

May 5, 2023

**VIA EDGAR**

United States Securities and Exchange Commission  
Division of Corporation Finance  
Office of Industrial Applications and Services  
100 F Street NE  
Washington, D.C. 20549  
Attn: Margaret Schwartz and Celeste Murphy

**Re: LanzaTech Global, Inc.**  
**Amendment No. 1 to Registration Statement on Form S-1**  
**Filed March 29, 2023**  
**File No. 333-269735**

Dear Ms. Nimitz and Ms. Park:

On behalf of our client, LanzaTech Global, Inc. (the “Company” or “LanzaTech”), we are writing to submit the Company’s responses to the comments of the staff of the Division of Corporation Finance (the “Staff”) of the United States Securities and Exchange Commission (the “Commission”) contained in the Staff’s letter dated April 11, 2023 (the “Comment Letter”), with respect to the above-referenced Amendment No. 1 to the Registration Statement on Form S-1, filed on March 29, 2023 (the “Registration Statement”).

The Company has filed via EDGAR Amendment No. 2 to the Registration Statement (“Amendment No. 2”), which reflects the Company’s responses to the comments received by the Staff and certain updated information. For ease of reference, each comment contained in the Comment Letter is printed below in bold and is followed by the Company’s response. All page references in the responses set forth below refer to page numbers in Amendment No. 2. Capitalized terms used but not defined herein have the meanings set forth in Amendment No. 2.

Amendment No. 2 to Registration Statement on Form S-1, Filed March 29, 2023

Prospectus Summary, page 1

- 1. We note your revisions in response to our prior comment 2 and reissue. Please disclose that cash proceeds associated with the exercises of the warrants are dependent on the stock price in the prospectus summary, risk factors, MD&A and use of proceeds section. As applicable, describe the impact on your liquidity and update the discussion on the ability of your company to fund your operations on a prospective basis with your current cash on hand.**

Response to Comment 1: In response to the Staff’s comment, the Company has added disclosure on pages 6-7, 49, 51 and 76 of Amendment No. 2.

2. **We note your revisions in response to our prior comment 3 and reissue in part. Please disclose the potential profit the selling securityholders will earn based on the current trading price in the Offering Summary, both in the aggregate and on a per share basis.**

Response to Comment 2: In response to the Staff's comment, the Company has added disclosure on pages 8-9 of Amendment No. 2.

3. **We note your statement in Footnote 1 of page 9 that you "should not be relied upon for any purpose outside of its illustrative nature." Please remove or revise this statement as you may not disclaim responsibility for the information presented in your registration statement.**

Response to Comment 3: In response to the Staff's comment, the Company has removed the referenced statement in Footnote 1 of page 9 of Amendment No. 2.

Management's Discussion and Analysis of Financial Condition and Results of Operations  
Overview, page 67

4. **We note your response to our prior comment 5 and reissue in part. We note your statement that "The Company does not expect to seek additional capital." However, your risk factor contemplates that you "may require substantial additional financing to fund our operations and complete the development and commercialization of the process technologies that produce each of our products or new aspects of our existing process technologies that produce each of our products . . ." Please discuss the effect of this offering on the company's ability to raise additional capital.**

Response to Comment 4: In response to the Staff's comment, the Company has added disclosure on pages 10, 19-20, and 76 of Amendment No. 2.

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Please contact me at (202) 662-5297 or Brian K. Rosenzweig at (212) 841-1108 with any questions or further comments regarding our responses to your comments.

Sincerely,

/s/ Kerry S. Burke

Kerry S. Burke  
Covington & Burling LLP

cc: Jennifer Holmgren, LanzaTech Global, Inc.