UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16 UNDER THE SECURITIES EXCHANGE ACT OF 1934

For the month of September, 2010

Commission File Number: 001-32929

POLYMET MINING CORP.

(Translation of registrant's name into English)

390 - 3600 Lysander Lane <u>**Richmond, B.C. Canada V7B 1C3**</u> (Address of principal executive offices)

Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.

[X] Form 20-F [] Form 40-F

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): []

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): []

Indicate by check mark whether by furnishing the information contained in this Form, the registrant is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes [] No [X]

If "Yes" is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): 82-

EXPLANATORY NOTE

This report on Form 6-K and attached exhibit are incorporated by reference into Registration Statement No. 333-161564 and this report on Form 6-K shall be deemed a part of such registration statement from the date on which this report on Form 6-K is filed, to the extent not superseded by documents or reports subsequently filed or furnished by PolyMet Mining Corp. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as

amended.

SUBMITTED HEREWITH

Exhibits

- 99.1 Interim Financial Statements for the Period Ended July 31, 2010
- 99.2 Management Discussion and Analysis for the Period Ended July 31, 2010
- 99.3 Form 52-109F2 Certification of Interim Filings CEO
- 99.4 Form 52-109F2 Certification of Interim Filings CFO

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

PolyMet Mining Corp. (Registrant)

Date: September 14, 2010

By: /s/ Joe Scipioni Joe Scipioni Title: President