

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-3

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

ASP Isotopes Inc.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

87-2618235

(I.R.S. Employer
Identification Number)

**601 Pennsylvania Avenue NW
South Building, Suite 900
Washington, D.C. 20004
(202) 756-2245**

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

**Paul E. Mann
Executive Chairman and Chief Executive Officer
ASP Isotopes Inc.**

**601 Pennsylvania Avenue NW
South Building, Suite 900
Washington, D.C. 20004
(202) 756-2245**

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

Copy to:

**Donald G. Ainscow, Esq.
Blank Rome LLP
200 Crescent Court, Suite 1000
Dallas, TX 75201
Tel: (972) 850-1450
Fax: (972) 850-1451**

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this registration statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box: ☐

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, other than securities offered only in connection with dividend or interest reinvestment plans, 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: ☒ 333-286860

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 registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. ☐

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a 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. ☐

This registration statement shall become effective upon filing in accordance with Rule 462(b) promulgated under the Securities Act of 1933, as amended.

**EXPLANATORY NOTE
AND INCORPORATION OF CERTAIN INFORMATION BY REFERENCE**

Pursuant to Rule 462(b) under the Securities Act of 1933, as amended, ASP Isotopes Inc. (the “Registrant”) is filing this Registration Statement on Form S-3 (this “Registration Statement”) with the Securities and Exchange Commission (the “Commission”). This Registration Statement relates to the public offering of securities contemplated by the Registration Statement on Form S-3 (File No. 333-286860) (the “Prior Registration Statement”), which the Registrant originally filed with the Commission on April 30, 2025, and which the Commission declared effective on May 30, 2025.

The Registrant is filing this Registration Statement for the sole purpose of increasing the aggregate number of securities offered by the Registrant by a proposed aggregate offering price of \$10,000,000. The additional securities that are being registered for issuance and sale represent no more than 20% of the maximum aggregate offering price of unsold securities under the Prior Registration Statement. The information set forth in the Prior Registration Statement and all exhibits to the Prior Registration Statement are hereby incorporated by reference into this Registration Statement. The required opinion and consents are listed on the Exhibit Index below and filed herewith.

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 16. Exhibits.

(a) Exhibit Index

All exhibits filed with or incorporated by reference in the Prior Registration Statement are incorporated by reference into, and shall be deemed a part of, this Registration Statement, and the following additional exhibits are filed or incorporated by reference herewith, as part of this Registration Statement:

Exhibit Number	Description
<u>5.1</u>	<u>Opinion of Blank Rome LLP.</u>
<u>23.1</u>	<u>Consent of Independent Registered Public Accounting Firm.</u>
<u>23.2</u>	<u>Consent of BDO South Africa Incorporated</u>
<u>23.3</u>	<u>Consent of Blank Rome LLP (included in Exhibit 5.1).</u>
<u>24.1</u>	<u>Power of Attorney (incorporated by reference to Exhibit 24.1 to the Prior Registration Statement).</u>
<u>107</u>	<u>Filing Fee Table.</u>

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Washington, D.C. on July 23, 2025.

ASP ISOTOPES INC.

By /s/ Paul E. Mann
Paul E. Mann
Executive Chairman and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Paul E. Mann</u> Paul E. Mann	Executive Chairman, Chief Executive Officer and Director (Principal Executive Officer)	July 23, 2025
<u>/s/ Heather Kiessling</u> Heather Kiessling	Chief Financial Officer (Principal Financial and Accounting Officer)	July 23, 2025
<u>*</u> Michael Gorley, Ph.D.	Director	July 23, 2025
<u>*</u> Sipho N. Maseko	Director	July 23, 2025
<u>*</u> Duncan Moore, Ph.D.	Director	July 23, 2025
<u>*</u> Robert Ryan	Director	July 23, 2025
<u>*</u> Todd Wider, M.D.	Director	July 23, 2025

* By: /s/ Paul E. Mann
Paul E. Mann
Attorney-in-Fact



One Logan Square
130 North 18th Street | Philadelphia, PA 19103-6998
blankrome.com

July 23, 2025

The Board of Directors
ASP Isotopes Inc.
601 Pennsylvania Avenue NW
South Building, Suite 900
Washington, D.C. 20004

Ladies and Gentlemen:

We have acted as counsel to ASP Isotopes Inc., a Delaware corporation (the “Company”), in connection with the preparation of (i) the Registration Statement on Form S-3 (File No. 333-286860) filed by the Company with the Securities and Exchange Commission (the “Commission”) under the Securities Act of 1933, as amended (the “Securities Act”) on April 30, 2025 and declared effective by the Commission on May 30, 2025 (the “Initial Registration Statement”), and (ii) the related Registration Statement on Form S-3 to be filed pursuant to Rule 462(b) promulgated under the Securities Act (the “462(b) Registration Statement,” and together with the Initial Registration Statement, the “Registration Statement”) to register the offer and sale of an additional \$10,000,000 of its securities, which includes shares of common stock of the Company, \$0.01 par value per share (“Common Stock”). This opinion is being furnished in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act in connection with the filing of the 462(b) Registration Statement.

In rendering the opinion set forth herein, we have examined originals or copies, certified or otherwise identified to our satisfaction, of (i) the Registration Statement, (ii) resolutions adopted by the Board of Directors of the Company (the “Board”), (iii) the Amended and Restated Certificate of Incorporation of the Company (the “Certificate of Incorporation”), (iv) the Amended and Restated Bylaws of the Company (the “Bylaws”), and (v) such other certificates, instruments and documents as we considered appropriate for purposes of the opinion hereafter expressed.

We have not performed any independent investigation other than the document examination described above. We have assumed and relied, as to questions of fact and mixed questions of law and fact, on the truth, completeness, authenticity and due authorization of all certificates, documents and records examined, and the genuineness of all signatures.

The opinion set forth below is limited to the Delaware General Corporation Law.

Based on the foregoing, we are of the opinion that, assuming there will be sufficient shares of Common Stock authorized under the Certificate of Incorporation and not otherwise reserved for issuance, when (i) the Board or a committee thereof has taken all necessary corporate action to approve the issuance and terms of the offering of shares of Common Stock and related matters; and (ii) certificates representing the shares of Common Stock have been duly executed, countersigned, registered and delivered, or if uncertificated, valid book-entry notations have been made in the share register of the Company, in each case in accordance with the Certificate of Incorporation and the Bylaws, in accordance with the applicable underwriting agreement approved by the Board or a committee thereof, then upon payment of the consideration therefor (not less than the par value of Common Stock) provided for therein, such shares of Common Stock will be validly issued, fully paid and non-assessable.

July 23, 2025
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This opinion is given as of the date hereof. We assume no obligation to update or supplement this opinion to reflect any facts or circumstances which may hereafter come to our attention or any changes in laws which may hereafter occur.

We consent to the filing of this opinion as an exhibit to the 462(b) Registration Statement. We also consent to any and all references to us in the prospectus which is part of said 462(b) Registration Statement. In giving this consent, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission promulgated thereunder. This opinion is strictly limited to the matters stated herein and no other or more extensive opinion is intended, implied or to be inferred beyond the matters expressly stated herein. This opinion letter is not a guaranty nor may one be inferred or implied.

Very truly yours,

/s/ Blank Rome LLP

BLANK ROME LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement of ASP Isotopes Inc. on Form S-3 to be filed on or about July 23, 2025 of our report dated March 31, 2025, on our audits of the financial statements as of December 31, 2024 and 2023 and for each of the years then ended, which report was included in the Annual Report on Form 10-K filed March 31, 2025.

/s/ EisnerAmper LLP

EISNERAMPER LLP
Iselin, New Jersey
July 23, 2025

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Form S-3 and related Prospectus Supplement of ASP Isotopes Inc. to be filed on or about July 23, 2025 and the Registration Statements of ASP Isotopes Inc. on Form S-1 (Nos. 333-275686 and 333-271137), Form S-3 (Nos. 333-279267, 333-279857, 333-282936 and 333-286860) and Form S-8 (Nos. 333-268421, 333-280157 and 333-280158) of our report dated May 27, 2025, relating to the consolidated financial statements of Renergen Limited (the “Company”), which appear in the Form 8-K filed by ASP Isotopes Inc. on May 27, 2025. Our report contains a material uncertainty explanatory paragraph regarding the Company’s ability to continue as a going concern.

/s/ BDO South Africa Inc.

BDO SOUTH AFRICA INCORPORATED

Johannesburg, South Africa

Wanderers Office Park

52 Corlett Drive

Illovo, 2196

July 23, 2025

Calculation of Filing Fee Tables

Form S-3
(Form Type)ASP Isotopes Inc.
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered and Carry Forward Securities

												Filing Fee Previously Paid In Connection with Unsold Securities to be Carried Forward
Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee(1)(2)	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial Effective date		
Newly Registered Securities												
Fees to Be Paid	Equity	Common Stock, \$0.01 par value	457(o)	(1)	(1)	(1)	—	—				
	Equity	Preferred Stock, \$0.01 par value	457(o)	(1)	(1)	(1)	—	—				
	Debt	Debt Securities	457(o)	(1)	(1)	(1)	—	—				
	Other	Warrants	457(o)	(1)	(1)	(1)	—	—				
	Other	Units	457(o)	(1)	(1)	(1)	—	—				
	Unallocated (Universal) Shelf		457(o)	(1)	(1)	\$10,000,000	\$0.0001531	\$	1,531			
Fees Previously Paid	—	—	—	—	—	—	—					
Carry Forward Securities												
Carry Forward Securities	—	—	—	—	—	—	—	—	—	—	—	
	Total Offering Amounts		\$10,000,000									
	Total Fees Previously Paid		—									
	Total Fee Offsets		—									
	Net Fee Due		\$ 1,531									

- (1) The Registrant previously registered the offer and sale of certain securities having a proposed maximum aggregate offering price of \$50,000,000 pursuant to a Registration Statement on Form S-3 (File No. 333-286860) (the "Prior Registration Statement"), which was initially filed on April 30, 2025 and declared effective by the Securities and Exchange Commission on May 30, 2025. As of the date hereof, a balance of approximately \$50,000,000 of such securities remains unsold under the Prior Registration Statement. In accordance with Rule 462(b) under the Securities Act of 1933, as amended, and General Instruction IV(A) of Form S-3, the Registrant is hereby registering the offer and sale of an additional \$10,000,000 of its securities. The additional amount of securities that is being registered for offer and sale represents no more than 20% of the maximum aggregate offering price of the remaining securities available to be sold under the Prior Registration Statement.