



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

DIVISION OF  
CORPORATION FINANCE

January 30, 2014

Via e-mail

William P. Noglows  
Chief Executive Officer  
Cabot Microelectronics Corporation  
870 North Commons Drive  
Aurora, Illinois 60504

**Re: Cabot Microelectronics Corporation  
Form 10-K for Fiscal Year Ended September 30, 2013  
Filed November 20, 2013  
File No. 000-30205**

Dear Mr. Noglows:

We have reviewed your filing and have the following 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 within ten business days by amending your filing, by providing the requested information, or by advising us when you will provide the requested response. 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 filing and the information you provide in response to these comments, we may have additional comments.

Results of Operations, page 33

1. Please tell us, and revise future or amended filings as appropriate:
  - the nature of the manufacturing costs that decreased while your sales increased, affecting your cost of goods sold;
  - the magnitude of the effect on cost of goods sold of the agreement with your new supplier;
  - the provisions of your annual incentive cash bonus program that caused the disclosed changes in expenses,
  - the extent of the changes in “staffing-related costs” that were due to the incentive cash program and the reasons for the balance of the changes in staffing-related costs, including the extent to which you changed staffing levels.

- How to reconcile your statements about the contribution to revenue of “higher-priced product mix” with the information in the last table on page 75.

#### Signatures, page 85

2. Below the first paragraph of text required on the Signatures page, you should include the term “by” on the signature line to indicate who signed the document on behalf of the registrant. Below the second paragraph of text required on the Signatures page, you should (1) include the signatures of all individual required to sign the document identified by General Instruction D to form 10-K, and (2) identify the capacities in which each individual has signed the filing, such as principal financial officer, principal accounting officer or controller, or director. Please ensure that your future Form 10-Ks are signed accordingly.

#### Exhibits

3. Please tell us why you have not filed the supply agreements upon which you are sufficiently dependent as to generate the first risk factor on page 16.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. Since the company and its management are in possession of all facts relating to a company’s disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In responding to our comments, please provide a written statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

William P. Noglows  
Cabot Microelectronics Corporation  
January 30, 2014  
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Please contact Ted Moskovitz at (202) 551-3689 or me at (202) 551-3617 with any questions.

Sincerely,

/s/ Russell Mancuso

Russell Mancuso  
Branch Chief

cc (via e-mail): H. Carol Bernstein, General Counsel  
Cabot Microelectronics Corporation