

Automatic Evaluation and Identification of DSC Curves

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Until now, evaluating and interpreting DSC curves required both a certain level of experience and a certain expenditure of time – in order to conduct literature research for example. Thanks to the new software solutions *AutoEvaluation* and *Identify*, evaluation and interpretation is now – for the first time in the history of thermal analysis – significantly easier and faster:

AutoEvaluation allows for completely autonomous and reliable evaluation of the measurement. One frequent application is the automatic evaluation of the melting effect of metal samples. In case of polymers, *AutoEvaluation* searches systematically for all present effects like melting of the sample or melting of components like plasticizers or additives, for glass transitions, crystallization, curing or evaporation. Effects recognized are then automatically evaluated according to known standards where for example in case of complex superimposed melting effects, several peak maxima are indicated. All in all, the evaluations yielded from *AutoEvaluation* are not only fast and reproducible but also purely objective since they depend in no way on the user.

Identify is a novel and unique curve recognition system that provides results – thanks to *AutoEvaluation* – with only a single click. Known database curves are used to identify unknown DSC curves, ultimately leading to interpretation of the DSC results. *Identify* can be applied for an identification of unknown materials but also for routine quality control (QC) and failure analysis, where *Identify* can show a sample's level of agreement with saved measurements for samples already deemed as acceptable. The database contains NETZSCH libraries as a basis but users can additionally create their own libraries. *Identify* is able to manage and use not only measurements but also literature data and classes incorporating user's knowledge. The latter can be additionally achieved via the choice of algorithm type and parameters adapting *Identify* further to the actual application (see figure).

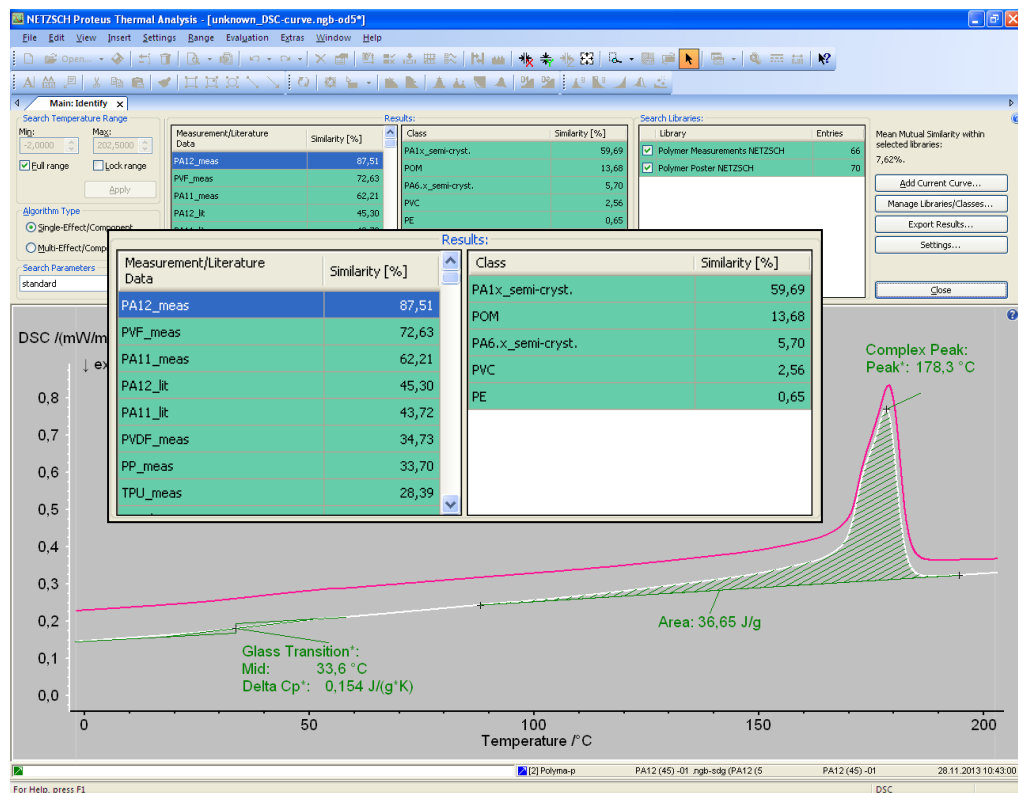


Figure: An unknown DSC curve (white) was evaluated and identified automatically – after only one click. The curve originates most probably from a PA12 (polyamid12) sample as it can be seen also from the comparison with the most similar database curve (pink).