

May 23, 2024

Jennifer Holmgren
Chief Executive Officer and Director
LanzaTech Global, Inc.
8045 Lamon Avenue
Suite 400
Skokie, Illinois 60077

Inc.

Statement on Form S-3

Re: LanzaTech Global,

Registration

Filed May 9, 2024

File No. 333-279239

Dear Jennifer Holmgren:

We have conducted a limited review of your registration statement and have the following comments.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe a comment applies to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to this letter, we may have additional comments.

Registration Statement on Form S-3 filed May 9, 2024

General

1. We note that your Form S-3 includes a prospectus for selling stockholders, which covers of up to 23,403,989 shares of your common stock issuable upon convertible securities and (ii) the offering and sale of up to your common stock and up to 8,857,762 warrants to purchase your common stock that may be sold in one or more secondary offerings by the selling stockholders from time to time. However, it appears that you currently have an effective S-1 registration statement, File No. 333-269735, that has registered this transaction. Therefore, please remove this prospectus from your S-3 registration statement, or tell us why it is permissible for you to register this transaction on this S-3 registration statement.

Jennifer Holmgren
FirstName
LanzaTechLastNameJennifer Holmgren
Global, Inc.
Comapany
NameLanzaTech Global, Inc.
May 23, 2024

May 23,
Page 2 2024 Page 2
FirstName LastName

2. We note your disclosure in your annual report for the fiscal year-ended December 31, 2023 that "LanzaTech no longer qualified as a smaller reporting company as of the last business day of the Company's second fiscal quarter." Because the company no longer appears to be a smaller reporting company, please revise to include, or incorporate by reference to, three years of Statements of Operations and Comprehensive Income (Loss),

Stockholder Equity (Deficit), and Cash Flows. See Rules 3-02 and 3-04 of Regulation S-

X.

We remind you that the company and its management are responsible for the accuracy and adequacy of their disclosures, notwithstanding any review, comments, action or absence of action by the staff.

Refer to Rules 460 and 461 regarding requests for acceleration. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Please contact Robert Augustin at 202-551-8483 or Katherine Bagley at 202-551-2545 with any questions.

Sincerely,

Division of

Office of

Services

Corporation Finance
Industrial Applications and
cc: Kerry Burke