



Thermal Properties of Micro- crystalline Waxes in Dependence on the Degree of Deoiling

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The crystallisation properties and penetration- temperature- behaviour of several micro- crystalline waxes (including petrolatum) were compared with macro- crystalline and intermediate paraffin waxes. Micro- crystalline waxes mainly show two DSC- peaks analogous to macro crystalline paraffin waxes. One peak is located in the range of the melting/ congealing points and a second peak is located at lower temperatures. Only one crystallisation peak is recognizable in intermediate paraffin waxes. This products lie, concerning to the mean C- number, between micro and macro paraffin waxes. The penetration- temperature behaviour of the micro waxes is, nevertheless, sooner comparable with that of the intermediate paraffin waxes. The second peak of micro waxes is frequently interpreted as solid- solid transition below the congealing point. Nevertheless, it was shown that, in contrast to macro- crystalline waxes, the hardness of the micro waxes does not markedly decrease in the temperature range of this peak. During the solvent de- oiling of petrolatum to micro wax it becomes clear that the additional peak is caused by low melting, good soluble iso and cyclo alkanes. Thus well de- oiled, hard micro waxes only show small or no additional crystallisation peaks. The thermal behaviour of micro waxes is, therefore, mainly determined by the degree of de- oiling and not by changes of the crystal structure in the solid state.

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The complete article can be downloaded [here](#).