



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

DIVISION OF
CORPORATION FINANCE

Mail Stop 4546

April 25, 2017

VIA E-mail

Mr. Jeffrey Poulton
Chief Financial Officer and Treasurer
Shire plc
5 Riverwalk
Citywalk Business Campus
Dublin 24, Republic of Ireland

**Re: Shire plc
Form 10-K for the year ended December 31, 2016
Filed February 22, 2017
Form 8-K dated February 16, 2017
Filed February 16, 2017
File No. 001-37896**

Dear Mr. Poulton:

We have reviewed your filings and have the following comments. In our comments, we ask you to provide us with information so we may better understand your disclosure.

Please respond to the comments within ten business days by providing the requested information or advise us as soon as possible when you will respond. If you do not believe a comment applies to your facts and circumstances, please tell us why in your response.

After reviewing your response to these comments, we may have additional comments.

Form 10-K for the year ended December 31, 2016
Notes to Consolidated Financial Statements

2. Summary of Significant Accounting Policies
Inventories, page F-20

1. You indicate in Item 6 Selected Financial Data and in several places in Item 7 MD&A that \$1,118 million of amortization of inventory fair value adjustments impacted operations in 2016, specifically as a charge to cost of product sales. Please tell us whether at June 30, September 30 and December 31, 2016 amortization of the inventory fair value adjustments resulted in the removal of cost on a first-in first-out basis from inventory based on actual usage with inventory, as of each of those dates, being stated at the lower of cost or market in accordance with GAAP.

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5. Integration and Acquisition Costs, page F-38

2. Please provide us full accounting analysis of the \$883.9 million recorded in 2016 as integration and acquisition costs including a schedule of the nature and type of each cost and the accounting literature in which you relied. For any costs not paid as of December 31, 2016, indicate when you estimate it will be paid.

Form 8-K dated February 16, 2017

Exhibit 99.1

3. You present Non GAAP Net Income for the full year 2016 on page 1 and for the three months ended December 31, 2016 on page 5. Your reconciliations on pages 22-23, however, do not specifically reconcile your US GAAP net income to your Non GAAP net income for these periods. Rather, your reconciliation on page 22 reconciles to your Non GAAP EBITDA and Non GAAP operating income and your reconciliation on page 23 reconciles your US GAAP diluted earnings per ADS to your Non GAAP diluted earnings per ADS. Please provide us reconciliations of US GAAP net income to your Non GAAP net income for the three and twelve months ended December 31, 2016. Where you furnish or file materials presenting Non GAAP net income in the future, please revise to provide a tabular reconciliation of your Non GAAP net income pursuant to Rule 100(a)(2) of Regulation G and Item 10(e)(i)(B) of Regulation S-K.
4. In your reconciliations of US GAAP to your non-GAAP measures, please include separate line items for each significant reconciling item or provide explanation in a note. For example, provide further breakout and explanation of each significant item within acquisition and integration activities of \$2,111.9 million and \$8.52 per share in the reconciliations for the 12 months ended December 31, 2016 on pages 22 and 23, respectively.

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.

You may contact Christine Allen Torney, Senior Staff Accountant, at (202) 551-3652 or Kevin W. Vaughn, Accounting Branch Chief, at (202) 551-3494 with any questions. In this regard, do not hesitate to contact me at (202) 551-3679.

Sincerely,

/s/ Jim B. Rosenberg

Jim B. Rosenberg
Senior Assistant Chief Accountant
Office of Healthcare and Insurance