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April 24, 2017

NON-CONFIDENTIAL VERSION
Confidential Business Information Subject to APO Removed from Pages 7 to 10, the Responses to Staff Questions, and Exhibits 2 and 4 to 6.

VIA ELECTRONIC FILING AND MANUAL FILING

Lisa R. Barton
Secretary
U.S. International Trade Commission
500 E Street, S.W.
Washington, D.C. 20436

Re: Carbon and Certain Alloy Steel Wire Rod from Belarus, Italy, Korea, Russia, South Africa, Spain, Turkey, Ukraine, United Arab Emirates, and the United Kingdom, Inv. Nos. . 701-TA-573-574 and 731-TA-1349-1358 (Preliminary): Post-Conference Brief

Dear Secretary Barton:

On behalf of Kiswire Ltd. and Kiswire America Inc. (collectively "Kiswire")[1] and in accordance with 19 C.F.R. § 207.15, the U.S. International Trade Commission's ("Commission") scheduling notice,[2] and the instructions given at the April 18, 2017 Staff Conference, we hereby submit our post-conference brief in the above-referenced proceeding.

---

[1] Counsel for Kiswire Ltd. are filing an amended entry of appearance today under separate cover to include Kiswire America Inc., the U.S. affiliate of Kiswire Ltd.

[2] *Carbon and Certain Alloy Steel Wire Rod From Belarus, Italy, Korea, Russia, South Africa, Spain, Turkey, Ukraine, United Arab Emirates, and United Kingdom; Institution of Antidumping*

In accordance with 19 C.F.R. §§ 201.6 and 207.3, Kiswire requests business proprietary treatment for the information contained in brackets, which includes Kiswire's internal qualification results data, Kiswire's internal specifications, and other confidential company information. Disclosure of this information would cause substantial commercial and competitive harm to Kiswire. Kiswire agrees to the disclosure of this proprietary information to parties under the administrative protective order ("APO") in this investigation.

In accordance with 19 C.F.R. § 207.3(c) and the Handbook on Filing Procedures, Kiswire today electronically files and manually submits nine copies of the confidential version of this submission. The following business day, we will electronically file and manually submit two copies of the non-confidential version of this submission. We are serving copies of this submission to parties authorized to have access to confidential business information under the Commission's APO as indicated in the attached certificate of service. We will also serve the non-confidential version of this submission on interested parties on the public service list.

---

and Countervailing Duty Investigations and Scheduling of Preliminary Phase Investigations, 82 Fed. Reg. 16,232 (Apr. 3, 2017).

Please contact the undersigned if you have any questions regarding this matter.

Sincerely,

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CERTIFICATION

I, Donald B. Cameron, of Morris, Manning & Martin LLP, certify that: (1) I have read the attached submission; (2) the information contained therein is accurate and complete to the best of my knowledge; and (3) the confidential business information contained in this submission is not available to the public in substantially similar form.

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DISTRICT OF COLUMBIA: ss-

Sworn to and subscribed before me this 21st day of April, 2017, in the District of Columbia in the United States of America.

Rosalind Cassell
Notary Public

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NOTARY PUBLIC DISTRICT OF COLUMBIA
My Commission Expires February 28, 2022

ROSALIND CASSELL
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EXP. 2-28-22
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PUBLIC CERTIFICATE OF SERVICE

Carbon and Certain Alloy Steel Wire Rod from Belarus, Italy, Korea, Russia, South Africa, Spain, Turkey, Ukraine, the United Arab Emirates, and the United Kingdom; 701-TA-573-574 and 731-TA-1349-1358 (Preliminary)

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BEFORE THE UNITED STATES
INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

NON-CONFIDENTIAL VERSION

Inv. Nos. 701-TA-573-574 and 731-TA-1349-1358 (Preliminary)
Confidential Business Information Subject to APO Removed from Pages 7 to 10, the Responses to Staff Questions, and Exhibits 2 and 4 to 6.

Carbon and Certain Alloy Steel Wire Rod from Belarus, Italy, Korea, Russia, South Africa, Spain, Turkey, Ukraine, United Arab Emirates, and the United Kingdom

POST-CONFERENCE BRIEF ON BEHALF OF KISWIRE LTD. AND KISWIRE AMERICA INC.

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April 21, 2017

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BEFORE THE UNITED STATES
INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

Carbon and Certain Alloy Steel Wire Rod from Belarus, Italy, Korea, Russia, South Africa, Spain, Turkey, Ukraine, United Arab Emirates, and the United Kingdom

I. INTRODUCTION

This post-conference brief is submitted on behalf of Kiswire Ltd. and Kiswire America Inc.[1] (collectively "Kiswire"). Kiswire addresses solely the issue of whether grade 1080 and higher wire rod for tire bead and tire cord should be considered a separate like product.

The Commission should find two like products in this case: (i) grade 1080 and higher wire rod for tire cord and bead wire production, and (ii) all other subject wire rod. The specific definition of the separate like product is as follows:

> Wire rod, Grade 1080 and higher for tire cord and bead wire production, with 0.8 percent and higher carbon content, measuring 5.0 mm or more but not more than 6.5 mm in cross-sectional diameter, low manganese content in the range of 0.25 – 0.6 percent, and having no inclusions greater than 20 microns.

Subject imports of wire rod, grade 1080 and higher for production of tire cord and tire bead wire are not injuring or threatening injury to the domestic wire rod industry because imports of this product serve a very specific and growing demand segment of the end-user tire industry. Due to the particular capabilities of basic oxygen furnace ("BOF") production and the resulting physical characteristics, imports from Korea and other suppliers of this specific product do not compete commercially with U.S. producers. Therefore, the Commission should reach a negative determination with respect to this separate like product. In the event that the

[1] Counsel for Kiswire Ltd. are filing an amended entry of appearance today under separate cover to include Kiswire America Inc., the U.S. affiliate of Kiswire Ltd.

Commission does not reach a determination with respect to like product in this preliminary phase, the Commission should collect the necessary volume, pricing, and financial information to determine whether this product should be considered a separate like product for the final phase of these investigations.

II. GRADE 1080 AND HIGHER WIRE ROD FOR TIRE CORD AND BEAD WIRE CONSTITUTES A SEPARATE LIKE PRODUCT FROM THE OTHER WIRE ROD SUBJECT TO THIS INVESTIGATION.

In making a like product determination, the Commission typically considers the following factors: (1) physical characteristics and uses; (2) common manufacturing facilities and production employees; (3) interchangeability; (4) customer and producer perceptions; (5) channels of distribution; and (6) price.[2] In this case, each of these factors weighs in favor of treating grade 1080 and higher wire rod for tire cord and bead wire as a separate like product.

1. Physical Characteristics

Grade 1080 and higher wire rod for tire cord and bead wire is produced to stringent specifications that distinguish it from the "conventional low, medium, and high carbon wire rod" which make up the "overwhelming majority of subject import volumes."[3] Grade 1080 and higher wire rod for tire cord and bead wire is made with a 0.8 percent or higher carbon content; is between 5.0 mm and 6.5 mm in cross-sectional diameter; has a low manganese content; and is generally free of inclusions and surface defects. There are tight tolerances for non-metallic inclusions to ensure the ability to draw the rod down to the required size.[4] Grade 1080 and

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[2] *Certain Special Quality Hot-Rolled and Semifinished Carbon and Alloy Steel Products from Brazil*, Inv. No. 731-TA-572 (Preliminary), USITC Pub. No. 2537 (July 1992) at 4, fn.5.

[3] *Carbon and Certain Alloy Steel Wire Rod from Belarus, Italy, Korea, Russia, South Africa, Spain, Turkey, Ukraine, the United Arab Emirates, and the United Kingdom*, Inv. Nos. 701-TA-573-574 and 731-TA-1349-1358 (Prelim.) Staff Conference Transcript ("Tr.") at 19 (Price).

[4] Tr. at 43 (Minnick); *see generally* Tr. at 86 (Keun Hwang).

higher wire rod for tire cord and bead wire is used exclusively for the construction of high performance automotive tires, and during the 15 years between the 2002 investigation and this current investigation, the tire cord specifications and requirements have increased in line with demands for lighter weight, higher performing tires due to demands for fuel efficiency.

The carbon content of the steel is itself a distinguishing physical characteristic, as grade 1080 and higher wire rod for tire cord and bead wire is produced with a higher carbon content than almost all other wire rod. At **Exhibit 1**, Kiswire submits a report prepared by Mr. Jim Goodrich on Steel Cord Technology in 2001. This report shows that the standard carbon content for tire cord at that time was 0.72-0.82 percent.[5] A carbon content of 0.8 percent and above is now required to meet the increased strength requirements for tire cord and bead wire. In fact, as noted at the hearing, the carbon content requirements are becoming even more stringent, with some tire producers requiring 0.95 percent and 1.0 percent carbon.[6] These levels of carbon content are not practically possible with the existing electric arc furnace ("EAF") production technology used by domestic producers.[7] As discussed *infra*, domestic producers have not been able to qualify to supply grade 1080 wire rod for tire cord and bead wire.

Grade 1080 or higher wire rod for tire cord and bead wire also must be exceptionally "clean", *i.e.*, free from impurities, inclusions and physical defects. The grade 1080 or higher wire rod used by tire cord and bead wire producers is reduced from the initial diameter of 5.0 to 6.5 mm to ranges of 0.15 to 0.20 mm.[8] This is a reduction of over 97 percent of the diameter of the wire rod. To accomplish this and achieve the correct physical properties, the wire rod must

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[5] **Exhibit 1**, p.2.

[6] Tr. at 68 (Minnick).

[7] *See* Responses to Staff Questions at 1; *see also* **Exhibit 2** (showing domestic producers' inability to qualify for grade 1080 tire cord).

[8] *See* Tr. at 43 (Minnick).

be free from impurities, inclusions, and surface defects.[9] So far, no EAF producer in the U.S. has been able to qualify grade 1080 for tire cord and bead wire because, although they can produce wire rod grade 1080 for use in PC strand (11 mm or greater), that size and grade 1080 is not suitable for tire cord and bead wire production.[10] Grade 1080 for PC strand end-use applications has higher manganese levels, no limit on inclusions, and much less stringent chemistry requirements, that render it inadequate for use in tire cord and bead wire production.[11] The EAF production method uses scrap as the primary raw material input, which can vary in quality and chemical composition. These are contributors to impurities and inclusions, which result in processing issues including breakage. PC strand does not require the reduction of cross sectional area that is needed to produce tire cord (97 percent reduction drawing from 5.5 mm down to 0.18 mm or smaller).[12] The chemical and physical properties of the steel play a huge role in processing down to these small diameters.

As discussed above, because the drawing results in a 97 percent reduction in diameter, grade 1080 wire rod for tire cord and bead wire must be extremely ductile. A low magnesium content of 0.3 to 0.6 percent is necessary to establish sufficient ductility to produce the thin strands required for tire cord and bead wire.

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[9] *Id.*

[10] Tr. at 70 (Stauffer) ("we'd actually have 1080 for PC-stained {sic} . . . but nowhere near the specifications of the tire cord tire bead."); Tr. at 104 (Stauffer) ("There is a construction product in the 1080 carbon range. That's for PC strand. So in the sense that the chemistry is not as stringent as tire bead and tire cord, it's a different product at that standpoint, because the application is different.").

[11] *See* Responses to Staff Questions at p.8.

[12] Tr. at 105 (Stauffer): For PC strand, "{t}he smallest wire diameter is .135 {*i.e.*, approximately 3.43 mm} in that area, and we start with 7/16ths or 11 millimeter wire rod, essentially twice the diameter of the tire cord application." A reduction from 11 mm to 3.43 mm is approximately 70 percent.

The distinct tolerances and specialized chemical and physical properties of a specific product are often cited by the Commission in its like product determinations. For example, in *Aluminum Extrusions from China*, the Commission considered whether finished heat sinks ("FHS") were a separate like product from all other aluminum extrusions. The Commission found that the specific and precise tolerances to which FHS were produced, as well as its customized thermal resistance properties, was a major factor in its determination that FHS was a separate like product from other aluminum extrusions.[13] Here, the high carbon content, tight tolerances for non-metallic inclusions, and specified manganese content for increased ductility demonstrate that grade 1080 and higher wire rod for tire cord and bead wire is different from all other types of wire rod subject to this investigation.

2. Interchangeability

There is no interchangeability between grade 1080 and higher tire cord and bead wire rod and other wire rod. Grade 1080 and higher tire cord and tire bead wire rod is used exclusively for tire production and would be prohibitively expensive for use in the industrial applications where other wire rod is used. *See* "Price" section *infra*. Other wire rod cannot be used for the high-strength, low-weight applications for which grade 1080 tire cord and bead wire rod is designed and produced. As discussed above, the grade 1080 tire cord and bead wire is made to demanding specifications and the mill producing the grade 1080 and higher tire cord and bead wire rod must be qualified. There is absolutely no possibility to substitute other wire rod for the applications that require the grade 1080 and higher tire cord and tire bead wire rod.[14]

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[13] *See Certain Aluminum Extrusions from China*, USITC Pub. 4229, Inv. Nos. 701-TA-475 and 731-TA-1177 (Final) (May 2011) at 7, *aff'd*, *Aluminum Extrusions Fair Trade Comm. v. United States*, 2012 Ct. Int'l Trade LEXIS 134.

[14] *See e.g.*, *Certain Sodium and Potassium Phosphate Salts from China*, Inv. Nos. 701-TA-473 and 731-TA-1173 (Preliminary), USITC Pub. 4110 (Nov. 2009) at 11 (finding four separate

3. Channels of Distribution

Grade 1080 and higher wire rod for tire cord and bead wire is sold through a distinct channel of distribution compared to other wire rod. This product is sold only to producers of grade 1080 and higher tire cord and bead wire. These tire cord and bead wire producers take great pains to qualify suppliers,[15] and they test and confirm that the products meet their requirements. Moreover, the stringent specifications developed by the tire cord and bead wire producers are designed for specific products and applications, and the product is purchased subject to the specifications and approval of the ultimate end-users—the tire manufacturers.[16] There are a very limited number of these tire cord and bead wire producers, and these producers must work closely with the wire rod mills in relationships that stretch out over years. Thus, these tire cord and bead wire rod customers are very familiar with the mills producing the products.

4. Common manufacturing facilities, production processes, and production employees

All domestic wire rod mills use the EAF production process, while the high quality grade 1080 and higher wire rod that tire cord and bead wire requires is almost exclusively made using the BOF production process. Although it is theoretically possible to make grade 1080 and higher tire cord and bead wire using EAF processes, no domestic producer has been able to do it to the satisfaction of tire core and bead wire producers.

ArcelorMittal's Georgetown facility was able to make tire cord and tire bead wire rod before it closed the facility, but this was for lower grades for smaller tires.[17] In fact, Kiswire's

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like products where the four phosphate salts at issue were "not interchangeable and typically cannot be substituted for each other in particular applications.").

[15] Tr. at 39-40 (Hughes); 43 (Minnick).

[16] Tr. at 47 (Hwang).

[17] Tr. at 66 (Cameron).

Pine Bluff facility attempted to qualify ArcelorMittal's Georgetown plant for grade 1080 tire cord during 2014, when both facilities were owned by ArcelorMittal, but Georgetown was never able to pass the qualification process for this product.[18] [

].[20]

The use of the BOF process is inherently more conducive to meeting the specifications and quality required for grade 1080 and higher tire cord and bead wire production. As discussed at the preliminary conference, producers using the BOF process use molten iron as the main raw material, and because of this they can control the raw material in the BOF process and minimize impurities.[21] EAF processing using scrap metal as the main raw material, however, results in the inclusion of the impurities that are in that scrap metal and that are exceedingly difficult to control.[22]

5. Customer and producer perceptions

Customers and producers clearly perceive grade 1080 and higher wire rod for tire cord and bead wire to be a distinct product from other wire rod. It is not part of a wire rod continuum

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[18] *See* **Exhibit 2**.

[19] *See* Responses to Staff Questions at pp.1-2 and 11-12.

[20] *See* **Exhibit 3**.

[21] Tr. at 45 (Ryoo).

[22] *Id.*

because it is recognized in the industry that only certain producers with the proper equipment can consistently and reliably produce these grades. As referenced above, the requirements for tire cord and bead wire are becoming more stringent, not less. Thus, while ArcelorMittal's Georgetown facility did produce wire rod for tire cord, it was at a time when the requirements allowed less demanding specifications. That is no longer the case, and neither ArcelorMittal's Georgetown facility nor any other U.S. wire rod producer has been able to produce qualifying 1080 grade and higher for tire cord and bead wire production.[23] As discussed above, due to the unique qualification-based channel of distribution, the tire cord and bead wire producers work closely with the suppliers both in qualifying the supplier's mill and in assuring the ongoing quality of the product.[24] As a result of this system, grade 1080 and higher tire cord and bead wire producers maintain detailed documentation of testing procedures to verify the claimed chemical and mechanical properties of the grade 1080 and higher tire cord and bead wire rod they purchase.

6. Price

Because of the specialized chemistry and production process involved, grade 1080 and higher tire cord and bead wire rod is higher priced than commodity grade wire rod. Customers in the automotive industries require grade 1080 and higher and above tire core and bead wire rod and purchase it despite the higher price.[25] As an example to demonstrate the notable price difference, Kiswire Pine Bluff paid [

]. This substantial

[23] *See* **Exhibit 2**.

[24] Tr. at 39 (Hughes); Tr. at 43 (Minnick).

[25] *See* Tr. at 184 (Ashby).

price differential demonstrates that price is a significant factor in the like product analysis and weighs in favor of finding of the Commission finding a separate like product.

In conclusion, each of the factors the Commission normally considers in making its like product determination weighs in favor of finding that grade 1080 and higher wire rod for tire cord and bead wire production is a separate like product from other wire rod.

III. COMPETITION BETWEEN DOMESTIC PRODUCERS AND SUBJECT IMPORTS IS VIRTUALLY NONEXISTENT FOR GRADE 1080 AND HIGHER WIRE ROD FOR TIRE CORD AND BEAD WIRE PRODUCTION.

As discussed extensively in the testimony provided by Kiswire at the staff conference, at present there are no qualified U.S. producers of grade 1080 and higher wire rod for tire cord and bead wire, and Kiswire and other grade 1080 and higher tire cord and bead wire producers are unable to purchase the product domestically.[26] Grade 1080 wire rod designed for other uses such as PC Strand cannot and is not used as a substitute to produce tire cord and bead wire.

In order to assure that mills can produce wire rod to the high specifications demanded for grade 1080 and above tire core and bead wire, mills supplying wire rod to the tire core and bead wire manufacturers must be "qualified." Kiswire has been unable to qualify grade 1080 tire cord and tire bead wire rod from any domestic wire rod producer and has also been unable to source grade 1080 tire cord or bead wire rod from any domestic source. Kiswire has attempted to qualify [

] because these mills could not produce a consistent product with the same physical

[26] Tr. at 43 (Minnick).

characteristics of grade 1080 or higher wire rod for tire cord and bead wire.[27] As discussed in the response to staff questions, [

].[28] Similarly, prior to ArcelorMittal's shutdown of its Georgetown facility, Kiswire's Pine Bluff facility worked with ArcelorMittal Georgetown facility to qualify them to produce grade 1080 for tire cord and bead wire. These efforts were also unsuccessful.[29]

Even if a domestic supplier attains the capability to produce acceptable grade 1080 and higher wire rod for tire cord and bead wire, the required qualification process could take over two years.[30] Accordingly, subject imports of grade 1080 and higher tire cord and bead wire rod are not competing with the domestic industry, and this lack of competition supports a negative determination in this case.

IV. THERE IS NO REASONABLE INDICATION OF MATERIAL INJURY OR THREAT TO THE DOMESTIC INDUSTRY

For the reasons discussed above, grade 1080 and higher wire rod for tire cord and tire bead wire is a separate like product which does not compete with the domestic industry. Accordingly, the Commission should find that imports of grade 1080 and higher wire rod for tire cord and tire bead wire are not causing or threatening to cause material injury to the domestic wire rod industry and should issue a negative determination with respect to that product.

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[27] *See* **Exhibit 2**.

[28] *See* Responses to Staff Questions at pp.1-2 and pp.11-12.

[29] *Id.*

[30] Tr. at 39 (Hughes).

V. CONCLUSION

Based on the foregoing, Kiswire respectfully urges the Commission to find that there is no reasonable indication of material injury or threat thereof to the domestic industry from imports of grade 1080 and higher wire rod for tire cord and bead wire.

Respectfully submitted,

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Carbon and Certain Alloy Steel Wire Rod from Belarus, Italy, Korea, Russian Federation, South Africa, Spain, Turkey, Ukraine, United Arab Emirates, and the United Kingdom

Inv. Nos. 701-TA-573-574 and 731-TA-1349-1358 (Preliminary)

Kiswire's Post-Conference Brief Exhibit List

Exhibit No.	Title
	Responses to Staff Questions
1	Steel Cord Technology Report Presented at the American Chemical Society, Rubber Division
2	Domestic Rod Supplier Test Results
3	EVRAZ North America Website Printout
4	Bead Wire and Tire Cord Specifications from Tire Companies
5	Kiswire's Grade 1080, 1086, and 1090 Tire Cord and Bead Wire Specifications
6	Emails between Kiswire and Domestic Producers Regarding Wire Rod for Tire Cord and Bead Wire
7	Articles on Tire Plant Openings

RESPONSES TO STAFF QUESTIONS

Carbon and Certain Alloy Steel Wire Rod from Belarus, Italy, Korea, Russian Federation, South Africa, Spain, Turkey, Ukraine, United Arab Emirates, and the United Kingdom

RESPONSES TO STAFF QUESTIONS

MR. SZUSTAKOWSKI: . . . So domestic-like product we've seen from other wire rod investigations that the Commission has expanded the definition beyond the scope to include 1080 cord wire rod. I believe that was in the 2002 investigation and 2005 the scope was written such that it did include the tire cord rod. So you're saying -- I believe it was Mr. Trendl was saying that there's been changes since then, so is the change essentially that there is no longer BOF production in the U.S.? Is that what it boils down to? I'm just interested to know can an EAR not make tire cord wire rod. Is it prohibited from doing that? (Tr. at 65).

MS. VIRAY-FUNG: . . . I guess I'm a little bit confused. What has changed in the last few years? I mean why -- is it the specifications have changed? (Tr. at 82).

Used to be? How long ago? Two years ago – (Tr. at 83).

And the exit of ArcelorMittal, that was since the China cases? (Tr. at 83).

ANSWER: Kiswire Ltd. and Kiswire America Inc.[1] (collectively "Kiswire") are not arguing that tire cord or tire bead wire rod cannot be made using the electric arc furnace ("EAF") process or that there is no domestic production of certain grades of wire rod for tire cord and bead wire production. It is technically possible to make lower grades and low quality tire cord and tire bead wire rod using the EAF process and some domestic producers have managed to do so. However, to make high quality grade 1080 and above wire rod for tire cord and tire bead wire with smaller diameters that contain low manganese and higher carbon contents that can be drawn down to very small diameters is nearly impossible to do using the EAF process. The EAF process uses scrap as its main input, and while this may be acceptable for much steelmaking, high grade tire cord and tire bead wire rod requires very few impurities and control of elements such as carbon, manganese, aluminum, and copper. When using the EAF process and scrap in

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[1] Counsel for Kiswire Ltd. are filing an amended entry of appearance today under separate cover to include Kiswire America Inc., the U.S. affiliate of Kiswire Ltd.

general as the primary ingredient, it becomes very difficult to minimize these impurities and manage these elements to tight tolerances. Further, some scrap that has been melted down several times to liquid form may have higher levels of certain elements.[2] This is why the higher grade tire cord and tire bead wire rod utilize the basic oxygen furnace ("BOF") process, which uses iron ore and coking coal as its main inputs. Using the BOF process with coking coal and iron ore allows producers of grade 1080 and above wire rod for tire cord and tire bead wire to control all of these impurities and levels of different elements.

As counsel for Kiswire stated at the Staff Conference, ArcelorMittal's Georgetown facility was able to make tire cord and tire bead wire rod before it closed the facility, but this was for lower grades for smaller tires.[3] Kiswire attempted to qualify ArcelorMittal's Georgetown plant for grade 1080 wire rod for tire cord during 2014, but the facility was never able to pass the qualification process for this product.[4] The qualification process for grade 1080 wire rod for tire cord was eventually discontinued after repeated poor performances of the wire rod produced from ArcelorMittal's Georgetown facility.[5] A major reason why the Georgetown facility was never able to qualify for 1080 grade was the EAF process that it utilizes.

Similarly, Kiswire [

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[2] *Carbon and Certain Alloy Steel Wire Rod from Belarus, Italy, Korea, Russia, South Africa, Spain, Turkey, Ukraine, the United Arab Emirates, and the United Kingdom*, Inv. Nos. 701-TA-573-574 and 731-TA-1349-1358 (Prelim.) Staff Conference Transcript ("Tr.") at 68 (Hughes).

[3] Tr. at 66 (Cameron).

[4] *See* **Exhibit 2**.

[5] *See* **Exhibit 2**.

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].[6] [

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As explained briefly at the Staff Conference, there have been several changes in the domestic wire rod industry between the 2014 China investigation[8] and today and between the 2002 investigations[9] and today. These changes in the industry are relevant to the Commission's like product analysis and must be considered accordingly.

First, ArcelorMittal's Georgetown facility closed in May 2015. What little production of low quality and low grade tire cord and bead wire rod that the domestic industry could claim to make during the 2014 China investigation disappeared with the closure of ArcelorMittal's Georgetown facility. This fact renders the Commission's analysis different than previous

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[6] *See* **Exhibit 2**.

[7] *See* **Exhibit 3**.

[8] *Carbon and Certain Alloy Steel Wire Rod from China*, Inv. Nos. 701-TA-512 and 731-TA-1248 (Final), USITC Pub. 4509 (Jan. 2015).

[9] *Carbon and Certain Alloy Steel Wire Rod from Brazil, Canada, Germany, Indonesia, Mexico, Moldova, Trinidad and Tobago, Turkey, and Ukraine*, Inv. Nos. 701-TA-417-421 and 731-TA-953, 954, 956-959, 961, and 962 (Final), USITC Pub. 3546 (Oct. 2002).

investigations as there no longer is a continuum through grade 1080 tire cord and tire bead wire rod. And while [

] have prevented them from doing so. Thus, the wire rod product continuum does not encompass grade 1080 and higher wire rod for tire cord and tire bead wire when technical difficulties preclude production of the product by many producers. This presents a clear dividing line between grade 1080 and higher wire rod for tire cord and tire bead wire and all other wire rod.[10]

Second, the requirements of downstream customers have changed markedly over the years with automakers' demanding lighter weight and higher strength vehicles as a result of the demand for higher fuel efficiency. This drive for lighter weight and higher strength automobiles has led to demands for lighter and better performing tires. In order to produce these lighter, higher performing tires, tire companies have turned to higher grade tire cord and bead wire products that enable tire companies to reduce weight and still increase performance. Over the fifteen years between the 2002 investigation and the current investigation, the tire cord specifications and requirements have increased in line with demands for lighter weight, higher performing tires. At **Exhibit 1**, Kiswire submits a report prepared by Mr. Jim Goodrich on Steel Cord Technology in 2001 that shows what the standard carbon content and tensile strengths for tire cord was during that time period.[11] Tire companies now require higher carbon contents, and virtually all tire cords produced today are super tensile strength or higher. This drive for lighter weight, higher performing automobiles is also what has led to a greater demand for grade 1090 tire cord and bead wire. The domestic industry is unable to make grade 1080 tire cord and bead

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[10] *See Nippon Steel v. United States*, 19 CIT 450, 455 (1995); *Certain Aluminum Extrusions from China*, USITC Pub. 4229, Inv. Nos. 701-TA-475 and 731-TA-1177 (Final) (May 2011) at 9.

[11] **Exhibit 1**, p.2.

wire rod, let alone grade 1090 tire cord and bead wire rod. All of Kiswire's tire cord consist of grade 1080-1090 wire rod, and the majority of Kiswire's bead wire consists of grade 1080-1090 wire rod, and this evolution of higher grades will continue as tire companies demand higher performing tires. By increasing the carbon content for lower diameter rod, it enables the tire cord and bread wire producer to directly reduce the wire to the required dimensions without the need to re-heat the wire. In other words, the higher carbon content allows the tire cord and bead wire producer to eliminate the intermediate heat treatment step in the process that is normally involved with lower carbon wire rod.

Attached at **Exhibit 5** are Kiswire's wire rod specifications for Grades 1080, 1086, and 1090. The specifications that apply to grade 1080 and above wire rod for tire cord and bead wire are [

][12]

> **MR. SZUSTAKOWSKI**: . . . What I'd like to know then is are there subject producers that make 1080 or tire cord wire rod with an EAF? Is that something that anyone can answer now or is that best answered in a brief? (Tr. at 67).

ANSWER: As noted above, when Georgetown was in operation, Kiswire's Pine Bluff facility, which was then owned by ArcelorMittal, worked with Georgetown to try to develop a grade 1080 for tire cord and bead wire. Those attempts were unsuccessful. As also noted above, [

]. It should also be noted that [

[12] **Exhibit 5**.

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With respect to Kiswire's suppliers of grade 1080 and above wire rod for tire cord and bead wire, none of these subject producers make grade 1080 tire cord or bead wire rod with an EAF. Further, as testified by counsel for POSCO, POSCO's mills that are producing wire rod and tire cord wire rod are using BOF technology.[13]

> **MR. SZUSTAKOWSKI**: . . . So for these spec sheets do the spec sheets designate the physical properties of the tire cord or do they also designate the manufacturing process and how it's made? (Tr. at 67).

ANSWER: Kiswire has included specification sheets from several of its customers in **Exhibit 4**. The first two pages of **Exhibit 4** contain specifications for tire cord and the remaining pages contain specifications for bead wire. Different customers have different specifications and requirements. As can be seen in **Exhibit 4**, these specification sheets indicate breaking strength, tensile strength, elongations, rod grade, and the required carbon content and manganese content, as well as the maximum allowable content of copper and other impurities, that are required in the tire cord or bead wire rod. Mr. Minnick explained at the Staff Conference that these specifications have advanced over time as tire companies require much stronger tire cord and bead wire. This, in turn, has led to higher specifications, including much higher carbon contents. For example, in the early 2000s, a 0.72 percent to 0.82 percent carbon range was

[13] Tr. at 70 (Goldfeder).

required for a high quality tire cord.[14] Now, customers are requesting a minimum 0.80 – 0.95 percent carbon content.[15]

> **<u>MS. VIRAY-FUNG</u>**: Thank you for being here. Let's kick off with domestic like product. It's sounding like I'm hearing some domestic like product arguments. I'd like to hear from counsel. How would you like us to define the domestic like product? (Tr. at 78).

<u>ANSWER:</u> Kiswire urges the Commission to find a separate like product in this investigation for the reasons described in its post-conference brief[16] that is defined as follows:

> Wire rod, Grade 1080 and higher for tire cord and bead wire production, with 0.8 percent and higher carbon content, measuring 5.0 mm or more but not more than 6.5 mm in cross-sectional diameter, low manganese content in the range of 0.25 – 0.6 percent, and having no inclusions greater than 20 microns.

> **<u>MS. VIRAY-FUNG</u>**: . . . Thank you. To the extent that some parties have reported that purchases have increased or demand has decreased, could you address what factors may have caused either the increase or decrease in demand? (Tr. at 95).

<u>ANSWER:</u> Demand for high grade tire cord and bead wire has increased exponentially over the past few years and will continue to increase with the construction of seven new tire factories across the United States[17] and requests from automakers to produce lighter, higher strength vehicles. As a result of this rapid increase in tire production and advances in automobiles, total tire cord capacity is well below total demand for tire cord. Current tire cord capacity in the U.S. is around 170,000 tons, while demand for tire cord is around 350,000 tons.[18]

> **<u>MR. KNIPE</u>**: Okay, okay. Thanks. So on the tire cord versus industrial grade, are there any differences in the basic raw materials that go into these products? (Tr. at 101).
>
> . . . Does BOF not use scrap? (Tr. at 102).

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[14] *See* **Exhibit 1**, p.2.

[15] Tr. at 67-68 (Minnick).

[16] *See* Kiswire Post-Conference Br. at pp.1-9.

[17] Tr. at 95 (Minnick); *see also* **Exhibit 7**.

[18] Tr. at 43-44 (Minnick).

> . . . Okay. I understand that you're arguing that the production process creates impurities in EAF that are not present in BOF. But is it fair to say that the biggest differences in raw materials are through alloys? (Tr. at 102).
>
> … Okay. I'm sure you're going to do this anyway, but if you can expand on that in your post-conferences briefs. (Tr. at 103).

ANSWER: Yes. There are differences in both the raw materials that are used to produce grade 1080 wire rod for tire cord or bead wire and grade 1080 wire rod for industrial/construction applications (PC Strand) and differences in the physical characteristics of the two products. First, wire rod for PC strand is 11 mm and greater. 1080 wire rod for tire cord and bead wire begins at 5 mm – 6 mm and requires a 97 percent reduction. You cannot achieve the desired wire dimensions required for tire cord or bead wire beginning with 11 mm wire rod. Second, the low manganese content for wire rod for tire cord and bead wire is necessary to insure the ductility needed for drawing. That level of ductility is not necessary for the wire rod for PC strand, hence they do not require low manganese content. The high manganese content for PC strand makes the steel harder and more difficult to withstand the torsion that the tire cord and bead wire must be able to withstand. Finally, the level of impurities and inclusions is not as important in the case of PC strand because wire rod for use in PC strand is not drawn down as much as for tire cord and bead wire. The 97 percent reduction for tire cord and bead wire requires that there be few impurities and a limited amount of inclusions.

In terms of comparing the raw materials that domestic producers use in their EAF process versus the raw materials that subject producers use to make grade 1080 and above tire cord and bead wire rod, there are several differences. First, the EAF process that domestic producers utilize starts with scrap as its main raw material. This scrap is then melted down and formed into a new product. The problem with this process is that it is virtually impossible to control all of the metallurgical properties and elements of the scrap. Some scrap may have very high levels of copper and other elements that would render it useless for tire cord and bead wire production.[19] However, the BOF process uses coking coal and iron ore as its main raw materials. Starting with these raw materials allows for control of the metallurgical properties and elements of the resulting wire rod. While some scrap may be added in to the BOF process, the steelmaker is better able to control the contents of the resulting wire rod when starting with iron ore and coking coal as raw materials.

Finally, Kiswire notes that alloys do not play much of a role in tire cord and bead wire rod production. What matters to tire cord and bead wire producers is that alloys are minimized as controlling impurities and other elements is critical to producing a high grade tire cord and bead wire. With the exception of the carbon and manganese requirements, production requires control of other elements to very low levels to minimize the effect of impurities and inclusions on the quality of the wire rod for the drawing process. Because EAF is reliant primarily on scrap as the major input, it is difficult to control these impurities and inclusions to the degree required for grade 1080 and above wire rod for tire cord and bead wire.

> **MR. KNIPE**: Okay. Does tire bead and industrial grade -- do they fall into any of the existing pricing products that are out there now? Okay. I'm seeing no head nods. (Tr. at 103).
>
> . . . Okay. So I assume that in the event of a final, the Commission should collect price data on tire bead product. (Tr. at 103).

ANSWER: While Kiswire believes that the record in this preliminary phase demonstrates the existence of a separate like product when applying the Commission's six-factor test, Kiswire urges the Commission to collect pricing data on grade 1080 wire rod for tire cord and bead wire in any final phase investigation. Specifically, the Commission should collect

[19] Tr. at 68 (Hughes).

pricing data on the like product defined at page 7 of these responses to Staff Questions. Additionally, if the Commission should make an affirmative preliminary determination, Kiswire reserves its right to file comments on the Commission's draft questionnaires in any final phase to better define the pricing product categories.

> **MR. KNIPE**: Okay. So are demand trends for tire bead and industrial grade segregated between the construction and auto markets generally speaking? (Tr. at 103-104).
>
> . . . If tire beads is specific to the auto market and industrial grade product that goes into construction and uses, are they generally segregated by those two markets? In other words, I'm trying to get at -- (Tr. at 104).

ANSWER: Yes. In general, demand trends for tire cord and bead wire products are driven by strength in the automotive industry and demand for industrial grade products, such as PC strand, are driven by strength in the construction industry. However, Kiswire believes that demand trends are a bit more nuanced than just saying that if demand for automobiles is up then demand for tire cord and bead wire will also be up. While there may be a correlation between increased automotive sales and increases in tire cord and bead wire production, the key demand driver here is advances and changes to automobiles. Over the past ten to fifteen years, automobile manufacturers have prioritized building lighter weight and higher strength vehicles because of increased demands for fuel efficiency. This has led to tire manufacturers also demanding high strength, light-weight tires, which has driven demand for higher grade tire cord and bead wire products. As a result of strong demand in the automotive industry and pressure on tire manufacturers to produce lighter and higher strength tires, demand in the tire cord and bead wire sectors has increased drastically. Currently, domestic tire cord and bead wire capacity is around 170,000 tons, while demand is double that at 350,000 tons.[20] Demand for these products is increasing, especially for higher grades. While the domestic industry was able to supply wire

[20] Tr. at 43-44 (Minnick).

rod for lower grade tire cord and bead wire, tire manufacturers are no longer producing these smaller, lower performing tires, and thus, there is little demand for lower grade tire cord and bead wire.

> **<u>MR. KNIPE</u>**: Okay. If anybody wants to expand on that in post-conference, please do so. My last question, I hate to create more work for myself and this is an issue that we typically address in any final, but if the Commission decides to dig into the like product argument, it would be helpful to know in terms of the qualification process. Some of you talked about domestics being unable to have their product qualified. If you could explain what products, the different qualification, if the process for qualification differs between product, who you have qualified and who has failed qualification. If you want to talk about that now, feel free, but in post-conference if you could dig into that, that would be helpful. (Tr. at 108-109).

<u>ANSWER</u>: As mentioned briefly above and at the staff conference,[21] Kiswire has been unable to qualify grade 1080 or above wire rod for tire cord or tire bead wire production from any domestic wire rod producer and has also been unable to source grade 1080 or above tire cord or bead wire rod from any domestic source. Kiswire has attempted to qualify [

]. Kiswire submits at **Exhibit 2** a chart showing all of their attempts to qualify domestic wire rod producers for various grades of tire cord and hose wire. As the Commission can see from this exhibit, after numerous attempts over many years, no domestic producer has been able to qualify for grade 1080 or above tire cord. [

[21] Tr. at 109 (Minnick).

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Kiswire also notes that, while a certain product may appear to meet certain specifications in the certificate of analysis, the key factor to measure whether or not the product qualifies is if the product is "fit for use" and can actually perform to the standards of material that is currently being used to produce tire cord and bead wire. In several of the trials reported in **Exhibit 2**, the wire rod shipped to Kiswire indicated that it met the specifications, chemistry, and physical properties. However, when this wire rod was run through the mill, it failed to process satisfactorily, leading to cup and cone breaks or excessive wire breaks. Just because the product indicated it met all of the specifications, this did not mean it could be qualified and used on an industrial basis.

Additionally, Kiswire recently contacted [

[22] **Exhibit 6**.

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> **MR. LA ROCCA**: Hi everyone. Thank you for coming. Can you guys hear me? Okay. I just have a -- well, I just have a request for the Respondents, to please share with us the certification requirements –
>
> . . . I just have a request for the Respondents. If you could share the 1080 and plus grade requirements, certification requirements, that will be really spectacular for us. (Tr. at 111).

ANSWER: Kiswire has provided its grade 1080, 1086, and 1090 certification requirements in **Exhibit 5**.[23]

[23] *See* **Exhibit 5**.

Exhibit 1

Paper No. E

Steel Cord Technology

by Jim Goodrich*

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Presented at a meeting of the

Rubber Division, American Chemical Society

Providence, Rhode Island

April 24 - 27, 2001

* Speaker

As with most products, tires are more complex in design and components than most consumers realize. The preceding presentations, in this and other symposia, have provided a wealth of information regarding various types of tires, their applications and components. The objective of this presentation will be to focus on the function and application of steel as reinforcement in tires, including cord types, properties and performance criteria. In the end, tire design engineers are faced with the age old challenge of performance versus cost.

For the purpose of organization, this presentation will be divided into the following sections:

I. Raw Materials
II. Process Basics
III. Cord Constructions
IV. Cord Properties
V. Application
VI. Factors Affecting In-Tire Cost
VII. Summary

I. Raw Materials

While the actual constructions and applications for steel cord used in tires varies greatly, virtually all cords start with very similar raw materials. The main component is high carbon steel, typically in the 0.72% to 0.82% carbon range. This material arrives in rod form, usually 5.5mm in diameter, coiled into bundles about three feet high, six feet long and weighing up to 4400 pounds, or about two metric tons. The rod arrives from the mill with a thin layer of scale, which helps protect it from rust, surface damage and contamination.

As raw steel does not bond effectively to rubber compounds, an adhesive interface is required. In most applications, brass is applied to the surface of the steel, by either electro-deposition or chemical means. This brass coating on the steel ultimately ends up being about 0.25 microns in thickness, or about 250 angstroms. Due to the small amount, the brass comprises typically less than 0.5% of the total weight of the cord product. Brass is an alloy of copper and zinc. In steel tire cord applications, this alloy is approximately 2/3 copper and 1/3 zinc. The raw copper and zinc components are obtained as pure metal, typically in bar, ball or nugget castings. Various metal/salt plating solutions are also used in the plating process, which varies by manufacturer. The brass serves as an excellent adhesion interface, because it bonds well to raw steel and the sulfur in rubber compounds will bond or 'cross-link' via copper sulfide bridges to the brass surface. This is the basic mechanism to bond rubber to steel tire cord.

In addition to the steel and brass, there are some types of processing lubricants which may be used and remain on the product as a small residual. These will be discussed in further detail in the next section.

II Process Basics

The normal diameter for individual filaments within a steel tire cord range from 0.15mm to 0.40mm. As the incoming rod starts with a 5.5mm cross section, there is obviously quite a bit of reduction required. The first step in production is to remove the protective scale, which may be done chemically or mechanically. This step is followed by a breakdown process, or a reduction in the diameter from 5.5 down to an intermediate size, typically 3.0mm to 3.5mm. The reduction is achieved by drawing the rod through a series of drawing dies, which incrementally reduces the size, with the aid of dry soap based lubricants. These lubricants also provide a thin protective layer on the steel to help prevent corrosion and rust.

As the drawing process creates internal stresses in the wire, which ultimately result in higher tensile values, there may be a need to relax the stress by a heat treatment. In some applications, there may be an intermediate heat treatment at this stage known as 'austenitizing'. With or without the heat treatment, the wire must be further reduced to a diameter typically 2.5mm to 1.0mm. There are some processes whereby the reduction from 5.5mm rod to the 2.5mm to 1.0mm diameters are achieved in one process, known as 'direct draw'. The choice of diameter at this stage will have a direct relationship on the physical and mechanical properties of the final product.

After drawing, the wire must be heat treated to remove the internal stresses from cold working and set the steel microstructure for the desired tensile properties and optimum processing characteristics. This process is known as 'patenting' and requires very tight tolerances regarding temperature, dwell time and cooling.

Patenting is typically followed by the plating process, which deposits a brass layer on the surface of the wire. As previously mentioned, there are several methods for this process, which vary by wire supplier. Fresh brass is a reactive metal, which, over time, will tarnish or corrode. This is commonly seen on unprotected brass items, such as statues, which can be seen turning dark or shades of blue-green over time. Remembering the importance of the brass in adhesion, it is vital to protect the brass plated wire. Typically, the material is stored in a non-corrosive, humidity controlled environment with a defined shelf life, before processing at the next step.

The brass plated wire moves to the next step, which is known as 'wet' or 'fine wire' drawing. The wire, starting at a diameter from 2.5mm to 1.0mm, depending on the ultimate use requirement, will be reduced to a filament with a diameter range from 0.400mm down to 0.150mm. This process is carried out in a drawing machine, where the wire is pulled through a series of incrementally smaller dies, typically 15 to 25 in number. Most of the brass remains on the wire, now known as a 'filament', which is the building block of steel cord. Looking back over the process, the reduction of area of the original rod is quite staggering. One cm of 5.5mm rod yields: 2.8 cm of 3.3mm, then 10.8 cm of 1.72mm, then ultimately 336 cm of .300mm filament. Going back, the original coil (4400 lbs. or 2MT) of 5.5mm rod would yield in excess of 2500 miles of 0.300mm filament.

III. Cord Constructions

At this stage, the requirements of the end user, the tire companies, become more defined. They supply cord specifications, which include the filament breakload class and diameter. Then the numbers of filaments and twisting pattern are specified. There are literally hundreds of different cord constructions for use in tire applications. Following are some examples of various construction criteria.

Strength class is one of the first criteria considered by the tire engineer. In most cases, the relationship between strength and weight is primary. As noted in Figure 1, there are currently four strength classes based on tensile. From lowest to highest, they would be 'regular' (RT), 'high' (HT), 'super' (ST) and 'ultra' (UT). Several key points must be made when discussing tensile or strength classes. It is important to remember that tensile is a mathematical relationship between cross section and breakload. It is a calculation. The main parameter considered should be breakload. Due to small variances in measuring diameter or breakload, tensile calculations can vary widely. Tensile should only be used as a reference. It is also important to recognize that the tensile ranges decrease as the filament size increases. Note, at 3000MPa, a 0.200mm filament is RT, but a 0.500mm filament is ST. Therefore, when discussing new cords or changes in cords, tensile class should be used as a benchmark. Due to advances in patenting and drawing technology, it is possible to achieve a higher tensile class with a lower class of rod. In the past, RT cord was made from 0.70% carbon rod, HT was made from 0.80% carbon rod and ST was made from 0.90% carbon rod. In some cases, it is now possible to make HT from 0.70% carbon and ST from 0.80% carbon.

Filament diameter is a parameter that is inherently tied to many of the cord properties. Ultimately, strength, stiffness, fatigue and other parameters are the result of filament diameter. Diameters typically range from 0.150mm to 0.400mm for tire cord.

Cord constructions and complexity are what truly define the type of cord and application. As seen on Figure 2, constructions range from a very simple 1x2 to a complex 7x7 or 3+9+15+1. The filament diameters and cross sections are drawn to relative scale to demonstrate the significant differences in size and complexity. In some cases, cords contain different filament diameters.

Lay length is a measure of the relative twist of the cord. It is the distance in millimeters for one of the filaments to make a complete revolution around the cord symmetry axis. Tied into the lay length is the helix angle, which has impacts on both breakload and fatigue. As seen on Figure 3, the same 1x5x.35mm wire is shown with two different lay lengths, 10mm and 16mm. While this is an extreme example, the visible difference should be noted. In most constructions, there is a relationship between breakload and fatigue resistance with changing lay length. Longer lays (higher in number) tend to give higher breakload values, but sacrifice some fatigue resistance. The opposite would be true for shorter lay cords. Typically, the lay lengths on cords are specified at the best balance between breakload and fatigue.

IV. Cord Properties

There are a number of cord properties that define performance and ultimately application. These are the tools used by the tire design engineer to define performance and durability.

As cords are by design used for reinforcement, breakload is a key parameter. Typically measured in pounds, newtons or kilograms, breakload is the force required to break a single cord. While simple in and of itself, the breakload of one cord is the benchmark for determining the amount of cords needed over a given area to achieve the required results.

Equally as important, the adhesion characteristics are paramount to tire performance and durability. Over the years, plating composition and rubber compounding have continued to evolve for optimum performance. Adhesion performance is assessed in a number of ways, but lab testing usually focuses on pull-out force and rubber coverage. Testing for pull-out force usually involves embedding a defined length of a single cord in a specified depth of a certified test rubber compound, then curing the composite at a specified temperature, pressure and time. The test is designed to approximate the application in the tire. Once cured and cooled, the test composite is loaded into a test apparatus, such as an Instron, where the rubber block is locked into a holder and the loose end of the wire is clamped into the crosshead. The force required to extract the cord from the rubber block is recorded as the 'pull-out force'. After the cord is extracted, the portion of the cord that had been embedded in the rubber is examined to determine the site of failure. Ideally, it is best to have complete rubber coverage on the extracted portion of the cord. This would be referred to as 100% coverage. If, on the other hand, the extracted cord pulled out clean, with no residual rubber, the coverage rating would be 0%. Most specifications require at least 70% rubber coverage. As the combinations of cord and rubber compounds are extremely large, each of these will require their own specification, based on history and repeatability.

Elongation is a subtle, yet important parameter. This testing can be conducted in two basic methods. Primarily, the elongation is measured during the breakload testing. While putting stress on the cord to induce fracture, the cord will elongate. For example, a sample length of 10.0" may elongate to 10.2" at fracture. This would result in an elongation at break of 2.0%. However, since tires are not designed with the cord fracture stress in mind, elongations are checked at partial level, typically in a 'low load' parameter, where a specified load is applied, or a 'part load' parameter, where the specified load is a percentage of the ultimate breakload. This type of testing provides data that is important for component processing and building applications.

Cord stiffness is an important property, not only for component processing, but tire performance. A common test is the Taber Stiffness Test, where the force required to bend a specified length of cord is measured. Changing any of the construction parameters will typically impact the cord stiffness.

Fatigue characteristics of cords can be evaluated in the laboratory using a number of methods. Filaments from the cords can be evaluated by using the Hunter fatigue test. More common though, is to build a composite of several cords and rubber in a strip about two feet long. These strips are clamped at one end, then a specified load is suspended from the other. In the middle, the strip is 'sandwiched' between three off-set rollers of specified diameter, distance and spacing. These rollers then oscillate as a unit, up and down a length of the strip, until the cords break or the adhesion interface fails. Ultimately, the true test of cord performance is verified in tire testing.

V. Application

It is obvious that all of the cord constructions, coupled with various permutations of physical properties, provide a seemingly endless list of products from which to choose. What then, is a tire design engineer to do? Luckily, even with the relatively short history of use (30 - 40 years), there has been quite a bit of experimentation and benchmarking. There are general guidelines regarding what works well and what doesn't. But the challenge is to step outside those guidelines to find a cord/design combination that will provide a performance and/or cost advantage. In doing so, the following criteria must be considered from the onset: type of tire, location/function within the tire and the ever important cost vs. performance balance.

The type of tire may sound obvious, but changes in application can require significant changes in cord. For example, belt wires used in small passenger tires would not fare well as cut barrier in earth mover tires. But on the other hand, a light truck tire with a load range C will have a significantly different belt wire than another tire of the same size and design, but a load range D. In a similar note, seeing an '18-wheeler' going down the highway is a common sight, but in those 18 wheels are 3 distinctly different tire designs: steering, drive and trailer. Most of the differences may be design or compound related, but some may be in cord type, quantity or utilization.

The location or function of the wire in the tire is also very important. For example, the wire used in the belts of a radial truck tire would not fare well as the ply wire, and vice versa. Each component in the tire requires a cord with specified performance parameters.

The real challenge is finding the optimum balance of performance and in-tire cost. When considering the entire tire weight, the steel is the most expensive component of most radial truck tires. Therefore, careful consideration must be given when selecting a cord type and the property permutations.

Component strength is one that can be calculated on paper or modeled on a computer. Typically, the tire design will call for a strength factor at various locations. Individual cord minimum breakload is extrapolated into a spacing density, or 'ends per inch'. For example, if a design strength of 1200 PSI is required in a certain area, then a cord with a minimum breakload of 100 lbs at 12 EPI, would meet that requirement.

Certain applications in the tire require certain levels of stiffness or flexibility. For example, consider two different cords with the same breakload. Yet one is much more stiff than the other. The first may be very suitable for a belt application, but would not work well in a carcass application. The carcass wires need to do a bend around the bead to form the 'turn -up'. Stiff wires do not work well in this application. Also, it is likely the stiffer wire would not have the fatigue properties needed for a carcass cord.

As mentioned previously, the steel component of the tire is the highest proportional weight material. There can be a delicate balance between steel quantity and performance issues. In some cases, there are weight limits for certain tire sizes. Therefore it is prudent to consider the use of a higher tensile material in the same application. For example, a regular tensile cord can be replaced by a high tensile cord. The options would be to use fewer ends or reduce the filament size. In either case, there is less steel weight. Usually, there are also financial advantages. Typically, a high tensile version of a cord has 12% more breakload, but at a cost increase of about 6%. In this example, there would be a cost and weight savings. A number of years ago, the supply of high tensile rod was much less and the relative price higher, so there was not as much opportunity or advantage. But today, these issues are less of a factor. Comparable higher strength cords are replacing lower tensile in many applications.

Part of the design choices for cords equates to the balance of cord size and endcount. In similar applications, one could choose to go with a bigger cord at a lower endcount, or a smaller cord at a higher endcount. Or in another example, when considering the switch from RT to ST, on a 1x5x.35mm, there are two basic directions to consider. The first option would be to maintain the same filament diameter, and due to the increased strength, reduce the endcount. The second would be to reduce to filament diameter to 0.32mm, for example, and maintain the same endcount. In both examples, there would be less steel, yielding an expected weight and cost savings. However, depending on the tire size, type and application, either may be preferable for performance.

Rubber penetration is a factor being evaluated increasingly in the design and utilization of cords. Simply put, it is an expression of how well the rubber can envelope each filament of the cord. For example, as seen in Figure 4, one of the most basic examples of construction changes is from a classic 1x4 to a 2+2. In this case, both cords have the same number of filaments and the same diameter. The 1x4 construction tends to have a channel down the center of the cord, which prohibits rubber penetration in that area. On the other hand, the 2+2 configuration provides a much higher level of exposure leading to higher rubber penetration. Over the years, wire manufacturers have worked with tire makers to improve rubber penetration and corrosion resistance.

Elongation, as mentioned before, is a property inherent in all cords. But in certain applications, a high elongation cord is used. While normal steel cords may have an elongation at break of about 2.5%, these high elongation cords may have values two to three times that baseline. Common applications for these high elongation cords are in the top, or #4 belt of radial truck tires, or in the rock penetration zone of mining or other OTR tires. In these applications, there is a need to accommodate extra deformation and stress on those areas of the tire. Regular cords may have a higher tendency to break, so the benefits of higher elongation are integrated into the design.

The various sections of a tire have distinct functions, therefore different requirements for physical properties. While important for the tire as a whole, fatigue resistance is vitally important regarding carcass performance. With the success of re-treading, many companies target for a million miles on a radial truck carcass. The shoulders and sidewalls of the tires are the areas most prone to localized flexing during use. There is a tremendous demand for strength, fatigue resistance and flexibility in these areas. This accounts for these cords being among the most expensive in a truck tire. Other steel cord applications in tires also need to have good fatigue resistance, but cautiously stated, these areas, such as belts, chippers, flippers, etc., are more focused on strength and durability.

VI. Factors Affecting Cost (Wire and In-Tire)

Following one of the original premises, the challenge for the tire engineer is to design for the best balance between cost and performance. Due to the varying methods of application, simply comparing the cost per pound for steel cord may or may not provide the best value. It is not uncommon for a cord that may cost more per pound to be less expensive to use in a tire than a cheaper counterpart. The purpose of this section will be to present some general guidelines on factors that may impact the cost of a steel cord itself, then ultimately the in-tire cost.

One of the base differences in cost relates to the type or grade of rod. The 1080 (0.82% carbon HT) rod may cost about 10% more than the 1070 (0.72% carbon RT) rod. When processed, HT cord cost is approximately 6% higher, but the strength is about 12% higher than that of RT cord. Therefore, it is possible to use less steel to achieve the same in-tire strength, for a net 6% savings, using the example above. However, the benefit pendulum can swing the other way, as well. As the industry grows in ST products and experiments with UT products, extra processing costs and high cost of 1090 (0.92% carbon) rod, coupled with low availability, will challenge both wire and tire manufacturers.

When evaluating cord constructions, those with smaller filaments are usually more expensive than cords with bigger filaments. This is a basic relationship, as it takes more resources to produce a smaller filament, then twist it into a cord.

Cord complexity is a major factor in determining production costs. Usually, the more simple a construction is, the less expensive. Multi-layered constructions are typically more expensive than their bunched counterparts. For example a 3+9+1 cord is made in three steps, but the 1x12+1 counterpart is made in two steps.

Lay length is also a factor in final cost. All other things being equal, a cord with longer lay will be less expensive than the same cord with a shorter lay. For example, a 1x5x.35mm with a 18mm lay will be less expensive than a 1x5x.35mm with a 14mm lay. Simply, the twisting machine can produce more meters of cord per motor rpm.

There are also a number of commercial issues to be considered. One variable is the domestic versus import wire source. With changing global economies and cyclical supply/demand relationships, there can be benefits for either. Regarding availability, the commonness of a particular construction will play a part. Specialty constructions, available from only a few locations, will tend to be higher in cost. Finally, be wary to tread through the myriad of patents. While there are some linked to use in tires, many are related to the manufacture of wire, therefore the royalty fee must be paid by the manufacturer, who must add the fee to the processing and ultimately the sales price.

VII. Summary

Over the years, tires, their compounds, components and designs have become increasingly specialized, yielding improved performance. Consumers have come to expect greater value with more durability. Whether that equates into a passenger tire with longer wear and fewer flats, or a truck tire that gets more re-treads, or a mining tire that gets more hours, the materials and engineering have provided better tires in all classes. The hard work of compounders and engineers, in partnership with the raw material and component suppliers, has resulted in an ever improving product for the benefit of all consumers.

References:

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d) ASTM D2969-92; "Standard Test Methods for Steel Tire Cords"
e) ASTM D2229-93a; "Test Method for Adhesion Between Steel Tire Cord and Rubber"
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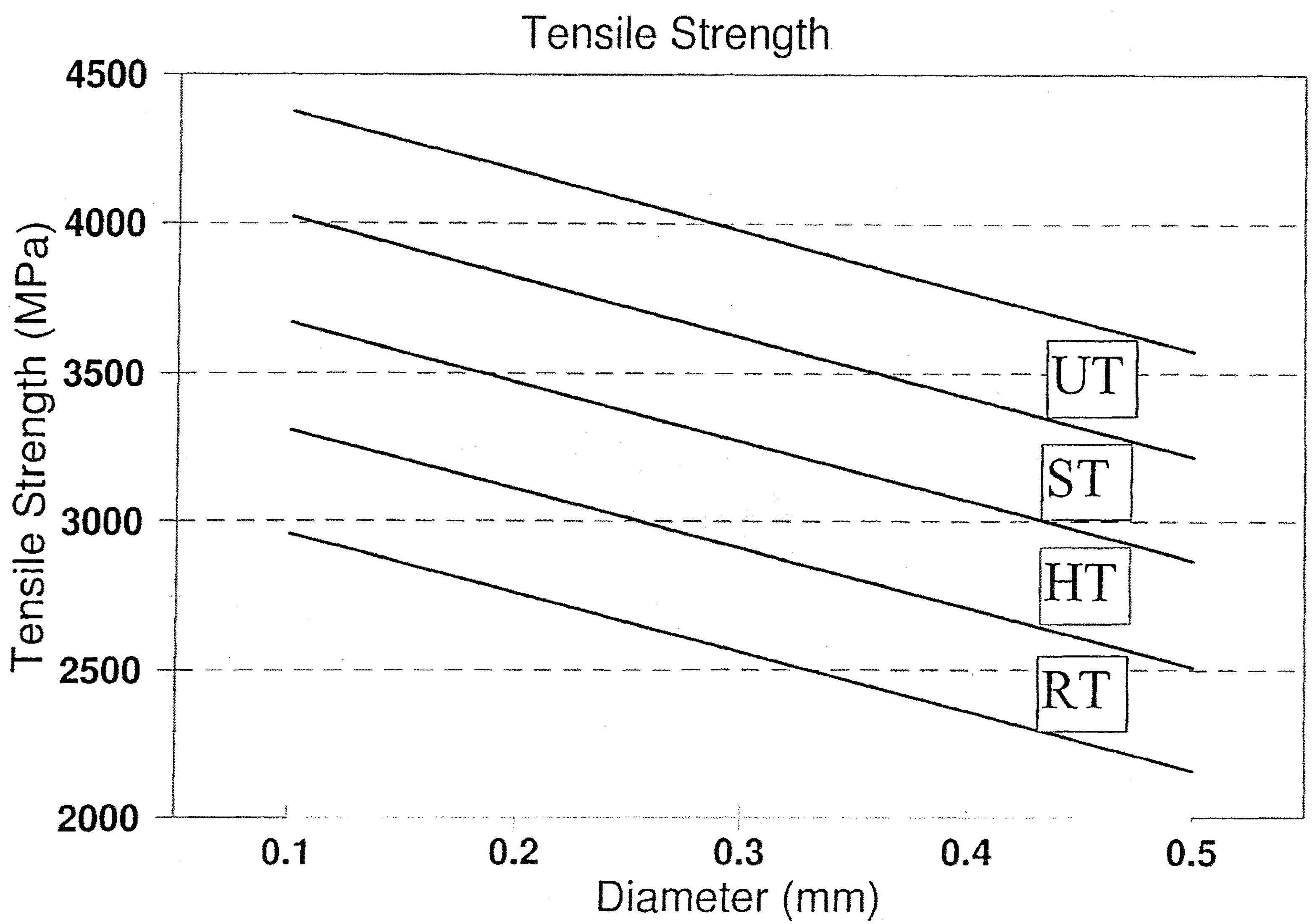
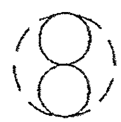
FIGURE 1

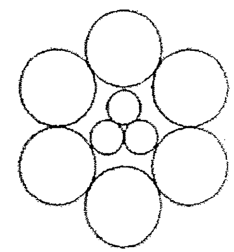


Tensile Strength
4500
4000
3500
3000
2500
2000
Tensile Strength (MPa)
0.1
0.2
0.3
0.4
0.5
Diameter (mm)
UT
ST
HT
RT

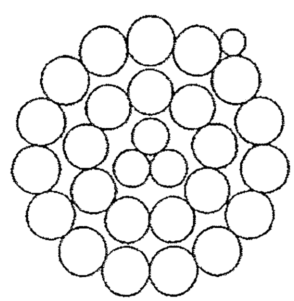
FIGURE 2
STEEL CORD CROSS SECTIONS
SCALE: 25 : 1



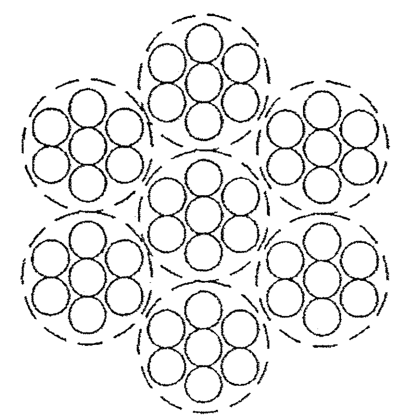
1 X 2 X .30MM



1 X 3 X .20MM + 6 X .35MM

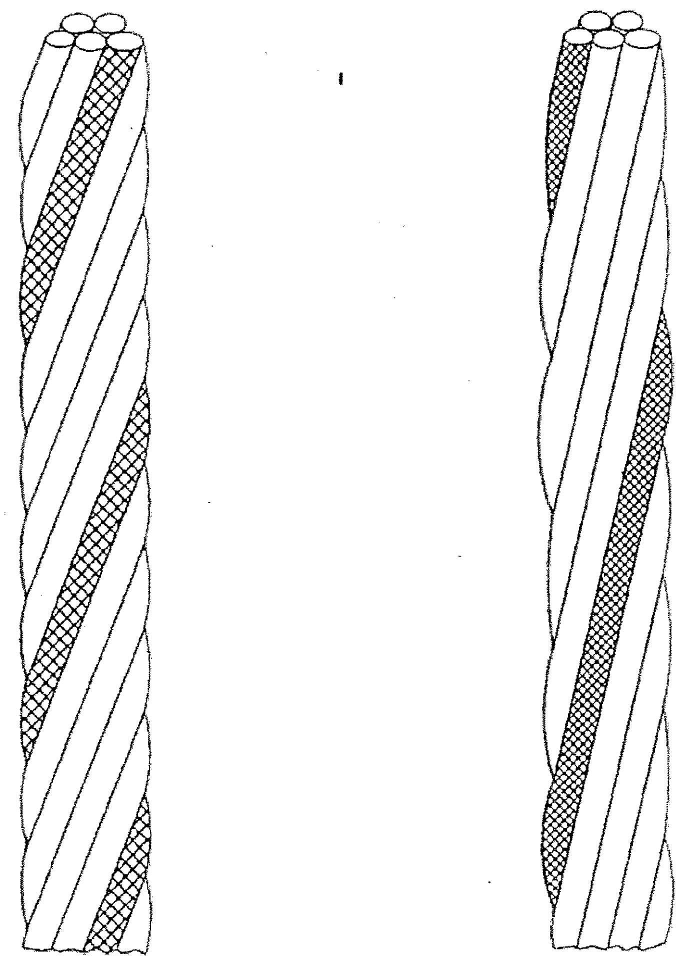


3 + 9 + 15 X .22MM + 1 X .15MM



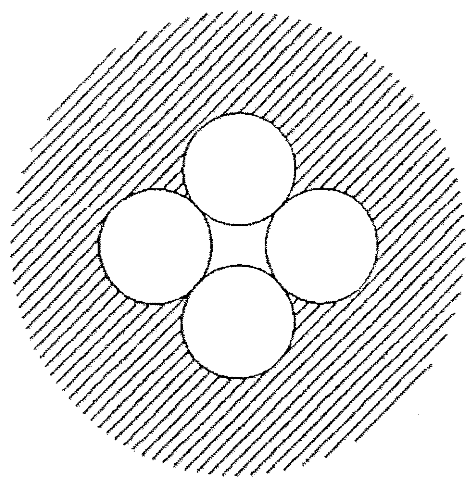
7 X 7 X .22MM

FIGURE 3
COMPARISON OF LAY LENGTH

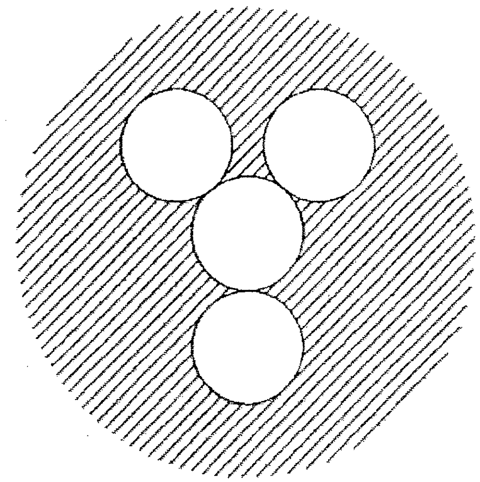


10MM 16MM

FIGURE 4
RUBBER PENETRATION
1 X 4 VS. 2 + 2



1 X 4



2 + 2

Exhibit 2

This exhibit is not susceptible to public summarization.

Exhibit 3

EVRAZ Rocky Mountain Steel is vertically integrated, manufacturing virtually all of the billets for its Rod and Bar mill.

WIRE ROD AND COILED REINFORCING BAR

EVRAZ Rocky Mountain Steel is vertically integrated, manufacturing and providing virtually all of the billets for its Rod and Bar mill.

Our products exhibit excellent drawability, tensile uniformity, microstructure and chemical control. This provides our customers with superior, consistent performance and excellent value.

Wire Rod

- Low Carbon
- Medium Carbon (control-cooled)
- High Carbon (control-cooled)
- High Carbon Tensile Refined

Sizes

- 0.197 - 0.750 in (5.5 - 20 mm)

Grades

- 1003B to 1093
- High Carbon Tensile Refined Grades
- High Carbon Chemistry Grades

Coil Weights

- 4,600 and 5,800 lb

Wire Rope

Because wire rope is a premium quality product with demanding requirements, it is produced to rigorous internal standards which meet or exceed industry specifications.

Compositional aspects such as segregation control are achieved by controlled melting, casting and rod cooling practices. Surface decarburization is controlled by our walking beam reheat furnace practices, and our ultra heavy duty no-twist V-Block ensures exceptional dimensional control of the rod, which permits more accurate prediction of finished wire properties. Precise controlled cooling of the rod is possible via our modern Stelmor cooling conveyor. Our processes produce carbon steel grades of 1045 up to 1093 to meet the tensile refined grade requirements.

PC Strand

Due to the critical nature of this product, EVRAZ Rocky Mountain Steel employs selective scrap control along with electromagnet stirring both in the mold and below the mold to ensure our products meet the demanding requirements of this application. Tensile Refined grades are typically employed in these applications due to the requirement of precise final wire/strand tensile strength.

Tire Bead and Cord

The high strength, flexibility and adhesive qualities of steel bead and cord make it an ideal rubber reinforcing material. EVRAZ Rocky Mountain Steel produces 5.5 mm high-carbon rods to meet the high quality standards required by our customers. All heats are carefully analyzed for chemical components and the wire rod is critically inspected for surface and internal defects. Each heat of steel is processed as a single unit under controlled conditions.

Representative chemical specification

Carbon

- 0.67 - 0.80%

Copper

- Trace

Manganese

- 0.40 - 0.70%

Nickel

- Trace

Silicon

- 0.15 - 0.30%

Chromium

- Trace

Phosphorus

- 0.020% max.

Nitrogen

- 60 ppm

Sulfur

- 0.020% max.

Coiled Reinforcing Bar

Big Bertha drilled the Seattle Tunnel; EVRAZ supplied the rebar for its reinforced concrete supporting arches.

Our coiled reinforcing bar represent some of the highest quality rebar products in the world. Our bar exhibits excellent tensile and yield strength, as well as deformation uniformity, microstructure and chemical control. And it provides our customers with superior, consistent performance and value.

The EVRAZ Rocky Mountain Steel facility produces deformed material to ASTM A615, ASTM A706, Dual Grade and CSA standards in the following size ranges:

Sizes available in 4,200 lb coils

- #3 (10 mm)
- #4 (13 mm)
- #5 (16 mm)
- #6 (19 mm)
- 10M Metric
- 15M Metric

Also available: ASTM A-36 and A-615 Grade 40 and 60 smooth bar in rod diameters between .197" to .8125" in coil weights ranging from 4,200 to 5,800 lbs.

Contact us for more information regarding wire rod and coiled reinforcing bar products.

Exhibit 4

This exhibit is not susceptible to public summarization.

Exhibit 5

This exhibit is not susceptible to public summarization.

Exhibit 6

This exhibit is not susceptible to public summarization.

Exhibit 7

- **US Tire Plants Opening (recent years)**

Customer	Location	Type	Remarks
Continental	Hinds County, M.S.	Opening	2016 Nov. ground breaking, 2500 new jobs
Giti	Chester County, S.C.	Opening	to be operaional from 2017, 1700 new jobs
Hankook	Clarksville, T.N.	Opening	now operational in 2017, 1800 new jobs
Kumho	Macon, G.A.	Opening	operational in 2016, 400 new jobs
Sentury	LaGrange, G.A.	Opening	expect to open in 2018, 1000 new jobs
Trelleborg	Spartanburg, S.C.	Opening	operational in 2016, 150 new jobs
Yokohama	West Point, M.S.	Opening	operational in 2016 (late 2015), 1500 new jobs

CONTINENTAL TIRE THE AMERICAS, LLC, BREAKS GROUND ON TIRE MANUFACTURING PLANT IN HINDS COUNTY

Jackson, Mississippi — November, 3, 2016 — Governor Phil Bryant, executives from Continental Tire the Americas, LLC, and state and local officials gathered today for a groundbreaking ceremony at the site of the company's future commercial vehicle tire manufacturing plant near Clinton. The project, announced in February, represents a $1.45 billion corporate investment and will create 2,500 jobs.

"The groundbreaking of Continental's new tire manufacturing plant in Central Mississippi marks a significant milestone in the development of the company's newest state-of-the-art facility," Governor Bryant said. "I congratulate everyone involved with this monumental project and look forward to the plant's progress."

Continental's multi-million-square-foot plant will be located on Norrell Road off I-20 West in Hinds County. Construction is scheduled to begin in January 2018.

"Building this new facility in Mississippi is a critical part to our growth strategy for Continental Tire, known as Vision 2025," said Nikolai Setzer, a member of Continental's Executive Board and head of Continental's global tire business worldwide. "This is the first new plant, globally, for the truck tire business in more than ten years. And, at $1.4 billion, this is the largest investment ever for our CVT business. We are convinced that the state of Mississippi provides the best options for Continental to grow our tire business."

On Feb. 4, the Mississippi Legislature approved $263 million through the Mississippi Major Economic Impact Authority for site acquisition and site preparation, infrastructure improvements and workforce training. Of the amount, Hinds County contributed $20 million.

"The Mississippi Development Authority is proud to assist Continental Tire as they create 2,500 career opportunities for Mississippians in the Greater Jackson area," said MDA Executive Director Glenn McCullough Jr. "We thank our governor, Phil Bryant, Lieutenant Governor Tate Reeves, Speaker Philip Gunn and the Mississippi Legislature for their leadership in economic development which works for the good of the people we serve. We congratulate our teammates at the Hinds County Economic Development Authority, Mississippi Department of Transportation, Mississippi Public Service Commission, Hinds County Board of Supervisors, Greater Jackson Partnership/Alliance, city of Clinton, the state's community college and IHL system, Atmos Energy and Entergy on this historic day."

"Continental Tire's groundbreaking ceremony symbolically sets the foundation of what we consider to be a valued partnership between Continental Tire, the state of Mississippi and Hinds County. The stage is being set to provide job and business opportunities to a vast array of professionals," said Hinds County Board of Supervisors President Darrel McQuirter. "When the building rises and the dust settles, there will be premium tires built locally by people with diligent hands distributed worldwide from this facility in Hinds County."

Continental's new plant will create significant opportunities for Mississippi contractors and vendors. To promote accessibility to these opportunities and keep the public aware of the plant's progress, MDA created a registration portal for individuals and businesses interested in being a part of the project. However, MDA is not involved in the selection process. Those interested in learning more or registering should visit www.mississippi.org/continental/.

Giti Tire's New $560 Million Global Facility Near Rock Hill Is Bringing 1,700 Jobs To The Region

By **Scott Jensen** - April 6, 2016

Giti Tire, a leading international tire manufacturer, based in Singapore announced their new $560 million plant last year, promising to create about 1,700 jobs for our region.

The plant is being built just south of Rock Hill, SC in Chester County.

Construction workers have now cleared the site for the 1.8 million-square-foot plant. The company is currently waiting for finalized air permits before starting construction on the unusually long building. Raw materials enter in one end and tires exit at the other end.

Giti Tire's first North American manufacturing facility, its ninth worldwide – will produce both passenger and light truck tires. Workers at the 1.8-million-square-foot plant will both make and distribute tires. The company brands include GT Radial and Primewell.

Here is the promo video Giti Tire just released for it's new Chester County home;

Giti Tire's investment, the number of jobs and the likelihood of spinoff economic development thrilled Chester County Supervisor Carlisle Roddey.

After the Giti announcement, the Lash Group and LPL Financial Carolinas each said they will build new facilities in Fort Mill.

The Lash Group plans to invest $90 million in a new company headquarters for up to 2,400 employees.

LPL Financial plans to invest at least $150 million in a new regional headquarters for up to 3,000 workers.

Both companies are locating in the Kingsley North business park at S.C. 160 and I-77.

If you would like to browse all jobs now available in the Rock Hill area click here.

Please share;

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Hankook Tire plant to bring 1,800 jobs to Tenn.

Jimmy Settle, The (Clarksville, Tenn.) Leaf-Chronicle Published 12:12 p.m. ET Oct. 14, 2013 | Updated 12:13 p.m. ET Oct. 14, 2013

South Korea company plans $800 million facility; will be city's largest private employer.

(Photo: Clarksville-Montgomery County Industrial Development Board)

CLARKSVILLE, TENN. — State officials confirmed Monday that South Korean Hankook Tire Co. (/article/20131014/NEWS01/310140010/Hankook-Tire-coming-Clarksville-1-800-direct-jobs?odyssey=mod%7Cbreaking%7Ctext%7CFrontpage&nclick_check=1)will indeed build its first U.S. manufacturing facility in Clarksville, creating nearly 2,000 direct jobs.

The announcement by Tennessee Gov. Bill Haslam and other officials put to rest growing speculation that Hankook was coming to town. The company is expected to break ground on the new plant by the end of 2014 and begin tire production by 2016.

STORY: Another attempt made to invent airless tire (/story/money/cars/2013/09/14/hankook-airless-tire/2811105/)

Hankook will invest over $800 million for the new state-of-the-art plant, its first in the United States. The new plant will provide additional capacity for Hankook's growing business in the U.S. market and create approximately 1,800 full-time jobs for the region.

"This new facility will help Hankook Tire accomplish our plan to establish a production base in all major markets," said Mr. Seung Hwa Suh, Vice Chairman and CEO of Hankook Tire. "We will be able to provide our customers, consumers and car makers with high quality tires and industry leading service to meet the demands of the American market."

According to Haslam, state and local officials first started talking with the company about 18 months ago. The governor thanked the company, and the state and local partnership for making it happen.

Tennessee Department of Economic and Community Development Commissioner Bill Haggerty said that Hankook's choice of Clarksvile site for its first North American facility is going to be a shot heard around the world

"These 1,800 jobs will make a real difference for Tennessee, and for this area," Haggerty said.

Clarksville Mayor Kim Millan said, "With vision and insight, Hankook Tire is committed to being a leading local company." She also said that in Clarksville-Montgomery County, Hankook Tire would find the most dedicated, talented workforce anywhere.

McMillan credited Industrial Board Executive Director Mike Evans and his team at the EDC for their roles in the Hankook announcement.

Once production begins, Hankook will become the city's largest private employer.

The Clarksville location is ideal for Hankook, offering an extensive transportation network including rail, plane and interstate highway networks as well as regional access to the Mississippi River inland waterway.

This announcement puts Hankook Tire one step closer to its vision of being a leading global tire company providing customers with top-tier products and service.

Nissan, General Motors and Volkswagen have assembly plants in Tennessee, and more than 900 further automotive sector companies are active in the state.

Clarksville is also home to a steel cord plant for Japanese tire maker Bridgestone, which has its Americas headquarters in Nashville.

Not all the news has been good for the tire industry in Tennessee in recent years. Goodyear in 2011 shut its plant about 100 miles to the west in Union City, causing 1,800 workers to lose their jobs.

Contributing: The Associated Press

Read or Share this story: http://usat.ly/1gf3oS4

41 WMGT

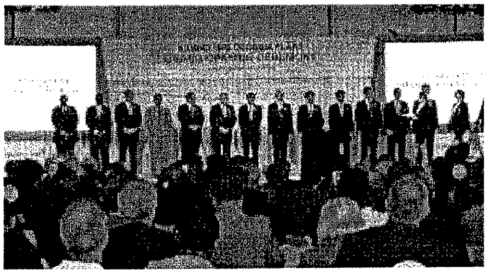
KUMHO TIRE PLANT OPENS IN MACON, BRINGS 400 JOBS

0

By: Skyler Henry   Submitted: 05/02/2016 - 5:45pm

Tags: jobs, Kumho Tire Plant, Macon-Bibb County

MACON, Georgia (41NBC/WMGT) – The new Kumho Tire Plant is now up and running. Local and state leaders along with members of the company say the impact on the economy will be felt almost immediately, and say there are plans in place for future



growth.

"This plant is state-of-the-art. I mean, it is truly amazing," Jeff Frentheway, Kumho's Director of Human Resources for the Georgia plant, said.

It's a sentiment felt by hundreds as people celebrated the launch of the home of the newest business in Macon.

"It's a great day for Bibb County and the Middle Georgia area, and we are very proud to have Kumho in Bibb County," Gary Bechtel, a Macon-Bibb County commissioner, said.

After nearly a decade — from first talks to a stop in production because of the recession — the Kumho Tire Plant is finally open.

Leaders from across the state including Governor Nathan Deal, Congressman Sanford Bishop, and others spoke on how significant having Kumho's first U.S. manufacturing facility in Georgia, specifically Macon, really is.

"Georgia has a thriving automotive sector," Deal said in his remarks.

"To accomplish this thing and to have this plant built, producing, in this kind of time frame is just unprecedented and amazing," Frentheway said.

The 900,000 square foot, $450 million plant will employ 400 people.

"Any time a project of this magnitude locates in your backyard, there's going to be a big ripple effect," Stephen Adams, the economic development director for Macon-Bibb's Industrial Authority, said.

It's a ripple effect in the pond of the local economy and plans are in place to see even more growth.

"The opportunities that exist for expansion and continued growth on this site are extraordinary," Bechtel said.

"We'll go even more than that if we go to a phase two and a phase three depending on the economy and it's strength," Frentheway said.

Kumho expects to manufacture four million tires a year and gradually grow the plant to be able to create about 10 million tires a year.

Chinese manufacturer Sentury Tire picks LaGrange for new plant

J. Scott Trubey - The Atlanta Journal-Constitution
Updated 2:03 p.m Thursday, Sept. 8, 2016 Filed in Business and Money news

Sentury Tire, a fast-growing Chinese tire maker, plans to build a manufacturing and research center in west Georgia near the Alabama line that could eventually employ more than 1,000 people, the company and state leaders said Thursday.

The $530 million factory complex in LaGrange, about 70 miles southwest of Atlanta, will be the first in North America for the company. Sentury makes aircraft tires as well as radials for cars, crossovers and light-duty pickups and sport utility vehicles under Sentury, Delinte and Landsail brands.

The LaGrange facility will be based in the Callaway South Industrial Park and is expected to open in 2018, the company said.

"The education systems and high quality workforce complement our leading edge technology in the production and research and development," Sentury Executive Vice President Rami Helminen said in a news release. Helminen credited the state's infrastructure to help in the company's expansion in the aftermarket tire segment and sales to original vehicle manufacturers.

The full value of the incentive package to woo Sentury was not immediately known, but the company is eligible for tax credits for new jobs created and likely will receive property tax breaks, worker training and other incentives.

Georgia has aggressively pursued a number of Chinese manufacturers for the past few decades, but by many measures lagged Southeastern rivals such as South Carolina. Georgia last year hired rival South Carolina's top economic development official to China in a move to booster the state's connection to the world's No. 2 economic power.

A visit with Sentury executives was at the top of the agenda last year during a state trade mission. The trade delegation included Chris Riley, Gov. Nathan Deal's chief of staff and the state's economic development chief, Chris Carr.

"This project is a great example of the relationships that have been forged through active communication and engagement in China," Carr said in the announcement.

Sentury reportedly considered a sprawling industrial park near Memphis and numerous sites in Georgia. The Atlanta Business Chronicle first reported the company's pick of Georgia, citing unnamed individuals.

The company also operates factories in China and Thailand. Like its other factories, Sentury's Georgia plant will feature a high level of automation.

"We value Sentury Tire's investment in Georgia and the vision of the company's leadership for continued growth in Troup County," Deal said in the release. "I am positive that Georgia's automotive manufacturing and technology capabilities will be assets to Sentury Tire as the company serves a growing customer base."

GoUpstate.com

Trelleborg Wheel Systems opens new Spartanburg manufacturing plant

Wednesday
Posted Jan 27, 2016 at 12:59 PM

Italy-based Trelleborg Wheel Systems celebrated the grand opening Wednesday of its first and only North American manufacturing facility in Spartanburg County.

By Trevor Anderson / trevor.anderson@shj.com

Italy-based Trelleborg Wheel Systems unveiled its $50 million, 150,000-square-foot production plant in Spartanburg County Wednesday.

Drummers, rhythmic gymnasts, an acrobat and dancers entertained guests during a ceremony that included company officials and Gov. Nikki Haley.

Trelleborg Wheel Systems, a division of the Sweden-based global engineering firm Trelleborg AB, announced the plant in 2014. It is located beside the facility previously occupied by its sister company, Trelleborg Coated Systems, which recently relocated to Rutherfordton, N.C.

A company official said the plant has already hired 52 employees and expects to add nearly 100 more by 2018. The facility will produce tires for the agriculture and forestry industries.

"We need to be closer to our customers," said Roderick Scotto, general manager of Trelleborg's Spartanburg plant. "We are a global company, but we must have a local presence."

Scotto said most of the jobs at the plant will be filled by local residents.

"We want it to grow as fast as possible," he said. "We are finding people that are very happy and smart ... They have really embraced our culture."

Trelleborg announced its plan to build the facility last May. The company has had a presence in Spartanburg since 2006, when it purchased the former Reeve's Brothers property. The entire site encompasses more than 400,000 square feet.

Haley said Trelleborg is the fifth international tire company in South Carolina.

She praised the company, calling it "exciting," "fresh" and "dynamic."

"We are on a roll," Haley said "(Trelleborg is) manufacturing tires ... They're doing it in South Carolina. Our workforce feels like whenever they make a tire, they do it with pride ... What Trelleborg has really emphasized is quality. They've emphasized taking care of their workforce and they've emphasized (their) customer."

Paolo Pompei, president of Trelleborg's agricultural and forestry tires business unit, said the state-of-the-art facility will serve customers across North America. He said it represents a significant milestone for the company.

"We are thrilled," he said.

Haley said South Carolina is the nation's largest tire exporter. The state's tire cluster includes Michelin, Bridgestone, Continental, Giti and now Trelleborg.

Spartanburg County is home to Michelin's US3 plant, which produces bus and truck tires.

"In addition to the creation of new jobs, we are pleased that Trelleborg recognized and acted upon the opportunity to repurpose this facility and join the tire cluster in South Carolina," said Carter Smith, executive vice president of the Economic Futures Group. "This is very good news for Spartanburg County."

For more information, visit .

Follow Trevor Anderson on Twitter @AndersonTrev

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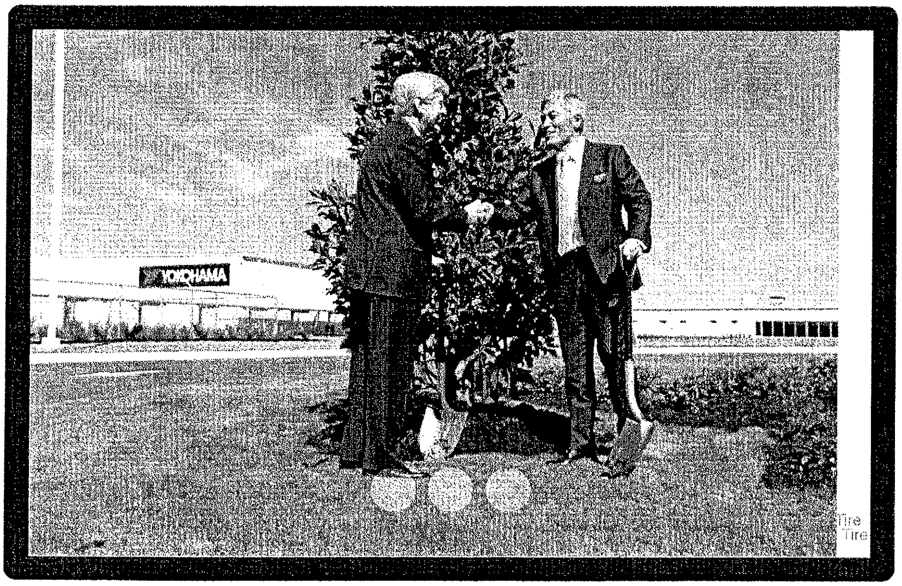
Yokohama tire plant dedicated: Company celebrates $300 million facility in West Point

Posted on **October 6, 2015** by **Dennis Seid** in **Business, News**



By Dennis Seid

Daily Journal

WEST POINT – Two years after breaking ground on its 570-acre site, Yokohama Tire Corp. on Monday dedicated its Mississippi plant, the company's first manufacturing facility in the U.S. built from the ground up.

Yokohama Tire Manufacturing Mississippi employs more than 260 workers, on its way to hire a promised 500 during what it calls the first phase of expansion of its 1 million-square-foot plant.

The company has invested $300 million, but three additional expansions would add another $900 million in investment and another 1,500 jobs.

But to get to that point, the plant first has to reach its initial capacity goal of 1 million truck and bus tires, which is expected in about two years.

Yokohama worked on an accelerated construction schedule to meet increasing demand, and the process was bumpy at times.

"We started a plant from scratch, which was difficult sometimes," said Yokohama Mississippi plant president Tadaharu Yamamoto. "It was the first time for Yokohama to do this in the United States, and the first time for me. There were a lot of hard things, but one by one, we cleared those steps, and we have been successful; we are OK."

In fact, Yamamato said he believes the plant will build the highest-quality tires in the company.

Yamamato managed Yokohama's expansion project at its passenger and light truck tire plant in the Philippines before heading up operations in West Point two years ago.

He said full production in West Point will take about two years to accomplish.

"We will produce at full production basis at the end of 2017, so for full production for an entire year, it will be 2018," he said.

The promised employment level of 500 workers will be reached by the end of next year or early 2017, he added.

Mississippi spent $70million to incentivize the first phase, with another $12 million added by West Point and Clay County. Total state and local incentives, including tax breaks, could total more than $330 million for all four phases.

In 2014, North America accounted for less than 10 percent of Yokohama's sales. Yokohama aims to increase sales here as it builds worldwide capacity from 68 million tires a year to 89 million by 2020.

Yokohama has another U.S. plant in Salem, Virginia, which it took over from a former tire maker in the late 1970s. The Mississippi plant will be the company's fourth facility to manufacture bus and truck tires, joining two plants in Japan and one in Thailand.

Hikomitsu Noji, the president of Yokohama Tire, said the relationship between his company and Mississippi "has been like a marriage. ... and we are proud parents of our first child."

Said Gov. Phil Bryant, "I hope this is the first child of many on this site," noting that the land also has room for suppliers. The 4-mile stretch of Yokohama Boulevard stretching from Highway 45 also is available for development.

Noji said Yokohama had to move quickly to get the plant operational to meet strong demand worldwide.

"We had to move first – we could no longer wait on the sidelines," he said.

During the yearlong search, some 3,000 sites across the contiguous U.S. were considered, and West Point ultimately topped the selection list.

"Your incredible support and workforce helped make this possible," he said.

Added Yamamoto, "It was the absolutely best choice."

He also said Yokohama is designing a new office complex on site that will be finished by the end of 2016.

"You're talking about moving executives and directors here with those offices," Bryant said. "The purpose behind that is future expansion. So we hope to see at least two more expansions on this site. ... you're looking at 500 workers now and 2,000 in the future. We want them to come and add more buildings."

Yokohama's arrival is a shot in the arm for Clay County and the region, which still is recovering from the closure of the Bryan Foods plant eight years ago. Sara Lee, the parent of Bryan, shuttered the nearly four-decade-old plant, laying off the last 1,200 of its workers in March of 2007. Another 1,500 jobs were indirectly affected by the plant's closure, and the county has struggled with one of the highest unemployment rates in the state.

Mayor Robbie Robinson said that although Yokohama hasn't completed first-phase hiring, its arrival spurred a turnaround in how residents feel about West Point.

"Now we have hope again, and an economic future in our community," he said.

The Associated Press contributed to this report.

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