

Market Opportunities for Quantum Dots 2015-2022

<https://marketpublishers.com/r/MC9DDC8981BEN.html>

Date: December 2014

Pages: 0

Price: US\$ 3,495.00 (Single User License)

ID: MC9DDC8981BEN

Abstracts

NanoMarkets believes that opportunities for commercial use of quantum dots (QDs) have changed dramatically in the past year, and this, our most recent report on QDs, identifies where the money will be made as the a result of these new trends and developments.

QDs have now exploded onto the commercial display market and are appearing in displays of all sizes, enabling LCDs with greater color gamut and lower power consumption. These QD-enhanced LCDs are already providing direct competition to OLED displays, raising the question of whether OLED displays will ever take off in the way that was once hoped. At the same time NanoMarkets believes that ability of the QD makers to supply sufficient materials to support future growth is no longer an issue.

As a result of these trends, the granular eight-year forecasts of volume shipments and revenue generated contained in this report reflect NanoMarkets growing bullishness about QDs. We have also considered how the QD supply chain is likely to change as the competition between QD suppliers to get the attention of major OEMs increases.

Most of the revenue generation from QDs will come from the display industry for the next few years. This is where the money is, and although 2014 saw the introduction of several QD-enhanced LCDs by a number of OEMs, QDs have still penetrated only a very small portion of the LCD market as yet.

Potential growth is huge and in the next three to eight years NanoMarkets believe that the QD industry will build upon its success in displays and expand into other commercial applications. These newer markets are also analyzed in this report. NanoMarkets thinks that solid-state lighting, with similar technical requirements to displays, will be the next to market. In the longer term we see potential for commercial development of QDs in solar cells and as fluorescent biomarkers, though both applications currently face

substantial technical hurdles. Semiconductor diode lasers are also a potentially important application for QDs.

In this report, NanoMarkets discusses opportunities in QDs for companies throughout the supply chain – from QD suppliers to LED component makers to OEMs – and predicts how moves by these companies will affect the growth of the QD industry. We also look at the state of QD technology and what improvements will be needed to enable further growth.

Contents

EXECUTIVE SUMMARY

- E.1 The Explosion of QDs in Displays
 - E.1.1 How QDs Can Help the Display Industry
 - E.1.2 OLEDs Losing Favor, and How This Affects the QD Market
- E.2 Companies to Watch Up and Down the Supply Chain
 - E.2.1 QD Raw Material Suppliers
 - E.2.2 Materials Companies Enabling Commercial QD Products
 - E.2.3 Display Industry OEMs
- E.3 Environmental Concerns and Global Regulations
- E.4 Potential Opportunities Beyond the Display Market
 - E.4.1 Solid-State Lighting: Can QDs Improve LEDs?
 - E.4.2 The Solar Industry: Toward Greater Efficiency
 - E.4.3 Biomedical Applications: Beyond the Laboratory
- E.5 Summary of Eight-Year Forecasts of QDs in Displays and Other Applications

CHAPTER ONE: INTRODUCTION

- 1.1 Background to this Report
 - 1.1.1 Changes since the Last Report
 - 1.1.2 Key Markets for Quantum Dots: Displays and More
 - 1.1.3 Quantum Dot Materials
 - 1.1.4 Quantum Dot LEDs
- 1.2 Objectives and Scope of this Report
- 1.3 Methodology of this Report
 - 1.3.1 General Methodology
 - 1.3.2 Forecasting Methodology
- 1.4 Plan of this Report

CHAPTER TWO: TRENDS IN QUANTUM DOT TECHNOLOGY AND MANUFACTURING

- 2.1 Materials Options
 - 2.1.1 Legacy QD Materials
 - 2.1.2 Demand for Cadmium-free QDs
- 2.2 High Volume Manufacturing Becoming a Reality
 - 2.2.1 Manufacturing Methods

- 2.2.2 Addressing Reliability and Yield
- 2.3 Improving Performance: Color Range and Lifetime
 - 2.3.1 Materials for Commercial Displays
 - 2.3.2 Developments in Cadmium-Free Materials
- 2.4 Using the Raw Materials: QD Films and Components
- 2.5 Developing the Supply Chain
 - 2.5.1 QD Suppliers Forming Partnerships
 - 2.5.2 Impact on the LED industry
- 2.6 Key Points from this Chapter

CHAPTER THREE: QUANTUM DOTS IN DISPLAYS

- 3.1 QD-Backlit LCDs Leading the Way
 - 3.1.1 QDs Expand into LCD TVs
 - 3.1.2 Not Just TVs: Opportunities for QDs in Smaller LCDs
- 3.2 How QDs Will Compete with OLEDs
 - 3.2.1 QD-enhanced LCD versus OLED
 - 3.2.2 Approaches of Major OEMs
- 3.3 The Future of Direct Emission QD Displays
- 3.4 Forecasting Assumptions for Displays
 - 3.4.1 QD Material Requirements
 - 3.4.2 QD-LEDs
- 3.5 Eight-Year Forecast of QD Materials in LCD TVs and Monitors
- 3.6 Eight-Year Forecast of QD Materials in Smaller LCDs
- 3.7 Eight-Year Forecast of QD-LEDs in Backlit LCDs
- 3.8 Eight-Year Forecast of QD Materials and Components in Direct-Emission QD Displays
- 3.9 Key Points from this Chapter

CHAPTER FOUR: OTHER APPLICATIONS FOR QUANTUM DOTS

- 4.1 Attempting to Compete with OLEDs in Lighting
 - 4.1.1 Factors Affecting the Prospects for QDs in Lighting
 - 4.1.2 Positioning of QD Suppliers
 - 4.1.3 Points of Entry for QDs in Solid-State Lighting
- 4.2 Eight-Year Forecast of QDs in Lighting
- 4.3 QDs in PV: Long Shot or Winning Strategy?
 - 4.3.1 Prospects for QDs in PV
 - 4.3.2 Positioning of QD suppliers

- 4.3.3 Development of QD Solar Cells and Forecasting Assumptions
- 4.4 Eight-Year Forecast of QDs in PV
- 4.5 Biomedical Applications: Moving Beyond the Laboratory?
- 4.6 Eight-Year Forecast of QDs in Biomedical Applications
- 4.7 QD Lasers
- 4.8 Key Points from this Chapter

ACRONYMS AND ABBREVIATIONS USED IN THIS REPORT

About

ABOUT THE AUTHOR

List Of Exhibits

LIST OF EXHIBITS

Exhibit E-1: Summary of Revenue Forecasts for QD Materials by Application, 2015-2022 (\$ Millions)

Exhibit E-2: Summary of Revenue from QD-LED Components by Application, 2015-2022.

Exhibit 2-1: QD Materials Options.

Exhibit 2-2: Global Regulations Governing Use of Cadmium.

Exhibit 2-3: RoHS Exemption Requests Regarding Cadmium in QDs.

Exhibit 2-4: Volume Production Capabilities and Commercial Prospects of QD Makers.

Exhibit 2-5: Methods for Manufacturing Quantum Dots.

Exhibit 2-6: Partnerships Between QD Suppliers and Other Companies.

Exhibit 3-1: Commercial LCDs containing Quantum Dots.

Exhibit 3-2: Estimation of QD Material Content for Displays.

Exhibit 3-3: Forecast of Quantum Dots in Backlit LCD TVs, 2015-2022.

Exhibit 3-4: Forecast of Quantum Dots in Small Displays, 2015-2022.

Exhibit 3-5: Forecast of QD-LEDs in Backlit Displays, 2015-2022.

Exhibit 3-6: Forecast of QD Materials in Direct Emission Displays, 2015-2022.

Exhibit 3-7: Forecast of QD-LEDs in Direct Emission Displays, 2015-2022.

Exhibit 4-1: Comparison of Different Lighting Technologies.

Exhibit 4-2: Forecast of QD-LED Components Used in Solid-State Lighting, 2015-2022.

Exhibit 4-3: Forecast of QD Materials used in Solid State Lighting, 2015-2022.

Exhibit 4-4: Research into QDs for Solar Cells.

Exhibit 4-5: Forecast of QDs used in Solar Cells, 2015-2022.

Exhibit 4-6: Biomedical Applications for Quantum Dots.

Exhibit 4-7: Forecast of QDs used in Biomedical Applications, 2015-2022

I would like to order

Product name: Market Opportunities for Quantum Dots 2015-2022

Product link: <https://marketpublishers.com/r/MC9DDC8981BEN.html>

Price: US\$ 3,495.00 (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/MC9DDC8981BEN.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