

# Evaluation for Melting Behaviour of Polymer Materials using Sample Observation DSC System

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Since a sample is put in the furnace generally, it's too difficult to directly see the sample's condition visually during measurement. Therefore, we have suggested a thermal analyzer equipped with camera function to easily understand the sample's reaction recently[1].

Same polymer materials with different molecular weight were measured. A shapes of melting peaks were different between low molecular and high molecular. The smaller a molecular weight become, the lower a melting temperature shows in general.

Low molecular polypropylene (PP) showed a shape change around peak top, and it was observed the sample flowed and spread in the sample pan. The high molecular weight PP also changed its shape near the peak top, but it maintained its shape even after the end of the peak. It is assumed that the smaller a molecular weight become, the easier a sample flowing (Fig. 1).

We also evaluated those fluid flow characteristic quantitatively by image analysis.

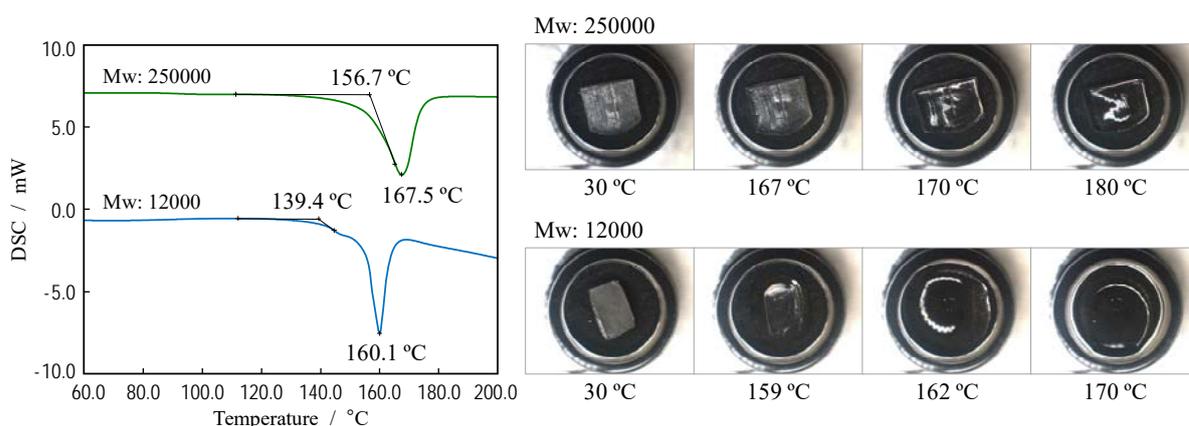


Fig. 1 Measurement Results for PP by Sample Observation DSC System  
Molecular weight : 25000 and 12000

[1] E. Shimoda, Y. Kasai, M. Iwasa, Y. Nishiyama, The 51<sup>st</sup> Japanese Conference on Calorimetry and Thermal Analysis, The Japan Society of Calorimetry and Thermal Analysis, (2015) 139

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