Capacitive Touch Panel Modules & Materials Market 2011

Yano Research Institute Ltd.

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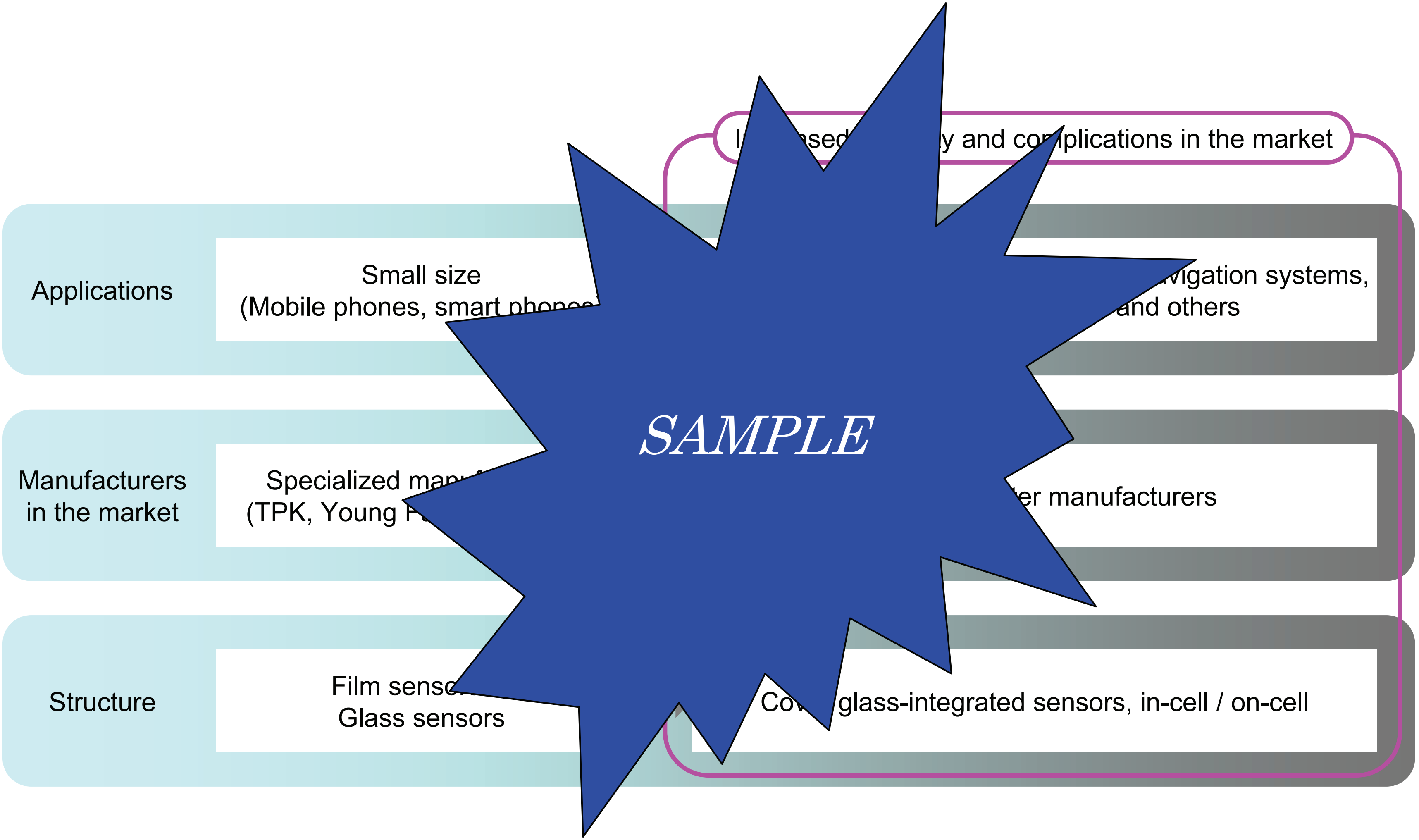
1-1. Changes in the capacitive touch panel market



1-2. Capacitive TP market trends

Greater diversity in required specifications for materials and components, driven by increased applications
Important to identify user preferences and competitor trends in responding to changes

- Demand exists for use not only in mobile phones and smart [illegible]es but also in tablet terminals. In addition, there is keen interest in adopting capacitive TPs fo[illegible]gital [illegible]as and car navigation systems.
- While glass sensors and film sensors [illegible]ave been a[illegible] adopte[illegible] in mobile phones and smart phones, the weight of the glass can be [illegible]ttlene[illegible]f gl[illegible] sensors in tablet terminals. Therefore, efforts are underway to mini[illegible]sor substrates, change glass sensor substrates to those made with fi[illegible]evelop cover glass-integrated sensors. Additionally, in term[illegible]ms and formation methods and materials for lea[illegible]
- Although adoption in car naviga[illegible]ict assessment process, capacitive TPs are expected to be[illegible]nd in genuine products in 2012. While the glass sensors will be use[illegible] required to improve the environmental resistance (humi[illegible]TPs for car navigation systems must offer low-reflective fe[illegible]
- Digital cameras, given their lo[illegible]sing capacitive TPs, although the need is apparent. Film senso[illegible]ming [illegible]oor use, sensors must be of a low-reflective nature.

- Amid changes in capacitive TPs in ter[illegible]app[illegible]ation and size, the weaknesses in materials currently used are prone to stand out. It is possi[illegible] that new materials and components for use as alternatives will promote market expansion.
- It is important for component and material manufacturers to grasp user preferences and competitor trends in pursuing development and enhancement efforts accordingly at this point in time when the market is showing rapid expansion and innovation.

SAMPLE

1-3. Product lineups and lead wire formation methods of capacitive TP manufacturers

	Glass sensors	Film sensors	Lead wire formation method
CMI	⊙	○	Printing
AUO	[illegible]	[illegible]	—
Cando	[illegible]	[illegible]	—
Sintek	⊙	[illegible]	—
TPK	[illegible]	[illegible]	[illegible] printing. The possibility of adopting other methods is low.
Wintek	[illegible]	[illegible]	—
Hitachi Displays	[illegible]	[illegible]	—
Young Fast	[illegible]	[illegible]	[illegible]urrently printing. Other methods are under development.
J touch	[illegible]	[illegible]	Currently printing. Partially sputtering?
SWENC	[illegible]	[illegible]	[illegible]tly printing. Other methods are under development.
EELY	Ur[illegible]	[illegible]	Printing
Nissha Printing	[illegible]	[illegible]	Currently printing. Other methods are under consideration.
ALPS ELECTRIC	[illegible]	[illegible]	Metal sputtering
DNP	[illegible]	⊙	Metal sputtering

* ⊙: main, ○: lineup, △: available [illegible]t in low volume, ×: no lineup, —: unrelated or unknown

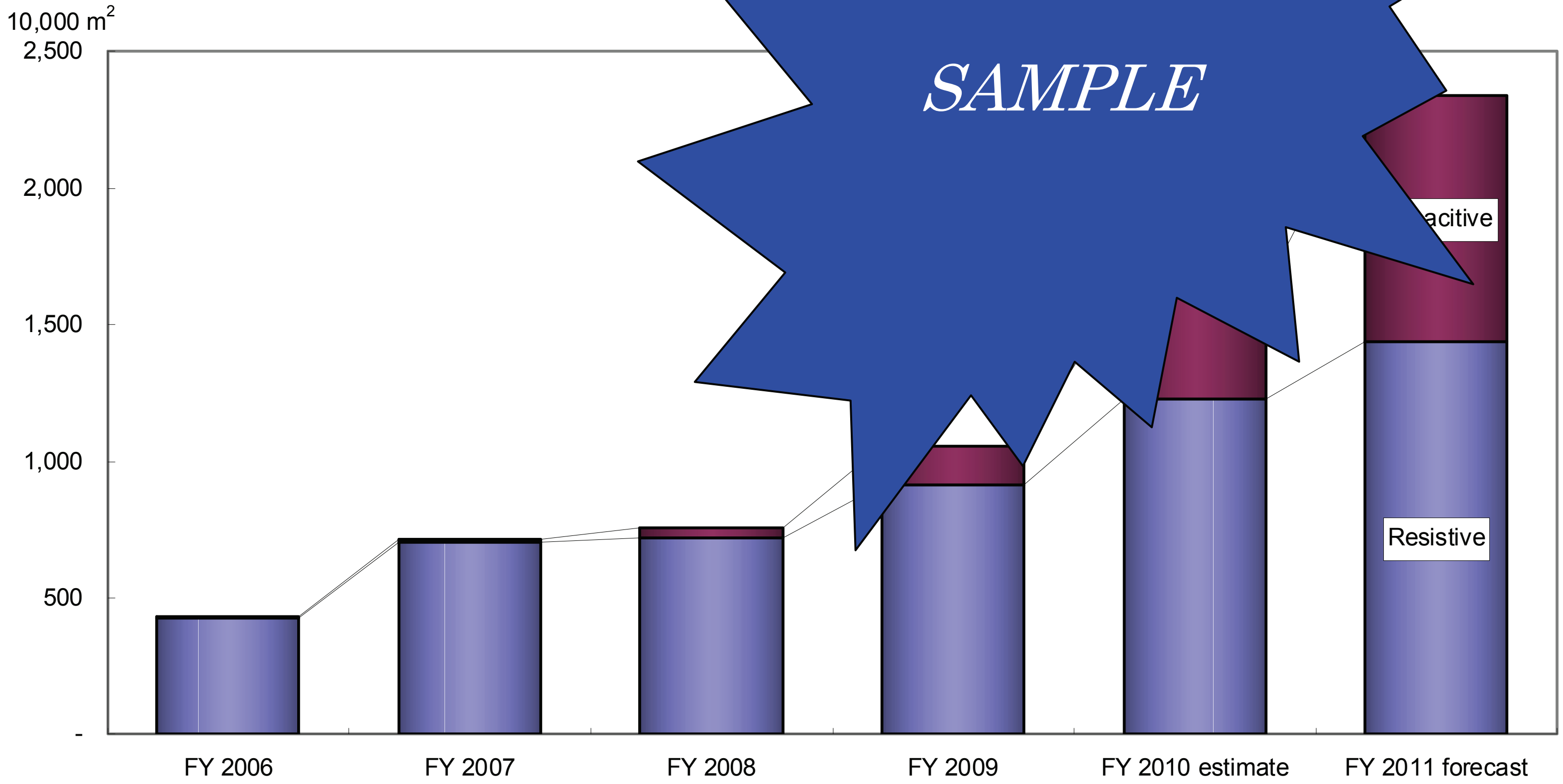
[Prepared by Yano Research Institute (Presumption partially included.)]

SAMPLE

2-1-2. Market size of ITO films

(Unit: 10,000 m^2)

	FY 2006		FY 2007		FY 2008		FY 2009		FY 2010 estimate		FY 2011 forecast	
		Ratio to total		Ratio to total		Ratio to total		Ratio to total		Ratio to total		Ratio to total
Resistive	426	98.8%	704	98.6%	719	947.0[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,437	61.5%
Capacitive	5	1.2%	10	1.4%	40	5.3%	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	431	100.0%	714	100.0%	759	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	100.0%



[Estimated by Yano Research Institute]

2-1-6. Adoption rates of TPs, capacitive TPs and film sensors of major manufacturers of mobile phones and smart phones

	TP adoption rate	of which, capacitive TP adoption rate	of which, film adoption rate
Nokia	15%	50%	[illegible] 70%
Samsung	45%	[illegible]	[illegible] - 100%
LG	50%	[illegible]	[illegible]
Sony Ericsson	20%	[illegible]	[illegible] or more
Motorola	50%	[illegible]	[illegible]00%
Apple	100%	[illegible]	[illegible]0%
RIM	Almost 100%	[illegible]	[illegible] more
HTC	Almost 100%	[illegible]	80%

[Estimated by Yano Research Institute]

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2-2-4. Market size of ITO glass for capacitive TPs

(Unit: 10,000 m^2)

	2009	2010 estimate	Y-o-Y %	2011 forecast	Y-o-Y %
For mobile phones and smart phones	20.5	35.3	[illegible]	[illegible]	325.2%
(Ratio to total)	(31.5%)	[illegible]		[illegible]	
For tablet terminals	—	[illegible]	[illegible]	[illegible]	[illegible]
(Ratio to total)	[illegible]	[illegible]		[illegible]	
Others	[illegible]	[illegible]	[illegible]	[illegible]	—
(Ratio to total)	[illegible]	[illegible]		[illegible]	
Total	[illegible]	[illegible]	[illegible]	[illegible]	264.4%
(Ratio to total)	[illegible]	[illegible]		[illegible]	

[illegible] ch Institute]

SAMPLE

2-2-5. Analysis on the market of ITO glass for capacitive TP sensors

- As of 2009, the only type of ITO glass for capacitive TP sensors available in a reasonable quantity was the glass for mobile phones and smart phones.
- As the iPhone from Apple (U.S.) was a hit, other mobile pho[illegible] manufacturers moved to enhance their lineups of smart phones with capacitive TPs. In 2010, ma[illegible]roducts with capacitive TPs were launched, including Galaxy S from Samsung (S[illegible]h Kor[illegible]roid Eris and Droid Incredible from HTC (Taiwan), and Droid from Motorola (U.S.).
- The rise in the number of smart pho[illegible]does [illegible]in[illegible] the demand volume for ITO glass, as it is estimated that until 2010, ma[illegible]one used film sensors. Subsequently, sensor manufacturers [illegible]y capacity and cost reduction. It is projected that [illegible] glass sensors in applications other than the iPhone will b[illegible]
- Tablet terminals, as they tend [illegible] of the display and are often used while in transit, are required to b[illegible]sting applications such as smart phones and notebook P[illegible]ors, rather than glass sensors, will be adopted. While App[illegible]Galaxy Tab uses the film sensor. If the need for lighter weight [illegible] possible that the iPad will also shift to using the film sensor.
- Going forward, the use of glas[illegible] categorized depending on size and application. It is expected th[illegible] size o[illegible] up to 3.5 to 4.0 inches, such as smart phones, will primarily utilize glass [illegible]ditio[illegible] glass sensors are expected to be used in automotive-related application such [illegible]ar na[illegible]igation systems on which capacitive TPs will be used in the near future. This is given that su[illegible] application even with resistive TPs generally used G/G.

SAMPLE

2-2-8. Production capabilities of glass sensor manufacturers

	Plant	Plant locations	Manufacturing machines/ systems	Capacity		Remarks
				2010	2011	
TPK (20% owned by Balda AG of Germany)	Xiamen Plant	Xiamen City, Fujian Province, China	2nd generation 2.5th generation	5 million sheets per month (3.[illegible] inches)	8 [illegible]on sheets [illegible] month [illegible] inches)	The new machine is 3rd generation; scheduled to start operation by the end of 2010.
Wintek	Taichung Plant	—	3rd generation	0.5 [illegible] sheets [illegible]th [illegible]	→	The China Plant began operation in September 2010. It is expected to expand its capacity to produce 3.0 to 3.5 million sheets per month in the first half of 2011.
	China Plant	Donguan City, Guangdong Province, China	[illegible]	1.[illegible]	[illegible]lion [illegible]	
Sintek (Member of the HannStar Display Group)	Tainan Plant	Sinshih Township, Tainan County	5.3rd g[illegible]	[illegible]	[illegible]	[illegible]e 4.5th-generation machine by [illegible] of 2011.
Cando (Member of the AUO)	Suzhou Plant	Suzhou, China	[illegible]	[illegible]	[illegible]	Expected to have performed mass-production using the 4.5th-generation machine in September 2010.
	Taichung Plant	Taichung, Taiwan	[illegible]	[illegible]	[illegible]	Currently under construction.
Chimei Innolux (Member of the Foxconn Group)	China Plant	Shenzhe[illegible] Guangdong [illegible] China	[illegible]	[illegible]	[illegible]ude	Maintains LCD lines of 2.5th to 8th generation. Will continue to expand and [illegible]ay take the opportunity of installing [illegible]other LCD line or a new line for TPs.
	Xin Zhu Plant	Taoyuan County, Taiwan	[illegible]	[illegible]		
AUO	Longtan Plant	Taoyuan County, Taiwan	[illegible]	[illegible]h [illegible]str[illegible])	[illegible]ousand sheets per month (Substrate size)	Completed improvement for the second line (4th generation) to convert from a LCD line. Commencement of operation is scheduled for January 2011.
CPT	Longtan Plant	Taoyuan County, Taiwan	4.5t[illegible]ation	[illegible]million sheets per month (Medium and small size)	→	Will appropriate 70% of the production line for TPs and is expected to expand its capacity to 3 million sheets per month during the current fiscal year.

[Estimated by Yano Research Institute]

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2-3-2. Capacitive TP cover lens market size

(Unit: 10,000 m^2)

	2009	2010 e[illegible]mate		2011 forecast	
			[illegible]o-Y[illegible]		Y-o-Y %
For mobile phones and smart phones	65.[illegible]	81.[illegible]	[illegible]	[illegible]	215.2%
(Ratio to total)	(100.0%)	[illegible]	[illegible]	[illegible]%)	
For tablet terminals	—	[illegible]	[illegible]	[illegible]	[illegible].6%
(Ratio to total)	[illegible]	[illegible]	[illegible]	[illegible]	
Others	[illegible]	[illegible]	[illegible]	[illegible]	—
(Ratio to total)	[illegible]	[illegible]	[illegible]	[illegible]	
Total	[illegible]	[illegible]	[illegible]	[illegible]2	302.6%
(Ratio to total)	[illegible]	[illegible]	[illegible]	[illegible]	

[illegible] Resea[illegible]stitute Ltd.]

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2-4-2. OCA

Optical transparent filler market size ([illegible]CA type)

(Unit: 1[illegible],000 m^2)

2007	2008		2[illegible]		[illegible]		FY 2[illegible] (forecast)	
		Y-o-Y %		[illegible]				Y-o-Y %
Partially available	50	—	70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible].]

* OCA of 100 μm or above; including OCA used in ap[illegible]

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- OCA is composed of a light removable fi[illegible] bonding components (e.g. one film sensor with another; cover fil[illegible] 50 μm is used whereas for bonding flat-shaped components ([illegible]nd cove[illegible]ss), a thicker adhesive with the thickness primarily of 100 μm[illegible]
- OCA of thin materials are supplied in rolls wh[illegible] of 1[illegible]m or more are cut and punched in accordance with the shape and size of th[illegible]s, mobile phones and tablet terminals).
- The types of OCA described in this report are those [illegible]ess o[illegible]00 μm or more used to bond flat-shaped components. Thin OCA materials (25 to 50 μm) app[illegible] bon[illegible]lm components using the Roll to Roll technique are used for an extremely wide range of applications inclu[illegible]g LCD polarizers and PDP optical filters, plus it is difficult to identify even by OCA manufacturers as to what appli[illegible]ions the OCA materials shipped are actually used for.

2-5-6. Conductive paste market size and manufacturer shares

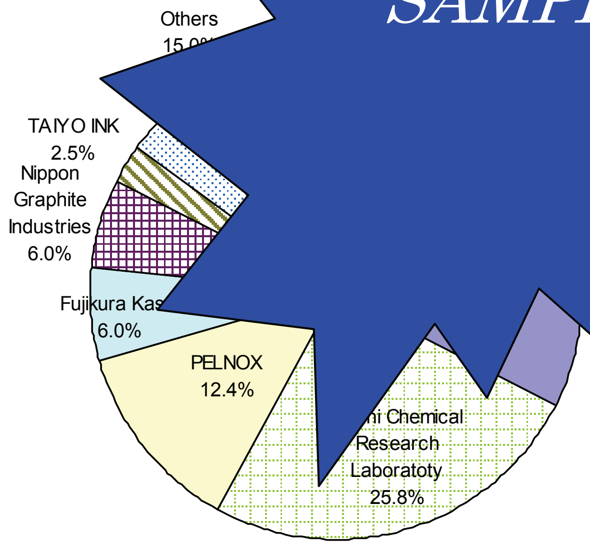
Conductive paste market size by type of TP

(Unit: kilograms)

	FY 2009	FY 2010 (estimate)		FY 2011 (forecast)	
			Y-o-[illegible]		Y-o-Y %
Resistive TPs	77,000	8[illegible]50	[illegible]	87[illegible]0	100.2%
Ratio to total	—	90[illegible]		[illegible]%	
Capacitive TPs	Partially	9,[illegible]	[illegible]	[illegible]820	423.0%
Ratio to total	—	10.[illegible]		[illegible]	
Total	77,000	[illegible]	[illegible]	[illegible]	132.5%

[illegible]ano Research Institute]

Manufacturer shares in[illegible]



* “Others” include TOYO INK, Harima Chemicals, Du Pont and others.
* Shares include conductive pastes for resistive and capacitive TPs.

[Estimated by Yano Research Institute]

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2-5-7. Market overview

Conductive paste market to expand to 130% Y-o-Y in FY 2011
Capacitive segment of the market is expected to quadruple from FY 2010

- During FY 2010, smart phones and other application[illegible] with TP have been increasing, and the overall TP market has been on a grow[illegible]h trend [illegible]erefore, the market of conductive paste for TPs is expected to expand to12[illegible]% y[illegible]n-year to or 96.5 tons.
- As the TP market is expected [illegible] continue [illegible] 20[illegible], the conductive paste market is estimated to expand to132.5[illegible]ar-o[illegible]ou[illegible] 127 tons. Meanwhile, depending on the needs of the [illegible]ensors might be more actively adopted for capacitive TPs in w[illegible]ive paste market may slow down against the [illegible]

- Looking at the market by T[illegible]tive TPs in FY 2010 are expected to grow to 112.8%[illegible]shipments of resistive TPs as well as capacitive T[illegible]ver, that shipments for FY 2011 will stay almost flat fro[illegible]tons. The adoption rate for capacitive TPs is projecte[illegible] resi[illegible]e TPs will be stagnant.
- The market of conductive [illegible]xpected to be about 9 tons for FY 2010. With greater dema[illegible]ors, th[illegible] market in FY 2011 is estimated to quadruple from the previous y[illegible]ly [illegible] tons. Some projections show that in terms of the number of units, conduct[illegible]past[illegible]s for capacitive TPs in FY 2011 will account for approximately 40% of the overa[illegible] conductive paste market. However, as the actual volume used is expected to decline giv[illegible]n the enhanced fineness of lead wires, the rate of growth of the conductive paste market will presumably be not as high as the rate of increase in the number of units.

SAMPLE

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Price 200,000 JPY (5% consumption tax (or 10,000 JPY) added for shipment within Japan)

Published	March 10, 2011
Publisher	Yano Research Institute Ltd.
Researched by	CMEO Division, Chemicals & Materials / Electronics & Optics Phone: +81-3-5371-6930 Facsimile: +81-3-5371-6975 http://www.yanoresearch.com/

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