12 July 2021

Mr Rhys Piper
Director
Investigations Unit 1
Anti-Dumping Commission
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Dear Mr Piper

For Public File

Continuation of measures Investigation No. 569 – Submission by Compania Electro Metalurgica S.A.

Molycop refers to the 1 July 2021 submission by Compania Electro Metalurgica S.A. ("ME Elecmetal").

ME Elecmetal's rejection of Molycop's 7 June 2021 submission[1] conveniently overlooks Molycop's key concern that is central to the Commissioner's finding in Statement of Essential Facts No. 569 ("SEF 569"). That is, the benchmark selected to address the Government of China's distortion of steel prices in China is the wrong and incorrect benchmark for the intended purpose.

The ME Elecmetal submission seeks to criticise Molycop's production process (from scrap metal) when contrasted with the Chinese exporter Changshu Longteng's manufacturing process (from raw material iron ore) and derides Molycop's representations as misleading.

Molycop has not ignored the Benchmark Cost methodology of the Anti-Dumping Commission ("the Commission") as referred to in SEF 569. Rather, Molycop has demonstrated that the selected Latin American export billet prices at FOB level published by S&P Global (Platts) are not representative of a suitable steel input benchmark cost for grinding bar quality billet.

Molycop does consider it appropriate to address the misconceptions contained in ME Elecmetal's submission as the latest submission is an illuminating mix of some facts, misleading inferences, unsubstantiated claims and omissions.

1. There are a number of important omissions from ME Elecmetal's latest submission, Molycop notes that MELT has failed to provide any factual counter to the following significant flaws regarding the Commission's chosen benchmark:

   (a) A 125mm x 125mm billet does not physically allow the required reduction ratio from billet to finished product to fully refine the brittle as-cast structure of the continuously cast billet to achieve the required service properties of grinding media;
   (b) The benchmark is not a "multi-country" benchmark price nor is it free of Government of China influence as claimed by the Commission. The benchmark actually represents billet exports from a single port in Brazil where, during the investigation period, more than 75 per cent of exports were to China, Asia and Africa – markets that are heavily influenced by Chinese steel export prices;

[1] Investigation 569, EPR Document No. 029.

(c) The benchmark is only a Merchant Bar Quality steel ie standard steel quality for non-critical applications that does not inherently possess the required cleanliness, quality nor metallurgical properties for the production of grinding balls. ME Elecmetal merely responded that the Commission has added the cost of alloys to a standard grade billet which is not the point that Molycop has raised. It is disingenuous to claim that a plain carbon steel billet can be miraculously transformed into a high quality alloyed billet, suitable for the subsequent processing into grinding bar and then grinding balls, by simply adding the incremental alloy costs.

2. ME Elecmetal claims that Grinding Balls does not require SBQ quality steel and SBQ quality steel is a niche unrelated product:

   (a) Contrary to this claim SBQ steel is not a niche product but the name given to the range higher quality alloyed steel products and grades designed for demanding applications. Equally Molycop could have used alternative descriptors such as Alloy Steel, Engineering Steel (Europe) or Special Steel and High Quality Steel (Asia), similarly the designation MBQ Steel could have been replaced with alternatives such as Plain Carbon Steel, Mild Steel, Commercial Grade Steel or Low Carbon Steel. This position is clearly outlined by Metal Bulletin who define SBQ Steel as *"SBQ is generally used in the USA, while in Europe the term 'engineering steels' is more common. Both terms refer to steel types as well as to bar products, and as they are often associated with the steel grades, they refer to billet and slab as well as bar"* https://www.metalbulletin.com/Article/1448055/SBQ-steel.html;
   (b) Molycop also notes that grinding ball steel grades most closely resemble SAE grades 52100 and 5280 (also used to manufacture ball bearings and mill rolls) clearly an Engineering, Special, High Quality or Special Bar Quality Steel

3. Agreement on the paramount importance of utilizing the highest quality grinding bar for the production of grinding balls:

   (a) Molycop agrees with ME Elecmetal's statement that grinding media production requires the *"use the highest quality bar stock available, made with 'clean steel' technology"*. This position is also supported by the evidence submitted by Donhad Pty Ltd in the Round Alloy Bar Antidumping Case SEF 384, specifically *"the manufacturing of grinding balls requires special bar quality steel with tight control of steel cleanliness and segregation of the bar";*
   (b) Gerdau S.A. provides the following comprehensive definition of clean steel technology and its centrality to the steelmaking and casting process rather than Blast Furnace ironmaking process. *"Improvements in steel manufacturing processes and advancements in the science of steel evaluation have substantially improved steel quality, compared to just a couple of decades ago. These advancements have resulted from extreme chemistry and property control, as well as enhanced refinement techniques to raise the purity of steel. This high level of purity is what the industry refers to as clean steel. Simply put, clean steels are steels that contain limited non-metallic inclusions in terms of size, shape, composition, distribution and frequency. As a result, clean steels are capable of outperforming other materials and excel in applied high stress states, such as those used in transportation equipment and other applications. Non-metallic inclusions ….."* https://gsn.gerdau.com/clean-steel-technology.

4. ME Elecmetal's inference that Electric Arc Furnace (EAF) steel is inferior quality to Blast Furnace/Basic Oxygen Furnace (BOF) steel:

   (a) ME Elecmetal's reference to the sulphur and phosphor *(sic)* [phosphorus] content of iron ore is misleading as it pertains to the production of hotmetal from a Blast Furnace which is then subsequently refined into steel through various primary and secondary steelmaking

processes. While most of the sulphur (~90%) and a significant proportion of the phosphorus (~40%) in Blast Furnace hotmetal emanates from sources other than iron ore such as coke, removal of these impurity elements is routine aspect of any competent EAF or BOF steelmaking operation;

(b) Molycop is fully cognizant of all the technical requirements for making steel of a quality suitable for grinding media production, which includes control of all residual elements. Aside from clean steel practices, Molycop closely controls its selection and grading of scrap steel supply including placing a priority on recovering and recycling clean scrap in the form of its end-of-life products such as grinding balls and railway wheels;

(c) Outside of Australia Molycop accredits and procures grinding bars for its global operations from both EAF and BOF steelmakers (xx primary suppliers in total), all with verified special steel quality capability. The prominent special steel suppliers utilising EAF technology are:

[*identification of xxx global steel suppliers*]

5. Flawed Benchmark Methodology

(a) ME Elecmetal criticizes Molycop by arguing it "does not know about the detailed processes and costs of Changshu Longteng" in referencing the Commission's benchmarking methodology. Molycop has been manufacturing special steels for demanding applications for over a century and is well informed as to the requirements to produce special quality steel and quality grinding media;

(b) The production of grinding balls is not as simple as just adding alloy costs and conversions costs to a plain carbon billet to calculate the full cost of producing grinding balls. Table 2 from "Challenges in Special Steel Making" - G Balachandran Head (R&D), JSW Steel Ltd., Salem Works, Salem, India[2], outlines the many other requirements to produce Special or SBQ Steel. Neither the direct cost nor the capital investment required to install this capability is contained in the benchmark billet;

[2] Published in International Conference on Advances in Metallurgy, Materials and Manufacturing IOP Publishing, IOP Conf. Series: Materials Science and Engineering 314 (2018).

Table 2 Typical quality and control parameters demanded in a SBQ steel.

Quality Parameters	Equipment/ Processing	Critical Parameters	Requirements
Compositional	Ladle furnace	Steel making	Meeting very narrow band of chemistry
Size range	Ingot, Caster & Rolling Mill	Roll pass; Kocks or PSM mill	Strict dimensional control
Tolerances on dimension	Rolling Mill	Roll pass	European standards, for round bars EN 10060. Better than DIN/3
Manufacturing lengths	Rolling Mill	Decide by the Rolling mill	6,000 mm (+200 mm) 10% of bar below specs
Roundness / squareness	Rolling Mill	Roll pass	Out of roundness = [max dia- min dia]. Desired at most 2/3 of the diameter tolerance.
Straightness	Rolling Mill & Bar straightening machines	Rolling Mill; Cooling condition post hot rolling	Straightness is measured as the maximum height of arch, i.e. the largest deviation from the straight line. Normally the test length is 1.0 metre. Standard deviation of straightness is 2 mm/meter maximum.
Surface quality	Hot eye during rolling; Magna flux; MPI; Dye penetrant at times; ECT for peeled bar	Caster; Rolling; Cooling bed	Standard surface crack depth is max. 1% of dia.[mutually agreed]. Bars are inspected by magna flux leak detection or magnetic particle method. Normally, surface quality class D can be achieved for diameters up to Ø 80 mm and C for diameters up to Ø 120 mm complying with EN 10221.
End executions	Hot saw ; Hot shear; Chamfer machine	Steel hardness	Smaller sizes rolled products up to Ø 75-90 mm are cold sheared. Larger sizes are hot sawn or abrasive cut. Deburred at end
Decarburisation& excessive scaling	Reheating furnace; Rolling Mill	Temperature, time, Air:Fuel mixture; coating	Good surface quality and Yield losses to be reduced
Banding	Steel Grade; EMS, super heat; Caster; Rolling Mill	Columnar to equiaxed zone in concast; Degree of deformation;	Banding in alloy steels is minimized. The hardness difference between adjacent layers <5BHN
Non-Metallic Inclusion Rating	Ladle furnace; Tundish; Caster; Rolling Mill	LF melting; Casting temperature, super heat, mould powder.	Devoid of oxide inclusion rating Type B and Type C Thin and Thick series to be <0.5 ; sulphide as grade demands; Silicates Nil values
Macro inclusion	Ladle furnace; Casting	Exogeneous inclusion	Demand on extreme value statistics; Flaw size determination on Immersion UT testing at high frequency
Microstructure	Steel Grade; Caster; rolling; heat treatment	Processing& Heat treatment [Grain size; phases]	ASTM Grain size No.8 and higher to improve strength, toughness & FATT
Hardness	Steel grade; rolling; heat treatment	Microstructure	Depends on fabrication input. Mostly around 260BHN for eased of machining
Heat treatment supply condition	Heat treatment furnace	Microstructure	Required heat treatment such as annealing, normalizing or hardening & tempering

(c) The Special Steel Making analysis as reflected in Table 2 above identifies some of the key requirements associated with special steel, namely:
    (i) tight control of the chemical specification (which is principally associated with secondary metallurgy);
    (ii) processing of the steel so as to minimise the presence of non-metallic inclusions (a combination of secondary metallurgy practices and casting practices);
    (iii) continuous casting process capability to control macro and micro-segregation;
    (iv) continuous casting process capability to avoid voids and cavities forming during solidification.
(d) The author further elaborates on a detailed list of steelmaking and casting process parameters that must be controlled in order to produce special steel. In practice, these parameters mean that the production of special steel when compared to Carbon Structural Steel will require:
    (i) greater investment in equipment capability, which means high capital and maintenance costs;
    (ii) higher yield losses due to more stringent conditions for quality parameters, resulting in a higher downgrade or scrap rate;
(e) Additionally, the quality requirements for special steel necessitate higher operating cost due to testing and inspection requirements. [*Commercially sensitive information concerning purchase of special steel bar by Molycop*].

Concluding remarks

The ME Elecmetal submission seeks to deride Molycop's 7 June 2021 response to SEF 569 by arguing that Molycop is not familiar with the conversion costs associated with steel used in the manufacture of grinding balls. Molycop's long-standing position as a manufacture of grinding balls equips it with a creditable understanding of the required medium for the manufacture of grinding balls.

Molycop has detailed in its 7 June 2021 response to SEF 569 the deficiencies associated with the Commissioner's selection of the Latin American export FOB steel billet price for inclusion in a benchmark cost for an appropriate grade of steel used in grinding ball production. Molycop stands by its representations in its 7 June 2021 submission.

ME Elecmetal's criticisms of Molycop's insistence of SQB quality billet required for grinding ball manufacture is incorrect and cannot be relied upon by the Commissioner. As referenced Challenges in Special Steelmaking (referenced above) the quality of the steel input is a requirement that cannot be ignored. The Commissioner's selected benchmark in SEF 569 fails to adequately consider this essential requirement. Molycop has demonstrated through independent bottom-up cost analysis, top-down grinding bar market pricing and a direct market price on special steel billet pricing that the Commission's approach understates the true constructed cost by approximately [*value*].

If you have any questions concerning this submission, please do not hesitate to contact me on (02) 4974 0414 or Molycop's representative Mr John O'Connor on (07) 3342 1921.

Yours sincerely

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Molycop Australia