Q1 2021 Market updates : Severe allocation and material shortage in front of us

Early 2021 may be challenging in our industry, for some multiple causes explained in details below.
We want our customer partners to understand all the intakes and take smart actions to avoid shortage.
Alantys provides benchmarking solutions and gets access to inventories worldwide, which is definitely an asset nowadays.

Raw materials

First, the raw materials shortage is becoming a bigger concern each day now and pressure is already on the market: increased demand, static capacity, and industrial failures have come together to cause longer leadtimes, less availability and puts price pressure for key raw materials in our industry, and among all the copper foil that starts raising as a matter of fact.

Demand for such is increasing from PCB and battery production for e-mobility, leading to an upward price pressure for copper foils as post lockdown pent-up demand starts to exceed capacity. Lead-times are stretching and prices increasing particularly for heavy copper foils (2oz / 70 micron and above) as capacity is repurposed to maximize SQM output for light weight foils to increase capacity for lithium battery production. The trends are already evident in the pricing data for raw copper. Since March of this year, prices have continued to rise rapidly and have now even significantly exceeded pre-pandemic lockdown highs.

Similar conclusions were made in a recent report from Goldman Sachs who predict a sustained bull market for copper: “a bull market for copper is now fully underway with prices up 50% from the 2020 lows, reaching their highest level since 2017. This current price strength is not an irrational aberration, rather we view it as the first leg of a structural bull market in copper.”

Demand for Epoxy resins, IMS, and MPCB continues be driven by the demand for thermal management solutions for high powered LED general & automotive lighting applications, as well as power conversion applications associated with e-mobility charging infrastructure and green energy generation, and all the competing industrial and consumer applications. As demand from these sectors starts to pick-up pace, post pandemic lockdown prices are starting to rise above their pre pandemic levels, introducing price pressures to the supply chain.

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It has estimated copper prices will average around US$8,625 next year, before climbing to an average of US$9,175 in 2022. By the first half of 2022, Goldman Sachs analysts said, it is “highly probable” copper would test the existing record highs of US$10,170 set in 2011.

Demand for aluminum in insulated metal substrates (IMS) and metal backed printed circuit boards (MPCB) continues be driven by the demand for thermal management solutions for high powered LED general & automotive lighting applications, as well as power conversion applications associated with e-mobility charging infrastructure and green energy generation, and all the competing industrial and consumer applications. As demand from these sectors starts to pick-up pace, post pandemic lockdown prices are starting to rise above their pre pandemic levels, introducing price pressures to the supply chain.

Copper Foil Capacity Utilisation 2020 YE (T/Year)

	CCL & PCB	Lithium Battery	Total
2020 YE Capacity	549600	283000	8326002020
YE Demand	545000	255000	8000002020
YE Utilisation	99.16%	90.11%	96.08%

Source: Ventec International Group

High demand for epoxy resins for green energy applications (wind turbine blades) in China, coupled with recent industrial accidents at volume resin manufacturing facilities in China & Korea has led to shortages and significant (60%) price hikes for CCL manufacturers in the last two months. The impact is mostly felt in standard (130-135oC) Tg FR4 laminates & PP production costs and has already fed through to December 2020 price increases of 15-20% at the factory gate.

These increases will be felt in Europe and the USA from early Q1 2021 as inventories in these markets are replenished with higher cost stock. Upward price pressure has also been building for Mid and High Tg phenolic cured FR4's since the end of August 2020. The cumulative effect to date is around 15-20%, which will equate to 5-10% increases for CCL & PP in early Q1 2021. High growth in consumer and green energy applications is also pushing up glass yarn and glass fabric prices and limiting availability, particularly for heavy weight fabrics such as 7628 and 2116.

Glass fabric manufacturers tend to follow the demand for those materials which have lower quality demands and command higher market prices, than those demanded by the PCB industry. The CCL manufacturers expect that this trend will cause laminate shortages, particularly for rigid materials. High year-end enquiries and order levels in Asia are always a solid precursor of both availability limitations, and significant price increases in early 2021. This has already been confirmed by market price increase warnings issued by the global market leaders in rigid CCL production.

China Market Lithium Battery Demand for EV Cars

	2020	2025	2030
Requirement (Gwh)	62.4	322.1	1097.3
Copper Foil Requirement (T/Year)	56,160	289,890	987,570

Remark: Every Gwh will consume 900Tons of copper foil. Source: Ventec International Group (data sources incl. Co-tech Development Corp. & Taiwan Copper Foil Manufacturing Association)

Wafer shortage, consequence of the Trade War

This one is definitely the most breaking news in the semiconductor market, and i twill affect all makers on the medium term : on top of the increasing demand, SMIC and other non american foundries is blacklisted by the american semiconductor industry.
On top of it, demand in the foundry market has remained strong in Q4 2020, as production capacities across the industry remain fully loaded, with the tight supply of wafer capacities leading to a price hike in foundry services and subsequently driving up total quarterly industry revenue, according to TrendForce.

These elements mainly explain why TI, NXP, STM, Microchip and some ther makers are facing shortage of waffers
TSMC announced to all partners that the shortage will be faced and they can't fullfill the backlog on time – ask your sales representative for extensive information
Below is the global offer and allocated production :

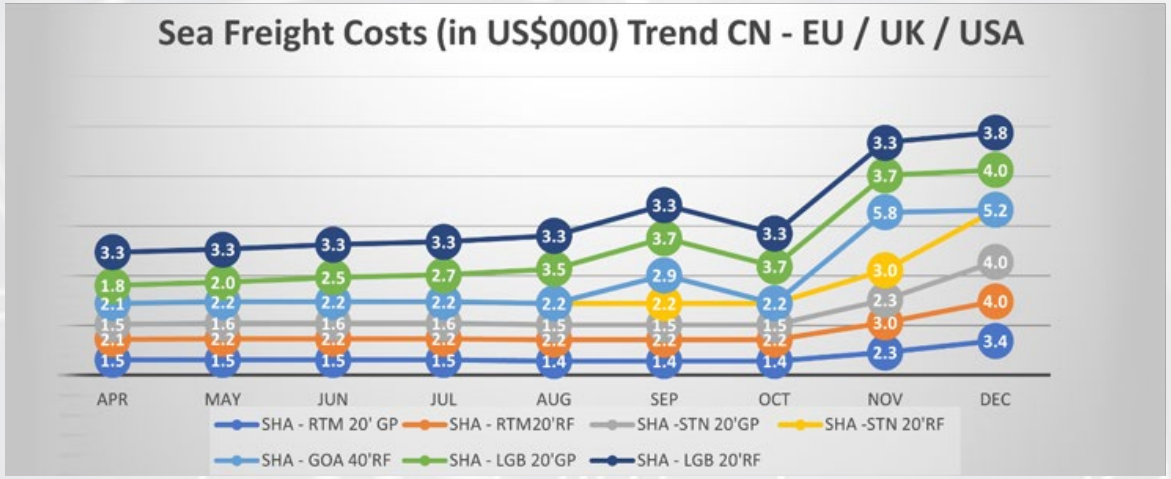
TrendForce indicates that foundry revenue will undergo a steady uptick in 4Q20, since the explosive demand for certain products has led foundry clients to raise inventory levels by moving ahead their component procurement, leading to a shortage in foundries' wafer capacities. However, companies still need to pay close attention to U.S.-China relations going forward as well as whether the pandemic's global resurgence will negatively impact purchasing demand for end devices.

Rank	Foundry	4Q20E	4Q19	YoY	M/S
1	TSMC	12,550	10,390	21%	55.6%
2	Samsung	3,715	2,970	25%	16.4%
3	UMC	1,569	1,391	13%	6.9%
4	GlobalFoundries	1,494	1,564	-4%	6.6%
5	SMIC	963	839	15%	4.3%
6	TowerJazz	340	306	11%	1.5%
7	PSMC	312	243	28%	1.4%
8	VIS	297	240	24%	1.3%
9	Hua Hong	269	243	11%	1.2%
10	DB HiTek	209	180	16%	0.9%
	Top 10 Total	**21,718**	**18,366**	**18%**	**96.1%**

Source : Trendforce

Weak transportation capabilities worldwide

Covid and its consequences still impacts the supply chain : only 20% of planes are flying, and the capabilities of the cargos are fully booked.
Explosion of the pricing of the transportation, obviously leads to delays in the chain, and price raises for the same reasons. This factor is not helping the recovery for smooth leadtimes.



There are significant capacity constraints affecting the availability of both sea & air freight. Market data shows that air freight demand is close to returning to 2019 levels, but the available capacity is down by 24% due to the lack of passenger flights. Price levels are down from the early pandemic highs of 4-5X pre pandemic rates. However, the price trend is upwards from summer 2020 levels of 1.5X pre pandemic rates and currently sitting at 2-2.5X pre pandemic rates due to very high seasonal demand. They are expected to remain high in 2021 and until a significant increase in passenger air traffic increases available cargo capacity. For sea freight demand is high due to a post pandemic lockdown rebound in demand, leading to two major issues: a shortage of both dry and refrigerated containers, and a high differential in pricing on Asia to Europe / UK and Asia to USA shipping routes. This differential towards more profitable USA routes is driving up prices for container traffic between Asia and Europe/UK, and freight rates to the USA are already very high.

Today more than ever, suppliers that own and control the complete supply chain of PCB materials including laminates, and prepregs from end to end, have a clear advantage. Maintaining carefully managed inventory in various locations worldwide gives the flexibility to adapt to these unforeseen events outside normal control, such as pandemics or industrial accidents! Building a supply chain capable of handling the challenges we all encounter - those we can control and those we cannot - is ultimately dependent on the quality of dialog between supplier and customer. The more we can work together, and establish those close, strong, and enduring relationships to the benefit of all parties involved, the easier it will be to navigate these challenging times.

Complimentary source : Evertiq.com