

## 9.9. Chemical inventions

### 9.9.1 Problem and solution approach in chemical inventions

In a number of chemistry decisions the problem and solution approach – based on landmark decisions T.1/80 (OJ 1981, 206), T.24/81 (OJ 1983, 133) and T.248/85 (OJ 1986, 261) – involves the following steps:

- a) establishing the closest prior art;
- b) defining the problem in the light of that prior art;
- c) identifying the solution;
- d) demonstrating the success of the solution;
- e) optionally reformulating the problem;
- f) examining the obviousness of the solution in view of the state of the art.

Demonstrating the success of the solution and reformulating the problem are particularly important steps (see T.231/97, T.355/97).

### 9.9.2 Structural similarity

In T.852/91 the board held that to deny inventive step for novel chemical compounds because of their structural similarity to known chemical compounds amounted to an allegation that a skilled person would have reasonably expected the same or similar usefulness of both the known and the novel compounds as the means for solving the technical problem underlying the application in question. Such an expectation would be justified, if the skilled person knew, be it from common general knowledge or from some specific disclosure, that the existing structural differences of the chemical compounds concerned were so small that they would have no essential bearing on those properties, which were important for solving the said technical problem and could be disregarded (see also T.358/04).

In T.643/96 the board held that the concept of bioisosterism did form part of the common general knowledge of those skilled in the art, but that it had to be applied with caution when deciding upon inventive step. In the field of drug design, any structural modification of a pharmacologically active compound was, in the absence of an established correlation between structural features and activity, expected a priori to disturb the pharmacological activity profile of the initial structure. This also held true for an alleged case of bioisosterism, which was one option of a structure-activity relationship, as long as it was not an established case of bioisosterism (see also T.548/91). The board further held that, when deciding upon inventive step in relation to pharmacologically active compounds, what was essential was not whether a particular substructure of a chemical compound was replaced by another known isosteric one, but whether information was available on