

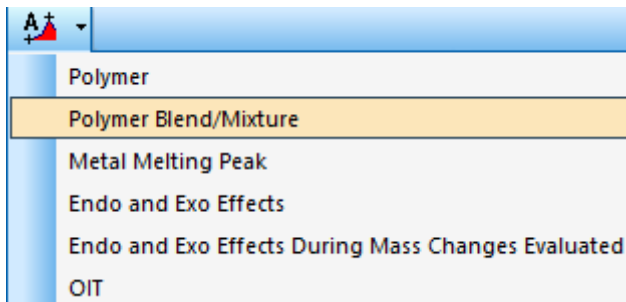
## AutoEvaluation of DSC Curves: The New "Polymer Blend/Mixture" Function

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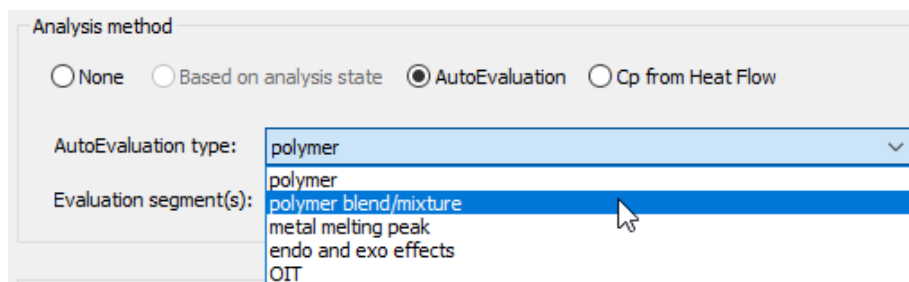
Beginning with *Proteus*® version 9.5, a new *AutoEvaluation* function is available for DSC signals: "Polymer Blend/Mixture". This function is particularly useful for measurements on polymer blends and mixtures where, for example, several glass transitions and melting effects may occur. The well-known *AutoEvaluation* function "Polymer" is intended for measurements on pure polymer samples.

*AutoEvaluation* can be accessed in *Proteus*® analysis via the toolbar icon shown in figure 1, via right mouse click on a DSC curve, or via the Evaluation menu.

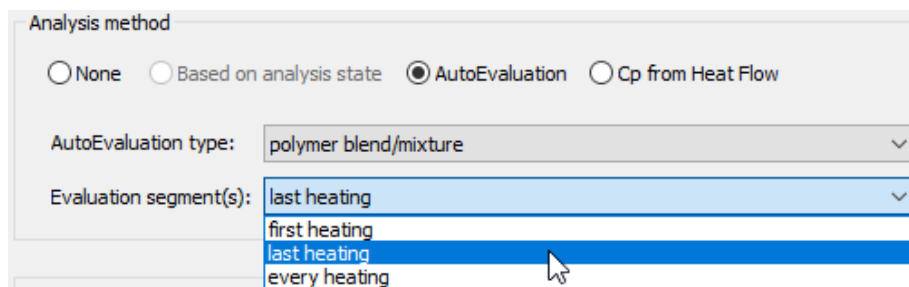
*AutoEvaluation* functions can also be incorporated into a measurement method, which may be created in either the *Proteus*® measurement or analysis software (see figures 2a and 2b). When such a method is used, *AutoEvaluation* is carried out automatically upon completion of a measurement or upon loading of a measurement into *Proteus*® analysis.



1 Software icon "AutoEvaluation of DSC Curves" in *Proteus*® analysis.



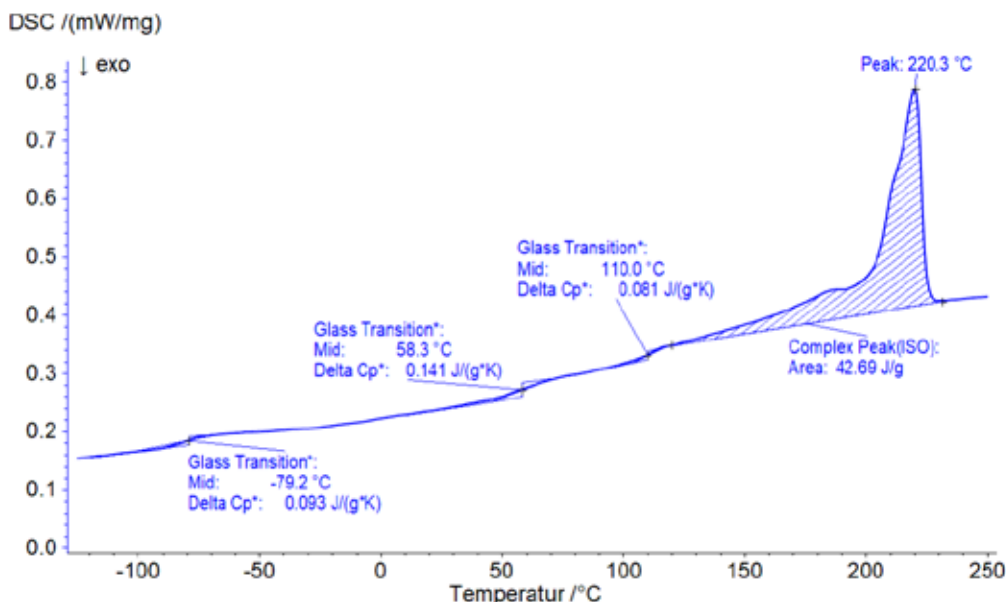
2a When creating a method, an *AutoEvaluation* type/function can be selected.



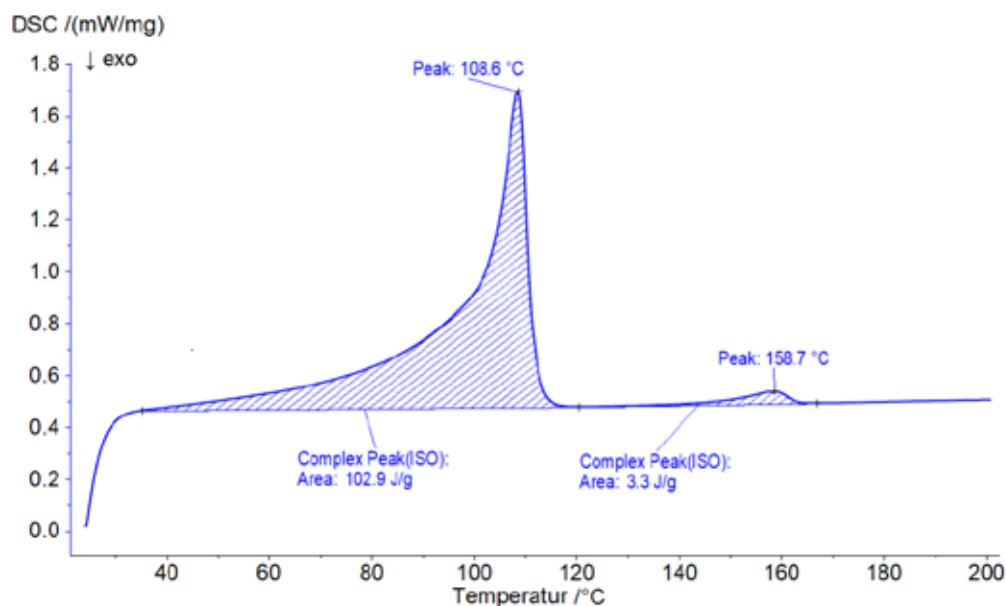
2b For each *AutoEvaluation* type selected, the segments to be evaluated must be defined.

Shown in figure 3a is a DSC measurement on a PA6-ABS polymer sample where *AutoEvaluation* "Polymer Blend/Mixture" was applied. The glass transition at about 58°C and the melting effect with a peak temperature of about 220°C – both originating from the PA6 component – along with the glass transitions at about -79°C and 110°C caused by the ABS component were all evaluated autonomously by *AutoEvaluation*.

Another application example is depicted in figure 3b, where *AutoEvaluation* evaluated the melting effects of LDPE and PP at peak temperatures of approximately 109°C and 159°C, including the melting ranges between about 35°C and 120°C for LDPE and between about 120°C and 167°C for PP, without any user interaction.



3a Temperature-dependent DSC measurement on a PA6-ABS polymer sample. The evaluations were carried out by *AutoEvaluation*.

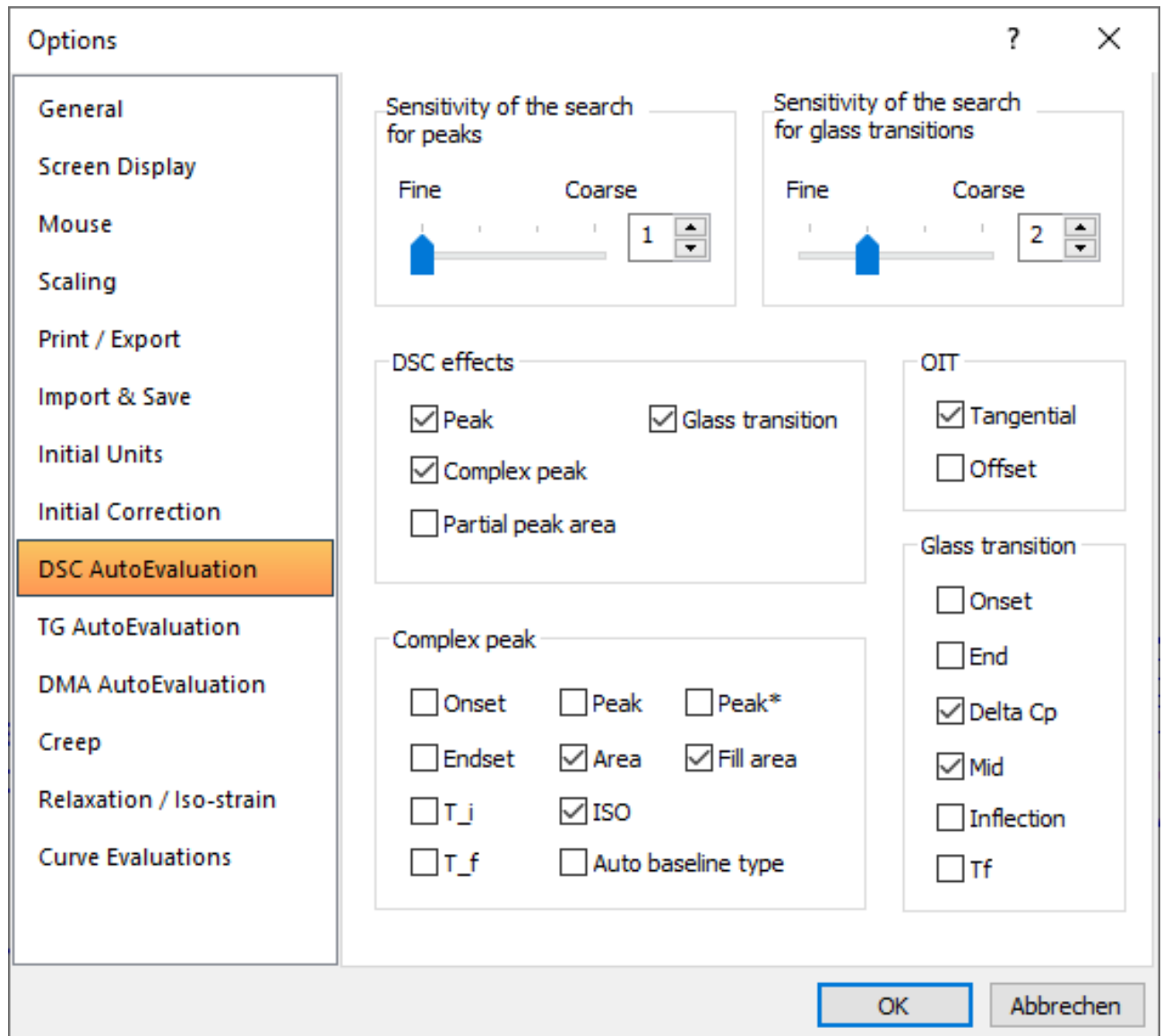


3b Temperature-dependent DSC-Messung on an LDPE-PP polymer sample. The evaluations were carried out by *AutoEvaluation*.

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In general, the user can customize which effect types and which properties should be evaluated by *AutoEvaluation*, as can be seen in figure 4. Furthermore, the "sensitivity of

the search" reflecting the thresholds for detection can be adapted independently for the peaks and glass transitions.



4 Settings for *AutoEvaluation* accessible through the Evaluation/AutoEvaluation/Settings menu in *Proteus*® analysis.