



## Change Notification Addendum

Update and Project overview including high-level timelines for the planned closure of the Prime Synthesis Inc., Aston, PA manufacturing facility.

**Change Reference No:** 2017-0601

**Date:** 28-July-2017

### **Description of Change (Original):**

In September 2016, LGC Biosearch Technologies announced the acquisition of Prime Synthesis, Inc. and began the process of integrating the Prime Synthesis business with our Petaluma, CA USA and LGC Biosearch GmbH, Steinach, Germany operations. Our intent is that over the remainder of 2017 and through the first quarter of 2018, all activities carried out at the Aston, PA facility will be transferred to our Steinach and Petaluma locations and the Aston, PA location will be closed once operations requirements are satisfied. Target site closure date for the Aston site is March 31, 2018. This will be dependent on all validation and testing being complete and suitable safety stock in place for clients.

Current contacts for Customer Service, Order Entry, Quality, and Business Development will remain unchanged at this time. Additional notification will be provided as changes in these areas take effect in order to ensure uninterrupted product quality and service.

### **Additional information and Project Update**

#### **Project Objectives and Timelines:**

During the Prime Synthesis Inc., due diligence pre-acquisition phase, it was determined that manufacturing activities at the Prime Synthesis Aston site paralleled that of the LGC Biosearch Technologies Petaluma site and the LGC Biosearch GmbH site. Due to the aging infrastructure of the manufacturing facilities in Aston, and recent capital investments to modernize both LGC sites, the decision was made to integrate the manufacturing and testing practices from Prime Synthesis into the two LGC sites. To maintain localized expertise and equipment, the manufacturing activities of Prime Synthesis will be divided between the two LGC sites with Native CPG production to occur in Steinach, Germany and surface modification chemistries to occur in Petaluma CA.

To maintain consistency in the manufacturing process, protocols, and when possible, equipment used for the Prime Synthesis process will be transferred to both LGC sites. With respect to scale, Native CPG will be manufactured using two reactors equivalent in construction and materials, from the same manufacture, but smaller in size due to a discontinuation in the current size. The stirring motor and blade as well as the heating unit are sourced from the current manufacturers but scaled to match the new reactor size. Materials and design remain the same as used at the Prime facilities. The batch scale will be reduced by approximately 25% however the use of two identical reactors will result in an increase in output per manufacturing cycle. The process of

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Native CPG manufacturing will be transferred from Aston to Steinach Germany using existing protocols, modified for the new scale and site workflow. No changes in critical raw ingredients will be made. Solvents or non-critical ingredients will be sourced regionally (Europe) and may differ in manufacturer but will maintain or exceed set specifications related to purity.

Equipment installation qualification activities are scheduled to begin shortly, with an anticipated completion date of October 2017. Upon completion of the Installation Qualification, initial tests batches will be conducted at both LGC locations to assure proper function of all systems. Representative materials will be selected to undergo full validation of the manufacturing process. The materials selected will be based on customer input and prioritized accordingly. Test samples of the validated material will be made available for external testing in a timely manner. Additional validation of materials may be arranged at the expense of the customer. The results of all validations executed for the purpose of this project will be made available upon completion of the individual stages or prior to delivery of test batches.

#### **Quality Control Bridging Studies:**

To demonstrate equivalencies across site analytics, studies will be conducted under controlled conditions with results made available upon request. All Quality Control checks listed on current Prime Synthesis Certificates of Analysis are included in this study. Certificates of Analysis will be updated to match current wording and format per the LGC Biosearch Quality program. An example CofA will be made available for review post validation. Certificates are generated automatically within the LGC Biosearch ERP/MES thus customization is not within the scope of this transfer process. In some instances, tests will be harmonized with those performed currently at LGC. Whenever possible, tests will be updated to the latest USP guidelines however no claim is made to execute verbatim. Additional studies may be available for an agreed on fee.

Bridge studies will assess the current protocols and identify discrepancies in test procedures, data processing, and instrumentation. A minimum of three lots will be investigated and results compared. Failure to meet set expectations as outlined in the study plan will result in additional testing. Testing is set to begin in August across all three sites. Due to differences in equipment manufacturers, protocols will be constructed to allow for testing to be performed on multiple platforms. Physical properties such as pore volume and size will continue to be measured by mercury intrusion while surface area will be measured by BET contingent on the establishment of a mutual agreement between LGC and the customer. All studies will be executed as outlined in a study plan and results made available for review upon completion of the studies and prior to the start of the manufacturing validation process.

#### **Critical Dates for the Transfer Process:**

- July. 2017 through Aug. 2017 – QC check bridge studies.
  - Sept. 2017 – Begin Native CPG validation in Steinach, continuing as needed.
  - Nov. 2017 – Functionalized CPG validation in Petaluma, continue as needed.
  - Sept. 2017 – Non-validated material available for testing.
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- Q4 2017 through Q1 2018 – Stock build-up of critical intermediates (Native, Amino) at Prime site.
- Q1 2018 or as needed – Option to build-up stock of final product(s) available through Sales Agreement.
- End of Q1 2018 – Targeted Aston Site closure contingent on the completion of all internal LGC validation and stock build-up requirements and a reasonable level of external validation as agreed individually with customers.

### **Project Summary:**

Currently, both LGC sites are undergoing manufacturing space upgrades to include additional HVAC capabilities, laboratory bench space, and fume hoods at our Petaluma site and additional controlled manufacturing space at our Steinach site. Both sites are in the process of commissioning new manufacturing equipment to best replicate the Prime Synthesis manufacturing lines. In some instances, manufacturing scales will be adjusted to improve workflow or match current material demand. No fundamental changes to the manufacturing process will occur and critical raw ingredient suppliers will remain unchanged. Changes to suppliers may change for non-critical reagents such as solvents due to site location limitations or established supply chain contracts however, the purity levels will be maintained. Manufacturing practices will be based on current Prime Standard Operating Procedures but adapted to be compatible with the LGC MES/ERP systems. Critical inputs will continue to be captured as defined by the Prime Synthesis SOPs. Additional information may be captured for process monitoring or per requirements established within LGC Biosearch Quality System.

It is the intention of LGC Biosearch and Prime Synthesis to continue to provide a high quality product during the manufacturing line transfer and beyond. We anticipate no interruption in supply line during this process and will manage additional stock of native and amino loaded materials to mitigate potential disruption. Additional stock may be made available per a supply agreement. LGC Biosearch is committed to continue to operate the Prime synthesis facilities throughout the transfer process and as seen necessary based on achievement of the Project objectives. Representative materials will be available for testing prior to the site closure and transfer of supply line. Customers will be provided a reasonable timeline to execute internal testing of the new materials or as dictated by established supply agreements.

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