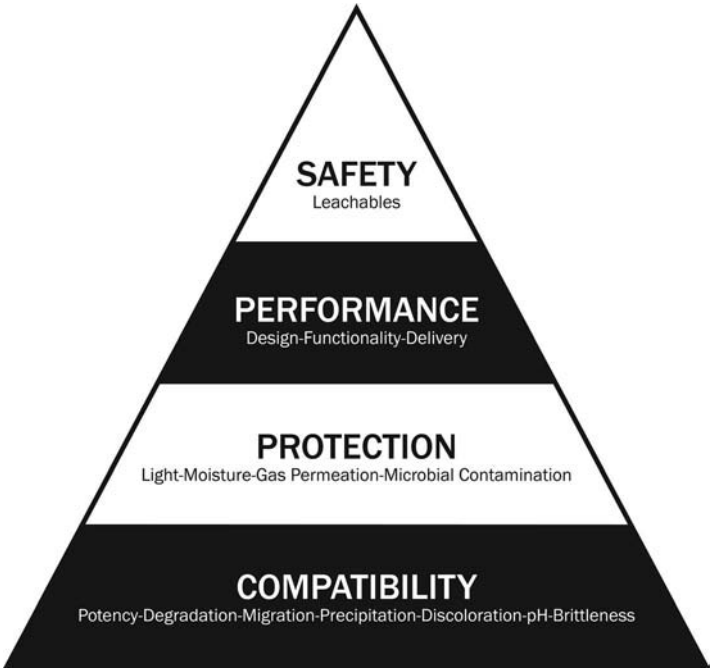

FIGURE 1 Key aspects of CCS suitability.

IDENTIFICATION OF CRITICAL CCS COMPONENTS FOR EXTRACTABLE/LEACHABLE ASSESSMENT USING RISK MANAGEMENT TOOLS

Components used in a multistage manufacturing process, along with the final package and drug administration system, encompass many material variables that can be classified as part of the CCS.

> The choice and rationale for selection of the container closure system for the commercial product should be discussed. Consideration should be given to the intended use of the drug product and the suitability of the container closure system for storage and transportation (shipping), including the storage and shipping container for bulk drug product, where appropriate (3).

Identification of the components likely to contaminate or interact with the pharmaceutical product is crucial to the pharmaceutical product CQA. These defined CCS materials can be exposed to conditions of low pressures, high and low temperatures, and solvents for extended periods of time. Exposure to harsh conditions has the potential to cause constituents from the CCS materials to volatilize, solubilize, bloom, or degrade, impacting the purity of the pharmaceutical product. Exploring functional relationships between a lyophilized pharmaceutical product and the CCS will enable specifications to be defined, building CQAs into the design space. The chemistries of the CCS materials are integral to the manufacture and performance of the components, and detailed