Accumulus Synergy:
FHIR Overview for the CMC data

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The Vision for Data Exchange

To achieve our mission, we will focus on delivering a cloud platform that aims to allow for exchange of structured data in alignment with changing regulatory needs.

The platform plans to allow customers the ability to:

- Store validated regulatory data in a common format
- Automatically map terminology across jurisdictions
- Construct templated filings from common data
- Exchange structured filings with global regulators
- Flexibly import/export data through key integrations
Accumulus Synergy aims to provide a managed platform for life science organizations and regulators to securely exchange and collaborate on structured regulatory information.
Based on stability results available to date, a shelf life of XX months is proposed for drug product stored at the recommended storage condition of X°C to Y°C (referred to as X°C). The secondary packaging effectively protects the drug product from light exposure.

1. Lot Information
Two presentations were manufactured for clinical development and will be used for commercial production: XXX mg (XXX mL) and XXX mg (XXX mL) single-use vials containing XX mg/mL AWW XXX. The 2 presentations are considered to be equivalent, differing only in fill volume and container size. The results from the XXX mg and XXX mg drug product presentations were combined to support product shelf life, and at least 1 set from each presentation was assessed for all evaluations.

A summary of the drug product lots in the stability program is provided in Table 1. The drug product stability program consists of 14 lots stored at the recommended storage condition of X°C. The overall program includes supporting, primary, and production lots. Comparability has been demonstrated between clinical and commercial sites (32 33 34 35). Product Compatibility. All lots in the stability program were used to establish the proposed shelf life.

Accumulus Synergy’s Module 3 Content Model aims to establish a data model and information architecture to support the transition from the present state to the future state.
The CMC Content Model Organizes CMC Information Into Core Content Blocks and Sub-Content Blocks

Sub-Content Blocks

- Names & Identifiers
- Dosage Form & Characterization
- Product Component
- Reference Standard
- Impurity Identification
- Impurity Characterization
- Manufacturers
- Testing Site
- Supplier
- Batch Identifiers
- Batch Details
- Release Testing Protocol
- Release Testing Results
- Batch Properties
- Formula Components

Core Content Block

- Core Content Block
- Sub-Content Blocks

- DP Identification
- DP Composition
- DP Impurities

- Batch or Lot Information
- Batch Analysis
- Batch Formula

- Manufacturing Process
- Process Validation
- Analytical Methods
- Process Overview
- Unit Operation
- Process Parameters
- In-Process Controls
- Intermediates
- Validation Protocol
- Validation Results
- Analytical Method Description
- Test Method

- Container Closure System
- Stability Study
- Stability Protocol
- Stability Results
- Specification
- Specification document
- Specification details
- Compatibility Study
- Compatibility Narrative
FHIR as an Enabler for Structured Data

- **FHIR** – Fast Healthcare Interoperability Resources
- Healthcare data exchange standard with accompanying application program interface (API)
- Accepted formats include XML, JSON, HTTP, REST, UML
- Capability to manage structured and semi-structured data, as well as file attachments
- Compatible with external controlled terminology lists for codable elements
- Standardized templates with customization options

FHIR is increasingly being adopted to support Regulatory Affairs activities to enhance data interoperability, searchability, accessibility, and standardization

http://hl7.org/fhir/index.html
3.2.P.7 Container Closure System

The drug product tablets are packed in white, high density polyethylene (HDPE) plastic bottles, or in blister packs with aluminum lidding.

Each bottle is capped with a white, child-resistant closure containing a pulp liner and aluminum foil induction seal.

Tablets are also packaged as unit-dose in a base film consisting of rigid blister film laminated to a barrier film. A configuration scheme of the tablets is presented in Table 1.

### Table 1: Configuration Scheme

<table>
<thead>
<tr>
<th>Strength</th>
<th>Package Type</th>
<th>Supplier</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>45 mg</td>
<td>white, high density polyethylene (HDPE) plastic bottles with child-resistant closure containing a pulp liner and aluminum foil induction seal</td>
<td>Container Co. of America (all components)</td>
<td>28 tablets</td>
</tr>
<tr>
<td></td>
<td>Unit-dose blister strips consisting of a rigid blister film laminated to a barrier film; the package contains 2 blister strips of fourteen tablets</td>
<td>Foil - Reynolds Wrap USA</td>
<td>28 tablets</td>
</tr>
<tr>
<td></td>
<td>Film - Plastics of America</td>
<td></td>
<td></td>
</tr>
<tr>
<td>350 mg</td>
<td>white, high density polyethylene (HDPE) plastic bottles with child-resistant closure containing a pulp liner and aluminum foil induction seal</td>
<td>Container Co. of America (all components)</td>
<td>28 tablets</td>
</tr>
<tr>
<td></td>
<td>Unit-dose blister strips consisting of a rigid blister film laminated to a barrier film; the package contains 2 blister strips of fourteen tablets</td>
<td>Foil - Reynolds Wrap USA</td>
<td>28 tablets</td>
</tr>
<tr>
<td></td>
<td>Film - Plastics of America</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Future Vision – Application of CMC Standards

**Life Sciences Organization Workflow**

- Sponsor
- Contract Manufacturer
- Contract Author & Publisher
- Contract Testing Lab

**Workflow Function:**
Aims to foster intra- and inter-connectivity between internal sponsor systems and vendor systems; Constructs FHIR messages based upon existing/emerging international standards

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**Health Authority Workflow**

**Systems of Record**

**Analytical Databases**

**Workflow Function:**
Aims to enable exchange of standardized regulatory information between sponsor and health authority

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Other related initiatives:
- ISO IDMP/SPOR
- ICH SPQS

**DX-PQ Standard**

Facilitates and drives cloud-based information exchange

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ILLUSTRATIVE
Project Timeline and Activities

Anticipated Testing Schedule

- **April 2023 – Private Testing Event 1**
  - **Scope**: Stability, Specification, Batch Analyses, DS/DP Identifiers

- **July 2023 – Private Testing Event 2**
  - **Scope**: Manufacturing Process, Analytical Procedures, Process Validation, Container Closure System

- **Sept. 2023 – Public Testing Event: HL7 FHIR Connectathon**
  - **Scope**: Full IG

- Linked here is an early draft version of the Pharmaceutical Quality Data Exchange IG
Potential for Collaboration Between Accumulus and Allotrope Foundation

• **DX-PQ Data Standard Development**
  - Ensure DX-PQ alignment with Allotrope Data Format and Data Models
  - DX-PQ standard is open for public contribution

• **DX-PQ Controlled Vocabulary Lists**
  - Examine content areas of overlap and leverage any relevant Allotrope products (Ontologies, Taxonomies) where applicable