

PUBLIC RECORD

APPLETON LUFF PTE LTD
INTERNATIONAL LAWYERS

BRUSSELS
GENEVA
KAMPALA
SINGAPORE
WARSAW
WASHINGTON, DC
WWW.APPLETONLUFF.COM

ONE RAFFLES QUAY
LEVEL 25, NORTH TOWER
SINGAPORE 048583
TEL: +65 6933 9545
FAX: +65 6725 0803
EMAIL: NEE@APPLETONLUFF.COM

16 February 2016

BY E-MAIL

Mr. Roman Maevsky
Assistant Director
Operations 1
Anti-Dumping Commission
GPO Box 9839
Canberra City ACT 2601
Australia

Re: Anti-Circumvention Inquiry on Zinc Coated (Galvanized) Steel Exported from the People's Republic of China, the Republic of Korea and Taiwan (No. 290 and 298)

Dear Mr. Maevsky,

On behalf of Yieh Phui Enterprise Co., Ltd. ("Yieh Phui") and its related trader Asiazone Co., Limited ("Asiazone"), we hereby submit our comments on the expert report done by Emeritus Professor Druce Dunne that was placed on the record by the Anti-Dumping Commission on 8 January 2016.

We note that while Professor Dunne's report discussed the metallurgical effects of boron-added steel in general, this report did not address in particular the strain ageing effect resulting from the production process as the one Yieh Phui has. Nonetheless, Professor Dunne's report did indicate that the addition of boron at certain concentration level can be an effective scavenger of unwanted N, C and O from solid solution (and thus decrease the

16 February 2016

Page 2

strain ageing effect), which supports Yieh Phui's past production experiences on boron-added galvanized steel.

As Yieh Phui has explained during the course of this inquiry, Yieh Phui is not an integrated steel maker. In order to manufacture the product in question (i.e., galvanized steel), Yieh Phui outsources low-carbon hot-rolled steel coils and performs pickling, cold-rolling and galvanizing processes with its own production facilities.

The purpose of pickling is to remove the "scale" on the surface on the steel strip. At the cold-rolling stage, the steel substrate is cold-rolled to the desired thickness. Finally, the substrate is galvanized at the galvanizing stage. At this stage, the production process involves several sub-units including annealing, galvanizing, skin pass, tension leveling and resin coating/chromating. It has been Yieh Phui's production experiences that after the cold-rolling, annealing and the rest processes, the steel becomes hardened gradually during the storage time after production is completed. This means the yield strength and yield point elongation of the steel both increase and make the product less formable. This is known as the strain ageing effect.

The addition of boron in the galvanized steel shipped by Yieh Phui to Australia was to resolve the undesired strain ageing effect.

As Yieh Phui explained in its initial questionnaire response in this inquiry, the addition of boron helps minimizing the undesirable effect of nitrogen, as boron has strong affinity for nitrogen and boron would react with nitrogen to form boron nitride, even with a minute quantity of boron addition. The decrease of nitrogen as a result helps minimizing

16 February 2016

Page 3

strain ageing of steel and consequently enhances the ductility and formability.¹

Furthermore, the addition of boron minimizes the adverse effect caused by aluminium nitride, which then results in a lower level of strength making the steel more formable.²

Professor Dunne's report recognized that the addition of boron would result in the formation of B-containing compounds such as boron nitride as Yieh Phui explains above, which would also can be effective scavenger of unwanted N, C and O from solid solution and therefore, decrease the strain ageing effect. Professor Dunne's report also indicated that boron can be a hardenability-promotor to the steel if the boron concentration is controlled under certain level.³ According to his report, boron can enhance hardenability at concentrations as low as 5 ppm, and the optimum concentration range is 15-25 ppm. However, "a higher concentration promotes formation of $Fe_{23}(BC)_6$, decreasing the effectiveness of boron as a hardenability enhancer and reducing the toughness of the steel"⁴. In his report, Professor Dunne summarized this phenomenon as follows:

*"{b}oron can be an extremely useful alloying addition to steels because of its potential to act either as a powerful hardenability-promotor or an effective scavenger of unwanted N, C and O from solid solution. However, the concentration of B has to be carefully limited to prevent formation of B-containing compounds that can degrade the strength and toughness of the steel."*⁵

¹ Yieh Phui/Asiazone's submission dated 27 July 2015, at page 30.

² Id.

³ "Report for the Anti-dumping Commission on the Effect of Boron in Steel", by Emeritus Professor Druce Dunne, "4. Boron as an alloying element in steel", at pages 4-5.

⁴ Id., at page 5.

⁵ Id., "8. Discussion", at page 11.

16 February 2016
Page 4

Thus, Professor Dunne's view above supports Yieh Phui's observations and experiences that boron above certain concentration level assists in offsetting the strain ageing effect because the boron concentration level used by Yieh Phui was much higher than 5 ppm, ranging from 20 ppm to 30 ppm or above for products shipped to Australia and the boron concentration at this level would degrade the strength and toughness of steel as indicated by Professor Dunne. As a result, it would make the steel more formable.

Indeed, the addition of boron in order to degrade the stain ageing effect is well known in the steel industry. In this inquiry, Yieh Phui has repeatedly emphasized that this effect is also known to []. As reported by Yieh Phui in previous submissions, Yieh Phui had sales of boron-added galvanized steel to customers from different countries including even []. Yieh Phui's sale of boron-added galvanized steel to []⁶ manifests that the boron-added galvanized steel does have its own commercial significance which is distinct from the boron-free galvanized steel. Otherwise, [] would not have placed an order specifically requesting for it. Yieh Phui's sale of boron-added galvanized steel to [] also supports the metallurgical effects explained by Yieh Phui that the level of boron used by Yieh Phui did result in a lower level of yield strength of steel, and an enhanced formability. Unfortunately, the Commission has not properly investigated in this by seeking [] of boron-added galvanized steel from Yieh Phui.

⁶ Yieh Phui/Asiazone's submission dated 30 October 2015, at Exhibit 1.

APPLETON LUFF PTE LTD
INTERNATIONAL LAWYERS

16 February 2016
Page 5

In consideration of the expert report above, we would urge the Commission to re-consider the facts and record evidence present in this inquiry, including but not limited to the above, and to make a proper finding, for the purpose of the final report to the Parliamentary Secretary.

Please feel free to contact me if you have any questions regarding this submission.

Very truly yours,

A handwritten signature in black ink, appearing to read "Jay Y. Nee". The signature is fluid and cursive, with the first name "Jay" being the most prominent.

Jay Y. Nee
Appleton Luff Pte Ltd