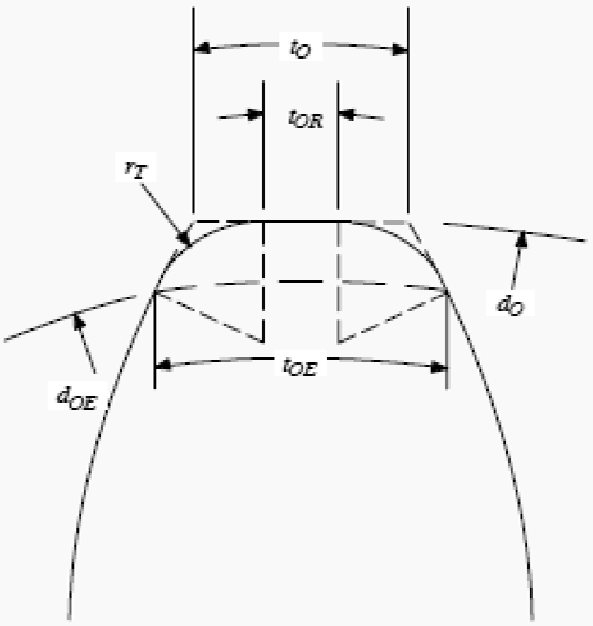

Figure 5 – Tooth outline features introduced by tip rounding on external gears

The round at the tip of the teeth is independent of the basic rack and requires a separate specification. This is usually in the form of a maximum permitted tip radius. An overly generous radius, introduced into molded gears by the cavity manufacturing process, can significantly reduce the effective engagement in very fine pitch gears.

Tooth outline features introduced by tip rounding on external gears are shown in figure 5 and described below:

- The top land, t_O, is reduced to the "remaining top land", t_{OR};
- The outside diameter, d_O, is replaced by the "effective outside diameter", d_{OE}, in determining the extent of engagement with a mating gear;
- The tooth thickness at the outermost part of the involute profile is increased to the "effective top land", t_{OE}.

Equations for the calculation of these outline features are provided below. These relatively simple equations give approximate results sufficiently accurate for typical applications of tip rounding.