16.1.1. Stability-Indicating Nature of USP Assays

A word of caution. Assays appearing in USP monographs are not always stability-indicating. They may be for the innovator product, as submitted by the innovator company for inclusion as a USP monograph, which then becomes the benchmark. If another company wishes to market the same product, as a generic version, that company must validate the assay according to the validation parameters discussed in USP General Chapter <1225>, because that product is different from the innovator product relative to the source API and formulation.

16.2. ICH Guidelines

ICH Guidelines Q2A (Text on Validation of Analytical Procedures) and Q2B (Validation of Analytical Procedures: Methodology) were developed within the Expert Working Group (Quality) of the Requirements for Registration of Pharmaceuticals for Human Use. These documents present a discussion of the characteristics for consideration during validation of analytical procedures included as part of registration applications submitted within the European Union, Japan, and the United States.

ICH Guidelines Q2A also provides descriptions of typical validation parameters, how these are measured, and which subset of each parameter is suitable for validation of the analytical method, based on its intended use. The discussion of the validation of analytical procedures has been divided into three common categories of analytical procedures:

Identification tests
Quantitative tests for impurity content—Limit tests for the control of impurities
Quantitative tests of the active moiety in bulk drug substance or drug product or other selected component(s) in the drug product

As per ICH Guidelines Q2A, the objective of the analytical procedure needs to be clearly understood since this will govern the validation characteristics that need to be evaluated. Typical validation characteristics, which should be considered, are

Accuracy
Precision
Repeatability
Intermediate precision
Specificity
Detection limit
Quantitation limit
Linearity
Range
Robustness
System suitability

Analytical variables that are normally required for method validation is summarized in Table 6.