

### Characteristics of phase change according to PVDF manufacturing process

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The piezoelectric materials like PVDF have different piezoelectric properties depending on poling conditions. The poling process affects the orientation of the dipolar moments of the  $\beta$ -chains and improves the  $\alpha$  to  $\beta$  transformation. In this study, change in  $\beta$  phase of PVDF film depending on change of poling conditions was researched. Three types of PVDFs with different molecular weights of 180000, 275000 and 450000 were used in manufacturing PVDF films, and silver paste electrodes were printed in both sides of films. The change in  $\beta$  crystalline phase depending on respective conditions was observed by adjusting poling voltage (1~5kV), poling temperature (9~130°C) and poling time (1~30 min.). The change of crystalline phase was measured by FTIR. It turned out that  $\beta$  phase increases from 70 to 80% as the poling voltage is changed from 1 to 5Kv.