

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

**POST-EFFECTIVE AMENDMENT NO. 5 TO
FORM S-1**

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

LanzaTech Global, Inc.

(Exact name of registrant as specified in charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

8731
(Primary Standard Industrial
Classification Code Number)

92-2018969
(I.R.S. Employer
Identification No.)

**8045 Lamon Avenue, Suite 400
Skokie, Illinois 60077
Tel: (847) 324-2400**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Joe Blasko
8045 Lamon Avenue, Suite 400
Skokie, Illinois 60077
Tel: (847) 324-2400

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:
Kerry S. Burke
Brian Rosenzweig
One CityCenter
850 Tenth Street, N.W.
Washington, D.C. 20001
(202) 662-6000

Approximate date of commencement of proposed sale to the public: Not Applicable. Removal from registration of securities that were not sold pursuant to the above referenced registration statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer
Non-accelerated filer

Accelerated filer
Smaller reporting company
Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

EXPLANATORY NOTE

DEREGISTRATION OF SECURITIES

LanzaTech Global, Inc. (the “Company”) filed a Registration Statement on Form S-1 (File No. 333-269735) on February 13, 2023, as amended on March 29, 2023, May 5, 2023, and May 22, 2023, which was declared effective by the Securities and Exchange Commission (“SEC”) on May 24, 2023. On December 18, 2023, the Company filed Post-Effective Amendment No. 1 which was declared effective by the SEC on December 20, 2023. On March 14, 2024, the Company filed Post-Effective Amendment No. 2, on April 5, 2024, the Company filed Post-Effective Amendment No. 3, and on April 19, 2024, the Company filed Post-Effective Amendment No. 4 which was declared effective by the SEC on April 23, 2024 (as amended, the “Original Registration Statement”).

The Original Registration Statement was filed to register (i) the issuance by the Company of an aggregate of up to 23,403,989 shares of the Company’s common stock, \$0.0001 par value per share (“common stock”) and (ii) the offer and sale from time to time by the selling stockholders named in the Original Registration Statement or their permitted transferees of up to 203,436,682 shares of common stock and up to 8,857,762 warrants to purchase common stock (together with the shares of common stock, the “Registered Securities”). The Original Registration Statement was filed while the Company was ineligible to use Form S-3. As of the date hereof, the Company meets the eligibility requirements of Form S-3 and therefore may use its Registration Statement on Form S-3 (File No. 333-279239), which was filed with the SEC on May 9, 2024, as amended on October 11, 2024, once it is declared effective by the SEC (the “New Registration Statement”).

Pursuant to the Company’s undertaking as required by Item 512(a)(3) of Regulation S-K, this Post-Effective Amendment No. 5 is being filed to terminate the effectiveness of the Original Registration Statement and to deregister, as of the effective date of this Post-Effective Amendment No. 5, all the Registered Securities that remain unsold under the Original Registration Statement as of the date thereof. Such Registered Securities are to be registered under the New Registration Statement, once it is declared effective by the SEC.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this Post-Effective Amendment No. 5 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Skokie, State of Illinois, on October 28, 2024.

LANZATECH GLOBAL, INC

By: /s/ Geoff Trukenbrod
Geoff Trukenbrod
Chief Financial Officer

Note: Pursuant to Rule 478 under the Securities Act of 1933, as amended, no other person is required to sign this Post-Effective Amendment.