## **Enclosed Gas Analysis of Display Panel**<sup>w-1</sup>

TPD-MS (Temperature Programmed Desorption- Mass Spectrometry) is one of the most powerful techniques to analyze of the enclosed gases in a FPD panel. By destroying a panel in an in-house airtight container equipped with a highly sensitive mass spectrometer enables not only qualitative but quantitative analysis of the enclosed gas. Raman spectroscopy is an alternative method for characterization of a small amount of gas. We have developed original sampling method for the measurement of bubbles in a liquid display panel.



## Raman

Raman spectroscopy gives the information about the bubble without being affected by the component. Recently, we have developed a new sampling method that enables the evaluation of a smaller bubble (even if it is the size that is invisible with eyes) that diffuses in a LCD panel. The analysis of the bubble generated in a LCD panel by heat-treatment are shown below.

organic layers.



Similar components are detected between sample A and B. By using our method, we can obtain information on the micro-bubble hidden in a LCD panel, that gives an important knowledge of the bubble generation.



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