chapter in which we discuss the different kinds of plastics that exhibit shape memory effects and discuss which applications each is suited to. There is also a ten-year forecast breaking out the market by SMP material type. This chapter also includes an assessment of manufacturing technologies for SMPs, with a discussion of scalability and cost of the processes involved.

Finally, the report contains profiles of all the leading companies active in SMP space along with a discussion of their evolving strategies. These firms include several giant multinationals showing that while SMPs may be at an early stage of both technical and market evolution, there is already potential for serious investment in this area.

n-tech believes that SMPs are on the verge of generating sufficient revenues and this report should be of interest to established firms and entrepreneurs looking for new opportunities, not to mention venture capitalists and other investors.

Contents

EXECUTIVE SUMMARY: OPPORTUNITIES IN SHAPE MEMORY POLYMER

- E.1 End-User Demand for SMPs: A Summary of Ten-Year Demand for SMPs
 - E.1.1 Summary of Ten-Year Forecast by Application
 - E.1.1 Summary of Ten-Year Forecast by Type of SMP
- E.2 Opportunities for Shape Memory Polymers in the Automotive Industry
- E.3 Opportunities for Shape Memory Polymers in the Aerospace Industry
- E.4 Opportunities for Shape Memory Polymers in the Medicine and Healthcare
- E.5 Opportunities for Shape Memory Polymers in the Construction Industry
- E.6 Other Opportunities for Shape Memory Polymers
- E.7 Six Companies to Watch in the Shape Memory Space

CHAPTER ONE: INTRODUCTION

- 1.1 Background to this Report
 - 1.1.1 SMPs are Intrinsically Superior to SMAs in Many Applications
 - 1.1.2 The SMP Supply Chain Can Grow Exponentially
 - 1.1.2 A Potentially Broad User Base for SMPs
- 1.2 Objective and Scope of this Report
- 1.3 Methodology of this Report
- 1.4 Plan of this Report

CHAPTER TWO: EVOLUTION OF SHAPE MEMORY POLYMER TECHNOLOGY

- 2.1 Shape Memory Polymers: Technology Fits Many Applications
 - 2.1.1 Technical Characteristics of SMPs
- 2.2 Types of Polymers Used in Shape Memory Applications
 - 2.2.1 Thermo-responsive SMPs
 - 2.2.2 Photo-responsive SMPs
 - 2.2.3 Chemo-responsive SMPs
 - 2.2.4 Other Triggering Responses for SMPs
 - 2.2.5 Thermosets and Thermoplastics as SMPs
 - 2.2.6 Crystallizable SMPs
 - 2.2.7 Programmable SMPs and Combining SMPs with other Smart Materials
 - 2.2.8 Shape Memory Polymer Composites
 - 2.2.9 CHEM and SMP Foam
 - 2.2.10 Biocompatibility and Environmental Friendliness of SMPs

- 2.2.11 SMP Characteristics and Comparison with SMAs
- 2.3 Manufacturing Considerations
 - 2.3.1 Cost of Manufacturing
 - 2.3.2 Scalability of Manufacturing
 - 2.3.3 Use of Conventional Plastics Industry Processes
 - 2.3.4 Mnemosynation
 - 2.3.5 3D Printing
- 2.4 Key Points from this Chapter

CHAPTER THREE: SHAPE MEMORY POLYMER MARKETS IN THE AUTOMOTIVE INDUSTRY

- 3.1 Factors Driving the Market for SMPs in the Automotive Market
- 3.2 Applications for SMPs in the Automotive Market
 - 3.2.1 SMPs/Metal Composites in the Automotive Industry
 - 3.2.2 Shape Memory Polymer Patches
 - 3.2.3 Airflow Control Devices
 - 3.2.4 SMPs and Fender Benders
 - 3.2.5 SMPs for Automatic Chokes
 - 3.2.6 SMPs for Tunable Brackets
 - 3.2.7 Other Uses for SMPs in Automotive Applications
- 3.3 Challenges for SMPs in the Automotive Industry
 - 3.3.1 The Challenge of Thermal Profiles
 - 3.3.2 R&D Trends in SMP-based Composites
- 3.4 Ten-Year Forecast of SMP in the Automotive Industry
- 3.5 Key Points from this Chapter

CHAPTER FOUR: SHAPE MEMORY POLYMER MARKETS IN THE AEROSPACE INDUSTRY

- 4.1 Main Industry Trends in the Aerospace Industry and their Impact on the SMP Market
- 4.2 Who will Pay for SMP Deployment in Aerospace?
- 4.3 Fuel Economy – A Double-Edged Sword for Smart Structures
- 4.4 SMPs versus SMAs in the Aerospace Market
- 4.5 Opportunity Analysis for SMP in the Aerospace Market by Type of Aircraft
 - 4.5.1 SMPs and UAVs
 - 4.5.2 SMPs, Aerospace and the Growth of Military Expenditures
 - 4.5.3 SMPs, Space and Helicopters: Some Challenges
- 4.6 Applications for SMPs in the Aerospace Sector

- 4.6.1 Morphing and SMPs
- 4.6.2 Space Environment Evaluation and Related Testing
- 4.6.3 SMPCs and their Applications in Aerospace
- 4.6.4 SMP and SMPC Mandrels
- 4.6.5 SMP and SHM
- 4.7 Ten-Year Forecasts of SMPs in the Aerospace Industry
- 4.7 Key Points from this Chapter

CHAPTER FIVE: MEDICAL AND HEALTHCARE MARKETS FOR SMPs

- 5.1 Current Trends in the Medical Device Business: Implications for SMPs
- 5.2 Applications for SMPs in the Medical/Healthcare Sector
 - 5.2.1 Coil Release Systems
 - 5.2.2 Intravenous Syringe
 - 5.2.3 Cardiovascular Stents and Catheters
 - 5.2.4 Neuronal Probes
 - 5.2.5 Orthodontic Implants
 - 5.2.6 Orthopedic Braces and Splints
 - 5.2.7 Ophthalmic Devices
 - 5.2.8 Sutures
 - 5.2.9 Drug Delivery Systems
- 5.3 SMP-based Medical Foams and Minimally Invasive Surgery
- 5.4 Importance of Biodegradability
- 5.5 Sterilizing SMP Devices
- 5.6 Current Suppliers of Medical Devices Using SMPs
- 5.7 Ten-Year Forecasts of SMPs in the Medical and Healthcare Sector
- 5.8 Key Points from this Chapter

CHAPTER SIX: SHAPE MEMORY POLYMER APPLICATIONS IN THE CONSTRUCTION INDUSTRY

- 6.1 State of the Construction Industry and the Impact on SMPs
- 6.2 Applications for SMP in the Construction Industry
 - 6.2.1 SMPs as Smart Window Sealants
 - 6.2.2 SMP Foams for Building Insulation
 - 6.2.3 SMP for Self-Repairing Concrete
- 6.3 Impact of Green Building on Sales of SMP to the Construction Sector
- 6.4 Ten-Year Forecasts of SMPs in the Construction Industry
- 6.5 Key Points from this Chapter

CHAPTER SEVEN: OTHER MARKETS FOR SHAPE MEMORY POLYMERS

- 7.1 Applications for SMPs Growing in Number
- 7.2 Robotics
- 7.3 SMP-Based Textiles
- 7.4 Brand Protection and SMP
- 7.5 Optical Devices and SMP
- 7.6 Ten-Year Forecasts of SMPs in Other Applications
- 7.7 Key Points from this Chapter

CHAPTER EIGHT: COMPANIES TO WATCH IN THE SMP SPACE

- 8.1 Structure of the SMP Supply Chain
- 8.2 BASF (Germany)
- 8.3 Cornerstone Research Group (United States)
 - 8.3.1 Commercialization of SMPs at CRG
- 8.4 Covestro (Germany)
 - 8.4.1 Applications of Demospan DP 2795A SMP
- 8.5 EndoShape (United States)
- 8.6 Evonik (Germany)
- 8.7 MedShape (United States)
 - 8.7.1 Materials
 - 8.7.2 Exoshape ACL Fixation System
 - 8.7.3 Eclipse Soft Tissue Anchor
 - 8.7.4 Morphix Suture Anchor Systems
- 8.8 Mitsubishi and SMP Technologies (Japan)
 - 8.8.1 Diaplex 8.8.2 SMP Technologies
- 8.9 mNemoscience's Bankruptcy (Germany)
- 8.10 Spintech (United States)
 - 8.10.1 Smart Tooling
 - 8.10.2 Gemini Materials
- 8.11 Syzygy Memory Plastics (United States)
 - 8.11.1 Mnemosynation

ACRONYMS AND ABBREVIATIONS USED IN THIS REPORT

About

ABOUT THE AUTHOR

I would like to order

Product name: Shape Memory Polymers 2016-2025

Product link: <https://marketpublishers.com/r/S558279F18DEN.html>

Price: US\$ 3,995.00 (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 <https://marketpublishers.com/r/S558279F18DEN.html>

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**

Customer signature _____

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

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