Annex VIII: Quality Overall Summary – Product Dossier (QOS- PD)

Summary of product information:

|  |  |
| --- | --- |
| Non-proprietary name of the finished pharmaceutical product (FPP) |  |
| Proprietary name of the finished pharmaceutical product (FPP) |  |
| International non-proprietary name(s) of the active pharmaceutical ingredient(s) (API(s)), including form (salt, hydrate, polymorph) |  |
| Applicant name and address  |  |
| Dosage form |  |
| Reference Number(s) |  |  |  |
| Strength(s) |  |  |  |
| Route of administration |  |
| Proposed indication(s) |  |
| Contact information | Name:Phone:Fax:Email:  |

2.3.S ACTIVE PHARMACEUTICAL INGREDIENT (API))

Complete the following table for the option that applies for the submission of API information:

|  |  |
| --- | --- |
| Name of API: |  |
| Name of API manufacturer: |   |
| □  | Certificate of suitability to the European Pharmacopoeia (CEP):is a written commitment provided that the applicant will inform PPB in the event that the CEP is withdrawn and has acknowledged that withdrawal of the CEP will require additional consideration of the API data requirements to support the dossier:□ yes, □ no;a copy of the most current CEP (with annexes) and written commitment should be provided in Module 1;the declaration of access should be filled out by the CEP holder on behalf of the FPP manufacturer or applicant to the PPB who refers to the CEP; andsummaries of the relevant information should be provided under the appropriate sections (e.g. S.1.3, S.3.1, S.4.1 through S.4.4, S.6 and S.7; see Quality guideline). |
| □  | Active pharmaceutical ingredient master file (APIMF):A copy of the letter of access should be provided in Module 1; and summaries of the relevant information from the Open part should be provided under the appropriate sections; see Section 3.2.S in the Quality guideline. |
| □ | Active pharmaceutical ingredient pre-qualified by WHOProvide evidence from WHO |
| □  | Full details in the PD:Summaries of the full information should be provided under the appropriate sections; see Section 3.2.S in the Quality guideline. |

2.3.S.1 General Information

2.3.S.1.1 Nomenclature

 (a) (Recommended) International Non-proprietary name (INN):

 (b) Compendial name, if relevant:

 (c) Chemical name(s):

 (d) Company or laboratory code:

 (e) Other non-proprietary name(s) (e.g. national name, USAN, BAN):

 (f) Chemical Abstracts Service (CAS) registry number:

2.3.S.1.2 Structure

 (a) Structural formula, including relative and absolute stereochemistry:

 (b) Molecular formula:

 (c) Relative molecular mass:

2.3.S.1.3 General Properties

 (a) Physical description (e.g. appearance, colour, physical state):

 (b) Solubilities:

 In common solvents:

 Quantitative aqueous pH solubility profile (pH 1 to 6.8):

|  |  |
| --- | --- |
| Medium (e.g. pH 4.5 buffer) | Solubility (mg/ml) |
|  |  |
|  |  |

 Dose/solubility volume calculation:

 (c) Physical form (e.g. polymorphic form(s), solvate, hydrate):

 Polymorphic form:

 Solvate:

 Hydrate:

 (d) Other:

|  |  |
| --- | --- |
| Property |  |
| pH |  |
| pK |  |
| Partition coefficients |  |
| Melting/boiling points |  |
| Specific optical rotation (specify solvent) |  |
| Refractive index (liquids) |  |
| Hygroscopicity |  |
| UV absorption maxima/molar absorptivity |  |
| Other |  |
|  |  |

2.3.S.2 Manufacture

2.3.S.2.1 Manufacturer(s)

 (a) Name, address and responsibility (e.g. fabrication, packaging, labelling, testing, storage) of each manufacturer, including contractors and each proposed production site or facility involved in these activities:

|  |  |  |
| --- | --- | --- |
| Name and address(including block(s)/unit(s)) | Responsibility  | APIMF/CEP number (if applicable) |
|  |  |  |
|  |  |  |
|  |  |  |

 (b) Manufacturing authorization for the production of API(s) and, where available, certificate of GMP compliance (GMP information should be provided in Module 1):

2.3.S.2.2 Description of Manufacturing Process and Process Controls

 (a) Flow diagram of the synthesis process(es):

 (b) Brief narrative description of the manufacturing process(es):

 (c) Alternate processes and explanation of their use:

 (d) Reprocessing steps and justification:

2.3.S.2.3 Control of Materials

Summary of the quality and controls of the starting materials used in the

manufacture of the API:

| Step/starting material | Test(s)/method(s) | Acceptance criteria |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

 (b) Name and manufacturing site address of starting material manufacturer(s):

 (c) Where the API(s) and the starting materials and reagents used to manufacture the API(s) are without risk of transmitting agents of animal spongiform encephalopathies, a letter of attestation confirming this can be found in:

2.3.S.2.4 Controls of Critical Steps and Intermediates

 (a) Summary of the controls performed at critical steps of the manufacturing process and on intermediates:

| Step/materials | Test(s)/method(s) | Acceptance criteria |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

2.3.S.2.5 Process Validation and/or Evaluation

 (a) Description of process validation and/or evaluation studies (e.g. for aseptic processing and sterilization):

2.3.S.2.6 Manufacturing Process Development

 (a) Description and discussion of the significant changes made to the manufacturing process and/or manufacturing site of the API used in producing comparative bioavailability or bio-waiver, stability, scale-up, pilot and, if available, production scale batches:

2.3.S.3 Characterisation

2.3.S.3.1 Elucidation of Structure and other Characteristics

 (a) List of studies performed (e.g. IR, UV, NMR, MS, elemental analysis) and

conclusion from the studies (e.g. whether results support the proposed structure):

 (b) Discussion on the potential for isomerism and identification of stereochemistry

(e.g. geometric isomerism, number of chiral centres and configurations) of the API

batch(es) used in comparative bioavailability or biowaiver studies:

 (c) Summary of studies performed to identify potential polymorphic forms (including

solvates):

 (d) Summary of studies performed to identify the particle size distribution of the API:

 (e) Other characteristics:

2.3.S.3.2 Impurities

Identification of potential and actual impurities arising from the synthesis,

manufacture and/or degradation:

List of API-related impurities (e.g. starting materials, by-products,

intermediates, chiral impurities, degradation products), including chemical name, structure and origin:

| API-related impurity (chemical name or descriptor) | Structure | Origin |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

List of process-related impurities (e.g. residual solvents, reagents),

including compound names and step used in synthesis:

| Process-related impurity (compound name) | Step used in synthesis |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

 (b) Basis for setting the acceptance criteria for impurities:

 (i) Maximum daily dose (i.e. the amount of API administered per day) for

 the API, corresponding to ICH Reporting/Identification/Qualification

 Thresholds for the API-related impurities and the concentration limits

 (ppm) for the process-related impurities (e.g. residual solvents):

| Maximum daily dose for the API: | <x mg/day> |
| --- | --- |
| Test | Parameter | ICH threshold or concentration limit |
| API-related impurities | Reporting Threshold |  |
| Identification Threshold |  |
| Qualification Threshold |  |
| Process-related impurities | <solvent 1> |  |
| <solvent 2>, etc. |  |
|  |  |

Data on observed impurities for relevant batches (e.g. comparative bioavailability or bio-waiver studies, stability

ilabilit

| Impurity(API-related and process-related) | AcceptanceCriteria | Results (include batch number\* and use\*\*) |
| --- | --- | --- |
|  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

\* include strength, if reporting impurity levels found in the FPP (e.g. for comparative studies)

\*\* e.g. comparative bioavailability or bio-waiver studies, stability

 (iii) Justification of proposed acceptance criteria for impurities:

2.3.S.4 Control of the API

2.3.S.4.1 Specification

API specifications of the FPP manufacturer:

| Standard (e.g. Ph.Int., Ph.Eur., BP, USP, House) |  |
| --- | --- |
| Specification reference number and version |  |
| Test | Acceptance criteria | Analytical procedure(Type/Source/Version) |
| Description |  |  |
| Identification |  |  |
| Impurities |  |  |
| Assay |  |  |
| etc. |  |  |
|  |  |  |
|  |  |  |

2.3.S.4.2 Analytical Procedures

 (a) Summary of the analytical procedures (e.g. key method parameters, conditions, system suitability testing):

2.3.S.4.3 Validation of Analytical Procedures

Summary of the validation information (e.g. validation parameters and results for non-compendia methods):

Summary of verification information on compendia methods

2.3.S.4.4 Batch Analyses

Description of the batches:

| Batch number | Batch size | Date andsite of production | Use (e.g. comparative bioavailability or biowaiver, stability) |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Summary of batch analyses release results of the FPP manufacturer for relevant

batches (e.g. comparative bioavailability or bio-waiver, stability):

| Test | AcceptanceCriteria | Results |
| --- | --- | --- |
| <batch x> | <batch y> | etc. |
| Description |  |  |  |  |
| Identification |  |  |  |  |
| Impurities |  |  |  |  |
| Assay |  |  |  |  |
| etc. |  |  |  |  |

Summary of analytical procedures and validation information for those

procedures not previously summarized in 2.3.S.4.2 and 2.3.S.4.3 (e.g. historical analytical procedures):

2.3.S.4.5 Justification of Specification

Justification of the API specification (e.g. evolution of tests, analytical procedures and acceptance criteria, differences from officially recognized compendial standard(s)):

2.3.S.5 Reference Standards or Materials

Source (including lot number) of primary reference standards or reference materials (e.g. Ph.Int., Ph.Eur., BP, USP, in-house):

Characterization and evaluation of non-official (e.g. not from an officially recognized pharmacopoeia) primary reference standards or reference materials (e.g. elucidation of structure, certificate of analysis):

Description of the process controls of the secondary reference standard (comparative certificate of analysis and IR spectra against primary standard) :

2.3.S.6 Container Closure System

 (a) Description of the container closure system(s) for the shipment and storage of the API (including the identity of materials of construction of each primary packaging component and a brief summary of the specifications):

| Packaging component | Materials of construction | Specifications (list parameters e.g. identification (IR)) |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

 (b) Other information on the container closure system(s) (e.g. suitability studies):

2.3.S.7 Stability

2.3.S.7.1 Stability Summary and Conclusions

 (a) Summary of stress testing (e.g. heat, humidity, oxidation, photolysis, and acid/base): and results:

| Stress condition | Treatment | Results (e.g. including discussion whether mass balance is observed) |
| --- | --- | --- |
| Heat |  |  |
| Humidity |  |  |
| Oxidation |  |  |
| Photolysis |  |  |
| Acid |  |  |
| Base |  |  |
| Other |  |  |
|  |  |  |

 (b) Summary of accelerated and long-term testing parameters (e.g. studies conducted):

| Storage condition(◦C, % RH) | Batch number | Batch size | Container closure system | Completed (and proposed) testing intervals |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Summary of the stability results observed for the above accelerated and long-term studies:

| Test | Results |
| --- | --- |
| Description |  |
| Moisture |  |
| Impurities |  |
| Assay |  |
| etc. |  |
|  |  |

 (c) Proposed storage statement and re-test period (or shelf-life, as appropriate):

|  |  |  |
| --- | --- | --- |
| Container closure system | Storage statement | Re-test period\* |
|  |  |  |
|  |  |  |

\* indicate if a shelf-life is proposed in lieu of a re-test period (e.g. in the case of labile APIs)

2.3.S.7.2 Post-approval Stability Protocol and Stability Commitment

 (a) Stability protocol for Primary stability batches (e.g. storage conditions (including tolerances), batch numbers and batch sizes, tests and acceptance criteria, testing frequency, container closure system(s)):

| Parameter | Details |
| --- | --- |
| Storage condition(s) (◦C, % RH) |  |
| Batch number(s) / batch size(s) |  |
| Tests and acceptance criteria | Description |  |
| Moisture |  |
| Impurities |  |
| Assay |  |
| etc. |  |
|  |  |
| Testing frequency |  |
| Container closure system(s) |  |
|  |  |

 (b) Stability protocol for Commitment batches (e.g. storage conditions (including tolerances), batch numbers (if known) and batch sizes, tests and acceptance criteria, testing frequency, container closure system(s)):

| Parameter | Details |
| --- | --- |
| Storage condition(s) (◦C, % RH) |  |
| Batch number(s) / batch size(s) | <not less than three production batches> |
| Tests and acceptance criteria | Description |  |
| Moisture |  |
| Impurities |  |
| Assay |  |
| etc. |  |
|  |  |
| Testing frequency |  |
| Container closure system(s) |  |
|  |  |

 (c) Stability protocol for Ongoing batches (e.g. storage conditions (including tolerances), batch sizes and annual allocation, tests and acceptance criteria, testing frequency, container closure system(s)):

| Parameter | Details |
| --- | --- |
| Storage condition(s) (◦C, % RH) |  |
| Annual allocation | <at least one production batch per year (unless none is produced that year)in each container closure system > |
| Tests and acceptance criteria | Description |  |
| Moisture |  |
| Impurities |  |
| Assay |  |
| etc. |  |
|  |  |
| Testing frequency |  |
| Container closure system(s) |  |
|  |  |

2.3.S.7.3 Stability Data

 (a) The actual stability results should be provided in Module 3.

Summary of analytical procedures and validation information for those

procedures not previously summarized in 2.3.S.4 (e.g. analytical procedures

used only for stability studies):

2.3.P FINISHED PHARMACEUTICAL PRODUCT (FPP))

2.3.P.1 Description and Composition of the FPP

 (a) Description of the FPP:

 (b) Composition of the FPP:

Composition, i.e. list of all components of the FPP and their

amounts on a per unit basis and percentage basis (including

individual components of mixtures prepared in-house (e.g. coatings)

and overages, if any):

| Component and quality standard (and grade, if applicable) | Function | Strength (label claim) |
| --- | --- | --- |
|  |  |  |
| Quant. per unit | % | Quant. per unit | % | Quantity per unit | % |
| <complete with appropriate title e.g. Core tablet, Contents of capsule, Powder for injection> |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Subtotal 1 |  |  |  |  |  |  |  |
| <complete with appropriate title e.g. Film-coating> |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Subtotal 2 |  |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |  |

Composition of all components purchased as mixtures (e.g.

colourants, coatings, capsule shells, imprinting inks):

 (c) Description of accompanying reconstitution diluent(s), if applicable:

 (d) Type of container closure system used for the FPP and accompanying

 reconstitution diluent, if applicable:

2.3.P.2 Pharmaceutical Development

2.3.P.2.1 Components of the FPP

 2.3.P.2.1.1 Active Pharmaceutical Ingredient

 (a) Discussion of the:

compatibility of the API(s) with excipients listed in 2.3.P.1:

key physicochemical characteristics (e.g. water content,

solubility, particle size distribution, polymorphic or solid state form) of the API(s) that can influence the performance of the FPP:

for fixed-dose combinations, compatibility of APIs with each

other:

2.3.P.2.1.2 Excipients

Discussion of the choice of excipients listed in 2.3.P.1 (e.g. their

concentrations, their characteristics that can influence the FPP performance):

2.3.P.2.2 Finished Pharmaceutical Product

2.3.P.2.2.1 Formulation Development

Summary describing the development of the FPP (e.g. route of

administration, usage, optimization of the formulation, etc.):

Information on primary (submission, registration, exhibit) batches including comparative bioavailability or bio-waiver, stability, commercial:

Summary of batch numbers:

|  |
| --- |
| Batch number(s) of the FPPs used in |
| Bioequivalence or biowaiver |  |
| Dissolution profile studies  |  |
| Stability studies (primary batches) |
| ‹packaging configuration I› |  |  |  |
| ‹ packaging configuration II› |  |  |  |
| ‹Add/delete as many rows as necessary› |  |  |  |
| Stability studies (production batches) |
| ‹ packaging configuration I› |  |  |  |
| ‹ packaging configuration II› |  |  |  |
| (Add/delete as many rows as necessary) |  |  |  |
| Validation studies (primary batches) if available |
| ‹ packaging configuration I› |  |  |  |
| ‹ packaging configuration II› |  |  |  |
| (Add/delete as many rows as necessary) |  |  |  |
| Validation studies (at least the first three consecutive production batches)or code(s)/version(s) for process validation protocol(s)  |  |  |  |

Summary of formulations and discussion of any differences:

| Component and quality standard (e.g. NF, BP, Ph.Eur, in-house) | Relevant batches |
| --- | --- |
| Comparative bioavailability or biowaiver | Stability | Process validation | Commercial (2.3.P.1) |
| <Batch nos. and sizes> | <Batch nos. and sizes> | <Batch nos. and sizes> | <Batch nos. and sizes> |
| Theor.quantity per batch | % | Theor.quantity per batch | % | Theor.quantity per batch | % | Theor.quantity per batch | % |
| <complete with appropriate title e.g. Core tablet, Contents of capsule, Powder for injection> |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Subtotal 1 |  |  |  |  |  |  |  |  |
| <complete with appropriate title e.g. Film-coating> |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Subtotal 2 |  |  |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |  |  |

Description of batches used in the comparative in vitro studies (e.g. dissolution) and in the in vivo studies (e.g. comparative bioavailability or biowaiver), including strength, batch number, type of study and reference to the data (volume, page):

 (d)Summary of results for comparative in vitro studies

(e.g. dissolution)

 (e)Summary of any information on in vitro-in vivo correlation (IVIVC)

studies (with cross-reference to the studies in Module 5):

 (f) For scored tablets, provide the rationale/justification for scoring:

2.3.P.2.2.2 Overages

Justification of overages in the formulation(s) described in 2.3.P.1:

2.3.P.2.2.3 Physicochemical and Biological Properties

 (a) Discussion of the parameters relevant to the performance of the FPP

 (e.g. pH, ionic strength, dissolution, particle size distribution, polymorphism, rheological properties):

2.3.P.2.3 Manufacturing Process Development

Discussion of the development of the manufacturing process of the

FPP (e.g. optimization of the process, selection of the method of sterilization):

Discussion of the differences in the manufacturing process(es) for the batches used in the comparative bioavailability or biowaiver studies and the process described in 2.3.P.3.3:

2.3.P.2.4 Container Closure System

Discussion of the suitability of the container closure system

(described in 2.3.P.7) used for the storage, transportation (shipping) and use of the FPP (e.g. choice of materials, protection from moisture and light, compatibility of the materials with the FPP):

For a device accompanying a multi-dose container, a summary of

the study results demonstrating the reproducibility of the device (e.g. consistent delivery of the intended volume):

2.3.P.2.5 Microbiological Attributes

Discussion of microbiological attributes of the FPP (e.g. preservative

effectiveness studies):

2.3.P.2.6 Compatibility

Discussion of the compatibility of the FPP (e.g. with reconstitution

diluent(s) or dosage devices, co-administered FPPs):

2.3.P.3 Manufacture

2.3.P.3.1 Manufacturer(s)

Name, address and responsibility (e.g. fabrication, packaging,

labelling, testing) of each manufacturer, including contractors and each proposed production site or facility involved in manufacturing and testing:

| Name and address(include block(s)/unit(s)) | Responsibility |
| --- | --- |
|  |  |
|  |  |

2.3.P.3.2 Batch Formula

List of all components of the FPP to be used in the manufacturing

process and their amounts on a per batch basis (including individual

components of mixtures prepared in-house (e.g. coatings) and overages, if

any):

| Strength (label claim) |  |  |  |
| --- | --- | --- | --- |
| Master production documentreference number and/or version |  |  |  |
| Proposed commercial batch size(s) (e.g. number of dosage units) |  |  |  |
| Component and quality Standard (and grade, if applicable) | Quantity per batch (e.g. kg/batch) | Quantity per batch (e.g. kg/batch) | Quantity per batch (e.g. kg/batch) |
| <complete with appropriate title e.g. Core tablet, Contents of capsule, Powder for injection> |
|  |  |  |  |
|  |  |  |  |
| Subtotal 1 |  |  |  |
| <complete with appropriate title e.g. Film-coating> |
|  |  |  |  |
|  |  |  |  |
| Subtotal 2 |  |  |  |
| Total |  |  |  |

2.3.P.3.3 Description of Manufacturing Process and Process Controls

 (a) Flow diagram of the manufacturing process:

 (b) Narrative description of the manufacturing process, including equipment type and working capacity, process parameters:

 (c) Justification of reprocessing of materials:

2.3.P.3.4 Controls of Critical Steps and Intermediates

 (a) Summary of controls performed at the critical steps of the manufacturing process and on isolated intermediates:

| Step(e.g. granulation, compression, coating) | Controls |
| --- | --- |
|  |  |
|  |  |

2.3.P.3.5 Process Validation and/or Evaluation

Summary of the process validation and/or evaluation studies conducted (including product quality review(s) where relevant) and/or a summary of the proposed process validation protocol for the critical steps or critical assays used in the manufacturing process (e.g. protocol number, parameters, results):

2.3.P.4 Control of Excipients

2.3.P.4.1 Specifications

Summary of the specifications for officially recognized compendial

excipients which include supplementary tests not included in the officially

recognized compendial monograph(s):

2.3.P.4.2 Analytical Procedures

Summary of the analytical procedures for supplementary tests:

2.3.P.4.3 Validation of Analytical Procedures

Summary of the validation information for the analytical procedures for

supplementary tests (where applicable):

2.3.P.4.4 Justification of Specifications

Justification of the specifications (e.g. evolution of tests, analytical procedures and acceptance criteria, exclusion of certain tests, differences from officially recognized compendial standard(s)):

2.3.P.4.5 Excipients of Human or Animal Origin

For FPPs using excipients without risk of transmitting agents of animal spongiform encephalopathies, a letter of attestation confirming this can be found in: (page and volume)

CEP(s) demonstrating TSE-compliance can be found in: (page and volume)

2.3.P.4.6 Novel Excipients

 For excipient(s) used for the first time in an FPP or by a new route of administration, full details of manufacture, characterization and controls, with cross references to supporting safety data (non-clinical and/or clinical), should be provided according to the API and/or FPP format

2.3.P.5 Control of FPP

2.3.P.5.1 Specification(s)

Specification(s) for the FPP:

| Standard (e.g. Ph.Int., BP, USP, House) |  |
| --- | --- |
| Specification reference number and version |  |
| Test | Acceptance criteria(release) | Acceptance criteria(shelf-life) | Analytical procedure(type/source/version) |
| Description |  |  |  |
| Identification |  |  |  |
| Impurities |  |  |  |
| Assay |  |  |  |
| etc. |  |  |  |
|  |  |  |  |
|  |  |  |  |

2.3.P.5.2 Analytical Procedures

Summary of the analytical procedures (e.g. key method parameters, conditions, system suitability testing):

2.3.P.5.3 Validation of Analytical Procedures

Summary of the validation information (e.g. validation parameters and results):

2.3.P.5.4 Batch Analyses

Description of the batches:

| Strength andbatch number | Batch size | Date andsite of production | Use (e.g. comparative bioavailability or biowaiver, stability)  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |

Summary of batch analyses release results for relevant batches (e.g. comparative bioavailability or biowaiver, stability):

| Test | Acceptancecriteria | Results |
| --- | --- | --- |
| <batch x> | <batch y> | etc. |
| Description |  |  |  |  |
| Identification |  |  |  |  |
| Impurities |  |  |  |  |
| Assay |  |  |  |  |
| etc. |  |  |  |  |
|  |  |  |  |  |

Summary of analytical procedures and validation information for those procedures not previously summarized in 2.3.P.5.2 and 2.3.P.5.3 (e.g. historical analytical procedures):

2.3.P.5.5 Characterisation of Impurities

Identification of potential and actual impurities:

| Degradation product (chemical name or descriptor) | Structure | Origin |
| --- | --- | --- |
|  |  |  |
|  |  |  |

| Process-related impurity (compound name) | Step used in the FPP manufacturing process |
| --- | --- |
|  |  |
|  |  |

(b) Basis for setting the acceptance criteria for impurities:

 (i) Maximum daily dose (i.e. the amount of API administered per day) for the API, corresponding ICH Reporting/Identification/Qualification Thresholds for the degradation products in the FPP and the concentration limits (ppm) for the process-related impurities (e.g. residual solvents):

| Maximum daily dose for the API: | <x mg/day> |
| --- | --- |
| Test | Parameter | ICH threshold or concentration limit |
| Degradation product | Reporting Threshold |  |
| Identification Threshold |  |
| Qualification Threshold |  |
| Process-related impurities | <solvent 1> |  |
| <solvent 2>, etc. |  |
|  |  |

 (ii) Data on observed impurities for relevant batches (e.g. comparative bioavailability or biowaiver):

| Impurity(degradation product and process-related) | Acceptancecriteria | Results  |
| --- | --- | --- |
| <batch no., strength, use> |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

 (iii) Justification of proposed acceptance criteria for impurities:

2.3.P.5.6 Justification of Specification(s)

Justification of the FPP specification(s) (e.g. evolution of tests, analytical procedures and acceptance criteria, differences from officially recognized compendial standard(s)):

2.3.P.6 Reference Standards or Materials

Source (including lot number) of primary reference standards or reference materials (e.g. Ph.Int., Ph.Eur., BP, USP, in-house) not discussed in 3.2.S.5:

Characterization and evaluation of non-official (e.g. not from an officially recognized pharmacopoeia) primary reference standards or reference materials (e.g. elucidation of structure, certificate of analysis) not discussed in 3.2.S.5:

Description of the process controls of the secondary reference standard (comparative certificate of analysis and IR spectra against primary standard) not discussed in 3.2.S.5:

2.3.P.7 Container Closure System

Description of the container closure systems, including unit count or fill size, container size or volume:

|  |  |  |  |
| --- | --- | --- | --- |
| Description(including materials of construction) | Strength | Unit count or fill size | Container size |
|  |  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |  |
|  |  |  |
|  |  |  |

Summary of specifications of each primary and functional secondary (e.g. foil pouches) packaging components:

|  |  |
| --- | --- |
| Packaging component | Specifications (list parameters e.g. identification (IR)) |
| HDPE bottle |  |
| PP cap |  |
| Induction sealed liners |  |
| Blister films (PVC, etc) |  |
| Aluminum foil backing |  |
| etc. |  |
|  |  |

 (c) Other information on the container closure system(s):

2.3.P.8 Stability

2.3.P.8.1 Stability Summary and Conclusions

Summary of stress testing and results (e.g. photostability studies, cyclic studies, freeze-thaw studies):

Summary of accelerated and long-term testing parameters (e.g. studies conducted):

| Storage conditions (◦C, % RH) | Strength and batch number | Batch size | Container closure system | Completed (and proposed) test intervals |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Summary of the stability results observed for the above accelerated and long-term studies:

| Test | Results |
| --- | --- |
| Description |  |
| Moisture |  |
| Impurities |  |
| Assay |  |
| etc. |  |
|  |  |

Proposed storage statement and shelf-life (and in-use storage conditions and in-use period, if applicable):

|  |  |  |
| --- | --- | --- |
| Container closure system | Storage statement | Shelf-life |
|  |  |  |
|  |  |  |

2.3.P.8.2 Post-approval Stability Protocol and Stability Commitment

Stability protocol for Primary stability batches (e.g. storage conditions (including tolerances), batch numbers and batch sizes, tests and acceptance criteria, testing frequency, container closure system(s)):

| Parameter | Details |
| --- | --- |
| Storage condition(s) (◦C, % RH) |  |
| Batch number(s) / batch size(s) |  |
| Tests and acceptance criteria | Description |  |
| Moisture |  |
| Impurities |  |
| Assay |  |
| etc. |  |
|  |  |
| Testing frequency |  |
| Container closure system(s) |  |
|  |  |

Stability protocol for Commitment batches (e.g. storage conditions

(including tolerances), batch numbers (if known) and batch sizes, tests and acceptance criteria, testing frequency, container closure system(s)):

| Parameter | Details |
| --- | --- |
| Storage condition(s) (◦C, % RH) |  |
| Batch number(s) / batch size(s) | <not less than three production batches in each container closure system> |
| Tests and acceptance Criteria | Description |  |
| Moisture |  |
| Impurities |  |
| Assay |  |
| etc. |  |
| Testing Frequency |  |
| Container Closure System(s) |  |
|  |  |

Stability protocol for Ongoing batches (e.g. storage conditions (including tolerances), number of batches per strength and batch sizes, tests and acceptance criteria, testing frequency, container closure system(s)):

| Parameter | Details |
| --- | --- |
| Storage condition(s) (◦C, % RH) |  |
| Batch size(s), annual allocation | <at least one production batch per year (unless none is produced that year)in each container closure system > |
| Tests and acceptance Criteria | Description |  |
| Moisture |  |
| Impurities |  |
| Assay |  |
| etc. |  |
| Testing frequency |  |
| Container closure system(s) |  |
|  |  |

2.3.P.8.3 Stability Data

The actual stability results should be provided in Module 3.

Summary of analytical procedures and validation information for those procedures not previously summarized in 2.3.P.5 (e.g. analytical procedures used only for stability studies):

Bracketing and matrixing design and justification for Commitment and/or Ongoing stability batches, if applicable:

2.3.A APPENDICES

2.3.A.1 Facilities and Equipment

 (a) Summary of information on facilities and equipment, in addition to the information provided in other sections of the submission: Not applicable.

2.3.A.2 Adventitious Agents Safety Evaluation

 (a) Summary of the information assessing the risk with respect to potential contamination with adventitious agents: Not applicable.

2.3.A.3 Excipients

 (a) Summary of the details of manufacture, characterization and controls, with cross references to supporting safety data (nonclinical and/or clinical) for the novel excipients: Not applicable. Novel excipients are not accepted in the Prequalification Programme. See quality guideline for definition.

2.3.R REGIONAL INFORMATION

2.3.R.1 Production Documentation

2.3.R.1.1 Executed Production Documents

 (a) List of batches (including strengths) for which executed production documents have been provided (e.g. comparative bioavailability or biowaiver batches):

2.3.R.1.2 Master Production Documents

 (a) The blank master production documents for each strength, proposed commercial batch size and manufacturing facility should be provided in Module 3

2.3.R.2 Analytical Procedures and Validation Information

|  |
| --- |
| ANALYTICAL PROCEDURES AND VALIDATION INFORMATION SUMMARIES |
|  |
| ATTACHMENT NUMBER: |  |
|  |
| HPLC Method Summary  | Volume/Page: |  |
| Method name: |  |
| Method code: |  | Version and/or Date: |  |
| Column(s) / temperature (if other than ambient): |  |
| Mobile phase (specify gradient program, if applicable): |  |
| Detector (and wavelength, if applicable): |  |
| Flow rate: |  |
| Injection volume: |  |
| Sample solution concentration(expressed as mg/ml, let this be termed “A”): |  |
| Reference solution concentration(expressed as mg/ml and as % of “A”): |  |
| System suitability solution concentration(expressed as mg/ml and as % of “A”): |  |
| System suitability tests (tests and acceptance criteria): |  |
| Method of quantification (e.g. against API or impurity reference standard(s)): |  |
| Other information (specify): |  |

| ATTACHMENT NUMBER: |  |
| --- | --- |
|  |
| Validation Summary | Volume/Page: |  |
| Analytes: |  |  |  |  |
| Typical retention times (RT)  |  |  |  |  |
| Relative retention times (RTImp./RTAPI or Int. Std.): |  |  |  |  |
| Relative response factor (RFImp./RFAPI): |  |  |  |  |
| Specificity: |  |
| Linearity / Range: | Number of concentrations:Range (expressed as % “A”):Slope:Y-intercept:Correlation coefficient (r2) : |  |  |  |  |
| Accuracy: | Conc.(s) (expressed as % “A”):Number of replicates:Percent recovery (avg/RSD): |  |  |  |  |
| Precision /Repeatability:(intra-assay precision) | Conc.(s) (expressed as % “A”):Number of replicates:Result (avg/RSD): |  |
|  |
|  |
| Precision /Intermediate Precision:(days/analysts/equipment) | Parameter(s) altered:Result (avg/RSD): |  |
| Limit of Detection (LOD): (expressed as % “A”) |  |
| Limit of Quantitation (LOQ): (expressed as % “A”) |  |
| Robustness: | Stability of solutions:Other variables/effects: |  |
| Typical chromatograms or spectra may be found in: |  |
| Company(s) responsible for method validation: |  |
| Other information (specify): |  |