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UNITED STATES DISTRICT COURT

CENTRAL DISTRICT OF CALIFORNIA

Kolon Industries, Inc.,

Plaintiff,

v.

Hyosung Advanced Materials Corp. and Hyosung USA, Inc.,

Defendants.

CASE NO. 8:24-cv-00415-JVS-JDE

SECOND AMENDED COMPLAINT FOR PATENT INFRINGEMENT

DEMAND FOR JURY TRIAL

Plaintiff Kolon Industries, Inc. ("Kolon" or "Plaintiff") for its Second Amended Complaint against defendants Hyosung Advanced Materials Corp. ("Hyosung Advanced Materials") and Hyosung USA, Inc. ("Hyosung USA") (collectively, "Hyosung" or "Defendants") alleges as follows:

INTRODUCTION

1. Kolon brings this patent infringement action to protect its valuable technology relating to hybrid tire cord ("HTC") that uses aramid fiber. HTC with aramid fiber is used to reinforce high-performance tires, helping them keep their shape and support vehicle weight. Demand for HTC with aramid fiber is increasing as the popularity of electric vehicles rises. Electric vehicles' batteries increase vehicle weight and electric engines have high instant torque, requiring the stronger tire construction that HTC with aramid fiber can provide.

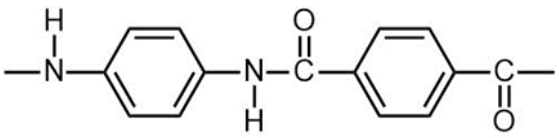
2. Kolon was founded in 1957 as a pioneer in the chemical fiber industry. Kolon's success is in large part due to its significant investment in innovation. Kolon has over 2,700 worldwide patents and patent applications, including approximately 350 issued U.S. patents. Kolon began its tire cord operations in the early 1970s. Since the 1970s, Kolon has been researching aramid and applications for aramid, and Kolon launched its aramid fiber business in 2004. Kolon developed HTC using aramid for the first time in South Korea and has been mass-producing and selling aramid and nylon HTCs since 2015.

3. Hyosung is expanding its business in HTC with aramid fiber using Kolon's patented technology, despite knowing that Kolon has patented this technology that Kolon developed. Hyosung's infringement has forced Kolon to compete against its own technological breakthroughs, and Hyosung continues to profit off Kolon's inventions. Hyosung's conduct in this regard is illegal, unjust, and in violation of the United States patent laws. Kolon brings this complaint to protect its inventions and to redress Hyosung's willful and deliberate infringement of Kolon's patent rights.

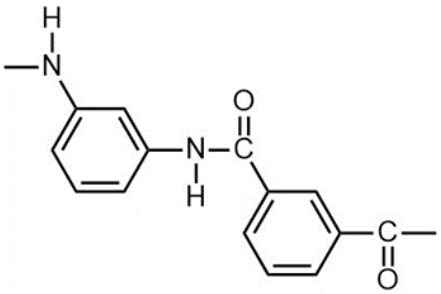
* * *

4. Hyosung is infringing Kolon's patented technology for HTC that uses aramid and nylon fiber.

5. Aramid is short for aromatic polyamide. Aramid can either be para-aramid, which has linkages attached at positions 1 and 4, or meta-aramid, which has linkages at positions 1 and 3, as shown below.



Para-aramid

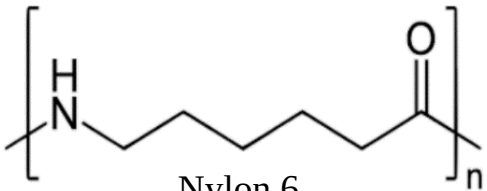


Meta-aramid

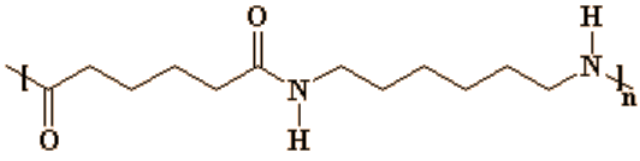
6. Kolon offers para-aramid fiber under the tradename HERACRON® and is one of the world's largest producers of para-aramid fiber.

7. Aramid has five times the tensile strength of steel and is four times more elastic than steel, while weighing only about 20% as much as steel. Aramid is particularly useful as a tire reinforcement material because of its high modulus and heat resistance.

8. Nylon is a family of synthetic polymers with amide backbones, usually linking aliphatic or semi-aromatic groups. Below are the chemical structures of two common types of nylon, nylon 6 and nylon 6,6.



Nylon 6



nylon 6,6

9. Nylon is a low-cost, lightweight, heat-resistant, and durable fiber. Nylon is particularly useful as a tire reinforcement because it has superior adhesivity and high compressive stress, and low cost compared to other materials.

10. Tire cord is a tire reinforcement that maintains the shape of the tire, prevents deformation, and allows the tire to withstand the stresses of the vehicle's weight and driving. For this reason, tire cord has a significant effect on a tire's performance. Tire manufacturers use tire cords made of varied materials depending on the needs of the specific tire and vehicle.

11. HTC is a tire cord made of two or more cord materials. HTC can provide a combination of physical and thermal properties using a single tire cord by combining material properties of multiple cord materials.

12. HTC composed of aramid and nylon exploits the advantages of both aramid and nylon to provide the reinforcement required by high-performance tires. This HTC is also particularly suited for use in tires for electric vehicles to provide the reinforcement needed for more wear-resistant and ultra-quiet tires in view of electric vehicles' higher weight, more instant torque, and lower noise output compared to conventional vehicles.

13. HTC composed of aramid and nylon yarns is manufactured by taking aramid and nylon yarns that have themselves been twisted (the primary twist) and twisting the yarns together (the secondary twist) to form a multi-ply yarn. Adhesive is applied to this raw HTC to create dip HTC that is suitable, subject to potential additional processing, for use as a tire reinforcement.

THE ASSERTED PATENTS

14. U.S. Patent No. 9,617,663 ("the '663 patent") was duly and legally issued on April 11, 2017, by the United States Patent and Trademark Office to inventors Ok Wha Jeon and Min Ho Lee. The '663 patent is entitled "Hybrid Tire Cord and Method for Manufacturing the Same." Kolon is the owner by assignment of the '663 patent. A true and correct copy of the '663 patent is attached as Exhibit 2.

15. U.S. Patent No. 9,789,731 ("the '731 patent") was duly and legally issued on October 17, 2017, by the United States Patent and Trademark Office to

inventors Min Ho Lee, Ok Wha Jeon, and Il Chung. The '731 patent is entitled "Hybrid Fiber Cord and Method for Manufacturing the Same." Kolon is the owner by assignment of the '731 patent. A true and correct copy of the '731 patent is attached as Exhibit 3.

16. U.S. Patent No. 10,196,765 ("the '765 patent") was duly and legally issued on February 5, 2019, by the United States Patent and Trademark Office to inventors Ok Wha Jeon and Min Ho Lee. The '765 patent is entitled "Hybrid Tire Cord and Method for Manufacturing the Same." The '765 patent issued from an application filed as a continuation of the application for the '663 patent. Kolon is the owner by assignment of the '765 patent. A true and correct copy of the '765 patent is attached as Exhibit 4.

17. Collectively, the '663 patent, '731 patent, and '765 patent comprise the "Asserted Patents."

BACKGROUND OF KOLON'S PATENTED TECHNOLOGY

18. Kolon invented improved HTC comprised of aramid and nylon, and methods of manufacturing this HTC, through years of research and development.

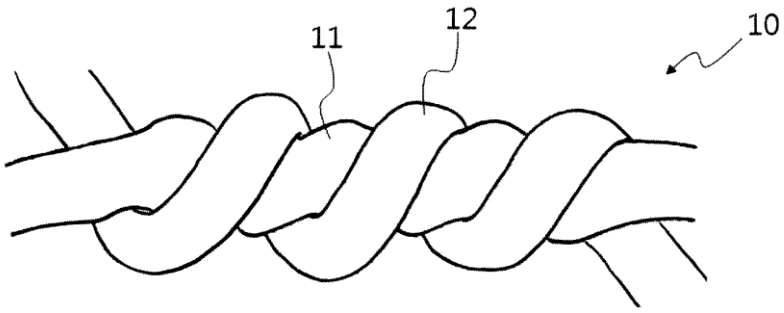
19. Nylon has the disadvantages that it has relatively low strength and shows reduced modulus at high temperature, which limits its performance when driving at high speed and may lead to a flat spot during long-term parking. Aramid has the disadvantages that it is more expensive, its high modulus makes it difficult to expand the tire during tire manufacture, and its elongation at break can be too low to provide sufficient fatigue resistance for long-term durability.

20. Use of both aramid and nylon together in a hybrid structure was developed in an effort to address these drawbacks. Before Kolon's inventions, due to the differences in the physical properties of aramid and nylon, the primary twist numbers and twist directions of the aramid and nylon yarns were quite different to try to make the physical properties of nylon more prominent during initial deformation and those of aramid more prominent afterward. Generally, aramid

was primarily twisted at a higher twist number than the nylon, and the two were twisted in opposite directions. For example, the aramid was primarily twisted at a higher twist number in the opposite direction of the secondary twist, the nylon was primarily twisted at a lower but still high twist number in the same direction as the secondary twist, and the aramid was twisted around the nylon in the resulting structure.

21. The conventional HTC was typically manufactured using ring twisters, which twist each yarn and then twist the yarns together in distinct steps. Using a ring twister involved a three-step process of primarily twisting the aramid yarn, primarily twisting the nylon yarn, and secondarily twisting them together. This manufacturing process had limitations that included low productivity, high variability of physical properties, and high defect rates.

22. HTC comprised of aramid and nylon conventionally had the structure shown in Figure 1 of the '731 patent (copied below), where the aramid primarily-twisted yarn (12) was secondarily twisted around the nylon primarily-twisted yarn (11) to form the ply yarn (10). Ex. 3 at p. 3.



The aramid yarn would form loops during the twisting process, resulting in an unstable structure. When processing the raw HTC having this conventional structure to make dip HTC, the friction between HTC and the guides and rollers would cause non-uniformities in the shape of the HTC, resulting in a defective product. As stated in the '731 patent, "The loop and shape non-uniformity make the properties of the hybrid tire cords non-uniform and cause defective products." Ex. 3, col. 2, lns. 37-39.

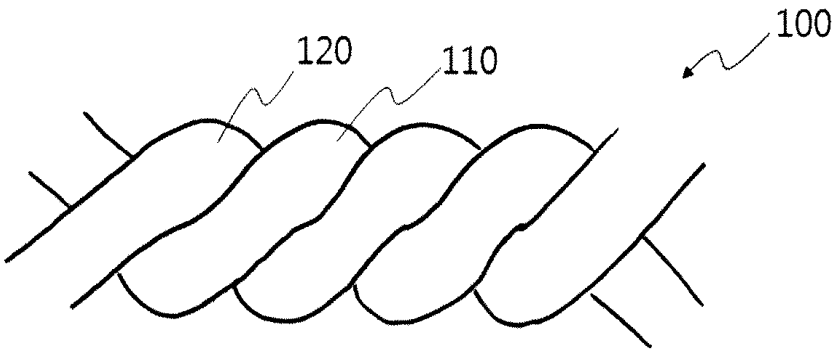
23. Given the drawbacks associated with conventional aramid and nylon HTC, two-ply conventional HTC was not commercially attractive. Neither Kolon nor Hyosung commercialized such two-ply conventional HTC. Hyosung has not sold such two-ply conventional HTC during the term of the Asserted Patents. For clarity, Hyosung's product accused of infringing the Asserted Patents is different from the conventional two-ply HTC described above and is identified below.

24. Before Kolon's inventions, rather than two-ply aramid and nylon HTCs, three-ply aramid and nylon HTCs with one ply of nylon and two plies of aramid were used commercially. It was believed that the three plies, with two plies of aramid, were necessary to provide the HTC properties needed for use in high-performance tires. These three-ply HTCs were made using ring twister machines, twisting each yarn individually and then the yarns together in distinct steps where the number of twists and direction of those twists differed.

25. Kolon invented HTC comprised of aramid and nylon, and methods of manufacturing this HTC, that overcame these limitations and drawbacks associated with conventional aramid and nylon HTC and its manufacture. Kolon developed manufacturing methods that can be used to make HTC more easily and that yields HTC with more uniform physical properties, better strength, and improved fatigue resistance suitable for high-performance tires.

26. In the manufacturing methods Kolon developed, the nylon filament, the aramid filament, and the nylon and aramid together are twisted at the same twists per meter (TPM). This method of manufacturing an aramid and nylon HTC can be implemented using a device that performs the primary and secondary twisting processes simultaneously, such as a direct corder or cable corder, and provides advantages of fewer defects and more stable overall structure that provides better uniformity of properties, and thus better yield. Kolon's inventions made two-ply aramid and nylon HTC commercially attractive for the first time.

27. Kolon developed two-ply HTC consisting of one ply of primarily-twisted aramid yarn and one ply of primarily-twisted nylon yarn that combines the advantages of aramid and nylon and provides high adhesiveness, heat resistance, and fatigue resistance. The structure of this two-ply HTC (100) where the primarily-twisted nylon yarn (110) and the primarily-twisted aramid yarn (120) are secondarily twisted together using the same TPM as for the primary twisting is shown in Figure 2 of the '731 patent (copied below). Ex. 3 at p. 3.



28. Kolon invented an improved aramid and nylon HTC having the structure shown above where the aramid primarily twisted yarn is 1.005 to 1.025 times the length of the nylon primarily twisted yarn (when the secondary twisting of the HTC is removed by untwisting). In the manufacturing process, this difference in length can be achieved at least in part by applying higher tension to the nylon filament than to the aramid filament during the twisting process. This aramid primarily twisted yarn has a 0.1 to 5% lower twist number than the twist number of the nylon primarily twisted yarn, after manufacture of the HTC and untwisting. For a given length of secondarily twisted yarn, the number of twists of the aramid primarily twisted yarn is slightly lower than the number of twists of the nylon primarily twisted yarn because, even though the same twist number was used during manufacture, in a given time period a slightly longer length of aramid yarn was subject to this twist number than length of nylon yarn.

29. Kolon's improved aramid and nylon HTC is suitable for tire manufacture and disperses the stress applied to the HTC during the repeated

tension/compression of the tire. This HTC has superior fatigue resistance, which maintains stability of tires under the repeated application of forces while driving.

30. Kolon's patented aramid and nylon HTC can be more easily manufactured, has more uniform physical properties, and improved strength and fatigue resistance. Using Kolon's patented two-ply HTC made of one ply of aramid and one ply of nylon, Kolon achieved comparable performance to three-ply HTC made of two plies of aramid and one ply of nylon.

31. Kolon's patented methods of manufacturing two-ply HTC creates HTC with superior and more uniform properties in addition to achieving improved manufacturing efficiencies. Specifically, Kolon's patented methods create two-ply HTC with superior strength retention rate, strength maintenance percentage, dry heat shrinkage, breaking tenacity, strength at break, elongation at break, and load at specific elongation (LASE). These superior properties meet and exceed the HTC requirements of tire manufacturers and therefore mean that Kolon's patented HTC has properties necessary for commercial sales to tire manufacturers for use in vehicles sold around the world, including in the United States. Kolon also discovered the ideal weight ratio range of aramid to nylon to achieve these superior properties.

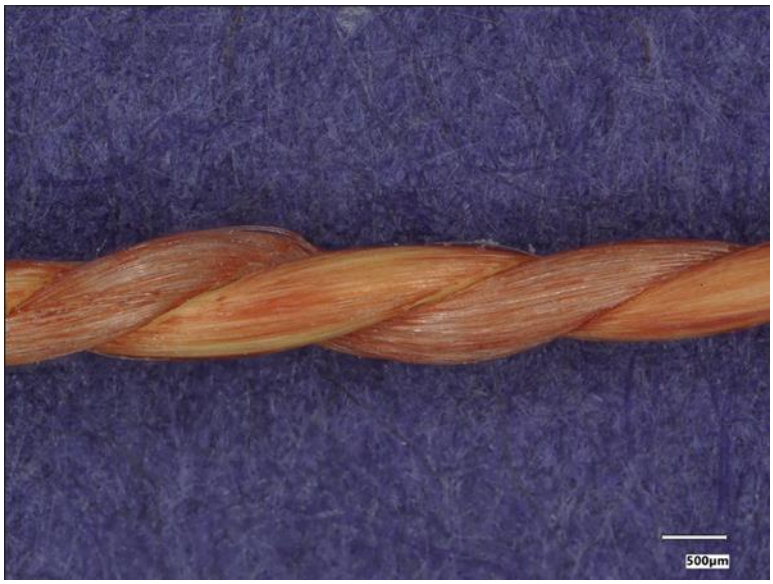
32. Kolon has developed high strength and high endurance (fatigue resistant) IE-grade aramid for mechanical rubber good (MRG) applications with improved elongation (IE) that is suitable for HTC. The high elongation and modulus control enables the product to provide outstanding strength retention and physical properties to the tires.

33. Kolon invested significantly in aramid manufacturing improvements, including by creating a task force of employees to specifically work on aramid manufacturing improvements. This task force improved many aspects of Kolon's aramid manufacturing process.

HYOSUNG'S INFRINGEMENT

34. Hyosung is in the business of manufacturing, offering for sale, selling, and/or importing into the United States infringing two-ply HTC composed of one ply of aramid and one ply of nylon.

35. A picture of Hyosung's infringing two-ply HTC composed of one ply of aramid and one ply of nylon (the "Accused Product") is shown below in Picture 1. For clarity, the product depicted below in Picture 1 is in fact a picture of Hyosung's allegedly infringing HTC product.



Picture 1

36. The product shown above in Picture 1 originated from Hyosung. This product was made, used, sold, offered for sale, or imported into the United States after the Asserted Patents issued.

37. The Hyosung entities work together to develop, manufacture, offer for sale, and/or sell, import, or otherwise provide the Accused Product in the United States, including specifically in this judicial district. The Accused Product is also incorporated into tires bound for and ultimately sold in the United States, such as tires manufactured by Hankook Tire & Technology Co., Ltd. ("Hankook"). Hyosung's activities with respect to the Accused Product that directly and indirectly infringe the Asserted Patents are described further below.

38. In March 2023, the Korean press reported that, "[i]n response to the growing demand for tires for electric vehicles," Hyosung Advanced Materials was "developing and supplying high-strength cords that allow tire cords to be thinner and reduce the thickness of cords and rubber and thick-denier cords that reduce the weight of tires by using only one tire cord." https://www.businesskorea.co.kr/news/articleView.html?idxno=111587 (accessed 21 Feb 2024). This is a description of the benefits of the Accused Product.

39. In April 2023, Hyosung announced that it "has introduced advanced **high-strength tirecords** on the combination of cap plies and aramid fiber." https://brand.hyosung.com/en/brand-now/journalism/1194 (Hyosung's emphasis) (accessed 21 Feb 2024). This is a description of the Accused Product, which is used in cap plies.

40. Hyosung Advanced Materials advertises the Accused Product as "Aramid & Hybrid Tirecord" and touts the Accused Product as "designed to maximize the advantages of each material" that is "primarily used in premium tires that require high performance." https://www.hyosungadvancedmaterials.com/en/business/tire (accessed 21 Feb 2024). Hyosung USA similarly advertises the Accused Product as "tire reinforcements" and "aramid" as part of the "Advanced Materials" business area. https://www.hyosungusa.com/ (accessed 21 Feb 2024). Hyosung USA states that its "[a]ramid yarn is used for . . . tire reinforcement" in the Accused Product. https://www.hyosungusa.com/business/yarn_aramid (accessed 28 May 2024).

41. On information and belief, with knowledge of the Asserted Patents, Hyosung makes, uses, offers to sell, and/or sells the Accused Product in the United States, and/or imports the Accused Product into the United States—including in this judicial district.

42. On information and belief, with knowledge of the Asserted Patents, Hyosung also intentionally makes, uses, offers to sell, and/or sells aramid designed

for use in the Accused Product in the United States, and/or imports aramid designed for use in the Accused Product into the United States—including in this judicial district.

43. With knowledge of the Asserted Patents, Hyosung offers to sell and sells the Accused Product to tire manufacturers, and the Accused Product meets the tire manufacturers' specifications. Tire manufacturers have strict specification requirements because they need to meet tire performance requirements of their customers and guarantee tire safety.

44. Hyosung meets these specifications with the Accused Product and does so with knowledge that the Accused Product will be inserted into tires that will be offered for sale, sold, and/or imported into the United States—including in this judicial district.

45. On information and belief, Hyosung's tire manufacturing partners and vehicle manufacturers who then purchase those tires infringe the Asserted Patents by using the Accused Product in their tires that they import into the U.S. (as tires themselves or as tires on vehicles), offer for sale, and/or sell in the U.S.—including into this district.

46. Hyosung has acquired direct corders or cable corders and manufactures the Accused Product using them. Hyosung disclosed the use of a direct corder or cable corder (called a "direct cabler") in its patent applications.

47. On information and belief, Hyosung engages in manufacture of the Accused Product and imports the Accused Product into the United States, including into this judicial district, and offers to sell and/or sells the Accused Product in the United States.

48. On information and belief, tires made with the Accused Product and vehicles having tires made with the Accused Product are offered for sale and sold in the United States, including in this judicial district.

49. Tire manufacturers evaluate samples of tire cord as part of their

qualification process and, on information and belief, Hyosung has imported samples of the Accused Product into the United States to promote the Accused Product to tire manufacturers.

50. Hyosung has sold the Accused Product to tire manufacturers, including tire manufacturers that make and sell tires in the United States. For example, Hyosung sells the Accused Product to the South Korean tire manufacturer Hankook. Hankook has tire manufacturing plants around the world, including in the United States.

51. Hyosung's tire manufacturing partners, such as Hankook, integrate the Accused Product into their tires bound for, and that Hankook offers for sale and sells in, the United States. For example, on information and belief, Hankook's high performance Ventus S1 evo Z AS X tire, which Hankook advertises includes "Aramid Hybrid Reinforcement" (https://www.hankooktire.com/us/en/tire/ventus/s1evozasx.html (accessed 21 Feb 2024)), incorporates the Accused Product. Hankook's Ventus S1 evo Z AS X tire is offered for sale and sold in the United States, including in this judicial district.

52. Hyosung sells the Accused Product to tire manufacturers for tires to be used for electric vehicles. For example, on information and belief, Hankook integrates the Accused Product into tires for electric vehicles bound for, and that Hankook offers for sale and sells in, the United States. For example, on information and belief, Hankook's Ion evo tire for electric vehicles, which Hankook advertises includes "Aramid Hybrid Reinforcement" (https://www.hankooktire.com/us/en/tire/ion/evo.html (accessed 21 Feb 2024)), incorporates the Accused Product. Hankook's Ion evo tire is offered for sale and sold in the United States, including in this judicial district.

53. Hyosung manufactures the Accused Product to comply with specifications from tire manufacturer(s) that require the Accused Product to meet certain physical property requirements, including physical properties found in the

claims of the Asserted Patents. For example, Hankook's specifications have requirements for physical properties such as breaking force, elongation at break, elongation at specific load, heat shrinkage, and post-manufactured twist number that must be met. Specifications like Hankook's require specific properties or ranges of properties that fall within the limitations of the Asserted Patents. Hyosung has met these physical property requirements with its Accused Product by using Kolon's patented technology. Hyosung would have had to commercially satisfy those specifications and could not feasibly have done so without manufacturing the Accused Product using Kolon's patented technology.

54. On information and belief, Hyosung has entered into agreements to sell the Accused Product to tire manufacturers, knowing that tires with the Accused Product would be imported into the United States and/or offered for sale or sold in the United States.

55. On information and belief, tire manufacturers have imported tires with the Accused Product into the United States, including into this judicial district, and offer to sell and/or sell tires with the Accused Product, including in this judicial district.

56. On information and belief, Hyosung's tire manufacturing partners have sold tires with the Accused Product to vehicle manufacturers that have imported vehicles having tires with the Accused Product into the United States, including into this judicial district, and offer to sell and/or sell tires with the Accused Product, including in this judicial district. For example, on information and belief, Hyundai and Kia automobiles, including, e.g., the 2024 Kia EV9 and 2024 Hyundai Ioniq 6, are equipped with Hankook tires that include the Accused Product. The 2024 Kia EV9 and 2024 Hyundai Ioniq 6 are offered for sale and sold in the United States, including in this judicial district.

57. On information and belief, besides conducting infringing activities with respect to the Accused Product, Hyosung makes and imports into the United

States, offers to sell, and/or sells into the U.S., including into this district, the aramid yarn designed for use in the Accused Product.

58. In a Hyosung YouTube video, Hyosung admits that it manufactures its aramid fiber, which Hyosung sells under the tradename ALKEX®, in South Korea. https://www.youtube.com/watch?v=eqMrhzD2Vro&t=1s (accessed 20 Feb 2024). For clarity, ALKEX® is not HTC or a brand name specific to aramid yarn for use in HTC—it is instead a brand name for a broad range of Hyosung aramid yarn that Hyosung has offered over the years in the form of filament yarn on a spool. Hyosung has manufactured aramid under the ALKEX® brand that has had different properties, as its aramid manufacture has improved, and that has been designed to have different properties for different uses.

59. Today, Hyosung specifically designs certain aramid yarn for use in the Accused Product. In particular, Hyosung manufactures aramid with improved elongation, copying Kolon's proprietary IE-grade aramid, for use in the Accused Product. Hyosung Advanced Materials' "Aramid yarn catalog," marked with the ALKEX® brand, shows a picture of aramid yarn being used in tire cord:

Tire Cord

https://www.hyosungadvancedmaterials.com/resources/en/assets/downloads/%EC%95%84%EB%9D%BC%EB%AF%B8%EB%93%9C%20%EB%B8%8C%EB%A1%9C%EC%85%94.pdf (accessed 20 Aug 2024).

60. Hyosung Advanced Materials also markets its ALKEX® aramid

products, including aramid designed for use in the Accused Product, at trade shows around the world including, on information and belief, in the United States. In a Hyosung YouTube video (https://www.youtube.com/watch?v=sVVACiFvFe4 (accessed 20 Feb 2024) (screenshot below), Hyosung admits importing aramid into the United States.

61. Importation records (attached as Exhibit 1) show that Hyosung has imported the Accused Product and/or aramid fiber and nylon fiber for use in the Accused Product into the United States, including into this judicial district. For example, as shown in the importation records, Hyosung Advanced Materials Corporation sent "aramid filament yarn" for "tirecord use" to Hyosung USA Inc.

62. To the extent that this import record is interpreted as showing importation of "aramid filament" as opposed to HTC, it specifically shows importation of "aramid filament yarn" for "tirecord use," which supports contributory infringement because it shows importation into the United States of a component of the Accused Product, which constitutes a material part of the Accused Product, and shows that Hyosung knew it was especially made or especially adapted for "tirecord use," and is not a staple article or commodity of

commerce suitable for substantial non-infringing use.

63. This importation has included importation through Los Angeles from Hyosung Advanced Materials, including by its predecessor-in-interest Hyosung Corporation, which transitioned its advanced materials department into the affiliated company Hyosung Advanced Materials. http://www.hyosung.cn/downloads/brochure/2023_Hyosung_Profile_E.pdf (In Hyosung's 2023-24 profile, Hyosung reports that "Hyosung has completed its conversion into a holding company system, and restructured its departments into the affiliated companies of Hyosung TNC, Hyosung Heavy Industries, Hyosung Advanced Materials and Hyosung Chemical, which are overseen by Hyosung Corporation.").

64. Hyosung offers aramid yarn and tire reinforcements, which include the Accused Product, for sale in the United States, including in this judicial district. For example, Hyosung's website provides an inquiry sheet for aramid yarn and tire reinforcements, including the Accused Product, accessible in the United States https://www.hyosungadvancedmaterials.com/en/customer/inquiry (accessed 21 Feb 2024). Additionally, for example, Hyosung USA provides contact information for purchasing aramid and tire reinforcement products, including the Accused Product, on its website. Hyosung thus offers these products, including the Accused Product, for sale in the United States and, on information and belief, customers contact Hyosung to purchase these products, including the Accused Product, in the United States.

65. Hyosung also offers to sell aramid and tire reinforcements, including the Accused Product, through its product manuals and catalogs available in the United States. Hyosung has also offered for sale in the United States aramid for use in the Accused Product.

66. In 2021, Hyosung sought to expand its aramid manufacturing capabilities. Hyosung stated that to meet an increase in demand, it would increase

its production capacity to 3,700 tons per year as of 2021. This represents a threefold increase in production from 2020 to 2021. On information and belief, a driver in demand for Hyosung's expanded aramid manufacturing capabilities was production of the Accused Product.

67. On information and belief, by improving its aramid manufacturing, Hyosung has been able to meet the specifications of tire manufacturers, such as Hankook, and grow its presence in the market for the Accused Product.

68. To help Hyosung expand its aramid manufacturing capabilities, Hyosung approached employees and ex-employees of Kolon to recruit them. One of the individuals that Hyosung approached was In-Sik Han. Mr. Han was employed by Kolon for over thirty years, from 1984 to 2015. During this time, Mr. Han held significant leadership positions at Kolon. For example, Mr. Han held major positions related to research and development of aramid fiber for more than ten years during his time at Kolon.

69. While at Kolon, Mr. Han was involved in developing and improving Kolon's aramid production, aramid properties, and HTC products, including involvement in a task force responsible for advancements in Kolon's aramid manufacturing process. Mr. Han is named as an inventor on Kolon patents related to aramid and to aramid and nylon HTC. On information and belief, Mr. Han knew about Kolon's intellectual property, including its patent portfolio. On information and belief, Mr. Han has been aware of the Asserted Patents, and Hyosung knew of Kolon's patented HTC technology and the Asserted Patents through Mr. Han.

70. Hyosung hired Mr. Han and, on information and belief, promoted Mr. Han to lead Hyosung's aramid manufacturing. On information and belief, Hyosung hired Mr. Han despite knowing that Mr. Han had been charged in the United States with conspiring to steal DuPont trade secrets relating to aramid technology (and, on information and belief, remains under indictment). Kolon had

resolved this matter with respect to Kolon and terminated Mr. Han's employment at Kolon in 2015.

HYOSUNG'S KNOWLEDGE OF INFRINGEMENT

71. Hyosung's infringement has been willful, egregious infringement with knowledge of the Asserted Patents.

72. Hyosung has had actual knowledge of the Asserted Patents at least since February 4, 2021, when Kolon specifically identified those patents to Hyosung Advanced Materials in a letter, attached as Exhibit 5, informing Hyosung that Kolon had succeeded in researching and developing unique HTC and that Hyosung must respect Kolon's patent rights relating to HTC.

73. In this letter, Kolon expressly informed Hyosung that it was prohibited from manufacturing tire cord in ways that infringe the Asserted Patents. The Asserted Patents were the only three U.S. patents identified in the letter. Kolon stated, "we would like to clearly notify you that manufacturing tire cords in ways which infringe upon our company's patents is strictly prohibited" and that Kolon would seek all available legal remedies "in case of your company's infringement or impending infringement of our company's patent rights." Hyosung Advanced Materials acknowledged receipt of that letter through its March 10, 2021 response.

74. On information and belief, Hyosung Advanced Materials informed Hyosung USA about the Asserted Patents and that Kolon would take legal action against infringement of them because these U.S. patents relate to Hyosung USA's ability to continue to offer for sale and sell the Accused Product, and aramid for use in the Accused Product manufactured by Hyosung Advanced Materials, as Hyosung Advanced Materials' U.S. arm for tire cord operations. Hyosung USA therefore, on information and belief, knew of the Asserted Patents and that it needed to avoid infringing the Asserted Patents. At the very least, Hyosung USA was willfully blind to the Asserted Patents to the extent Hyosung USA was not

informed of the Asserted Patents, despite Kolon's infringement warning to Hyosung Advanced Materials, which offers the Accused Product for sale in the U.S. through Hyosung USA. Rather than respect Kolon's patent rights, Hyosung chose to continue to infringe the Asserted Patents.

75. Hyosung Advanced Materials has taken additional actions that show its awareness of Kolon's patent rights and, on information and belief, show Hyosung Advanced Materials' knowledge that it was infringing Kolon's patent rights. Rather than discontinue its activities relating to the Accused Product, Hyosung Advanced Materials unsuccessfully attempted to challenge the validity of Korean Patent Number 1580352, the Korean counterpart patent to the asserted '731 patent. On March 21, 2024, the Korean Patent Trial and Appeal Board rejected Hyosung's attempt to invalidate Korean Patent Number 1580352 and found that the claims of that patent were valid.

76. Hyosung Advanced Materials has been aware of the Asserted Patents, specifically including the '663 patent, through its prosecution of patent applications related to HTC filed after Kolon filed applications for the Asserted Patents. Hyosung Advanced Materials filed U.S. Patent Application Nos. 16/464,350 ("'350 application") and 18/101,117 ("'117 application") directed to HTC and methods of manufacturing HTC. The '350 application published as U.S. Published Application No. 20210114414A1 ("'414 published application") and the '117 application published as U.S. Published Application No. 20230219372A1 ("'372 published application").

77. During prosecution of the '350 application, Hyosung disclosed Kolon's '663 patent and its Korean counterpart patent KR 10-1602605 on May 30, 2019. In a related PCT application, Hyosung received an international search report from the Korean Intellectual Property Office that listed the identity of the '663 patent and its Korean counterpart patent on March 6, 2018. Hyosung was aware of the '663 patent as of at least March 6, 2018. Hyosung knew about the

'663 patent years before Kolon sent its letter on February 4, 2021, expressly notifying Hyosung about the patent-in-suit.

78. Hyosung addressed the '663 patent in detail in arguing against rejections based on the '663 patent during prosecution of the '350 and '117 applications. Hyosung was well aware of what the '663 patent disclosed and claimed. Hyosung decided to willfully infringe the '663 patent despite this knowledge rather than respect Kolon's patent rights.

79. On information and belief, having been informed of Kolon's '663 patent in 2018, Hyosung was monitoring Kolon's patent portfolio and was equally aware of the other Asserted Patents. On information and belief, Hyosung chose to willfully infringe those patents too.

80. Hyosung's filing of its own U.S. patents is an action to protect the business with respect to the Accused Product that Hyosung Advanced Materials does in the United States through Hyosung USA. On information and belief, Hyosung USA and Hyosung Advanced Materials collaborate in these patent monitoring and patent prosecution activities to pursue their collective interest in the U.S. market.

81. During prosecution of both applications, the Examiner raised the '663 patent against the patent claims that Hyosung sought to obtain. In the '350 application, after Hyosung unsuccessfully argued against the Examiner's rejections of the claims Hyosung sought to obtain on HTC—including a rejection based on Kolon's '663 patent and another reference—Hyosung abandoned the application. Hyosung could not distinguish the HTC it sought to patent from the HTC that Kolon had already patented.

82. During prosecution of the '117 application, Hyosung convinced the Examiner to allow its claims to a method of manufacturing HTC over the '663 patent, based on arguments about the '663 patent's disclosure. Hyosung had full knowledge of the '663 patent's teachings and its prosecution of its HTC patents

shows Hyosung has built its Accused Product on the technology Kolon described and claimed in the Asserted Patents.

83. On information and belief, in addition to being aware of Kolon's Asserted Patents, Hyosung was aware of Kolon's HTC and chose to compete with Kolon by copying its patented HTC, following the teachings of Kolon's Asserted Patents.

84. Kolon filed an original complaint in this action on February 28, 2024. Hyosung has known about the Asserted Patents since shortly after Kolon filed its original complaint. At the very least, Hyosung has known about the Asserted Patents since it received a copy of the original complaint.

THE PARTIES

85. Plaintiff Kolon is a company organized and existing under the laws of the Republic of Korea, with its principal place of business at 110 Magokdong-ro, Gangseo-gu Seoul, 07793, Korea.

86. Hyosung Advanced Materials is a company organized and existing under the laws of the Republic of Korea, with its principal place of business at 119, Map-daero, Mapo-gu, Seoul, 04144, Korea.

87. Hyosung USA is a company organized and existing under the laws of the State of Delaware with its principal place of business at 15801 Brixham Hill Ave., Suite 575, Charlotte, NC 28277. Hyosung USA maintains an office in this judicial district at 38 Executive Park, Suite 200, Irvine, CA 92614.

88. Hyosung Advanced Materials is the global leader of Hyosung's advanced materials division, and its products include the Accused Product. Hyosung Advanced Materials identifies Hyosung USA as part of its global network for offering its products, including the Accused Product.

89. Hyosung Advanced Materials states that it is "bolstering [Hyosung's] competitiveness with an optimized global product network" and lists Hyosung USA as one of the U.S. entities in this network. Hyosung USA is the only U.S.

entity that Hyosung Advanced Materials lists for tire cord, which includes the Accused Product. https://www.hyosungadvancedmaterials.com/en/company/about/global-network (accessed 28 May 2024).

90. In its Tire reinforcement catalog, Hyosung Advanced Materials identifies its business as including "19 business sites in 4 countries," including the United States, lists Hyosung USA, and identifies a location in California as one of its business sites in the United States. https://www.hyosungadvancedmaterials.com/resources/assets/downloads/%ED%83%80%EC%9D%B4%EC%96%B4%EB%B3%B4%EA%B0%95%EC%9E%AC%20%EB%B8%8C%EB%A1%9C%EC%85%94.pdf (accessed 30 May 2024).

91. Hyosung USA acts as the United States arm for Hyosung Advanced Materials, including the Accused Product operations. Hyosung USA operates as part of and at the direction of its global leader Hyosung Advanced Materials to offer and sell the Accused Product in the United States.

92. Hyosung USA, on its Tire Reinforcements and Industrial Yarns webpages, holds itself out as part of Hyosung Advanced Materials, touting Hyosung Advanced Materials history and experience and referring to itself as part of Hyosung Advanced Materials. *See, e.g.*, https://www.hyosungusa.com/business/tire_rein_forcement (accessed 28 May 2024) ("Hyosung Advanced Materials has been in the tire reinforcements business since 1968 when ***we*** became the first Korean company to produce nylon tire cord." / "Hyosung Advanced Materials is globally recognized for the quality and technological capabilities of ***our*** products.") (emphases added); *see also, e.g.*, https://www.hyosungusa.com/business/industrial_yarn ("The industrial yarns produced at Hyosung Advanced Materials are used in various industries, including the automobile, civil engineering, construction, and transportation industries. As the clear leader and the largest company in the South Korean industrial textile

industry, ***we*** are taking the lead in developing and proposing a variety of products designed to meet the diverse needs of customers.") (emphasis added).

93. Hyosung USA also touts Hyosung Advanced Materials' development of the aramid fiber it sells, under the broad brand name called ALKEX®, again referring to itself as a part of Hyosung Advanced Materials. https://www.hyosungusa.com/business/yarn_aramid ("ALKEX®, our aramid fiber was developed in 2003 with ***our*** proprietary technology and successfully commercialized in 2009.") (emphasis added). As discussed above, ALKEX® refers to a range of aramid fiber products that Hyosung has offered over the years, as its aramid production has improved, and over the years Hyosung has manufactured different aramid fiber for different uses. Certain aramid fiber Hyosung produces today is designed specifically for use in the Accused Products.

JURISDICTION AND VENUE

94. Kolon incorporates and realleges all the above paragraphs as though fully set forth herein.

95. This is an action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. § 271 et seq. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331, 1332, and 1338(a).

96. This Court has personal jurisdiction over Hyosung because, among other reasons, Defendants have committed acts within the Central District of California giving rise to this action and have established minimum contacts with the forum state of California. Defendants directly and/or through subsidiaries or intermediaries (including distributors, retailers, and others) have committed and continue to commit acts of infringement in this District by, among other things, making, using, importing, offering for sale, and/or selling products, including the Accused Product, that, directly or indirectly, infringe the Asserted Patents. Defendants, directly or through intermediaries, have purposefully and voluntarily placed products, including the Accused Product, that, directly or indirectly,

infringe the Asserted Patents into the stream of commerce with the intention and expectation that they will be purchased and used, including in this judicial district. Thus, Defendants have purposefully availed themselves of the benefits of doing business in the State of California, and this judicial district, and the exercise of jurisdiction over Defendants would not offend traditional notions of fair play and substantial justice.

97. Hyosung Advanced Materials at least in part conducts its U.S. business—including its business in California—through Hyosung USA, which maintains an office in this judicial district. That U.S. business includes offering for sale and selling products that, directly or indirectly, infringe the Asserted Patents.

98. Hyosung Advanced Materials has continuous and systematic contacts with the State of California, which include regularly and continuously transacting and doing business in the State of California—including in and from this judicial district—at least through its contacts with, and business conducted through, Hyosung USA, its arm for operations in the United States.

99. Hyosung Advanced Materials has had products, including the Accused Product, that, directly or indirectly, infringe the Asserted Patents imported into California, as shown for example in importation records (Exhibit 1), either by itself or through related entities that conduct Hyosung Advanced Materials' business.

100. Hyosung Advanced Materials has sold products, including the Accused Product, to third parties (e.g., Hankook) that, directly or indirectly, infringe the Asserted Patents. Those third parties have offered for sale, sold, and used products containing Hyosung Advanced Materials' infringing products, including the Accused Product, in the United States and/or imported into the United States, including California and this judicial district. Hyosung knew and expected that those products, including the Accused Product, would be offered for sale, sold, and used in the United States and/or imported into the United States,

including California and this judicial district.

101. In the alternative, this Court has personal jurisdiction over Hyosung Advanced Materials pursuant to Federal Rule of Civil Procedure 4(k)(2) because Hyosung Advanced Materials has sufficient minimum contacts with the United States and, if Hyosung Advanced Materials is not subject to any state's court of general jurisdiction, this Court has personal jurisdiction over Hyosung Advanced Materials because it has sufficient minimum contacts with the United States as a whole.

102. The Court has personal jurisdiction over Hyosung USA because Hyosung USA maintains an office in this judicial district at 38 Executive Park, Suite 200, Irvine, CA 92614, and has continuous and systematic contacts with the State of California, which include regularly and continuously transacting and doing business in the State of California, including in and from this judicial district.

103. Venue is proper within this judicial district under 28 U.S.C. §§ 1391 and/or 1400(b).

104. Hyosung Advanced Materials is a resident of South Korea and therefore may be sued in any judicial district that has personal jurisdiction over Hyosung Advanced Materials, and this judicial district has personal jurisdiction over Hyosung Advanced Materials. Accordingly, this venue is proper within this judicial district for Hyosung Advanced Materials.

105. Hyosung USA has a regular and established place of business in this District and, on information and belief, has committed acts of patent infringement in this District.

COUNT I

INFRINGEMENT OF THE '663 PATENT

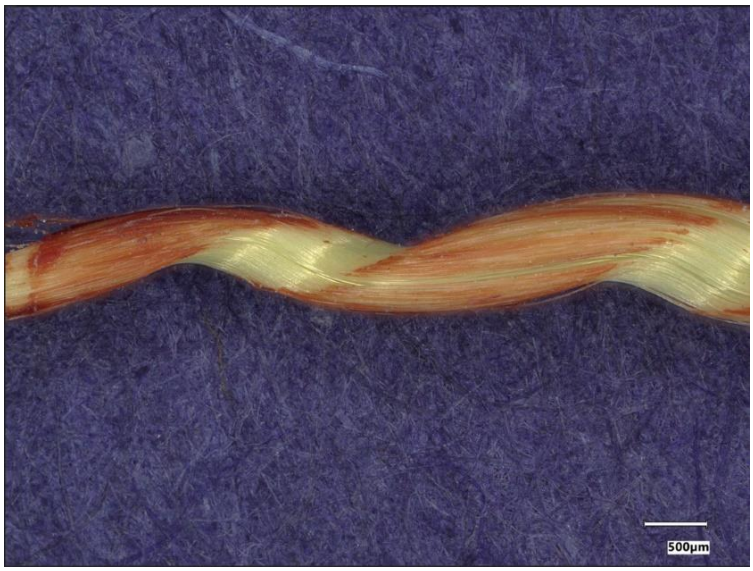
106. Kolon incorporates and realleges all the above paragraphs as though fully set forth herein.

107. Hyosung has infringed and continues to infringe one or more claims

of the '663 patent, including but not limited to claim 1, pursuant to 35 U.S.C. § 271(g), at least by without authority importing into the United States and/or offering to sell, selling, and/or using within the United States the Accused Product, which is made by a process patented by claim 1 of the '663 patent and is neither materially changed by subsequent processes nor becomes a trivial or nonessential component of another product.

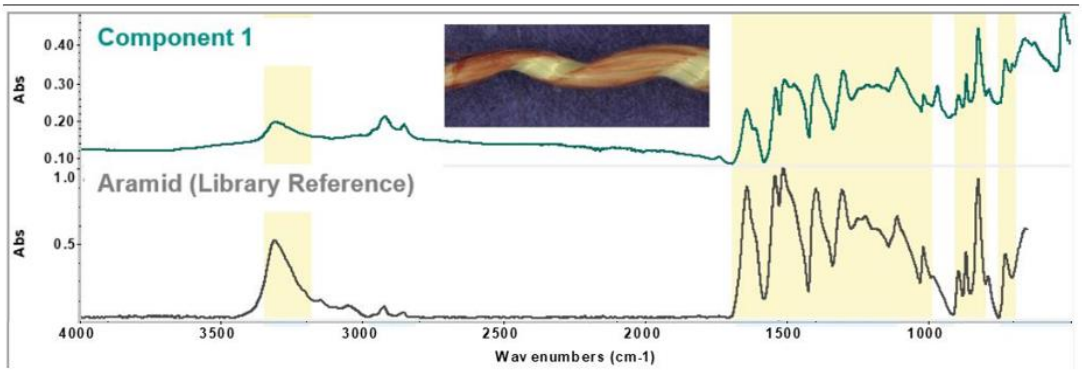
108. Hyosung's Accused Product is made by the method of manufacturing a hybrid tire cord claimed by the '663 patent.

109. In the method of manufacturing Hyosung's Accused Product, there is a first step of primarily twisting an aramid filament yarn in a first direction to form an aramid primarily twisted yarn. Hyosung's Accused Product has an aramid filament yarn primarily twisted in a first direction, as shown in Picture 2 below. Picture 2 is a picture of aramid filament yarn from the sample of the Accused Product shown in Picture 1. Aramid filament yarn has a golden color, which can be seen in Picture 2, underneath the reddish coating and in areas that do not have the reddish coating.

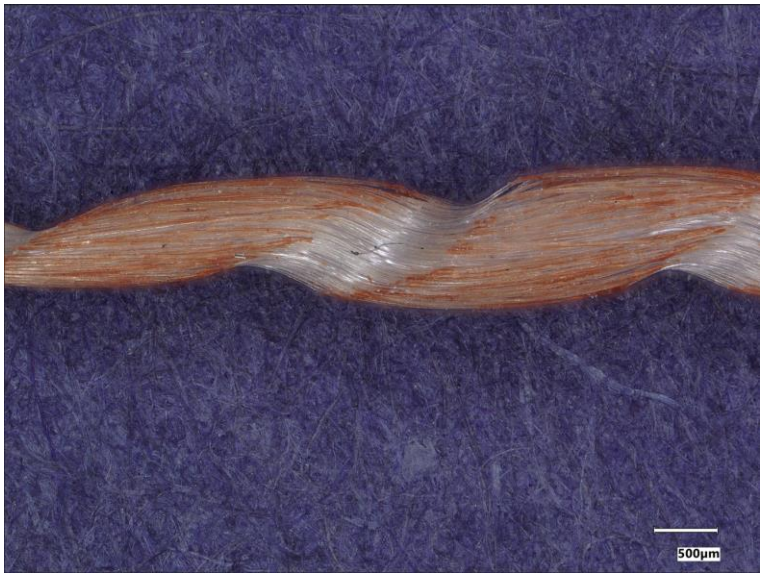


Picture 2

110. Fourier Transform Infrared Spectroscopy (FTIR) analysis confirms that the yarn in the Accused Product is aramid filament yarn as shown below.

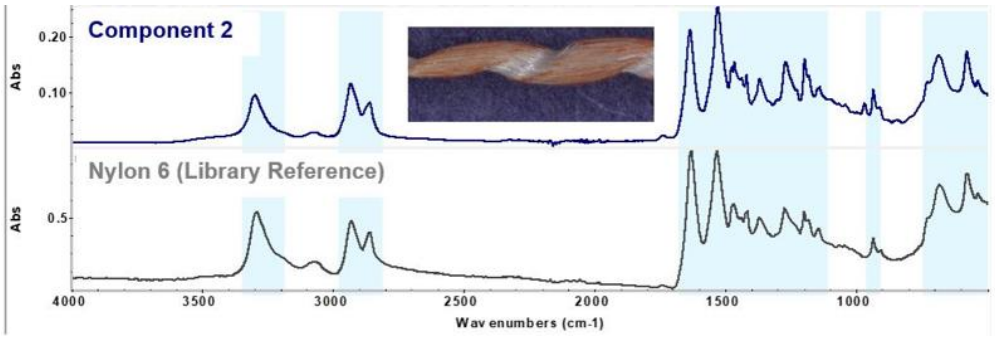


111. In the method of manufacturing Hyosung's Accused Product, there is a second step of primarily twisting a nylon filament yarn in a second direction to form a nylon primarily twisted yarn. Hyosung's Accused Product has a nylon filament yarn primarily twisted in a second direction, as shown in Picture 3 below. Picture 3 is a picture of nylon filament yarn from the sample of the Accused Product shown in Picture 1. Nylon filament yarn has a whitish color, which can be seen in Picture 3, underneath the reddish coating and in areas that do not have the reddish coating.



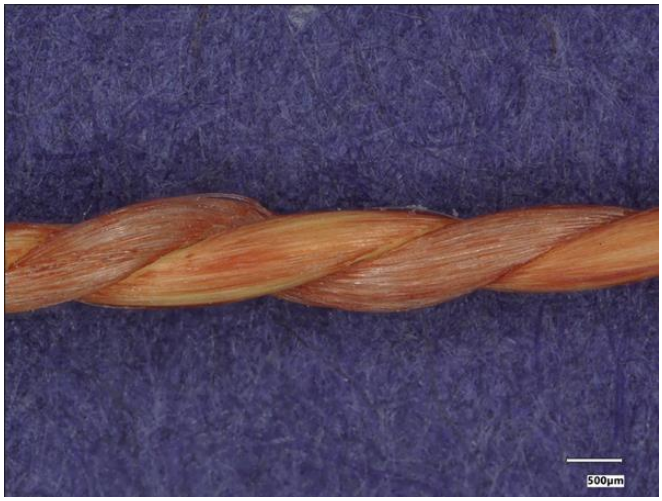
Picture 3

112. FTIR analysis confirms that the yarn in the Accused Product is nylon filament yarn as shown below.



113. In the method of manufacturing Hyosung's Accused Product, this second step and the first step are conducted simultaneously. In Hyosung's '414 published application, Hyosung describes twisting the aramid and the nylon filament yarns "at the same time" and states that "each wound yarn is twisted by a direct cabler," which is a device used to twist aramid and nylon filament yarns simultaneously. '414 published application, ¶¶ [0095], [0097], [0115], [0116], [0134].

114. In the method of manufacturing Hyosung's Accused Product, there is a third step of secondarily twisting the aramid primarily twisted yarn and the nylon primarily twisted yarn in a third direction to form a plied yarn. Hyosung's Accused Product has an aramid primarily twisted yarn and a nylon primarily twisted yarn secondarily twisted in a third direction to form a plied yarn, as shown in Picture 1, copied below.



Picture 1

115. In the method of manufacturing Hyosung's Accused Product, this third step is conducted continuously with the first and second steps. On information and belief, Hyosung uses a direct cabler in manufacturing the Accused Product which, as described in its '414 published application, simultaneously performs the twisting of the separate aramid and nylon filament yarns as well as the twisting of yarns together. Hyosung's '414 published application discloses use of a "a direct cabler," which is a device "in which both the S-twist and the Z-twist simultaneously occur." '414 published application, ¶ [0007]; *see also id.* ¶ [0010] ("in the direct cabler where the S-twist and the Z-twist simultaneously occur"). On information and belief, Hyosung uses a direct cabler in manufacturing the Accused Product.

116. The first, second, and third steps in manufacturing the Accused Product are conducted by one twister. On information and belief, as Hyosung describes in its '414 published application, Hyosung performs the first, second, and third steps using one twister—a direct cable twister.

117. In the method of manufacturing Hyosung's Accused Product, the second direction is the same as the first direction, and the third direction is opposite the first direction. This is shown in the pictures above.

118. In the method of manufacturing Hyosung's Accused Product, the tension applied to the nylon filament yarn in the second step is higher than tension applied to the aramid filament yarn in the first step in such an amount that, if the secondary twist of the hybrid tire cord with a predetermined length were untwisted, the aramid primarily twisted yarn would be 1.005 to 1.025 times longer than the nylon primarily twisted yarn. Measurement of a sample of Hyosung's Accused Product has shown, for example, that the aramid primarily twisted yarn is about 1.014 times longer than the nylon primarily twisted yarn when a predetermined length of the Accused Product is untwisted, which is indicative that Hyosung practices this step of the method.

119. Hyosung describes practicing this claimed step in its published application. Hyosung states in its '414 published application that, "aramid yarn is injected 5 to 100 mm/m longer than that of nylon 6,6 or nylon 6 yarn at the time of applying the ply twist for producing the raw cord," which corresponds to aramid primarily twisted yarn that is 1.005 to 1.010 times longer than the nylon primarily twisted yarn. '414 published application, ¶ [0095]. In this process, the aramid is injected with this longer length by applying higher tension to the nylon filament yarn.

120. Accordingly, Hyosung's method of manufacturing its Accused Product satisfies each and every limitation of one or more claims of the '663 patent, including but not limited to claim 1.

121. With knowledge of the '663 patent and its infringement, Hyosung has indirectly infringed and continues to indirectly infringe one or more claims of the '663 patent, including but not limited to claim 1, pursuant to 35 U.S.C. § 271(b), at least by without authority actively inducing others, including its tire manufacturing partners, to directly infringe one or more claims of the '663 patent.

122. Hyosung manufactures the Accused Product by a process covered by one or more claims of the '663 patent and then actively induces infringement by others by knowingly providing the Accused Product to be imported into the United States, offered for sale, sold, or used within the United States. The Accused Product is not materially changed by subsequent processes and does not become a trivial and nonessential component of another product regardless of whether it is imported into the United States, offered for sale, sold, or used within the United States in the form of hybrid tire cord itself or as hybrid tire cord integrated into a tire.

123. With knowledge of the '663 patent, Hyosung has indirectly infringed and continues to indirectly infringe one or more claims of the '663 patent, including but not limited to claim 1, pursuant to 35 U.S.C. § 271(c), at least by

without authority offering to sell or selling within the United States or importing into the United States aramid filament yarn knowing that it is especially made or especially adapted for use in infringing the '663 patent, and not a staple of article or commodity of commerce suitable for substantial non-infringing uses.

124. Hyosung's infringement has caused and is continuing to cause damage and irreparable injury to Kolon. Kolon will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court, as a remedy at law alone would be inadequate.

125. Kolon is entitled to injunctive relief and damages in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

126. Hyosung has been willfully infringing the '663 patent, and thus Kolon is entitled to recover increased damages under 35 U.S.C. § 284. Hyosung's willful infringement makes this case exceptional, and thus Kolon is entitled to recover attorneys' fees under 35 U.S.C. § 285.

COUNT II

INFRINGEMENT OF THE '731 PATENT

127. Kolon incorporates and realleges all the above paragraphs as though set forth fully herein.

128. Hyosung has infringed and continues to infringe one or more claims of the '731 patent, including but not limited to claim 4, pursuant to 35 U.S.C. § 271(g), at least by without authority importing into the United States and/or offering to sell, selling, or using within the United States the Accused Product, which is made by a process patented by claim 4 of the '731 patent and is neither materially changed by subsequent processes nor becomes a trivial or nonessential component of another product.

129. Hyosung's Accused Product is made by the method of manufacturing a hybrid fiber cord claimed by the '731 patent.

130. In the method of manufacturing Hyosung's Accused Product, there is

a first step for primarily-twisting a nylon filament at a first twist number of 300 to 500 TPM to produce a nylon primarily-twisted yarn. A sample of Hyosung's Accused Product has a nylon primarily-twisted yarn with a first twist number at or slightly above 300 TPM, which is indicative that Hyosung practices this step of the method.

131. In the method of manufacturing Hyosung's Accused Product, there is a second step for primarily-twisting an aramid filament at a second twist number of 300 to 500 TPM to produce an aramid primarily-twisted yarn. A sample of Hyosung's Accused Product has an aramid primarily-twisted yarn with a second twist number at or slightly above 300 TPM (and slightly lower than the twist number of the nylon filament because application of the same twist number during the manufacturing method to the slightly longer aramid filament results in a slightly lower twist number in a given length of the product), which is indicative that Hyosung practices this step of the method.

132. In the method of manufacturing Hyosung's Accused Product, there is a third step for secondarily-twisting the nylon and aramid primarily-twisted yarns together at a third twist number to produce a ply yarn in such a way that the nylon and aramid primarily-twisted yarns have identical structures with each other. Hyosung's Accused Product has a third twist number at or slightly above 300 TPM. Hyosung's Accused Product is a ply yarn with the nylon and aramid primarily-twisted yarns having identical structures with each other, as shown in Picture 1 above.

133. In the method of manufacturing Hyosung's Accused Product, there is a step of coating the ply yarn with an adhesive. Hyosung's Accused Product is a ply yarn coated with an adhesive, as shown in the pictures above.

134. As a result of the method of manufacturing Hyosung's Accused Product, the ply yarn coated with the adhesive has a strength retention rate of 80% or more after a disc fatigue test is performed according to JIS-L 1017 method of

Japanese Standard Associations and has a dry heat shrinkage of 1.5 to 2.5%. Measurement of a sample of Hyosung's Accused Product has shown, for example, that the Accused Product has a strength retention rate of over 90% after a disc fatigue test is performed according to JIS-L 1017 method of Japanese Standard Associations. On information and belief, Hyosung's Accused Product meets this claim requirement for heat shrinkage because its Accused Product must satisfy the specifications of its tire manufacturing partners, such as Hankook. For example, Hankook's specification has required a dry heat shrinkage in a range that corresponds to the patented heat shrinkage range, and the standard value for heat shrinkage in Hankook's specification has been within the patented range.

135. In the method of manufacturing Hyosung's Accused Product, the first, second, and third twist numbers are identical with each other. As discussed above, Hyosung uses a direct cabler to manufacture its Accused Product, and a direct cabler is used to twist each yarn separately, and the yarns together, at a single twist number.

136. In the method of manufacturing Hyosung's Accused Product, the third step produces a 2-ply secondarily-twisted yarn consisting of 1-ply of nylon primarily-twisted yarn and 1-ply of aramid primarily-twisted yarn. Hyosung's Accused Product is a 2-ply secondarily-twisted yarn consisting of 1-ply of nylon primarily-twisted yarn and 1-ply of aramid primarily-twisted yarn, as shown in Pictures 1 to 3 above.

137. Accordingly, Hyosung's method of manufacturing its Accused Product satisfies each and every limitation of one or more claims of the '731 patent, including but not limited to claim 4.

138. With knowledge of the '731 patent and its infringement, Hyosung has indirectly infringed and continues to indirectly infringe one or more claims of the '731 patent, including but not limited to claim 4, pursuant to 35 U.S.C. § 271(b), at least by without authority actively inducing others, including its tire manufacturing

partners, to directly infringe one or more claims of the '731 patent.

139. Hyosung manufactures the Accused Product by a process covered by one or more claims of the '731 patent and then actively induces infringement by others by knowingly providing the Accused Product to be imported into the United States, offered for sale, sold, or used within the United States. The Accused Product is not materially changed by subsequent processes and does not become a trivial and nonessential component of another product regardless of whether it is imported into the United States, offered for sale, sold, or used within the United States in the form of hybrid tire cord itself or as hybrid tire cord integrated into a tire.

140. With knowledge of the '731 patent, Hyosung has indirectly infringed and continues to indirectly infringe one or more claims of the '731 patent, including but not limited to claim 4, pursuant to 35 U.S.C. § 271(c), at least by without authority offering to sell or selling within the United States or importing into the United States aramid filament knowing that it is especially made or especially adapted for use in infringing the '731 patent, and not a staple of article or commodity of commerce suitable for substantial non-infringing uses.

141. Hyosung's infringement has caused and is continuing to cause damage and irreparable injury to Kolon. Kolon will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court, as a remedy at law alone would be inadequate.

142. Kolon is entitled to injunctive relief and damages in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

143. Hyosung has been willfully infringing the '731 patent, and thus Kolon is entitled to recover increased damages under 35 U.S.C. § 284. Defendants' willful infringement makes this case exceptional, and thus Kolon is entitled to recover attorneys' fees under 35 U.S.C. § 285.

COUNT III

INFRINGEMENT OF THE '765 PATENT

144. Kolon incorporates and realleges the above paragraphs as though set forth fully herein.

145. Hyosung has infringed and continues to infringe one or more claims of the '765 patent, including but not limited to claim 1, pursuant to 35 U.S.C. § 271(a), at least by without authority making, using, offering to sell and/or selling the Accused Product within the United Sates and/or importing the Accused Product into the United States. Hyosung's Accused Product is a hybrid tire cord.

146. Hyosung's Accused Product comprises a nylon primarily twisted yarn. A picture of the nylon primarily twisted yarn is shown in Picture 3 above.

147. Hyosung's Accused Product comprises an aramid primarily twisted yarn. A picture of the aramid primarily twisted yarn is shown in Picture 2 above.

148. In Hyosung's Accused Product, the nylon primarily twisted yarn and the aramid primarily twisted yarn are secondarily twisted together. A picture of the nylon primarily twisted yarn and the aramid primarily twisted yarn secondarily twisted together are shown in Picture 1 above.

149. In Hyosung's Accused Product, if the secondary twist of the hybrid tire cord with a predetermined length were untwisted, a length of the aramid primarily twisted yarn would be 1.005 to 1.025 times a length of the nylon primarily twisted yarn. Measurement of a sample of Hyosung's Accused Product has shown, for example, that the length of the aramid primarily twisted yarn is about 1.014 times the nylon primarily twisted yarn when the secondary twist of a predetermined length of the Accused Product is untwisted.

150. In Hyosung's Accused Product, the aramid primarily twisted yarn has a 0.1 to 5% lower twist number than a twist number of the nylon primarily twisted yarn. Measurement of a sample of Hyosung's Accused Product has shown, for example, aramid primarily twisted yarn having about 2% lower twist number than

a twist number of the nylon primarily twisted yarn.

151. In Hyosung's Accused Product, the hybrid tire cord has a merge structure having a partial covering structure, as shown in Picture 1 above and in Picture 4 below. Picture 4 is an enlarged photograph of a part of the Picture 1, which is also a photograph of the Accused Product.

Picture 4

152. Accordingly, Hyosung's Accused Product satisfies each and every limitation of one or more claims of the '765 patent, including but not limited to claim 1.

153. With knowledge of the '765 patent and its infringement, Hyosung has indirectly infringed and continues to indirectly infringe one or more claims of the '765 patent, including but not limited to claim 1, pursuant to 35 U.S.C. § 271(b), at least by without authority actively inducing others, including its tire manufacturing partners, to directly infringe one or more claims of the '765 patent.

154. Hyosung actively induces infringement by others by knowingly providing the Accused Product to be imported into the United States, offered for sale, sold, or used within the United States in the form of hybrid tire cord itself or as hybrid tire cord integrated into a tire.

155. With knowledge of the Asserted Patents, Hyosung has indirectly infringed and continues to indirectly infringe one or more claims of the '765

patent, including but not limited to claim 1, pursuant to 35 U.S.C. § 271(c), at least by without authority, offering to sell or selling within the United States or importing into the United States aramid filament yarn knowing that it is especially made or especially adapted for use in infringing the '765 patent, and not a staple of article or commodity of commerce suitable for substantial non-infringing uses.

156. Hyosung's infringement has caused and is continuing to cause damage and irreparable injury to Kolon. Kolon will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court, as a remedy at law alone would be inadequate.

157. Kolon is entitled to injunctive relief and damages in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

158. Kolon has satisfied all statutory obligations required to collect pre-filing damages for the infringement of the '765 patent. Hyosung was notified of the infringement, at least through Kolon's February 4, 2021 letter, and continued to infringe thereafter.

159. Hyosung has been willfully infringing the '765 patent, and thus Kolon is entitled to recover increased damages under 35 U.S.C. § 284. Defendants' willful infringement makes this case exceptional, and thus Kolon is entitled to recover attorneys' fees under 35 U.S.C. § 285.

PRAYER FOR RELIEF

WHEREFORE, Kolon respectfully requests judgment in its favor and against Hyosung as follows:

A. Adjudging that Hyosung has infringed the '663, '731, and '765 patents, in violation of 35 U.S.C. § 271;

B. Granting a permanent injunction enjoining Hyosung, its employees, agents, officers, directors, attorneys, representatives, successors, affiliates, subsidiaries, and assigns, and all of those in active concert and participation with any of the foregoing persons or entities from infringing, directly or indirectly, the

'663, '731, and '765 patents;

C. Ordering Hyosung to account and pay damages adequate to compensate Kolon for Hyosung's infringement, including prejudgment and post-judgment interest and costs, pursuant to 35 U.S.C. § 284;

D. Ordering an accounting for any infringing sales not presented at trial and an award by the Court of additional damages for any such infringing sales;

E. Ordering that the damages award be increased up to three times the actual amount assessed, pursuant to 35 U.S.C. § 284;

F. An award of Kolon's costs and expenses as a prevailing party;

G. Declaring this case exceptional and awarding Kolon its reasonable attorneys' fees, pursuant to 35 U.S.C. § 285; and

H. Awarding such other and further relief as this Court deems just and proper.

JURY DEMAND

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, Kolon hereby demands trial by jury of all issues so triable.

DATED: August 9, 2024

Respectfully submitted,

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