



**Global and China MO Source Industry  
Report, 2017-2021**

**August 2017**

## **STUDY GOAL AND OBJECTIVES**

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

## **REPORT OBJECTIVES**

- ◆ To establish a comprehensive, factual, annually updated and cost-effective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- ◆ To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- ◆ To complement the organizations' internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- ◆ To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- ◆ To help company to succeed in a competitive market, and

## **METHODOLOGY**

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications. Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

## **INFORMATION SOURCES**

The primary information sources include Company Reports, and National Bureau of Statistics of China etc.

## Abstract

MO source (also known as high-purity metal organic compound) is a key raw material for producing semiconductor microstructure materials by use of MOVCD technology. Main products include trimethyl gallium, trimethyl indium, etc.

Global MO source demand reached 58.5 tons in 2016, a 4.1% increase from the year before. The main reasons for the growth recovery after a drop in 2015 stood out: firstly, downstream demand picked up; secondly, MOCVD ownership escalated, and capacity utilization and operating rate of plants grew steadily. Global MO source demand will keep an estimated CAGR of around 7.6% during 2017-2021.

As the world's biggest MO source producer and consumer, China takes up over 1/3 of global total capacity and consumes above 50% of MO source products. China's demand for MO source achieved about 30.7 tons in 2016, with a CAGR of 31.6% during 2010-2016, outperforming the global average, thanks to local governments' purchase subsidy policies for MOCVD equipment over the five years to 2015. In spite of a slower increase after subsidy halt, demand will still grow at an average of roughly 10% a year during 2017-2021 as downstream players continue expansion of their capacity.

Global MO source industry still presents an oligopoly pattern due to high technical barriers. Key manufacturers include DOW (the U.S.), Merck (Germany), AKZO Nobel (the Netherlands), Nata Opto-electronic (China) and Ube Industries (Japan). In 2016, CR5 boasted a concentration of above 85%, of which Nata Opto-electronic occupied the first place firmly with a market share of 1/4.

By upstream sectors, gallium and indium are the main raw materials of MO source, and China has largest gallium and indium reserves in the world, with marked superiorities in source. China's cost advantage keeps prominent for price of gallium and indium remained low and seldom surged over the years.

As for downstream sectors, over 80% of MO source is used in LED, mostly for LED chip manufacturing. In recent years, companies in Mainland China narrowed their gap with Taiwan and performed far better in price, delivery and market reaction as they improved capacity and technology. As a result, China's LED chip industry developed fast, registering a CAGR of 23.9% during 2010-2016.

Besides LED, MO source also finds application in solar cell, phase change memory and semiconductor laser.

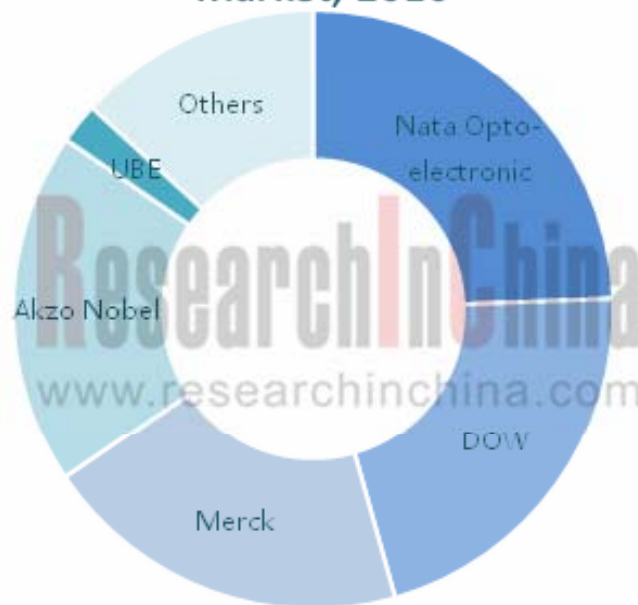
**Solar cell:** new-generation solar cells like MO source-based gallium arsenide solar cell and amorphous silicon thin film solar cell, are in small use in China on account of difficult production technology and high production costs, but will be more applied in the future as technology improvement lowers production costs.

**Semiconductor laser:** China's semiconductor laser market expanded rapidly despite late start and small market size, with CAGR of output value hitting 17.2% during 2010-2016, higher than the global average.

Global and China MO Source Industry Report, 2017-2021 highlights the following:

- ◆ Overview of MO source industry (definition, classification, application, industry chain, industry characteristics, etc.);
- ◆ Global MO source industry (overview, supply, demand, market structure, etc.);
- ◆ China's MO source industry (development environment, supply, demand, competition pattern, market price, etc.);
- ◆ Market size, market structure, competition pattern, price, etc. of MO source upstream sectors (gallium, indium, etc.) and downstream sectors (LED, solar cell, phase change memory, semiconductor laser, RFIC chip, etc.);
- ◆ 9 MO source producers worldwide (operation, MO source business, etc.).

## Competition Pattern of Global MO Source Market, 2016



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- 1.1 Introduction
- 1.2 Classification and Application
- 1.3 Industry Chain
- 1.4 Industry Characteristics
  - 1.4.1 High Concentration
  - 1.4.2 Slowing Growth

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