



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549-4631

September 2, 2011

Via Facsimile

Mr. Pablo Brizzio
Chief Financial Officer
Ternium S.A.
29, Avenue de la Porte-Neuve – 3rd floor
L-2227 Luxembourg

**Re: Ternium S.A.
Form 20-F for the Fiscal Year Ended December 31, 2010
Filed June 30, 2011
File No. 1-37234**

Dear Mr. Brizzio:

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.

Form 20-F for Fiscal Year Ended December 31, 2010

Key Information

D. Risk Factors, page 8

1. In future filings, please provide risk factor disclosure regarding the legal challenges described under the heading “Recent developments involving Siderar” on page 72.

Information on the Company

A. History and Development of the Company, page 22

2. Please tell us what consideration you gave to describing under this heading the corporate reorganization that took place in the fourth quarter of 2010, which you describe in the first note (“1 General Information”) to your consolidated financial statements.

Sales and Marketing, page 34

3. Please expand your tabular disclosure to provide investors with the number of tons shipped for your each of your various products discussed on pages 25 - 27.

Raw Materials, Energy and Other Inputs, page 41

4. In future filings, please disclose the approximate amount of each of your key raw materials needed to produce a ton of steel. While the amount of raw materials needed will fluctuate based on the type and specifications of the final products and other factors, an estimate of this amount would provide useful information to an investor regarding your use of iron ore, slabs, coal, steel scrap and other key raw materials. Disclose the approximate amount of natural gas consumed per ton at your facilities’ normal operating levels, and consumption rates of key sources of electricity where not already provided.

Results of Operations, page 59

5. Please expand your discussion throughout to discuss the underlying reasons for changes in your operations in sufficient detail for a reader to see the business through the eyes of management. For example:
 - Provide a discussion and analysis of segment results.
 - Discuss product mix and the impact on operations.
 - You attribute the change in cost of sales between the years to several factors. Quantify the impact from the various factors and provide a robust analysis of material drivers. For example, your discussion should include quantified analysis of your primary raw materials that provides investors with an understanding of the impact of changes in the price of key raw materials.
 - Disclose the expected impact of recent changes in the price of acquired raw materials on profitability in the near term as the materials are processed and related revenue is earned.
 - Provide a discussion of your contract mechanisms for recovering increases in raw materials. Discuss limitations on your ability to recover increases in raw materials prices, e.g. any lag between an increase in raw materials and the ability to recover the cost through a contract mechanism, limitations imposed by the market for your finished goods, etc.

- Quantify the percentage of sales to spot market customers vs. short-term and long-term contract sales in your operating segments and locations, how this percentage has changed during recent periods, the impact on your ability to respond to changes in raw materials prices, and the impact on your margins from any recent changes in this mix. Discuss the factors determining this mix, how much control management has in influencing it, and any expected trends or decisions to manage it based on expected volatility in raw materials costs.
- Please quantify the various drivers of changes in selling, general and administrative expenses and discuss the underlying reasons.

These examples are not intended to be a comprehensive list. Please provide us with examples of future disclosure addressing our key points and revise the disclosures in future filings to provide a greater level of detail and analysis.

Exhibits, page 114

6. In future filings, please file or incorporate by reference the following exhibits as material contracts or explain to us why you are not required to do so.
- Definitive agreement entered into on October 4, 2010, to form a joint venture in Mexico, as described on page 24.
 - Transaction and registration rights agreement with Usiminas, as described on page 72.
 - Purchase agreements with Usiminas, as described on page 72.
 - Refinancing agreement entered into on April 6, 2011, and related loan agreement dated July 12, 2007, as described on page 72. We note your disclosure that “[t]he outstanding balance of the facility so refinanced amounted to USD1.0 billion.”
- See Instruction 4 as to Exhibits on Form 20-F.

Financial Statements

Consolidated Statement of Changes in Equity, page F-6

7. We note you have recorded a special reserve for tax purposes associated with your corporate reorganization. It is unclear from your disclosures which of the amounts you present in your statement specifically relate to this event. Your disclosures presented in Note 1 to your financial statements, state only that it is “a significant amount.” Please address the following in future filings:
- Please clarify the reasons for the creation of the special reserve and if the creation of the special reserve was voluntary or compulsory.
 - Please clarify more clearly how future tax consequences will be handled with respect to this special reserve.
 - Please tell us and expand your disclosures in Note 1 and any related discussion to clearly identify the amount of this special reserve.

Note 1 – General Information, page F-11

8. In future filings, please expand the discussion of the December 2010 non-taxable revaluation of the accounting value of your assets under Luxembourg GAAP to provide a full description of this event including the purpose, methodology and results and explain the impact on your IFRS financial statements. Provide us with an example of future disclosure.

Note 4 (e) Intangible Assets, page F-20

9. We note you have recognized mining concessions granting you the right to exploit certain mines. Please tell us and disclose in future filings, the term of these concessions and whether they are renewable. In addition, we note your disclosure which indicates the concessions were acquired as part of an acquisition of Hylsamex. Please tell us if these mines were in operation at the time of acquisition.

Note 4(h) Inventories, page F-22

10. Please expand your inventory accounting policy disclosures to address the elements of costs associated with your iron ore supply derived from your mines. It is not clear when and if you attribute costs to inventory for such items as DD&A, pre and post-production stage stripping, extraction, hauling and other mining related costs.
11. Please tell us and disclose if material, the amounts of inventories located on unprocessed stockpiles and the expected timing of processing of these inventories.

Note 4(m) Income taxes - current and deferred, page F-22

12. We note your policy disclosure regarding deferred income taxes. We further note given the nature of your operations, you may have asset retirement obligations and financing type leases. Please tell us and disclose whether or not you are recognizing deferred taxes associated with decommissioning assets and liabilities for your internal projects and also financing type leases, both at inception and during the depreciation/accretion period.

Note 4(v) Segment Information

13. Please tell us and disclose in future filings whether you aggregated operating segments to arrive at your reportable segments. Refer to paragraph 22(a) of IFRS 8.

Note 4 (w) Critical Accounting Estimates

Goodwill Impairment Test, page F-25

14. We note from your disclosures that you tested your CGUs for impairment in 2008. It appears from your disclosure that your CGUs are being grouped at the country level. Please explain why you believe this is the appropriate level of aggregation for goodwill impairment testing purposes. Explain how your method of determining the CGUs meets both requirements in paragraph 80 of IAS 36.

Note 5 – Segment Information, page F-28

15. Please refer to paragraph 32 of IFRS 8 and provide revenues from external customers for each product or otherwise disclose why you have not provided this information.

Note 12 – Property plant and equipment, net, page F-33

16. Please tell us and disclose if material in future filings, the amount of costs capitalized in your financial statements related to mine development costs including overburden removal.
17. Please expand your accounting policy disclosures in future filings to include an accounting policy related to pre and post-production stage stripping costs including your method of amortizing such costs.
18. We note elsewhere in your document that you have both underground and open pit mines. Please clarify your accounting policies associated with mine development costs for both types of mines including the nature of the costs that are capitalized, the method of amortization and the amortization base used to calculate DD&A.
19. We note the nature of your assets and we are unable to locate any disclosures regarding your potential liabilities associated with asset retirement obligations. Please tell us and disclose if material, the nature and amounts of liabilities you have recognized related to asset retirement obligations.

Engineering Comments

Iron Ore Mining Facilities page 32

20. For each of your mines and mineral beneficiation facilities please disclose your actual production for each of the last three years pursuant to Item 102 of Regulation S-K.

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21. Additionally, for each of your mines please disclose the tons and grade of your proven and probable mineral reserves pursuant to Item 102 of Regulation S-K

Closing Comments

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.

You may contact Kevin Stertz at (202) 551-3723, if you have questions regarding comments on the financial statements and related matters. You may contact John Coleman, Mining Engineer, at (202) 551-3610 with questions about engineering comments. Please contact Hagen Ganem at (202) 551-3330 if you have questions regarding legal comments, or me at (202) 551-3355 with any other questions.

Sincerely,

/s/ Terence O'Brien

Terence O'Brien
Branch Chief