USP. For chromatographic purity methods, method sensitivity and selectivity under the actual conditions of use should also be demonstrated.

For API test methods, the compendial methods can be readily adopted for use with limited suitability verification. For finished dosage form product test methods, the suitability of the test methods to the specific formulation needs to be demonstrated through a validation procedure. Validation of compendial test methods for the finished drug product may include, but not be limited to, specificity, linearity, accuracy, precision, and solution stability. However, it should be noted that the compendial methods are not necessarily stability indicating. When the compendial method is used for such purpose, forced degradation studies are needed to demonstrate method specificity.

One should keep in mind that USP monograph procedures are regulatory procedures.

A regulatory analytical procedure is the analytical procedure used to evaluate a defined characteristic of the drug substance or drug product. The analytical procedures in the USP/NF are those legally recognized under Section 501(b) of the Food, Drug, and Cosmetic Act (the Act) as the regulatory analytical procedures for compendial items. For purposes of determining compliance with the Act, the regulatory analytical procedure is used.

Noncompendial Methods

For the validation of noncompendial test methods, one should follow USP, FDA, and ICH guidelines. Four categories of analytical methods are classified in the USP <1225>.

- Category I: Analytical methods for quantitation of major components of bulk drug substances or active ingredients (including preservatives) in finished pharmaceutical products fall under this category.
- Category II: Analytical methods for determination of impurities in bulk drug substances or degradation compounds in finished pharmaceutical products are in this category. These methods include quantitative assays and limit tests.
- Category III: Analytical methods for determination of performance characteristics such as rapid drug dissolution or drug release profile.
- Category IV: Analytical test methods for identification purposes.

In addition, there are tests classified as specific tests such as particle size analysis, droplet distribution, spray pattern, dissolution (excludes measurement), and optical rotation and methodologies such as differential scanning calorimetry, x-ray diffraction, and Raman spectroscopy.

The elements recommended for validation for each category of the test methods are shown in Table 3.1.

Because the validation of a test method is a matter of establishing documented evidence that provides a high degree of assurance of the suitability of the test method for its intended use, the documentation process usually includes a validation protocol, test data, and a validation report.