

UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

In the Matter of

CERTAIN MULTI-STAGE FUEL VAPOR
CANISTER SYSTEMS AND ACTIVATED
CARBON COMPONENTS THEREOF

Investigation No. 337-TA- _____

**VERIFIED COMPLAINT OF INGEVITY CORP. AND
INGEVITY SOUTH CAROLINA, LLC UNDER
SECTION 337 OF THE TARIFF ACT OF 1930, AS AMENDED**

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TABLE OF PHYSICAL EXHIBITS

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P1.	A multi-stage fuel vapor canister system manufactured by MAHLE that includes MPAC-1 and is used in a Chrysler Pacifica vehicle.
P2.	A multi-stage fuel vapor canister system manufactured by MAHLE that includes MPAC-1 and is used in a Honda Accord vehicle.
P3.	A multi-stage fuel vapor canister system manufactured by MAHLE that includes MPAC-1 and is used in a Nissan Altima vehicle.
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A.	Certified Prosecution History of U.S. Patent No. RE38,844
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I. INTRODUCTION

1. Complainants Ingevity Corp. and Ingevity South Carolina, LLC (collectively “Ingevity” or “Complainants”) respectfully request that the United States International Trade Commission (“the Commission”) institute an investigation pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, to remedy the unlawful and unauthorized importation into the United States, the sale for importation, or the sale within the United States after importation, of certain multi-stage fuel vapor canister systems that incorporate activated carbon components with a low incremental adsorption capacity (“IAC”), and the low-IAC activated carbon components thereof, such as the Macro-Porous Activated Carbon (hereinafter “MPAC-1”) adsorbent (collectively, the “Accused Products”).

2. The Accused Products infringe, either literally or under the doctrine of equivalents, one or more claims of U.S. Patent No. RE38,844 (the “’844 Patent”), which claims a novel method, system, and apparatus for reducing evaporative emissions from automobiles. The following table provides a summary of the “Asserted Claims” of the ’844 Patent (independent claims in bold):

Patent Number	Asserted Claims
RE38,844	1, 2, 3, 4, 5, 8, 11, 13, 15, 18, 19, 21, 24, 28, 31 , 33, 36, 38, 40, 43 , 45, 48, 50, 52

3. Ingevity has invested considerable resources developing a domestic industry in the United States comprising articles protected by the ’844 Patent. Ingevity’s domestic industry includes significant investments in plant and equipment, significant employment of labor and capital, and substantial investments in the exploitation of the inventions claimed in the ’844 Patent, including through engineering, research, and development.

4. Ingevity, based in South Carolina, is a global innovator in the development and manufacture of specialty chemicals and high-performance activated carbon materials. Activated carbon is a form of carbon that is processed to promote adsorption and, when incorporated into

an automotive evaporative emissions control system, it can be used to adsorb gasoline vapors to prevent them from being emitted into the air. Ingevity develops, manufactures, and sells wood-based, chemically activated carbon products, produced through a highly technical and specialized process, for use in gasoline vapor emissions control systems in cars and trucks. Indeed, Ingevity is the leading supplier of activated carbon for near-zero and partial zero emission fuel canister systems in the United States, that is, automobile evaporative emissions control systems that reduce the amount of evaporative fuel emissions to levels that comply with the most stringent environmental regulations. In light of its high market shares, Ingevity's activated carbon products are significant contributors to the automotive industry's efforts to curb polluting evaporative emissions from automobiles. Ingevity estimates that its activated carbon products save about *eight million* gallons of gasoline from evaporative loss *per day* across the world.

5. Since it began manufacturing activated carbons for use in automotive evaporative emissions control systems in the 1970s, Ingevity has invested millions of dollars in the United States, researching and developing innovations that solve complex environmental problems. These market-changing innovations have allowed Ingevity to grow into a successful specialty chemicals and materials company in the United States, where it now employs approximately 1,600 people, including dozens of scientists and engineers.

6. The "Proposed Respondents" are by MAHLE Filter Systems North America, Inc. ("MAHLE America"), MAHLE Filter Systems Japan Corp. ("MAHLE Japan"), MAHLE Sistemas de Filtración de México S.A. de C.V. ("MAHLE Mexico"), and MAHLE Filter Systems Canada, ULC ("MAHLE Canada"), (collectively the "MAHLE Respondents"); Kuraray Co., Ltd. ("Kuraray Japan") and Kuraray America, Inc. ("Kuraray America") (collectively the "Kuraray Respondents"); and Nagamine Manufacturing Co., Ltd. ("Nagamine").

7. This Complaint is based on the Proposed Respondents' unlawful and unauthorized importation into the United States, sale for importation, and/or sale within the United States after importation of the Accused Products, certain multi-stage fuel vapor canister

systems manufactured by the MAHLE Respondents that include low-incremental adsorption capacity (“IAC”) activated carbon components and the low-IAC activated carbon components thereof, such as MPAC-1, that the Proposed Respondents manufacture, import, and/or incorporate into unlicensed fuel vapor canister systems. A more detailed description of the Accused Products appears in Section III.C, *infra*.

8. Proposed Respondents’ unlicensed and unauthorized uses of Ingevity’s technology with respect to the importation into the United States, the sale for importation into the United States, and/or the sale within the United States after importation of the Accused Products constitute unfair acts within the meaning of 19 U.S.C. § 1337(a)(1)(B)(i), in that they constitute infringement of the valid and enforceable ’844 Patent.

9. Accordingly, Ingevity seeks relief from the Commission in the form of a limited exclusion order excluding the Accused Products from entry into the United States. Ingevity further seeks a cease and desist order halting the importation, sale, offer for sale, marketing, advertising, or soliciting of the Accused Products owned, held, or stored by the Proposed Respondents and their related companies that infringe the ’844 Patent.

10. Ingevity also seeks the imposition of a bond upon importation of Accused Products that infringe one or more claims of the ’844 Patent during the 60-day Presidential review period pursuant to 19 U.S.C. § 1337(i).

II. THE PARTIES

A. Complainants

11. Ingevity Corporation is a United States corporation organized and existing under the laws of Delaware and having its principal place of business at 5255 Virginia Avenue, North Charleston, South Carolina 29406. Ingevity South Carolina, LLC is a wholly-owned subsidiary of Ingevity Corp. existing under the laws of Delaware and having its principal place of business at 5255 Virginia Avenue, North Charleston, South Carolina 29406.

12. Ingevity is the global leader in the manufacture of high-performance activated carbon adsorbents. Ingevity’s expertise with advanced carbon is a by-product of its legacy as

part of the West Virginia Pulp & Paper Company. The company began carbon production in the early 1900s, and even today, the primary raw material for Ingevity's activated carbon products is sawdust, a waste product of lumber and furniture facilities.

13. Beginning in 1964, Ingevity operated as a division of Westvaco Corporation (and later MeadWestvaco). The company first began manufacturing activated carbons for use in automotive evaporative emissions control systems in the 1970s. Over time, Ingevity has continued to introduce new and improved products to respond to increasingly stringent regulations covering evaporative emissions. In 2016, Ingevity was spun off from WestRock Company and now operates as an independent, publicly traded company (NYSE ticker symbol NGVT).

14. Today, Ingevity employs approximately 1,600 people worldwide, of whom 83% are employed in the United States at six manufacturing plants and two research and development centers within the United States. The majority of Ingevity's research and development with respect to its activated carbon products occurs in the United States.

15. Ingevity developed the technology that is protected by the '844 Patent through its own extensive research and development efforts, including its research into the use of activated carbon honeycombs as low-IAC adsorbents in multi-stage fuel vapor canister systems.

16. Ingevity has made and continues to make significant investment in research, design, and development of products in the United States protected by the '844 Patent, including the activated carbon products discussed herein. A more detailed discussion of Ingevity's products appears in Section III, *infra*, and Ingevity's 2017 Annual Report and Form 10-K, including a lengthy description of the activities of the company, is attached as Exhibit I.

B. Proposed Respondents

1. MAHLE Filter Systems North America, Inc.

17. MAHLE America is a company organized and existing under the laws of the State of Delaware, having a principal place of business located at 906 Butler Drive, Murfreesboro, Tennessee 37127 USA.

18. On information and belief, MAHLE America designs, develops, manufacturers, tests, imports into the United States, offers for sale, sells for importation into the United States, and/or sells in the United States after importation unlicensed multi-stage fuel vapor canister systems that incorporate low-IAC activated carbon components and the low-IAC activated carbon components thereof, including MPAC-1. For example, on information and belief, MAHLE America manufacturers and sells in the United States multi-stage fuel vapor canister systems that include MPAC-1 and are used in Honda Accord and Nissan Altima vehicles. *See* Exhibits 9, 10, 20, 21; Physical Exhibits P2, P3.

19. MAHLE America does not have a license from Ingevity that covers the Accused Products. Thus, on information and belief, MAHLE America imports into the United States, sells for importation, or sells within the United States after importation Accused Products that infringe the '844 Patent.

2. MAHLE Filter Systems Japan Corp.

20. On information and belief, MAHLE Japan is a corporation organized and existing under the laws of Japan, having a principal place of business at 591 Shimo-akasaka, Kawagoe, Saitama 350-1155.

21. On information and belief, MAHLE Japan designs, develops, manufacturers, tests, imports into the United States, offers for sale, sells for importation into the United States, and/or sells in the United States after importation certain unlicensed multi-stage fuel vapor canister systems that incorporate low-IAC activated carbon components and the low-IAC activated carbon components thereof, including MPAC-1. For example, on information and belief, MAHLE Japan contracts with the Kuraray Respondents and Nagamine to design, develop, manufacturer, test, import into the United States, offer for sale, sell for importation into the United States, and/or sell in the United States after importation MPAC-1.

22. MAHLE Japan does not have a license from Ingevity that covers the Accused Products. Thus, on information and belief, MAHLE Japan imports into the United States, sells

for importation, or sells within the United States after importation Accused Products that infringe the '844 Patent.

3. MAHLE Sistemas de Filtración de México S.A. de C.V.

23. On information and belief, MAHLE Mexico is a company organized and existing under the laws of Mexico, having a principal place of business at Libramiento Arco Vial Poniente km. 4,2 66350 Monterrey, Nuevo Leon, Mexico.

24. On information and belief, MAHLE Mexico designs, develops, manufacturers, tests, imports into the United States, offers for sale, sells for importation into the United States, and/or sells in the United States after importation certain unlicensed multi-stage fuel vapor canister systems that incorporate low-IAC activated carbon components and the low-IAC activated carbon components thereof, including MPAC-1. For example, MAHLE Mexico manufacturers a multi-stage fuel vapor canister system that includes MPAC-1, is imported into the United States, and is used in Nissan Versa vehicles. *See* Exhibit 8; Physical Exhibit P4.

25. MAHLE Mexico does not have a license from Ingevity that covers the Accused Products. Thus, on information and belief, MAHLE Mexico imports into the United States, sells for importation, or sells within the United States after importation Accused Products that infringe the '844 Patent.

4. MAHLE Filter Systems Canada, ULC

26. On information and belief, MAHLE Canada is a company organized and existing under the laws of Canada, having a principal place of business at 16 Industrial Park Rd, Tilbury, ON N0P 2L0, Canada.

27. On information and belief, MAHLE Canada designs, develops, manufacturers, tests, imports into the United States, offers for sale, sells for importation into the United States, and/or sells in the United States after importation certain unlicensed multi-stage fuel vapor canister systems that incorporate low-IAC activated carbon components and the low-IAC activated carbon components thereof, including MPAC-1. For example, on information and belief, MAHLE Canada manufacturers a multi-stage fuel vapor canister system that includes

MPAC-1, is imported into the United States, and is used in Chrysler Pacifica vehicles. *See* Exhibit 7; Exhibit 19; Physical Exhibit P1.

28. MAHLE Canada does not have a license from Ingevity that covers the Accused Products. Thus, on information and belief, MAHLE Canada imports into the United States, sells for importation, or sells within the United States after importation Accused Products that infringe the '844 Patent.

5. Kuraray Co., Ltd.

29. On information and belief, Kuraray Japan is a corporation organized and existing under the laws of Japan with its principal place of business at Ote Center Building, 1-1-3, Otemachi, Chiyoda-ku, Tokyo 100-8115, Japan.

30. On information and belief, Kuraray Japan imports into the United States, sells for importation into the United States, and/or sells in the United States after importation certain low-IAC activated carbon adsorbents, including MPAC-1, that are incorporated into unlicensed multi-stage fuel vapor canister systems that are manufactured by the MAHLE Respondents. *See* Exhibit 14.

31. Kuraray Japan does not have a license from Ingevity that covers the Accused Products. Thus, on information and belief, Kuraray Japan imports into the United States, sells for importation, or sells within the United States after importation Accused Products that infringe the '844 Patent.

6. Kuraray America, Inc.

32. Upon information and belief, Kuraray America is a company organized and existing under the laws of Delaware, having a principal place of business located at 2625 Bay Area Blvd., Suite 600 Houston, TX 77058 USA.

33. On information and belief, Kuraray America imports into the United States, sells for importation into the United States, and/or sells in the United States after importation certain low-IAC activated carbon adsorbents, including MPAC-1, that are incorporated into unlicensed

multi-stage fuel vapor canister systems that are manufactured by the MAHLE Respondents. See Exhibit 14.

34. Kuraray America does not have a license from Ingevity that covers the Accused Products. Thus, on information and belief, Kuraray America imports into the United States, sells for importation, or sells within the United States after importation Accused Products that infringe the '844 Patent.

7. Nagamine Manufacturing Co., Ltd.

35. Upon information and belief, Nagamine is a corporation organized and existing under the laws of Japan, having a principal place of business at 1725-26, Kishinoue, Manno-town, Nakatado-Gun, Kagawa-pref., 766-0026, Japan.

36. On information and belief, Nagamine manufactures and sells for importation into the United States certain low-IAC activated carbon adsorbents, including MPAC-1, that are incorporated into unlicensed multi-stage fuel vapor canister systems that are manufactured by the MAHLE Respondents.

37. Nagamine does not have a license from Ingevity that covers the Accused Products. Thus, on information and belief, Nagamine imports into the United States, sells for importation, or sells within the United States after importation Accused Products that infringe the '844 Patent.

III. THE TECHNOLOGIES AND THE PRODUCTS AT ISSUE

A. Background Of The Technology

38. Automobiles typically release two types of environmental emissions: tailpipe emissions that result from combustion processes in automobile engines, and evaporative emissions that include, among other things, gasoline vapors emitted from the fuel storage system. Gasoline vapors include volatile organic compounds ("VOCs") that are harmful to humans and the environment. As a result, state and federal regulators often seek to curtail the emission of evaporated gasoline vapors from gasoline-powered vehicles.

39. The '844 Patent relates to a particular type of evaporative emissions called “diurnal breathing loss” (or “DBL”) emissions, which occur when a vehicle is parked for long periods and fuel in the tank is subjected to temperature changes between day and night. An increase in temperature leads to increased evaporation of fuel, increased quantity/concentration of fuel vapors, and therefore increased pressure in the fuel tank. This increased pressure forces some of the fuel vapors out of the tank vent and into the atmosphere. The increase in fuel temperature that leads to the DBL emissions is a result of daily increases in ambient temperature. During the day, ambient temperatures rise, leading to DBL emissions. During the night, ambient temperatures fall. Over successive day-night cycles, the process repeats itself, leading to more and more DBL emissions.

40. Activated carbons can be prepared from natural sources of carbon, such as wood sawdust that are processed to enhance their porosity, thus increasing the material’s total surface area. This increased surface area promotes “adsorption”—the adhesion of a substance from a gas or liquid to a surface. Fuel vapor canister systems equipped with activated carbon can be used to adsorb gasoline vapors, including DBL emissions, in an automobile to prevent them from being emitted into the atmosphere.

B. Ingevity’s Carbon Products And Regulation Of DBL Emissions

41. As explained above, Ingevity has a substantial, decades-long track record of providing high-performance activated carbon products designed for automotive evaporative emissions control systems. Ingevity engineers, manufactures, and sells four categories of products for use in evaporative emissions controls systems: (1) activated carbon sheets for use in air intake systems to capture fuel vapors from the engine; (2) shaped carbons for use in fuel vapor canisters to capture vapors from the fuel tank; (3) granular carbons also for use in fuel vapor canisters; and (4) activated carbon honeycombs for use with fuel vapor canisters to capture DBL emissions.

42. Modern fuel vapor canister systems generally use large quantities of shaped activated carbon products to adsorb evaporative emissions from gasoline fuel tanks. These

products are in the physical form of 2–3 mm pellets and are typically packed in multi-chambered canisters connected to the fuel tank. Ingevity's current line of shaped carbon products include Nuchar™ BAX 1100, BAX 1500, and BAX 1700.

43. Ingevity's activated carbon honeycombs are monoliths of ceramic binders and activated carbon in the physical form of a cylinder with an internal cellular structure reminiscent of a honeycomb. These honeycombs are used with fuel vapor canister systems, and they are typically mounted in a chamber in the canister, but also can be mounted in an external housing connected to the canister's main housing via a hose. Ingevity sells its groundbreaking activated carbon honeycomb under the trade names "Standard HCA" and "HCA-LBE."

44. As domestic regulations regarding diurnal, including DBL, emissions has evolved, Ingevity's patented technology has become ever more important. For example, the U.S. Environmental Protection Agency ("EPA") and California Air Resources Board ("CARB") have issued increasingly stringent regulations covering diurnal emissions. Initially in the 1970s and 1980s, regulations only required vehicles to satisfy "one-day" evaporative emissions testing protocols. At that time, Ingevity (then part of the Westvaco Corporation) offered high-performance granular activated carbon products to meet these requirements. In the mid-1990s, however, regulators began to require more stringent two- and three-day diurnal emissions limits. As a result, Ingevity started to offer even more advanced pelletized carbon products. Today, CARB and EPA have adopted so-called "LEV III" and "Tier 3" rules, respectively, which contain the most stringent diurnal emissions requirements and must be met in all newly sold light-duty vehicles by model year 2022.

45. The '844 Patent is *the* leading solution to meet the latest diurnal emissions requirements and has helped Ingevity maintain its position as the leading supplier of activated carbon for evaporative emissions control canister systems in the United States. Its activated carbon honeycombs, when used in the patented system as one of multiple stages of activated carbon adsorbents, are far more cost-effective and practical than available alternatives. Indeed,

Ingevity's honeycombs are used in some of the most popular vehicle models in the United States today, including the Ford F-150, Honda CR-V, and Jeep Grand Cherokee.

46. Furthermore, the gasoline vapors absorbed by Ingevity's products are purged from the activated carbon and directed to the engine where the gasoline vapors are then used as supplemental fuel for the vehicle. In fact, Ingevity's products have collectively prevented over 20,000 metric tons of VOC emissions each day from being emitted into the atmosphere and have returned the equivalent of eight million gallons of gasoline each day as supplementary fuel for vehicles.

C. The Accused Products At Issue

47. Pursuant to Commission Rule 210.12(a)(12), the Accused Products are certain multi-stage fuel vapor canister systems that use low-IAC activated carbon components and the low-IAC activated carbon components therein, such as MPAC-I that Proposed Respondents manufacture, import, and/or incorporate into unlicensed fuel vapor canister systems. It is the use of these low-IAC carbon adsorbents in multi-stage fuel vapor canister systems that results in infringement of one or more claims of the '844 Patent.

48. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

49. [REDACTED]

[REDACTED], the MAHLE Respondents are using MPAC-1 activated carbon that is manufactured, imported into the United States, sold for importation into the United States, and/or sold within the United States after importation by Nagamine and the Kuraray Respondents.

50. [REDACTED]

[REDACTED] A non-exhaustive list of vehicle platforms that incorporate infringing fuel vapor canister systems and the activated carbon components thereof include: 2017 Chrysler Pacifica, 2018 Honda Accord, 2018 Nissan Altima, 2018 Nissan Versa, 2018 Nissan Sentra, 2018 Nissan Rogue, and 2018 Nissan City Express.

51. Examples of the Accused Products are identified and described in the infringement claim charts of Exhibits 11-13. Moreover, photographs of certain examples of MPAC-1 and the multi-stage fuel vapor canister systems that incorporate MPAC-1, are attached as Exhibits 7-10.

52. On information and belief, the Accused Products are manufactured and imported into the United States, sold for importation into the United States, and/or sold within the United States after importation in violation of Section 337 by or on behalf of Proposed Respondents, as explained further in Section V, *infra*. On further information and belief, Proposed Respondents maintain commercially significant volumes of the Accused Products in inventory in the United States.

53. The Accused Products enumerated above are merely illustrative of the types and classes of infringing products that Proposed Respondents manufacture and import into the United States, sell for importation into the United States, and/or sell within the United States after importation in violation of Section 337. Discovery may reveal additional products or product categories that infringe the Asserted Claims, additional claims that are infringed by the Accused Products, and/or additional instances of indirect infringement through inducement or contributory infringement. The identification of a specific model, trade name, or type of multi-

stage fuel vapor canister system incorporating low-IAC activated carbon components, or the activated carbon component thereof, is not intended to limit the scope of this investigation.

IV. THE ASSERTED PATENT AND NON-TECHNICAL DESCRIPTIONS OF THE INVENTIONS

A. Identification And Ownership Of The '844 Patent

54. Ingevity South Carolina, LLC owns by assignment the right, title, and interest in United States Patent No. RE38,844, entitled "Method for Reducing Emissions from Evaporative Emissions Control Systems," which issued on October 25, 2005 and named Laurence H. Hiltzik, Jacek Z. Jagiello, Edward Don Tolles, and Roger S. Williams as co-inventors. The '844 Patent is a reissue of United States Patent No. 6,540,815, which issued on Apr. 1, 2003, and will expire on March 18, 2022. Ingevity Corporation owns 100% of Ingevity South Carolina, LLC and is an exclusive licensee of the '844 Patent.

55. A certified copy of the '844 Patent is attached as Exhibit 3.

56. Pursuant to Commission Rule 210.12(a)(9)(ii), a certified copy of the recorded assignment records for the '844 Patent is attached as Exhibit 4. Wells Fargo, N.A. recorded a security agreement against the '844 Patent and other Ingevity patents, but does not own any present interest in the '844 Patent. A copy of the confidential Guarantee and Collateral Agreement and Amendments Nos. 1 and 2 thereto, which constitutes the security agreement between Ingevity and Wells Fargo Bank referenced in the assignment records, is attached as Confidential Exhibit No. 18.

57. Pursuant to Commission Rule 210.12(c), a certified copy and three additional copies of the prosecution history of the '844 Patent, as well as four copies of the applicable pages from each technical reference cited in the prosecution history, are attached as Appendices A and B, respectively.

B. Foreign Counterparts To The '844 Patent

58. Exhibit 5 contains a list of each foreign patent and each pending foreign patent application (not already issued as a patent), and each foreign patent application that has been

denied, abandoned, or withdrawn, corresponding to the '844 Patent, with an indication of the prosecution status of each. Ingevity owns all rights, title, and interest in and to each of these foreign counterparts. To the best of Ingevity's knowledge, information, and belief, there are no other foreign patents or foreign patent applications pending, filed, abandoned, withdrawn, or rejected corresponding to the '844 Patent.

C. Non-Technical Description Of The Invention Of The '844 Patent¹

59. The '844 Patent generally relates to a method and system for reducing evaporative emission called "diurnal breathing loss" (or "DBL") emissions, which occur when a vehicle is parked for long periods and fuel in the tank is subjected to temperature changes between day and night. An increase in temperature leads to increased evaporation of fuel, increased quantity/concentration of fuel vapors, and therefore increased pressure in the fuel tank. This increased pressure forces some of the fuel vapors out of the tank vent and into the atmosphere. Those fuel vapors are the emissions that the '844 Patent is designed to address. The '844 Patent discloses novel techniques for decreasing DBL emissions from fuel tanks through the use of multiple layers, or stages, of adsorbents in a canister system. In the patented system and method, the first-stage carbon adsorbent has a high butane working capacity (BWC)—*i.e.*, it is able to adsorb and release high quantities of vapors at high concentrations. '844 Patent at 2:20–25. The high BWC adsorbent is innovatively combined with one or more subsequent stages with significantly lower IAC adsorbents than the initial stage, moving against the prevailing teaching at the time. *Id.* at 4:31–6:20; 9:38–42. Doing so produced the unexpected result of significantly reduced DBL emissions from a properly configured fuel vapor canister. The low IAC adsorbents manufactured by Ingevity for use in these latter stages are the above-discussed HCA and HCA-LBE activated carbon honeycombs, which are a preferred embodiment of the low IAC

¹ The text of this Complaint and the sections providing a non-technical description of the '844 Patent are not intended to construe either the specification or the claims of the '844 Patent.

adsorbents in the '844 Patent. *Id.* at 7:26–55. As a result of the '844 Patent, gasoline vehicles can achieve compliance with modern LEV-III/Tier 3 regulations of evaporative emissions from automobile fuel tanks.

D. Licenses Related To The '844 Patent

60. A list of the license agreements related to the '844 Patent is attached as Confidential Exhibit 6C.

V. UNLAWFUL AND UNFAIR ACTS OF THE PROPOSED RESPONDENTS

61. As discussed above, the Accused Products include, without limitation, certain unlicensed multi-stage fuel vapor canister systems that incorporate low-IAC activated carbon components and the low-IAC activated carbon components thereof.

62. The Proposed Respondents import into the United States, sell for importation into the United States, and/or sell in the United States after importation Accused Products that infringe one or more of the Asserted Claims of the '844 Patent in violation of 35 U.S.C. § 271.

63. Each Proposed Respondent is engaged in the importation, sale for importation, and/or sale after importation into the United States of certain low-IAC activated carbon components that infringe or are used to infringe at least one of the Asserted Claims in the '844 Patent when incorporated into an unlicensed multi-stage fuel canister system for use in a vehicle.

64. The MAHLE Respondents directly infringe at least claims 1 and 18, as well as the dependent Asserted Claims thereof, of the '844 Patent by testing, demonstrating, or otherwise operating after importation into the United States, unlicensed multi-stage fuel vapor canister systems that incorporate low-IAC activated carbon components such as MPAC-1, thereby performing the claimed methods and directly infringing the Asserted Claims of the '844 Patent requiring such operation. In addition, the MAHLE Respondents directly infringe at least claim 43, and the dependent Asserted Claims thereof, of the '844 Patent by making, selling, and/or offering for sale after importation, unlicensed multi-stage fuel vapor canister systems that incorporate low-IAC carbon components such as MPAC-1. The MAHLE Respondents indirectly infringe claim 31, and the dependent Asserted Claims thereof, of the '844 Patent by

making, selling, and/or offering for sale after importation, unlicensed multi-stage fuel vapor canister systems that incorporate low-IAC carbon components such as MPAC-1 and are intended for inclusion in evaporative emissions control systems for vehicles.

65. Each Proposed Respondent has indirectly infringed the Asserted Claims of the '844 Patent by inducing infringement after importation. On information and belief, the MAHLE Respondents have had knowledge of the '844 Patent since at least March 2015, when MAHLE America entered into the MAHLE License. Moreover, the MAHLE Respondents design, develop, manufacture, test, and/or offer for sale in the United States after importation unlicensed multi-stage fuel vapor canister systems that incorporate low-IAC activated carbon components, such as MPAC-1, and are used in vehicles. *See supra*, Section II.B. Additionally, the MAHLE Respondents were sued for infringement of the '844 Patent in two related litigations in the U.S. District Court for Northern Illinois. *See infra*, Section IX. In subsequent communications with the MAHLE Respondents, Ingevity communicated to MAHLE that its activities were inducing infringement of the '844 Patent and explained why MAHLE's activities infringed.

66. Kuraray America, Kuraray Japan, and Nagamine have had knowledge of the '844 Patent and Ingevity's allegations of infringement since at least November 7, 2018, when an unverified copy of this Complaint was transmitted to them. On information and belief, Nagamine manufactures and sells for importation into the United States the low-IAC activated carbon component MPAC-1, which is incorporated into unlicensed multi-stage fuel vapor canister systems that are manufactured by the MAHLE Respondents. *See id.* Moreover, the Kuraray Respondents import into the United States, sell for importation into the United States, and/or sell in the United States after importation the low-IAC activated carbon components MPAC-1, which is incorporated into unlicensed multi-stage fuel vapor canister systems that are manufactured by the MAHLE Respondents. *See id.*

67. With knowledge and intent to induce direct infringement of the '844 Patent, the Proposed Respondents have and will continue to aid and abet infringement by instructing the purchaser or user of the Accused Products to use them in an infringing manner.

68. The Proposed Respondents also contributorily infringe the Asserted Claims of the '844 Patent. The Proposed Respondents sell or offer to sell within the United States or import into the United States activated carbon materials that constitute a component and material part of the invention claimed by the '844 Patent. The Proposed Respondents know such materials to be especially made or especially adapted for uses that infringe the '844 Patent. These infringing articles are not staple articles or commodities of commerce suitable for substantial noninfringing use.

A. Patent Claims at Issue

69. The aforesaid acts of Proposed Respondents constitute direct infringement, contribute to the infringement, or induce the infringement under 35 U.S.C. § 271 of at least the Asserted Claims of the '844 Patent. As noted above, the following table provides a summary of the Asserted Claims of the '844 Patent (independent claims in bold):

Patent Number	Asserted Claims
RE38,844	1, 2, 3, 4, 5, 8, 11, 13, 15, 18, 19, 21, 24, 26, 28, 31, 33, 36, 38, 40, 43, 45, 48, 50, 52

70. An exemplary claim chart demonstrating infringement of claims 1, 2, 4, 8, 11, 13, 18, 19, 21, 24, 26, 31, 33, 36, 38, 43, 45, 48, and 50 of the '844 Patent by a multi-stage fuel vapor canister system used in a Chrysler Pacifica vehicle manufactured by MAHLE Canada, and that includes MPAC-1 manufactured, imported into the United States, sold for importation into the United States, and/or sold in the United States after importation by Nagamine and the Kuraray Respondents, is attached as Exhibit 11. A physical sample of the same multi-stage fuel vapor canister system is attached as Physical Exhibit P1. *See also* Exhibit 19.

71. An exemplary claim chart demonstrating infringement of claims 1, 3, 5, 8, 11, 13, 18, 19, 21, 24, 26, 31, 33, 36, 38, 43, 45, 48, and 50 of the '844 Patent by a multi-stage fuel vapor canister system used in a Honda Accord vehicle manufactured by MAHLE America, and that includes MPAC-I manufactured, imported into the United States, sold for importation into the United States, and/or sold in the United States after importation by Nagamine and the Kuraray Respondents, is attached as Exhibit 12. A physical sample of the same multi-stage fuel vapor canister system is attached as Physical Exhibit P2. *See also* Exhibit 20.

72. An exemplary claim chart demonstrating infringement of claims 1, 2, 4, 8, 11, 13, 15, 18, 19, 21, 24, 26, 28, 31, 33, 36, 38, 40, 43, 45, 48, 50, and 52 of the '844 Patent by a multi-stage fuel vapor canister system used in a Nissan Altima manufactured by MAHLE America, and that includes MPAC-I manufactured, imported into the United States, sold for importation into the United States, and/or sold in the United States after importation by Nagamine and the Kuraray Respondents, is attached as Exhibit 13. A physical sample of the same multi-stage fuel vapor canister system is attached as Physical Exhibit P3. *See also* Exhibit 21.

VI. SPECIFIC INSTANCES OF UNFAIR IMPORTATION AND SALE

73. The Proposed Respondents import into the United States, sell or offer for sale for importation into the United States, and/or sell or offer for sale after importation into the United States the Accused Products.

74. As explained in more detail below, on information and belief, Accused Products are manufactured, assembled, and/or tested in Japan, Mexico, and/or Canada. The Accused Products are then imported into the United States, assembled, operated and/or tested in the United States, sold for importation into the United States, and/or sold after importation into the United States by the Proposed Respondents.

75. On information and belief, MAHLE Japan contracts with the Kuraray Respondents and Nagamine to design, develop, manufacture, test, import into the United States, offer for sale, sell for importation into the United States, and/or sell in the United States after importation the MPAC-I adsorbent. Importation records from Panjiva show that a container

with MPAC-1 was imported from Japan into the United States on May 31, 2018. *See* Exhibit 14. Kuraray Japan was listed as the shipper of record, and Kuraray America was listed as the consignee. *See id.* On information and belief, the imported MPAC-1 is sold by the Kuraray Respondents to the MAHLE Respondents and incorporated by MAHLE America into infringing multi-stage fuel vapor canister systems that are assembled and sold in the United States, for example, canister systems used in the Honda Accord and the Nissan Altima vehicles. *See* Exhibits 9, 10 (photographs showing MPAC-1 incorporated into the multi-stage fuel vapor canister systems used in the Honda Accord and the Nissan Altima vehicles).

76. On information and belief, the MAHLE Respondents manufacture in Mexico, Canada, and the United States infringing multi-stage fuel vapor canister systems that incorporate MPAC-1.

77. For example, on June 24, 2018, Ingevity purchased online in the United States an infringing multi-stage fuel vapor canister system manufactured by MAHLE Canada for use in a 2017 Chrysler Pacifica vehicle. *See* Exhibit 7. Photographs of that infringing fuel vapor canister system, and the box in which it was received, confirm that it was “Made in Canada” by MAHLE Canada and then imported into the United States. *See* Exhibit 7. Furthermore, photographs of that infringing fuel vapor canister system confirm that it incorporates MPAC-1. *See* Exhibit 7.

78. On July 17, 2018, Ingevity purchased online in the United States an infringing multi-stage fuel vapor canister system manufactured by MAHLE Mexico for use in a 2018 Nissan Versa vehicle. *See* Exhibit 8. Photographs of the box in which that infringing fuel vapor canister system was received confirm that it was “Made in Mexico” by MAHLE Mexico and then imported into the United States. *See* Exhibit 8. Furthermore, photographs of that infringing fuel vapor canister system confirm that it incorporates MPAC-1. *See* Exhibit 8.

79. On July 17, 2018, Ingevity also purchased online in the United States an infringing multi-stage fuel vapor canister system manufactured by MAHLE America for use in a 2018 Honda Accord vehicle. *See* Exhibit 9. Photographs of that infringing fuel vapor canister system confirm that it incorporates MPAC-1. *See* Exhibit 9.

80. On August 14, 2018, Ingevity purchased online in the United States an infringing multi-stage fuel vapor canister system manufactured by MAHLE America for use in a 2018 Nissan Altima vehicle. *See* Exhibit 10. Photographs of that infringing fuel vapor canister system confirm that it incorporates MPAC-1. *See* Exhibit 10.

VII. HARMONIZED TARIFF SCHEDULE ITEM NUMBERS

81. The Accused Products are believed to fall within at least the following classifications of the Harmonized Tariff Schedule of the United States: HTS 3802.10.00 or 8708.99.818. The Harmonized Tariff Schedule number is for illustrative purposes only and is not intended to limit the scope of the investigation or to limit the scope of any exclusion order or other remedy ordered by the Commission.

VIII. DOMESTIC INDUSTRY

82. An industry as required by Section 337(a)(2) and defined by Section 337(a)(3) currently exists in the United States. Ingevity has made significant investments in plant and equipment, significant employments of labor and capital, and substantial investments in exploitation of the '844 Patent, including engineering, research and development, and licensing related to products protected by the '844 Patent.

A. Technical Prong

83. As previously described, Ingevity has developed and is developing innovative products that have revolutionized the impact of automobile evaporative emissions on the environment. Ingevity is widely regarded as a global leader in automobile gasoline vapor emission solutions, and Ingevity invests heavily in developing the technology underlying its products. To protect its substantial investment in developing this technology, Ingevity has sought and obtained extensive patent protection for this technology, including the '844 Patent.

84. The Domestic Industry Products consist of Ingevity's activated carbon honeycombs, granular activated carbon, and activated carbon pellets, including Nuchar™ BAX 1100, BAX 1500, BAX 1700, Standard HCA (an activated carbon honeycomb), and HCA-LBE

(another activated carbon honeycomb), of which at least the honeycombs are specially designed to be used in multi-stage canister systems that practice the claims of the '844 Patent.

85. Ingevity sells the Domestic Industry Products to its customers, for example the manufacturers of fuel vapor canisters, who then incorporate the Domestic Industry Products into multi-stage fuel vapor canister systems and vehicles that are sold in the United States and practice the '844 Patent. Ingevity's Domestic Industry Products constitute specifically tailored, significant components of multi-stage fuel vapor canister systems and vehicles that practice the '844 Patent.

86. Multi-stage fuel vapor canister systems that incorporate Ingevity's Domestic Industry Products practice the '844 Patent. For example, as demonstrated by the exemplary chart of Exhibit 15, a multi-stage fuel vapor canister system used in an Infiniti Q60 vehicle that is manufactured by Futaba Corporation and that incorporates Ingevity's HCA and BAX 1500 activated carbon products, practices at least claims 1, 18, 31, and 43 of the '844 Patent. Ingevity knowingly and intentionally induces customers and end users to directly practice at least claims 1, 18, 31, and 43 of the '844 Patent by encouraging, instructing, and aiding one or more persons in the United States to manufacture, test, use, sell or offer to sell multi-stage fuel vapor canister systems that incorporate Ingevity's Domestic Industry Products in a manner that practices the '844 Patent. On July 17, 2018, Ingevity purchased online in the United States an infringing multi-stage fuel vapor canister system manufactured by MAHLE Mexico for use in a 2018 Nissan Versa vehicle. *See also* Exhibit 22 for photographs of the multi-stage fuel vapor canister system used in an Infiniti Q60 vehicle.

B. Ingevity's Economic Investment in the Domestic Industry

87. There is a domestic industry in the United States as defined under 19 U.S.C. § 1337(a)(3)(A), (B), and/or (C), comprising continuing significant investments made by Ingevity in plant and equipment, significant employment of labor and capital, and continuing substantial investment in exploitation of the '844 Patent.

88. Ingevity engages in a broad range of qualifying domestic industry activities in the United States directed to articles protected by the '844 Patent as described above. Confidential Exhibits I6C-17C, the Declarations of Ed Woodcock and Roger Williams, contain detailed information regarding Ingevity's ongoing, significant, and substantial investments in the domestic industry.

89. Ingevity has made and continues to make significant investments in plant and equipment directed to the Domestic Industry Products in the United States. Those investments in plant and equipment are dedicated to research, design, development, engineering, manufacturing, product support, manufacturing support, testing, and various customer support activities focused on the Domestic Industry Products, which constitute significant components of articles that practice the '844 Patent.

90. Ingevity operates nine facilities in the United States, including three plants that manufacture, among other things, activated carbon pellets and honeycombs, as well as Ingevity's corporate headquarters and technical center in South Carolina. Overall, between January 2005 and June 2018, Ingevity spent approximately [REDACTED] (USD) on operating expenses associated with its three plants in the United States that manufacture, among other things, activated carbon pellets and honeycombs for use in multi-stage fuel vapor canister systems that practice the '844 Patent. The majority of these expenses are allocable to the Domestic Industry Products.

91. Ingevity also has made and continues to make significant investments in labor and capital directed to the Domestic Industry Products in the United States. Those investments in labor and capital are dedicated to research, design, development, engineering, manufacturing, product support, manufacturing support, testing, and various customer support activities focused on the Domestic Industry Products, which constitute significant components of articles that practice the '844 Patent.

92. Overall, between January 2005 and June 2018, Ingevity spent approximately [REDACTED] [REDACTED] (USD) on compensation and benefits expenses associated with its three plants in the

United States that manufacture, among other things, activated carbon pellets and honeycombs for use in multi-stage fuel vapor canister systems that practice the '844 Patent. The majority of these expenses are allocable to the Domestic Industry Products.

93. Ingevity also engages in exploitation of the '844 Patent through its substantial domestic investments in engineering and research and development activities in the United States. These activities include, among other things, research and development and engineering and design tied to the claimed technology implemented in the '844 Patent. These activities have occurred in the past and are ongoing with respect to prior and current versions of the Domestic Industry Products as well as future versions of Ingevity products under development.

94. Ingevity's domestic investments and activities are significant and substantial both in absolute terms and relative to Ingevity's overall operations. Ingevity's domestic investments and activities are important to the Domestic Industry Products and represent significant added value. *See Confidential Exhibits 16C-17C.*

IX. RELATED LITIGATION

95. On July 19, 2018, Ingevity Corp. filed two complaints alleging infringement of the '844 Patent, one against MAHLE America in the United States District Court for the Northern District of Illinois (Case No. 1:18-cv-04920-SLE), and one against BASF Corporation in the United States District Court for the District of Delaware (Case No. 1:18-cv-01072-RGA). Those cases have since been dismissed. On September 6, 2018, Ingevity Corp. and its wholly-owned subsidiary Ingevity South Carolina LLC filed a second complaint against BASF Corporation in the United States District Court for the District of Delaware (Case No. 1:18-cv-01391-RGA), and on September 7, 2018, Ingevity Corp. and Ingevity South Carolina LLC filed a second complaint against MAHLE America in the United States District Court for the Northern District of Illinois (Case No. 1:18-cv-06158-SLE). These two cases are pending.

X. RELIEF REQUESTED

96. WHEREFORE, by reason of the foregoing, Ingevity respectfully requests that the United States International Trade Commission:

- a. institute an immediate investigation pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, into the unlawful importation into the United States, the sale for importation into the United States, and/or the sale within the United States after importation by the Proposed Respondents of certain multi-stage fuel vapor canister systems that incorporate low-IAC activated carbon components and the low-IAC activated carbon components thereof, including MPAC-1, that infringe one or more claims of the '844 Patent;
- b. schedule and conduct a hearing on permanent relief pursuant to 19 U.S.C. § 1337(c) for the purposes of receiving evidence and hearing argument concerning whether there has been a violation of Section 337, and following the hearing, determine that there has been a violation of Section 337;
- c. issue a limited exclusion order pursuant to 19 U.S.C. § 1337(d) excluding from entry into the United States all of Proposed Respondents' multi-stage fuel vapor canister systems that incorporate low-IAC activated carbon components and the low-IAC activated carbon components thereof, including MPAC-1, that infringe one or more claims of the '844 Patent;
- d. issue a cease-and-desist order pursuant to 19 U.S.C. § 1337(f), prohibiting the Proposed Respondents and their affiliates, subsidiaries, successors, or assigns from importing, selling, servicing, marketing, advertising, demonstrating, distributing, offering for sale, transferring (including moving or shipping inventory) in the United States, and soliciting United States agents or distributors for any of Proposed Respondents' multi-stage fuel vapor canister systems that incorporate low-IAC activated carbon components and the low-IAC activated

carbon components thereof, including MPAC-I, that infringe one or more claims of the '844 Patent;

- e. impose a bond upon importation of multi-stage fuel vapor canisters and the activated carbon components thereof that infringe one or more claims of the '844 Patent, during the 60-day Presidential review period pursuant to 19 U.S.C. § 1337(j); and
- f. issue such other and further relief as the Commission deems appropriate.

Dated: November 8, 2018

Respectfully submitted,



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