

## MEC CO., LTD (4971 JP)

COST RISE SQUEEZES FY22 OP. POTENTIAL UPSIDE FROM CHIPLLET PACKAGE MASS PRODUCTION IS NOT REFLECTED IN FY22 GUIDANCE.

### FY21 RESULTS SUMMARY

MEC's (4971 JP) FY21 (Dec year-end) results overshot the Nov 21 revised guidance, coming in with full-year operating profit [OP] surging 66.2% YoY to ¥3,939mil on sales of ¥15,038mil (+25.8% YoY) thanks to (1) continued strength in chemical products sales supported by the steady sales of devices, such as PC and displays, and (2) a boost in demand for package substrates loaded with semiconductors as demand for servers increased. Chemical sales, which constitutes nearly 98% of the firm's total sales, rose +27.2% YoY to ¥14,756mil. An improved sales mix, with record sales of CZ-8101, resulted in a substantial 6.4ppt YoY increase in OPM to 26.2% in FY21. Moreover, with MEC's earnings more sensitive to the Taiwanese dollar and Chinese Yuan, the weaker yen added +¥691mil YoY in sales and +¥447mil YoY in OP.

### EXECUTIVE SUMMARY

- MEC (4971 JP) reported another impressive performance in FY21 (Dec year-end), overshooting the company's Nov 21 revised targets.
- Due to weaker yen, MEC reported FOREX gains of +¥691mil YoY in sales and +¥447mil YoY in OP.
- OPM hit 26.2% (+6.4ppt YoY) thanks to higher sales volumes and an improved sales mix.
- Sales of CZ-8101, MEC's core product, hit yet another annual sales record with sales of ¥4,507mil (+36.8% YoY), supported by the rapid surge in package production. In Q4 alone, CZ-8101 sales were ¥1,244mil (+43.8% YoY / +3.8% QoQ), supported by the rapid surge in package production.
- MEC is guiding for FY22 1H OP of ¥1,800mil (-7.7% YoY) on sales of ¥7,800mil (+11.0% YoY) and full-year OP of ¥4,000mil (+1.5% YoY) on sales of ¥16,500mil (+9.7% YoY). Lacklustre OP growth will likely be resulted from 1) rising costs, and 2) conservative CZ chemical sales volume assumptions.
- A medium-term management plan was announced for the first time. The numerical targets for the first phase – 20%+ OPM and above 10%+ ROE – were already achieved (FY21 OPM 26% / ROE 14%). MEC views that these targets are the minimum level that it could achieve even in an unpredictable global economic climate. MEC plans to invest in R&D and human resources -referred to as human assets – to realise further growth.
- Together with the medium-term plan, an ESG framework was disclosed.

#### Change in FY21 Q3 (cumulative) & FY guidance

¥mil	FY21			
	FY21CE New	FY21 Result	Difference (%)	YoY (%)
Sales	14,600	15,038	3.0	25.8
Incl. Chemicals	n/a	14,756	n/a	27.2
Operating Profit [OP]	3,750	3,939	5.0	66.2
OP Margin [OPM] (%)	25.7	26.2	+0.5pp	+6.4pp
Recurring Profit [RP]	3,850	4,104	6.6	71.8
NP for the parent's shareholders	2,750	2,949	7.3	84.8
EPS (¥)	144.78	155.28	7.3	84.8

Source: Nippon-IBR based on MEC Co., Ltd.'s FY21 Earnings Results Material

### SEGMENTS

FY21 Chemicals division sales, which comprises approx. 98% of MEC's total revenue, rose 27.2% YoY to ¥14,756mil and contributed ¥1,298mil of the ¥1,569mil YoY (+66.2% YoY) gain in FY21 OP. In Q4 alone, Chemical division sales rose +20.7% YoY to ¥3,814mil, though they were down 4.8% QoQ.

Continued strength in server demand at data centres as well as demand for PCs and displays, bolstered by the rise in data transmission, supported MEC's sales growth. Over the year, sales of Copper Treatment Chemicals (approx. 95% of Chemicals sales) rose 25.7% YoY to ¥14,014mil. In Q4 alone, quarterly sales of Copper Treatment Chemicals were ¥3,621mil (+18.0% YoY / -5.1% QoQ). The QoQ decline was primarily due to lower sales of etching chemicals such as (1) EXE, for which display chip-on-film [COF] makers adjusted inventory, and (2) SF, due to customers affected by semiconductor shortage.

#### 1) Adhesive Enhancers

FY21 Adhesive Enhancer sales rose 33.3%YoY to ¥9,615mil, of which sales in Q4 alone hit another quarterly record of ¥2,625mil (+33.2% YoY / +0.0% QoQ). In Q4 alone, the CZ series sales came in at ¥2,294mil (+34.9% YoY / -0.8% QoQ). The firm's core product in this product group, CZ-8101, an adhesive-enhancing chemical used in packages for servers and chiplet packaging such as EMIB, also reported another record in quarterly sales. In Q4 alone, CZ-8101 sales were ¥1,244mil (+43.8% YoY / +3.8% QoQ).

The growth driver behind the strong CZ-8101 sales has been demand for packages used in (1) servers and base stations, bolstered by the rise in data transmission as penetration of the 5G communication progresses, (2) for PCs, whose demand remains strong on the back of prolonged remote working and distance learning due to Covid, and (3) an increase in the number of sensors loaded in automobiles

In addition, Other CZ Chemicals, which include chemicals used pre and post the adhesive processes, also hit record annual sales of ¥2,744mil (+43.1% YoY). The rise in demand for these adhesive chemicals – used by package makers to increase density of packages in their efforts to improve adhesiveness – also helped improve overall profitability.

The CZ-8100 product, which is partly used in packages for automobile components, also showed resilience despite the semiconductor shortage affecting auto production. Although MEC had expected the semiconductor shortage-led slowdown in auto production to have some negative impact on CZ-8100 demand, it was offset by a rise in the number of semiconductors used per car. In Q4 alone, CZ-8100 sales remained above the ¥300mil level at ¥302mil (-3.8% YoY / -3.2% QoQ).

Moreover, V-Bond, another adhesive-enhancing chemical used in multilayer substrates for autos and middle-end smartphones, also reported record annual sales of ¥817mil (+22.3% YoY).

## 2) Etching Chemicals

FY21 sales of Etching Chemicals rose 11.9% YoY to ¥4,398mil, with Q4 sales alone coming in at ¥996mil (-9.4% YoY / -16.3% QoQ). The segment did not achieve record levels as SF, a key material used in touch panel sensors, saw Q4 sales decline 42.0% YoY / 25.3% QoQ to ¥210mil as the strong demand under the pandemic peaked. Furthermore, the semiconductor shortage led to a slowdown in the production of high-end tablet devices that still incorporate touch panel sensors for which the chemical is used. Prior to Q4, strong demand for tablets on the back of prolonged remote working and distance learning boosted Q1~Q3 SF sales. Although MEC had already taken into account that new high-end smartphone would no longer use touch panel sensors at the beginning of this fiscal year, the Q4 sales decline was likely caused by production disruption of devices.

EXE, another of MEC's etching chemical products, reported record annual sales of ¥1,617mil (+23.9% YoY). In Q4 alone, sales trended down to ¥318mil (-2.5% YoY / -28.2% QoQ). In Q3, demand for use in chip-on-film [COF] remained solid as display COF makers stockpiled inventory in fear of potential future components shortage, though the steady demand for laptops and displays as people worked and studied from home remained firm. Consequently, the tough QoQ performance in the Q4, was due to customers adjusted their inventory of EXE which affected Q4 sales.

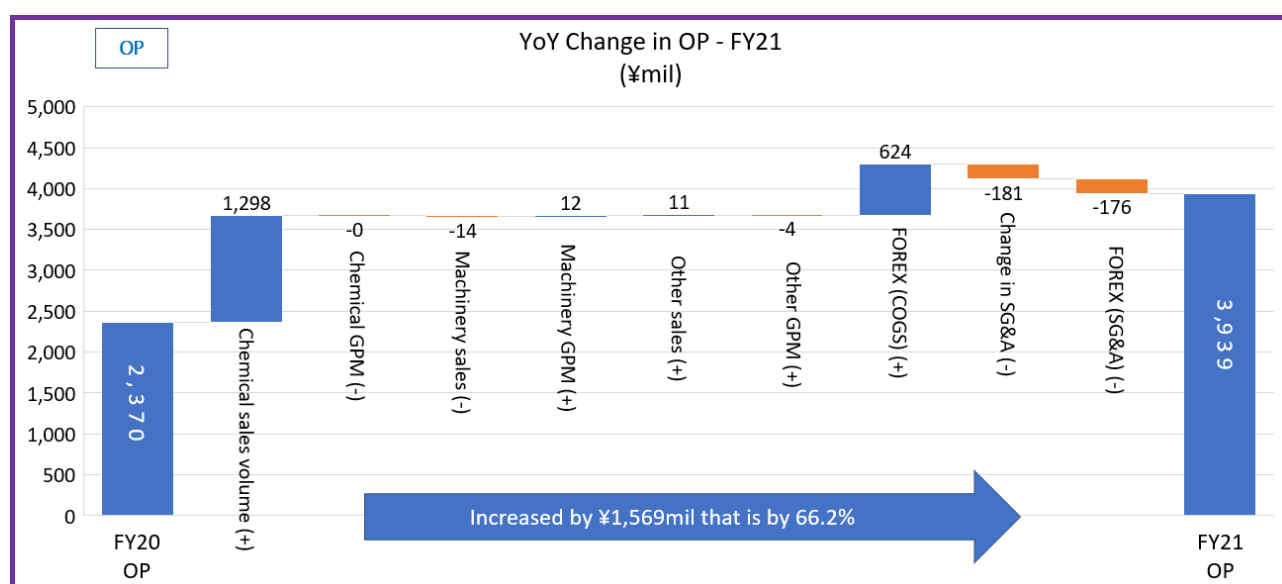
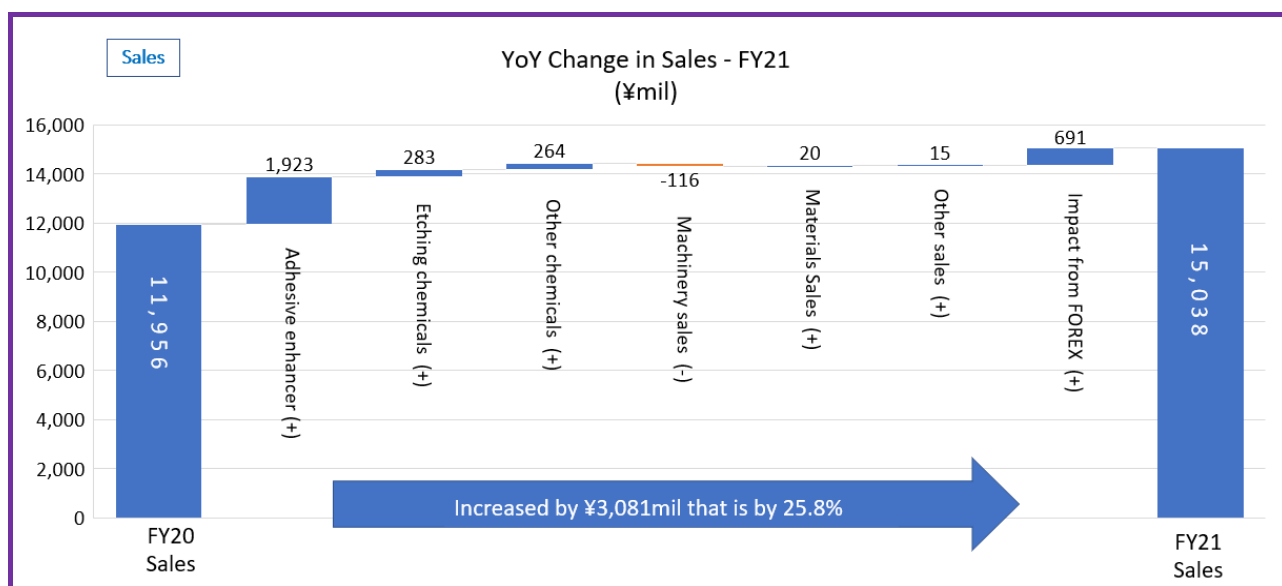
Chemical Sales by Products (Quarterly)												
(¥mil / Dec year-end)	FY2019		FY20				FY21					
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	QoQ (%)	YoY (%)
Copper Surface Treatment Chemicals	2,919	2,592	2,551	2,701	2,824	3,069	3,278	3,301	3,814	3,621	-5.1	18.0
Adhesive enhancer (CZ, V-Bond etc.)	1,718	1,695	1,720	1,695	1,828	1,970	2,150	2,216	2,624	2,625	0.0	33.2
CZ Series Total	1,484	1,468	1,507	1,491	1,562	1,700	1,906	1,964	2,313	2,294	-0.8	34.9
CZ-8100	257	269	246	225	264	314	301	310	312	302	-3.2	-3.8
CZ-8101	752	753	787	820	822	865	1,026	1,038	1,199	1,244	3.8	43.8
Other CZ Chemicals	475	446	474	446	476	521	579	616	802	747	-6.9	43.4
Etching Chemicals (EXE, SF etc.)	1,200	897	830	1,006	996	1,099	1,128	1,084	1,190	996	-16.3	-9.4
SF	407	222	182	298	247	362	326	241	281	210	-25.3	-42.0
EXE	369	278	301	362	316	326	407	449	443	318	-28.2	-2.5
Other Surface Treatment Chemicals	133	122	109	127	121	91	174	178	193	191	-1.0	109.9
<b>Chemical Sales Total</b>	<b>3,052</b>	<b>2,715</b>	<b>2,661</b>	<b>2,829</b>	<b>2,946</b>	<b>3,160</b>	<b>3,452</b>	<b>3,480</b>	<b>4,008</b>	<b>3,814</b>	<b>-4.8</b>	<b>20.7</b>

Source: Nippon-IBR based on MEC's earnings presentation materials

**Chemical Sales by Products (Cumulative)**

¥mil / Dec year-end	FY2019				FY20				FY21				YoY (%)
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Copper Surface Treatment Chemicals	2,134	4,631	7,550	10,142	2,551	5,252	8,076	11,147	3,278	6,579	10,393	14,014	25.7
Adhesive enhancer (CZ, V-Bond etc.)	1,360	2,948	4,666	6,361	1,720	3,415	5,243	7,213	2,150	4,366	6,990	9,615	33.3
CZ Series Total	1,185	2,564	4,048	5,516	1,507	2,998	4,560	6,260	1,906	3,870	6,183	8,477	35.4
CZ-8100	232	492	749	1,018	246	471	735	1,049	301	611	923	1,225	16.8
CZ-8101	540	1,329	2,081	2,834	787	1,607	2,429	3,294	1,026	2,064	3,263	4,507	36.8
Other CZ Chemicals	413	743	1,218	1,664	474	920	1,396	1,917	579	1,195	1,997	2,744	43.1
Etching Chemicals (EXE, SF etc.)	773	1,682	2,882	3,779	830	1,836	2,832	3,931	1,128	2,212	3,402	4,398	11.9
SF	145	350	757	979	182	480	727	1,089	326	567	848	1,058	-2.8
EXE	297	646	1,015	1,293	301	663	979	1,305	407	856	1,299	1,617	23.8
Other Surface Treatment Chemicals	132	257	390	512	109	236	357	448	174	352	545	736	64.3
<b>Chemical Sales Total</b>	<b>2,266</b>	<b>4,889</b>	<b>7,941</b>	<b>10,656</b>	<b>2,661</b>	<b>5,490</b>	<b>8,436</b>	<b>11,596</b>	<b>3,452</b>	<b>6,932</b>	<b>10,940</b>	<b>14,756</b>	<b>27.2</b>

Source: Nippon-IBR based on MEC's earnings presentation materials



## FY22 OUTLOOK

MEC is guiding for FY22 1H OP of ¥1,800mil (-7.7% YoY) on sales of ¥7,800mil (+11.0% YoY) and full-year OP of ¥4,000mil (+1.5% YoY) on sales of ¥16,500mil (+9.7% YoY). Reasons for the lacklustre OP growth compared to that of sales are:

1. MEC remains conservative on the outlook for sales growth for the CZ series. The firm assumes FY22 CZ series sales of ¥9,816mil (+15.8% YoY) vs FY21's ¥8,477mil (+35.4% YoY). Mass production of packages using chiplet technology such as EMIB has been delayed over the past two years. Given the hefty investment by package makers, it is estimated that the mass production using the new technology will finally start from Q4 2022, this should boost demand for MEC's newer CZ chemical, CZ-8201. However, the firm has factored in little contribution from this in its FY22 forecast and assumes growth will primarily come from the increase in packages in applications such as data centre servers and 5G base stations. MEC is also expecting shipments of some mobile devices, such as laptops, will peak out as the past two years' strong demand bolstered by remote working will return to more normal levels.
2. MEC is guiding for a 1.3ppt decline in GPM on the back of higher costs such as raw materials, labour, and overheads. SG&A will also increase due to an increase in personnel costs, which includes some 30 new staff to be hired FY22, and shipping costs. The firm has factored in a rise of ¥6,300mil in total costs for FY22.

The firm's assumptions on each segment are as follows:

### 1) Adhesive Enhancer

Thanks to the continued strength in demand for semiconductor packages, bolstered by strong demand for servers, and the associated strength in demand for CZ-8101, MEC forecasts FY22 CZ Series sales to rise 15.8% YoY to ¥9,816mil, which will mark another record level. The growth will be led by CZ-8101, which is forecast to rise 16.5% YoY to ¥5,250mil, and the firm anticipates demand for CZ-8100, used in applications such as automobile – where the number of semiconductors used per vehicle is expected to rise – and middle-end smartphones, will generate annual sales of ¥1,340mil (+9.4% YoY) – another record level.

For V-Bond, although management does expect auto production will stabilise as the component shortage problems are gradually solved, they remain conservative in their estimate, guiding for flat sales (-0.1% YoY) to ¥816mil.

MEC also assumes newer generation CZ chemicals, such as CZ-8201, will earn FY22 sales of ¥403mil (+81.5% YoY). However, as noted above, the number does not factor in the potential growth from mass production of packages using chiplet technology. The bottleneck still lies in production yields in chiplet packaging which involves the technological challenge of inserting the silicon substrate inside packages.

### 2) Etching Chemicals

MEC assumes SF sales will decline 9.1% YoY to ¥962mil. The firm had already assumed SF sales would gradually shrink as new versions of high-end smartphones will no longer require touch panel sensors, for which SF is used. Furthermore, the semiconductor shortage continues to affect production volumes of tablet devices, which might potentially impact SF sales.

However, the decline in SF will be partially offset by growing demand for EXE which will be used in Chip-on-Film [COF] for displays and mid-range smartphones throughout the year, particularly from Chinese makers.

### 3) Shareholder Returns

MEC plans to pay out an annual cash dividend of ¥40/share. Based on the firm's FY22 EPS estimate, the dividend payout ratio will be 25.3% vs. the medium-term target of 30%.

## MEDIUM-TERM MANAGEMENT PLAN

Together with the FY21 results, MEC released its first ever medium-term management plan – 2030 Vision – in response to requests from investors and its own external directors. The first phase of the 2030 Vision will last for the three-year period from FY22~FY24. Also, for the first time, the firm touched upon its ESG materiality framework and how it plans to achieve some of SDGs such as 1) supporting the foundation of industries (SDG9), 2) providing a life with fulfilment (SDGs3, 4, 5, 6, 8, 10, 14, 15, 17), and 3) solving social and industrial problems (SDGs7, 13). The data which is needed for materiality evaluation is yet to be disclosed.

MEC views the numerical targets for the first phase of the plan – 20%+ OPM and 10%+ ROE –to be the minimum level it could achieve even in an unpredictable global economic climate. During the first phase, the firm's aim is to build foundations to sustain above-target returns while investing on R&D (approx. 10% of annual sales) and human resources (which MEC refers to as human assets since they are considered to be an important ingredient for growth).

For earnings growth, the firm has the following assumptions:

### Demand from Package Makers to Remain Strong

MEC continues to view the medium-term potential for its chemicals to likely remain strong. All package makers – including MEC's direct customers – are reportedly continuing to invest in capacity expansion to meet the demand from chipmakers, who are the customers of package makers, on the back of increasing demand for semiconductors required for data centre servers as 5G is rolled out.

It is said that package makers' new factories will start operating in 2025, and they will gradually shift to mass production under the chiplet packaging method, which enables the size of a package to be larger and have more layers. Therefore, packages will require around eight times more CZ chemicals than current levels used to produce packages used in PCs.

Judging from the level of CAPEX that is planned by its customers, MEC expects the current high demand for its core chemical products, especially CZ series, will likely remain firm until FY30. Cash generated from earnings growth led by CZ series will be reinvested on R&D. While the medium-term growth will be driven by the CZ chemicals used to enhance adhesiveness between copper and resin by roughing copper surface, the firm reckons the technology will shift to smooth surface adhesion as a package shifts to ultra-higher density and ultra-high frequency. This is one of the areas that MEC has started investing its R&D budget, in addition to other products that it has been developing.

### Capacity Management and Expansion

MEC reckons that it will be able to meet the increasing demand from package makers by expanding the production capacity of its existing factories. MEC spent a total of ¥2,209mil on CAPEX over in FY19 and FY20. In FY21, the firm spent only ¥529mil of the ¥700mil in CAPEX planned for FY21. For FY22, the firm has set aside ¥1,324mil in CAPEX that includes capacity expansion at existing factories in Japan (Nagaoka and Amagasaki). For the time being, the firm is unlikely to need any large CAPEX. For the three years between FY22~FY24, a total of ¥5,000mil in CAPEX has been allocated.

### Shareholder Returns

During the three-years, MEC targets at a 30% pay-out ratio.

<b>Applications and trend for MEC's main chemicals (¥mil)</b>									
Chemicals	Applications	Trend	FY20	FY21 CE	FY21 Result	YoY (%)	vs. CE (%)	FY22 CE	YoY (%)
CZ series	PC, Tablets, Servers, AiP, packages for automobile.	Strong demand for servers due to an increase in demand for tablets and laptops on the back of increasing remote work and distant learning is expected to continue in FY21.  5G requires more servers which help boost CZ-8101 sales.	6,260	8,000	8,477	35.4	5.8	9,816	15.8
EXE	COF (Chip-on-Film) for smartphones and tablets. Currently tested for a used in high-end smartphone motherboards.	The increase in tablet and laptop demand boosted demand for COF used in displays. FY22 growth relies on the recovery of Chinese smartphone production. Increasing enquires for the subtractive wire forming method, in which EXE is used, in HDI motherboards.	1,305	1,617	1,617	23.8	0.1	1,852	14.5
V-Bond	Pre-lamination treatment for multilayer substrates. Used in packages for autos and mid-end smartphones	Sales recover in line with automotive and Chinese smartphone production	668	768	817	22.3	6.4	816	-0.1
SF	Touch panel sensor	Sales from smartphone displays are expected to decline as new technology that does not require sensor is used from 2021 model.	1,089	1,000	1,058	-2.8	6.0	962	-9.1

Source: Nippon-IBR

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