Q&A Concerning Medium Term Plan Progress

Reference: Medium Term Plan Progress
URL: https://www.mitsui-kinzoku.com/LinkClick.aspx?fileticket=WRk8cVklugo%3d&tabid=204&mid=824&TabModule903=0
Note:
PKG = Package substrate
HDI = High density interconnect—a printed circuit board with a high wiring density that serves as a motherboard.
L/S = Line width & space—describes how fine and how densely spaced together the wire lines of a printed circuit board are.
MSAP = Modified semi-additive processing—a circuit fabrication technique that uses our MicroThin™ product (ultra-thin copper foil).
Subtractive method = A circuit fabrication technique that uses a general copper foil.

Q.
Regarding MicroThin™, what kind of technology roadmap do you have for the future, and what are your company's opportunities? I would like to know what you can tell us about the potential of MicroThin™ in the current situation and the changes in technology and market.

A.
I would like to talk about the possibilities of MicroThin™ separately for PKG and HDI. First of all, for PKG, the number of components has increased due to the release of 5G smartphones. I think this has led to growth for PKG even in smartphones. As the number of millimeter-wave compatible 5G smartphones increases in areas other than the United States, the number of parts such as Antenna in Package and antenna components will increase, so I think this area will drive growth.
For HDI, Chinese smartphone maker is now considering adopting it. We have not changed the hypothesis that the MSAP will be adopted and MicroThin™ will be used if a fine circuit with L/S = 30/30 is required. Until now, the MSAP has not been adopted, and the Subtractive method has been adopted, for example, by increasing the number of layers of the substrate or the area of the substrate. It is necessary to determine whether the consideration of the Chinese smartphone maker this time is according to our hypothesis, but if the number of layers of the substrate or the area of the substrate reaches the limit, I think there is room for HDI to grow in the future.

Q.
Please tell us what are the physical difficulties that your company is facing in achieving the reduction of CO2 emissions.

A.
Regarding how to reduce CO2 emissions, Metals and Engineered Materials account for 90% of our total. Of these, the electricity cause and the fuel cause are about half each. In the case of electric power, the government's policy is to shift to renewable energy sources, which will reduce the CO2 emission, but in this context, we will work to improve technical factor, and reducing the unit of electric power consumption. Another problem is that fuel, which accounts for about half of the total, especially, the hurdles for dry smelting using coke are very high. We are currently working on what we can do about this, so I hope to be able to answer a little more clearly next year.

Q.
There are various businesses, and I think they can be divided into low-profit businesses that have been around for many years and high-profit businesses. Please tell us if you have any thoughts on promoting more selection and concentration for the next Medium Term Business Plan.

A
We are talking about whether it is a conglomerate discount, and I think it will lead to whether the allocation of management resources is going well. We will set the meaning of our existence assuming the world of 2050, then backcast from 2050 to determine vision where we want to be in 2030. Whether or not it is in line with this vision will be one of the guide of decisions. In terms of efficient management, we will look at ROIC and consider whether we are the best owner or not.

Q.
Regarding the solid electrolyte for all-solid state batteries, at Toyota's presentation in September, the problem of the gap between the solid electrolyte and the anode was mentioned, and Toyota's explanation sounded like they had to find something new. Please tell us what you think about the issues of use for EV and the current development.

A.
As Toyota announced in September, the anode expands and contracts during charging and discharging, and the interface becomes less contactable. We are submitting samples to various manufacturers, and while each has its own problems, they are making various developments while trying to improve.

Q.
Regarding MicroThin™, how much the amount of usage will increase with 5G smartphones. Please tell us how you see it now, for example, next year or the year after that.

A.
The Japanese version of the 5G model is listed in the Appendix of the document. Of these, the parts that have increased with 5G are No. 6: UWB chip, No. 12: 5G modem, and No. 13: 5G & LTE transceiver. At the moment, we do not accurately grasp the increase in usage due to 5G smartphones, but we expect that the sales volume of MicroThin™ for PKG for smartphones this year will increase by 24% compared to the previous year. We believe that the amount of MicroThin™ will continue to increase as the number of components increases.
(Note： Corrected the 15% increase that was answered at the briefing session to a 24% increase.)

Q.
Regarding the unit of use of a MicroThin™ for PKG for smartphones, I have the impression that it will increase significantly when change from Sub6 to millimeter-wave. Is this correct?

A.
Since there are components using MicroThin™ that increase by changing from Sub6 to millimeter-wave, it will definitely increase. In the increasing phase, we understand that millimeter-wave are widespread in the United States, and that as the target area of the millimeter-wave compatible 5G smartphones expands, the number of components that use MicroThin™ will increase.

Q.
In the next Medium Term Business Plan, I heard that you will consider increase the return to shareholders. Please tell us if you have any specific ideas.

A.
Regarding shareholder returns, in the next Medium Term Business Plan, while considering cash allocation, such as investing in growth areas or carbon neutrality, we believe that cash during the Medium Term Business Plan should be appropriately returned to shareholders. Since the specific content is under consideration internally, I hope you understand the situation.

Q.
Please tell us about the current progress regarding the expansion of mass production customers for HRDP®.

A.
Evaluations are now starting all over the place, with more than 30 companies. The second company will start this month, and judging from the progress of the current evaluation, it is expected that about 4 to 5 companies will be mass-produced in 2023. However, it will take some time for the amount to increase. Looking at the growth of MicroThin™ for PKG, it will be after 2024 that HRDP® will contribute to profits. Mass production will begin at several companies in 2023, and we believe that it will start in earnest after 2024.

Q.
Regarding the part where the technology is shifting to fan-out using HRDP®, at the end of the mid-term plan that starts next year, and beyond, should we be aware of the generational change in the package regarding the MSAP? Please update at this time how to think about the timeline of technological transition in the strategy of MicroThin™.

A.
When HRDP® increases in 2024 and 2025, considering whether MicroThin™ for PKG and HRDP® will be cannibalized, I think that it will not be cannibalized because the target market is clearly different. Not all packages will be becoming more high-performance, I think there will be some packages for which it's the most suitable to use MicroThin™. On the other hand, with the progress of 5G and 6G, packages will become smaller and more high-performance, it will be necessary to create fan-outs that will be needed to build up semiconductors, which MicroThin™ cannot match. Therefore, we do not believe that MicroThin™ will continue to decline and replace HRDP®, and we believe that the number of high-performance packages in electronic devices will continue to increase, and that HRDP® will increase in the high-end area.

Q.
Regarding Engineered materials, what is the scale of investment in the next Medium Term Business Plan, and what is the balance with depreciation? Please let us know if you can tell us at this point.

A.
In the 2019 Medium Term Business Plan, we have invested a lot in Engineered materials. Among them, for example, for catalysts for automobile, the next Medium Term Business Plan is when the investment recovery of GPF catalysts begins in earnest. MicroThin™ has also already been invested in for PKG and is entering the payback phase. Only for copper powders for electronics, we are currently in the middle of a two-stage investment process, and the second stage has stopped now, but as MLCCs increase, we expect to invest a little more. As for Engineering materials, we have not seen anything that requires a large new

investment. On the other hand, we want to create new businesses in areas that are outside of our existing businesses, which we call ambidextrous management, and we have been working as a CVC (Corporate Venture Capital) since 2017. I think the next phase of investing in new projects is the next 2022 Medium Term Business Plan. Regarding M&A, if there are a lot of synergies that can be created by joining forces, we will continue to consider.

Q.
Please tell us what you are imagining about the future roadmap for all-solid state batteries.

A.
Regarding the roadmap for all-solid state batteries, those for which mass-produced samples have already been released have special applications. However, since the volume of special applications is very small, we are not thinking about contributing to profits. But through special applications, it is significant that we can use our solid electrolytes in the world and that we can stably ship them to our customers. Therefore, for special applications, we are planning to approach not only the 2 companies but also various other companies.
We believe that all-solid state batteries will contribute to profits for automobile, and we are targeting the second half of 2020s. We are now providing samples of this product to several automobile and battery manufacturers in Japan and overseas. The general consensus among them is that it will be in the second half of 2020s, and we are working toward that goal.

Q.
You mentioned that you are engaged in a variety of businesses and that there is a discount due to conglomerate. Based on ROIC management at this point in time, which businesses are facing challenges and what steps are you planning to take to address them in the next Medium Term Business Plan?

A.
There are two conglomerates, one is profitability and efficiency. The other is whether it is a business that is in line with what we should be in the future. Therefore, we are reviewing all of our current businesses and considering whether or not we are in line with what we want to be in the future.