

1. Purpose

The purpose of this guideline is to outline the content and approval process for analytical procedures and to describe those activities that should be carried out to demonstrate that analytical procedures used in GMP laboratories are suitable for their intended purpose.

2. Scope and Applicability

This guideline applies to qualitative or quantitative analytical procedures that are used to test finished drug product, in-process materials, excipients, raw materials, packaging materials and Active Pharmaceutical Ingredient (API), in support of regulatory registration documents and in cleaning validation.

Technology Transfer is outside the scope of this document.

3. Definitions

3.1. *Analytical Procedure*

A controlled document that describes in sufficient detail how a specific analysis is performed.

3.2. *Analytical Procedure Validation*

Confirmation that the performance characteristics of the analytical procedure meet the requirements for the intended application. This is usually established by laboratory studies.

3.3. *Analytical Procedure Revalidation*

Confirmation that the performance characteristics of the analytical procedure continue to meet the requirements of the intended application, following changes to the specific procedure or the synthetic route/method of manufacture of the test material. This is usually established by laboratory studies.

3.4 *Validation Protocol*

A validation protocol is written plan or protocol stating how validation, sampling and testing will be conducted, defining roles and responsibilities, and defining acceptance criteria. Analytical procedure validation protocols may be generic or specific and their content will depend on the phase of development or marketing.

4. Responsibilities

Analytical procedures should be developed, validated and approved by the originating laboratory. This may be within Analytical, Microbiology, Device or Packaging, or Quality Control functions.

Analytical procedure validation reports should be written and approved as part of the validation process.

of a Pharmacopoeial procedure, including revisions, for dosage forms shall be established by performing a technical suitability review or by performing specific analytical testing on a sample(s) of the material subject to the monograph. The outcome of the technical review or the results of the testing shall be documented and approved by the line function, including a decision as to the suitability of the procedure for routine use.

5.4 Analytical Procedures

The content of the analytical procedure should summarize the way the analysis is performed. It should describe in sufficient detail the steps necessary to perform each analytical operation. This may include but is not limited to: the sample, the reference standard and the reagents preparations, use of the apparatus, calibration procedure, and any calculations used to process data.

During Phase I and Phase II, procedures may be less detailed compared with Phase III and the marketing phase.

5.5 Analytical Procedure validation

The following characteristics are listed and defined by ICH (Refs: 6.1 & 6.2) and would be expected to form part of analytical procedure and/or validation studies (but not necessarily submitted) at the time of submission of the marketing authorization dossier (NDA, MAA, JNDA).

- (a) Accuracy
- (b) Precision
- (c) Specificity
- (d) Detection Limit
- (e) Quantitation Limit
- (f) Linearity
- (g) Range
- (h) System Suitability
- (i) Robustness

Analytical procedure validation is usually performed as part of a development program. Validation information will be included in regulatory submissions, with increasing levels of detail as projects progress through development to the marketing phase. As a guide each of the validation characteristics listed above should be considered. In the early phases of development, a reduced number of validation characteristics may be assessed according to local procedures. When a new validated analytical procedure replaces an existing one, appropriate change control should be implemented according to local procedure. Consideration should be given to a period of ongoing monitoring in order to determine whether the change has resulted in a step change in results.

Note that biological testing, for example sterility, endotoxin testing and the microbiological examination of non-sterile products, will be validated in line with Pharmacopoeial requirements.

5.6 Validation reports

An assessment of validation studies demonstrating that the analytical