chemical substances for inventive step, it is often their surprising properties that are considered (see in this connection **T 20/83**, OJ 1983, 419).

According to the case law of the boards of appeal, an improvement is not a prerequisite for inventive step (see also in this chapter I.D.4.5 "Alternative solution to a known problem"). In **T 154/87** it was pointed out that the achievement of a surprising effect was no precondition for the existence of inventive step. All that was necessary was to ascertain that the respective subject-matter could not be derived by the skilled person in an obvious manner from the available prior art (**T 426/92**, **T 164/94**, **T 960/95**, **T 524/97**, **T 888/08**).

In **T 551/89** the board stated that an effect which was to be expected as the result of an obvious measure could not contribute to recognition of the required inventive step, even if the scale of this effect was surprising to the skilled person. In this case an effect whose scale surpassed the skilled person's hopes merely represented a bonus effect following inevitably from the use of an obvious measure and obtained by the skilled person without any inventive effort on his part (**T 506/92**, **T 882/94**).

In **T 240/93** the application related to an apparatus for the surgical treatment of tissues by hyperthermia, equipped with heat protection means. The application was refused by the examining division, which considered the short treatment duration of one hour and further advantages resulting from the use of cooling means to be extra (bonus) effects. The board, however, stated that in the case in point the objective problem underlying the invention was to provide an apparatus for the effective therapeutic treatment of benign prostate hyperplasia in a short period of time. In view of the many considerable practical advantages of a single one-hour hyperthermia session for a patient, such a short treatment duration could not be dismissed as a mere "bonus" effect, but was crucial to the invention and the basis of the objective problem.

In **T 2015/20** the application stated that it had been surprisingly found that for treatment of respiratory disorders, in particular asthma and COPD, aclidinium was most effective upon administration by inhalation in a dosage of about 400 µg metered nominal dose. D1 described the combination of a M3 muscarinic receptor antagonist such as aclidinium bromide with a PDE4 inhibitor, and described 1-2 formulations comprising 100 µg aclidinium bromide. It did not provide any suggestion towards an optimized dose of 400 µg. D2 presented a short summary of a trial in which patients suffering from COPD were administered a single dose of 100, 300 or 900 µg of aclidinium bromide, but which the board concluded seemed to teach away from an optimised dose of 400 µg for treatment of a chronic disease such as asthma. The board found that the defined subject-matter of claim 1 was not the obvious result of routine experimentation, but rather represented the unexpected outcome of a study and concluded that the subject-matter of claim 1 involved an inventive step.