



**FIGURE 3.2** Typical headspace residual solvent test method chromatogram.

API test methods are also involved in alternate API supplier qualification. The API supplier approved in the original ANDA can be changed due to business or quality reasons. When there is such a need of switching API supplier, the alternative API raw material needs to be qualified. The new API raw material has to be characterized to compare with the original API raw material for its physical and chemical properties. New lots of finished dosage form product using the alternative API need to be manufactured and placed in stability to demonstrate the quality. All data collected and assured for quality need to be filed for approval of the alternative API supplier.

### IN-PROCESS TEST METHODS

The objective of an in-process test method for oral solid dosage forms is to obtain information to control the pharmaceutical manufacturing process. Typical in-process test methods include loss on drying or use of Karl Fischer for water content determination (to control the moisture content in the drying process), residual solvent (to control the residual solvent in the blend granules), and blend uniformity testing. The loss on drying (or Karl Fisher) test method is straightforward and usually does not require method development. The residual solvent test method and blend uniformity test method would require method development. Often, the blend uniformity (for granules), content uniformity (for finished dosage form), and assay (finished dosage form) share the same chromatographic conditions with separate sample preparation procedures. Therefore, method development is often conducted concurrently for these three tests (assay, content uniformity, and blend uniformity).

### FINISHED DOSAGE FORM TEST METHODS

The objectives for the development of the finished oral solid dosage form test methods include formulation identity, in vitro dissolution screening for acceptable performance within tolerance limits, and dosage form release. Very often, the dissolution test method is needed first for the in vitro characterization of the innovator's