

4971 **MEC COMPANY LIMITED**
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**Using unique interface creation technology to develop
a chemical for use in fine-wiring electronic substrates**

◆ **Overview of financial results for the year ended March 2015**

In the electronics industry in the term under review, there was sluggish demand for client PCs but growth in the field of smartphones continued, mainly in China, and the switch to large displays with a high image quality progressed.

Based on this environment, the Company's Group has actively been promoting sales in Asian markets such as China, Taiwan and South Korea.

In particular, we have accelerated our development of the CZ Series of chemicals that dramatically improve the adhesion between copper and resin in the process of manufacturing high-density, multilayer substrates for package substrates of smartphones or servers. We have also worked to do this for the EXE Series of subtractive etching agents that make it possible to have fine wiring. As a result, we expanded sales.

We currently enjoy a high market share with the EXE Series for displays, and we are currently continuing to conduct an evaluation test on them to further expand their sales for use with package substrates, flexible substrates and HDI boards.

FlatBOND is being newly adopted for manufacturing electronic substrates that are capable of high-speed data transmission and that are used in mobile phone base stations, supercomputers and the like. In addition, AMALPHA has been newly adopted as a chemical product used in part of the process of manufacturing cases for mobile devices.

As a result, the financial performance in the consolidated fiscal year under review was steady, with net sales of 9.057 billion yen (up 13.2% year-on-year), operating income of 2.008 billion yen (up 41.3% year-on-year), ordinary income of 2.129 billion yen (up 37.2% year-on-year), and net income for the term of 1.344 billion yen (up 45.3% year-on-year).

◆ **Core technology and research and development**

Our main businesses are to develop, manufacture and sell specialty industrial chemicals that are essential for increasing the functionality and productivity of electronic substrates and electronic components that support the electronics industry. For this reason, we have worked hard to launch at an early stage global development activities that capture global needs, and at the same time make the utmost effort for research and development on core technologies.

Our core technologies consist of the following three.

The first is adhesion improving technology.

This is technology to obtain a good adhesion between metal and resin.

It is an important technology which is essential to achieving adhesion between copper and resin in package substrates or high-density, multilayer substrates used in PCs, automobiles, smartphones, and tablet PCs. In the future, we expect to see further advances in electronic products as they come to have greater functionality, become smaller and lighter in weight and adopt higher frequencies.

Our products include those in the CZ Series and V-Bond Series which utilize physical adhesion, and the FlatBOND Series of products that work by chemical adhesion.

The second is technology to form fine wiring.

To form wiring, a subtractive process is used on the motherboard of an item such as an HDI board - the so-called subtractive method. In addition, there is a semi-additive process which is used for package substrates requiring fine wiring for mounting a semiconductor - the so-called SAP method.

This SAP method is excellent for forming fine wiring on the package substrates to be mounted on compact information terminals such as PCs, smartphones, and tablet PCs; but on the other hand, it has problems such as a high production cost and the difficulty of conducting process control.

Our EXE Series has so far been widely used for forming very fine wiring patterns on a Chip On Film (COF) which is used to mount a semiconductor on display. COF wiring must be of a fineness that is equivalent to the wiring on a package substrate. Using the EXE Series to form this fine wiring pattern has made it possible to produce products with the subtractive method.

The EXE Series of products are very useful, from both aspects of cost and productivity, for achieving a fine wiring formation with the subtractive method when making the increasingly fine wiring that is adopted in motherboards to be mounted in mobile information terminals that will continue to become remarkably smaller and lighter.

And the third is surface treatment technology.

This is a technology that has been utilized in the pre-treatment of copper used in the process of manufacturing electronic substrates. It can be used to roughen or selectively etch metals other than copper, that is, it can also be used when manufacturers want to selectively etch only specific metals, and it will be possible to expand its application to a variety of fields in the future.

In particular, AMALPHA, which is a technology for bonding a metal and a resin at the interface level without using an adhesive or the like, is very good in terms of reliability and durability both in the molding of parts that integrate resin and metal. Not only that, but it also is characterized by being friendly to the environment since it does not use any solvent.

In the term under review, it was still used only at the prototype level, but it has been newly adopted as a chemical solution used for some processes of manufacturing cases for mobile devices.

Besides, it can be used for a variety of molding techniques and can maximize the respective characteristics of metal and resin to make parts with new and unprecedented designs and functions.

◆ Plan for the year ending March 2016

Looking at the electronics industry in this period, while sales of products for use in automobiles or low-cost smartphones and servers will remain strong, sales of PCs and tablet PCs are expected to continue struggling.

The Company will continue to focus on expanding the market share that the CZ Series of products has for electronic substrates of mobile terminals, while also making efforts to achieve good results with the EXE Series for flexible substrates, package substrates and HDI boards and increase the number of cases where AMALPHA is used.

As a result, the outlook for the financial performance in the fiscal year ending March 2016 is for net sales of 9.420 billion yen (up 4.0% year-on-year), operating income of 2.15 billion yen (up 7.0% year-on-year), ordinary income of 2.2 billion yen (up 3.3% year-on-year), and net income for the term of 1.45 billion yen (up 7.9% year-on-year).

And, as the medium- to long-term goal, we will aim to continue strengthening our global deployment and expand our business fields, shifting from those related to manufacturing electronic substrates to display-related fields and areas related to resin-metal bonds.

To that end, we will continue to diligently study core technology and focus on strengthening new product development and our quality assurance system.

◆ Q&A ◆

What were the factors behind the strong sales in the fourth quarter, especially of the CZ Series and V-Bond Series?

A large factor was the fact that sales of smartphones and servers have been steady. Especially with regards to smartphones, in many cases the package was large and our products were often used for high-end models.

In terms of the outlook for the current fiscal year, why is there a modest plan for increasing sales with sales of chemical solutions?

At the moment, sales of our products related to smartphones are driving our performance the most. But our analysis suggests that somewhat of a decline has appeared in the market as a whole and so we have refrained from making bullish forecasts.

However, by making efforts while bearing in mind the need for low cost and high productivity, there is also a possibility that our results will get even better along with a maturation of the market.

What decisive points would you emphasize as being important for the new adoption of AMALPHA?

Having smooth communication with customers is of great importance.

Although the number of cases where AMALPHA is used is still small, if we can take this opportunity to firmly establish AMALPHA as a business then there is a great possibility that we will be able to expect a high return. Also, we also want to aim to achieve a horizontal expansion.

For the EXE Series, have you found some breathing space to enter markets due to the miniaturization of displays?

We have been making efforts to have the EXE Series used in COF for about 10 years. Miniaturization is progressing, but the use of chemicals such as the EXE Series has also given rise to a shift from the semi-additive method to the subtractive method. We began full-fledged mass production of the EXE Series of products about four years ago, and it is now being adopted as a main etchant not only in Japan but also in places like Taiwan and South Korea.

Currently, among fine-pitch COF, it has acquired an extremely high market share.

Does that mean the EXE Series is mainly used for TVs?

Yes, it does. Most COF are used for LCD drivers, and we are now exploring other areas to deploy them in.

What applications does AMALPHA excel in?

Its current niche is mobile devices and such like but we have the goal of achieving good results with it in automobile-related areas.

In the case of stacking semiconductors, when there is 2.5D, 3D or fan-out wafer level packaging, what are the positive and negative implications of that for MEC?

Fan-out wafer level packaging has recently become a slight topic, but it has not become very widespread yet and we are not particularly conscious of it as a new area.

(May 13, 2015, Tokyo)

* The materials for use on the day of this briefing can be viewed at the address below.

http://www.mec-co.com/en/ir/k_setsumei/