

February 27, 2023

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

Inc.

Statement on Form S-1  
2023

Re: LanzaTech Global,  
Registration  
Filed February 13,  
File No. 333-269735

Dear Jennifer Holmgren:

We have limited our review of your registration statement to those issues we have addressed in our comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comments apply 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 these comments, we may have additional comments.

Registration Statement on Form S-1, Filed February 13, 2023

Prospectus Summary, page 1

1. For each of the shares being registered for resale, disclose the price that the selling securityholders paid for such shares and securities overlying such shares.
2. 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.
3. Revise your prospectus to disclose the price that each selling securityholder paid for the securities being registered for resale. Highlight any differences in the current trading

Jennifer Holmgren  
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LanzaTechLastNameJennifer Holmgren  
Global, Inc.  
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FirstName LastName

price, the prices that the Sponsor, private placement investors, PIPE investors and other selling securityholders acquired their shares and warrants, and the price that the public securityholders acquired their shares and warrants. Please also disclose the potential profit the selling securityholders will earn based on the current trading price. We note you

disclose that certain selling securityholders may receive up to approximately \$14.8 million in the aggregate from sales of their shares, please revise to also address all other selling securityholders as well. Lastly, please include appropriate risk factor disclosure.  
Risk Factors, page 7

4. Include an additional risk factor highlighting the negative pressure potential sales of shares pursuant to this registration statement could have on the public trading price of the common stock. To illustrate this risk, disclose the purchase price of the securities being registered for resale and the percentage that these shares currently represent of the total number of shares outstanding.

Management's Discussion and Analysis of Financial Condition and Results of Operations  
Overview, page 66

5. In light of the significant number of redemptions and the unlikelihood that the company will receive significant proceeds from exercises of the warrants because of the disparity between the exercise price of the warrants and the current trading price of the common stock, expand your discussion of capital resources to address any changes in the company's liquidity position since the business combination. If the company is likely to have to seek additional capital, discuss the effect of this offering on the company's ability to raise additional capital.

6. Please expand your discussion here to reflect the fact that this offering involves the potential sale of a substantial portion of shares for resale and discuss how such sales could impact the market price of the company's common stock.

7. We note that your forward purchase agreement provides an investor with the right to sell back shares to the company at a fixed price three years after the closing date of the business combination. Please revise to discuss the risks that this agreement may pose to other holders if you are required to buy back the shares of your common stock as described therein, in which case the investor would keep the prepayment amount. We also note that the investor is entitled to certain consideration at the end of the three-year term. Discuss how such forced purchases and this other required consideration would impact the cash you have available for other purposes and to execute your business strategy.  
General

8. Please conform the disclosures in your Form S-1, related to your operations in China, with the disclosures in your amended Form S-4 (File No. 333-264811), taking into consideration our comment 6 in our letter dated November 27, 2022.

Jennifer Holmgren  
LanzaTech Global, Inc.  
February 27, 2023  
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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 Margaret Schwartz at 202-551-7153 or Celeste Murphy at 202-551-3257

with any other questions.

FirstName LastNameJennifer Holmgren  
Corporation Finance

Applications and  
Comapany NameLanzaTech Global, Inc.

February 27, 2023 Page 3

cc: Kerry Burke, Esq.

FirstName LastName

Sincerely,

Division of

Office of Industrial

Services