

Global Thermal Conductive Materials Market: Key Research Findings 2016

◆ Research Outline

Yano Research Institute has conducted a study on the global thermal conductive materials market with the following conditions:

1. Research period: December 2015 to May 2016
2. Targeted thermal conductive materials: Thermal conductive fillers (alumina, boron nitride, aluminum nitride), thermal interface materials (thermally conductive sheets, phase-change sheets), thermal conductive PCB (printed circuit boards) that are (Aluminum substrate, Alumina substrate, aluminum nitride substrate, silicon nitride substrate)
3. Targeted Enterprises: Manufacturers of thermal conductive components and modules
4. Research methodologies: Face-to-face interviews by the specialized researchers, surveys via telephone/e-mail, and literature research

<What is Thermal Conductive Materials Market?>

The key challenge to develop electronic devices is to let the heat out of them when making such devices smaller in size, packed in a higher density, and improved in performance through various routes by way of heat transmission, convection, heat radiation, or ventilation.

The thermal conductive materials market in this research targets TIM (Thermal Interface Materials,) thermal conductive PCB, and thermal conductive fillers which give TIM dissipation of heat. The market size is calculated based on the sales volume at manufacturers.

◆ Key Findings

■ Global Thermal Conductive Filler Market in 2015 Projected to Achieve 8,377 Tons, Forecasting Market Size to be 10,882 Tons by 2020

The global thermal conductive filler market in 2015 reached 8,377 tons, based on the sales volume at manufactures. Such thermal conductive fillers are used in TIM (thermal interface materials) which includes thermally conductive sheets or gel, phase change sheets, thermal grease (paste), and adhesives. With thermal conductive fillers likely to be driven by growth of each of application markets and by larger demands of TIM, continuous expansion is expected for the global thermal conductive filler market to reach 10,882 tons by 2020.

■ Global Thermally Conductive Sheet Market Size in 2015 Estimated as 3,726 Thousand m², 4,356 Thousand m² by 2020, Phase Change Sheet Market in 2015 as 510 Thousand m², Almost the Same Level in 2020

The global thermally conductive sheet market in 2015 based on the sales volume at manufactures attained 3,726 thousand m², and the market of phase change sheet reached 510 thousand m². Those thermal conductive sheets are mainly used for consumer devices accounting for 30%, automobiles 35%, and industrial machinery 35%. Growing needs of heat dissipation at each of the category has increased opportunities for thermally conductive sheets to be used at various cases. While the global thermally conductive sheet is likely to increase to 4,356 thousand m² by 2020, the global phase change sheet market in 2020 is to stay the same level as 2015, because the application of phase change sheets has not been expanded, for their characteristics are intermediate between thermally conductive sheets and grease.

■ **Global Thermal Conductive PCB Market Size in 2015 Estimated as 1,894 Thousand m², 2,871 Thousand m² by 2020**

Estimated size of the global thermal conductive PCB market (including aluminum substrates, alumina substrates, aluminum nitride substrates, and silicon nitride substrates) in 2015 reached 1,894 thousand m², based on the sales volume at manufactures. The market is occupied by aluminum substrates by 86.5%. among which the main user of such aluminum substrates are LED TV accounting for 70.0%, followed by other applications including LED lighting, electrical components for automobiles, and power modules. On the other hand, alumina substrates, aluminum nitride substrates, and silicon nitride substrates are mainly used for power modules. Because of larger demands in consumer devices, industrial machinery, and automobiles, thermal conductive PCBs are likely to grow more, so that the global thermal conductive PCB market is expected to attain 2,571 thousand m² by 2020.

◆ **Report format:**

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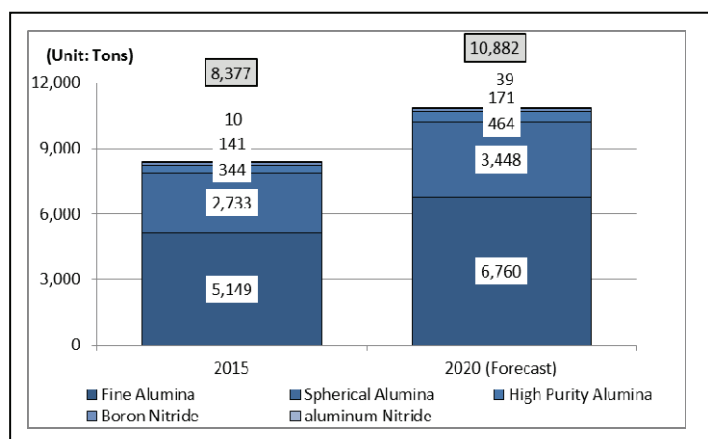
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■ **Figure & Table 1: Global Thermal Conductive Filler Market (2015 & 2020 Forecast)**

(Unit: Tons)

	2015	2020 (Forecast)
Fine Alumina	5,149	6,760
Spherical Alumina	2,733	3,448
High Purity Alumina	344	464
Boron Nitride	141	171
Aluminum Nitride	10	39
Total	8,377	10,882

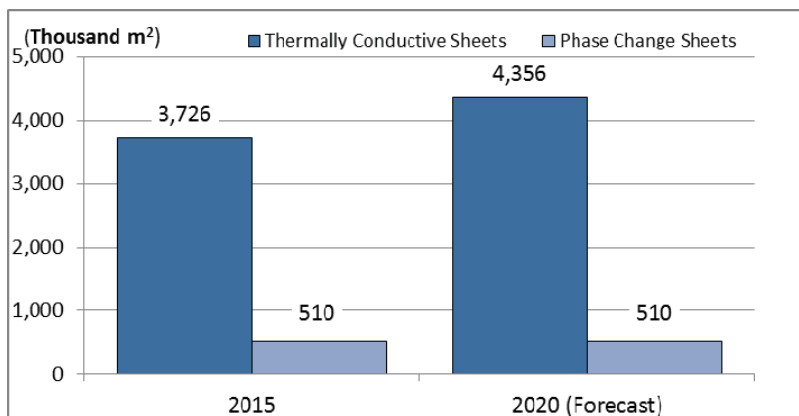


Estimated by Yano Research Institute

Notes:

1. The market size is based on the shipment value at vendors.

■ **Figure &Table 2: Global Market Size of Thermally Conductive Sheets & Phase Change Sheets (2015 & 2020 Forecast)**



(Unit: Thousand Square Meters)

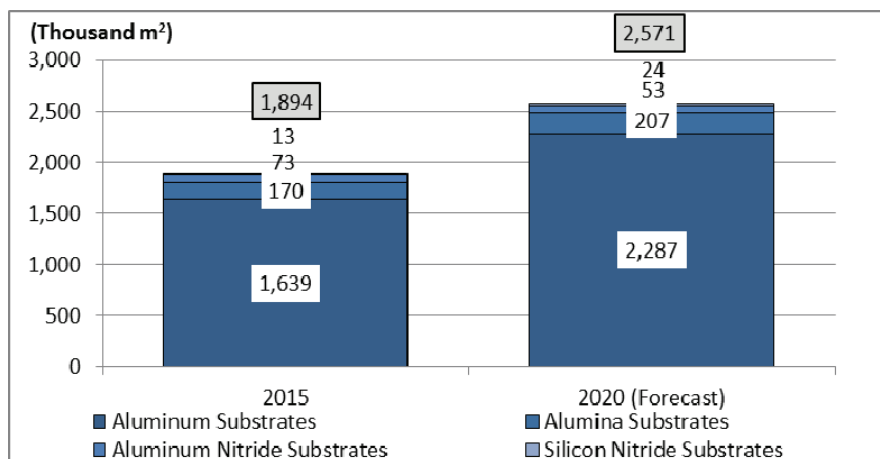
	2015	2020 (Forecast)
Thermally Conductive Sheets	3,726	4,356
Phase Change Sheets	510	510

Estimated by Yano Research Institute

Notes:

2. The market size is based on the shipment value at vendors.

■ **Figure &Table 3: Global Thermal Conductive PCB Market (2015 & 2020 Forecast)**



Estimated by Yano Research Institute

(Unit: Thousand Square Meters)

	2015	2020 (Forecast)
Aluminum Substrates	1,639	2,287
Alumina Substrates	170	207
Aluminum Nitride Substrates	73	53
Silicon Nitride Substrates	13	24
Total	1,894	2,571

Notes:

3. The market size is based on the shipment value at vendors.