

TG/DTA Measurements of Digestive Medicine

1. Introduction

Thermal analysis is used in pharmaceutical industry for applications ranging from research and development to quality control.

Pharmaceuticals are generally composed of complex components. By observing the thermal decomposition behavior of pharmaceuticals using thermogravimetric measurement (TG), it is possible to infer components, quantitatively determine active components¹ and evaluate thermal stability.

This brief introduces an example of TG/DTA measurements of four types of digestive medicine.

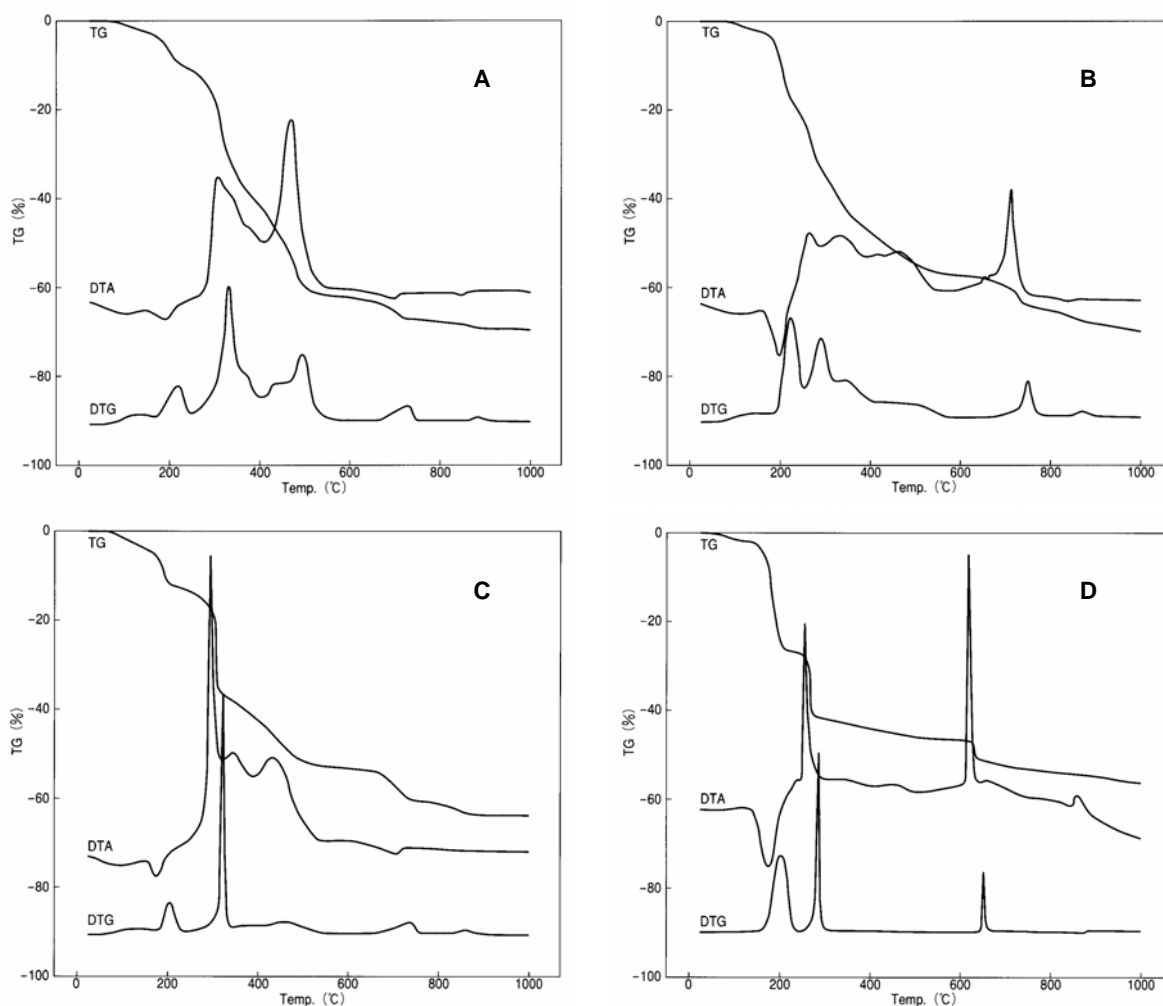


Figure 1 TG/DTA Measurement Results for Digestive Medicine A~D

2. Measurements

Figures 1 show the TG/DTA measurement results for the four types of digestive medicine A~D. For all four types, a 15mg sample was measured in air at a heating rate of 20°C/min. The TG curve corresponds to the breakdown of the sample and showed a weight decrease. Furthermore, the DTA curve showed endothermic and exothermic peaks. For all samples, 57% to 70% decomposition occurred when heating up to 1000°C. Components that remained at temperatures over 1000°C were likely inorganic.

Figure 2 compares the DTA, TG and DTG curves for all four samples presented in figures 1. This data shows that there are sections where decomposition occurred for all samples in the same temperature range and there are sections where decomposition only occurred for specific samples. Components that decompose at the same temperature can be assumed to be the same component.

References

- 1) M. Wesolowski, Checking of the composition of suppositories by thermoanalytical methods, *Int. J. Pharm.*, **11**, 35 (1982)

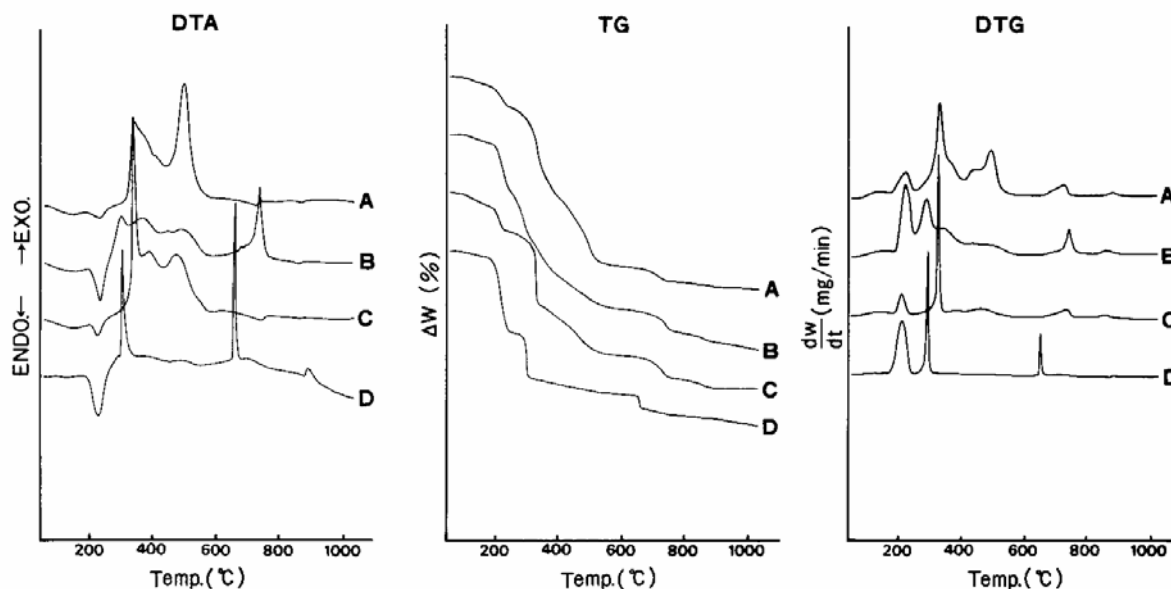


Figure 2 DTA, TG and DTG Curves for Four Types of Digestive Medicine