



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549-0510

May 18, 2005

Mail Stop 0510

Via U.S. mail and facsimile

Mr. Lynn A. Schefsky
Senior Vice President and General Counsel
Crompton Corporation
199 Benson Road
Middlebury, CT 06749

**Re: Crompton Corporation
Form S-4/A filed May 10, 2005
File No. 333-123857**

Dear Mr. Schefsky:

We have reviewed your response and your amended filing and have the following comments. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

The Merger, page 28

Background of the Merger, page 28

1. It appears from the disclosure in Merrill Lynch's February 8, 2005 presentation to the Great Lakes board that the universe of potential buyers with respect to the industrial businesses was limited to certain categories of buyers and that there were discussions regarding expanding this universe to include other categories of buyers. Please explain this limitation and why other categories of potential buyers were not included in the sales process.
2. It appears from the disclosure in Merrill Lynch's February 8, 2005 presentation to the Great Lakes board that one of the companies submitting an indication of interest for the industrial businesses was also interested in purchasing the entire business in a going private transaction. Please disclose the consideration the Great Lakes board gave to this strategic option.

3. We note your disclosure in the third full paragraph on page 31 regarding Great Lake's determination to pursue a possible transaction with your company rather than proceed with other strategic options. We have the following comments:
 - Please explain in greater detail why Great Lakes abandoned its plan to sell the industrial businesses and instead decided to sell the entire business.
 - Please explain why Great Lakes ceased negotiations regarding the two indications of interest in light of the fact that each offered a significantly higher purchase price when compared to the offer of the potential purchaser.
 - Please explain in greater detail why a transaction with your company presented a more attractive opportunity for Great Lakes at that time.
 - Please disclose whether Great Lakes and/or its financial advisor contacted potential buyers, other than your company, with respect to selling the entire business. It appears from the disclosure in this section that they only contacted your company and did not engage in a comprehensive sales process similar to the process used to shop the industrial businesses.
4. We read your response to prior comment 18. It is still not clear why you engaged two financial advisors. Please revise accordingly.
5. We read your response to prior comment 23. Please explain why the exchange ratio was increased between February 15, 2005 and February 16, 2005.
6. We read your response to prior comment 26. Please disclose the consideration, if any, that your board gave to the post-merger ownership split of 51% to 49% in light of the fact that you may grant equity-based incentives to Great Lakes employees. It appears that these awards could alter this ownership split.

Opinion of Citigroup Global Markets, Inc. – Financial Advisor to Crompton, page 41

Opinion of Merrill Lynch, Pierce, Fenner & Smith Incorporated - Financial..., page 57

7. We reissue prior comments 29 and 38. In this regard, we note that the opinions attached as annexes to your prospectus do not contain the analyses that you summarize in these sections.

The Merger Agreement, page 73

Conditions to the Merger, page 76

8. We read your response to prior comment 47. We also note your disclosure in the last sentence of the last paragraph on page 93. Please clarify on page 78 that you will recirculate a revised prospectus and re-solicit security holders if either you or Great Lakes waives the condition to closing with respect to the receipt of the tax opinions and the change in tax consequences is material.

Executive Officers, page 91

9. Please disclose the business experience of Ms. Osar for the period from April 2003 to May 2004.

Material Federal Income Tax Considerations, page 93

10. We reissue prior comment 50. In this regard, we note that you have filed short-form tax opinions. The discussion of the tax treatment of the proposed merger in this section is the opinion of counsel. As such, the assumption is not appropriate. Please revise accordingly.

GAAP Reconciliation, page 108

11. We note your use of a non-GAAP financial measure. It does not appear that your use of this measure complies with the requirements of Item 10(e) of Regulation S-K, as you are excluding items that appear to be recurring. Please revise accordingly. In revising your disclosure, please refer to Question 8 of the “Frequently Asked Questions Regarding the Use of Non-GAAP Financial Measures,” which is available on the Commission’s website.

Unaudited Pro Forma Combined Financial Information

12. We note your response to prior comment 58, bullet 2, including your disclosures on page 9, 72 and F-7. However, it does not appear that you have provided the information requested and required by SFAS 141. As such, please revise note 3 to provide the following information:
 - A description of the factors that contributed to a significant portion of the purchase price being allocated to goodwill, unless you do not believe once the final valuation have been performed, a significant portion of the purchase price will be allocated to goodwill and state as such.
 - Identify the nature of intangible assets you have currently identified, including amounts allocated and whether you have any preliminary information regarding the fair value of these assets.

Exhibit 5.1

13. We reissue our prior comment 65. Because the rights are contractual obligations issued pursuant to the rights agreement, counsel must opine that the rights are the legal, binding obligation of your company. Counsel must also opine that the rights are “binding obligations” under the state contract law governing the rights agreement.

SEC Letter dated May 6, 2005

14. We note your response to our prior comment. Please advise us whether any of your sales are to the Syrian or Iranian government, and whether any of the distributors through whom you sell are entities controlled by the Syrian or Iranian government. We may have further comment.

* * * *

Please respond to these comments by filing an amendment to your registration statement. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter that is filed on EDGAR with your amendment that keys your responses to our comments and provides any requested supplemental information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in your filings to be certain that they have provided all information investors require for an informed decision. 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.

Notwithstanding our comments, in the event the company requests acceleration of the effective date of its pending registration statement, it should furnish a letter, at the time of such request, acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in connection with our review of your filings or in response to our comments on your filings.

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We will consider a written request for acceleration of the effective date of the pending registration statement as a confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act and the Exchange Act as they relate to the proposed public offering of the securities specified in the pending registration statement. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

We direct your attention to Rules 460 and 461 under the Securities Act regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

You may contact Tracey Houser, Staff Accountant, at (202) 942-1989 or, in her absence, Jeanne Baker, Assistant Chief Accountant, at (202) 942-1835 if you have questions regarding comments on the financial statements and related matters. Please contact Andrew Schoeffler, Staff Attorney, at (202) 824-5612 or, in his absence, the undersigned at (202) 942-1950 with any other questions.

Sincerely,

Pamela A. Long
Assistant Director

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