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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JOHN F. SCHABRON
and JOSEPH F. ROVANI JR.,

Junior Party[1]
(Patent 8,367,425),

v.

ESTRELLA ROGEL,
CESAR OVALLES, and MICHAEL MOIR,

Senior Party[2]
(Application 12/833,814 and Application 13/294,609).

Patent Interference No. 106,064
(Technology Center 1600)

Before SALLY GARDNER LANE, JAMES T. MOORE,
and DEBORAH KATZ, *Administrative Patent Judges.*

MOORE, *Administrative Patent Judge*.

DECISION ON MOTIONS
37 C.F.R. § 41.125

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[1] The real party in interest is identified as The University of Wyoming Research Center, doing business as Western Research Institute. Paper 7, 1.

[2] The real party in interest is identified as Chevron U.S.A. Inc. Paper 12, 1.

I. Background

An interference was declared under 35 U.S.C. § 135(a)[3] on October 5, 2016. Paper 1. John F. Schabron and Joseph F. Rovani, Jr. ("Schabron" or "Western Research") were assigned the status of junior party with an initial application filing date of September 23, 2011. Estrella Rogel, Cesar Ovalles, and Michael Moir ("Rogel" or "Chevron") were assigned the status of senior party with an initial application filing date of March 11, 2010. Paper 1, 3–5. The interference was subsequently redeclared to add Rogel Application 13/294,609. Paper 94.

The interference Count is Claim 5 of Schabron U.S. Patent 8,367,425 or Claim 1 of Rogel U.S. Patent Application 12/833,814. Paper 1, 3. Each (with any intervening claims) reads as follows, with emphasis on terms disputed in this proceeding.

> Schabron Claim 1. A method for determining asphaltene stability in a hydrocarbon-containing material having solvated asphaltenes therein comprising the steps of:
>
> (a) intentionally precipitating an amount of the asphaltenes from a liquid sample of the hydrocarbon-containing material with an alkane mobile phase solvent in a column that has a substantially chemically inert stationary phase established therein, wherein the substantially chemically inert stationary phase is substantially chemically inert relative to the precipitated asphaltenes;
>
> (b) dissolving a first amount and a second amount of the precipitated asphaltenes by changing the alkane mobile phase solvent to a final mobile phase solvent having a solubility parameter that is higher than the alkane mobile phase solvent;
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> (c) monitoring the concentration of eluted fractions from the column;

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[3] Any reference to a statute in the Decision is to the statute that was in effect on March 15, 2013 unless otherwise indicated. *See* Pub. L. 112-29, § 3(n), 125 Stat. 284, 293 (2011).

> (d) *creating a solubility profile of the dissolved asphaltenes in the hydrocarbon containing material*; and
>
> (e) *determining one or more asphaltene stability parameters of the hydrocarbon containing material.*
>
> Schabron Claim 5. The method of claim 1, wherein said step of dissolving comprises the step of dissolving by *gradually and continuously changing the alkane mobile phase solvent to a final mobile phase solvent* having a solubility parameter that is at least 1 MPa$^{0.5}$ higher than the alkane mobile phase.

Paper 5, 2–3 (emphasis added)

> Rogel Claim 1. A method for determining asphaltene stability in a hydrocarbon-containing material having solvated asphaltenes therein, the method comprising the steps of:
>
> (a) precipitating an amount of the asphaltenes from a liquid sample of the hydrocarbon-containing material with an alkane mobile phase solvent in a column;
>
> (b) dissolving a first amount and a second amount of the precipitated asphaltenes *by gradually and continuously changing the alkane mobile phase solvent to a final mobile phase solvent* having a solubility parameter at least 1 MPa$^{0.5}$ higher than the alkane mobile phase solvent;
>
> (c) monitoring the concentration of eluted fractions from the column;
>
> (d) *creating a solubility profile of the dissolved asphaltenes in the hydrocarbon-containing material*; and
>
> (e) *determining one or more asphaltene stability parameters of the hydrocarbon-containing material.*

Paper 13, 2.

Following a conference call on December 20, 2016, the following motions were authorized by the Board. Paper 22, 4–5.

1. Schabron Motion 1 – Claim correspondence.

2. Schabron Motion 2 – For judgment based on unpatentability (35 U.S.C. §112, ¶¶ 1 and 2).

3. Schabron Motion 3 – For benefit.

4. Rogel Motion 1 – For judgment based on unpatentability (35 U.S.C. §112, ¶ 1).

5. Rogel Motion 2 – Claim correspondence.

Upon a request for rehearing (Paper 25) Schabron was permitted an additional motion by a decision on rehearing, noted below. Paper 31.

6. Schabron Motion 4 – To redefine the interfering subject matter by adding a Count.

It appears that Schabron has filed only Schabron Motion 3 (Paper 53), while Rogel has filed Rogel Motion 1 (Paper 71) and Rogel Motion 2 (Paper 72). Oppositions (Papers 81, 82, and 92) and Replies (Papers 96, 97, and 98), along with various exhibit lists and exhibits, have been filed with the Board.

Although the parties requested oral argument (Papers 101 and 102), the Board deems argument unnecessary to the resolution of the motions presented for decision. Accordingly, the requests for oral argument are denied.

The motions are therefore ready for disposition.

II. Rogel Motion 1 – Unpatentability of Claims 5, 6, 12–17, 24–27, and 30 of the ’425 Patent (35 U.S.C. § 112, ¶¶1–2 - written description and enablement)

We take up Rogel Motion 1, filed March 2, 2017, first. Paper 71.

i. Enablement and Written Description

The specification must enable a person of ordinary skill in the art to make and use the invention. 35 U.S.C. § 112, ¶ 1. This requirement is met when at the time of filing the application one skilled in the art, having read the specification, could practice the invention without "undue experimentation." *In re Wands*, 858 F.2d 731, 736-37 (Fed. Cir. 1988). Rogel bears the burden of establishing entitlement to relief, by a preponderance of the evidence.

To fulfill the written description requirement, a patent specification must describe an invention. 35 U.S.C. § 112, ¶ 2. That description must be in sufficient detail that one skilled in the art can clearly conclude that the inventor invented the subject matter claimed. *Regents of the Univ. of Cal. v. Eli Lilly & Co*., 119 F.3d 1559, 1566 (Fed. Cir. 1997). As above, Rogel bears the burden of establishing entitlement to relief, by a preponderance of the evidence.

ii. Factual Background

Asphaltenes are organic heterocyclic macromolecules which occur in crude oils. When crude oil is extracted from the ground, changes in pressure, temperature, and concentration of the crude oil can increase the tendency of the asphaltenes to agglomerate and precipitate out of solution. Ex. 1012, ¶ 13.[4] Ex. 1001, ¶ 4.

Unwanted asphaltene precipitation is problematic in the petroleum industry as it may plug an oil well or pipeline, decrease oil production, reduce and limit yield of downstream processes, and foul heat exchangers and other refinery equipment. Ex. 1012, ¶ 13. Ex. 1001, ¶ 5.

Schabron claim 1 recites a method of determining the stability of asphaltenes in the oil. This is accomplished by three major steps in the claimed process – a

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[4] Exhibit 1012 is the declaration testimony of Dr. Lante Carbognani. We find Dr. Carbognani qualified to testify as to the technical subject matter of this interference based upon his education and experience. Ex. 1012, ¶¶ 1–8 and Ex. 1006.

precipitation step to cause the asphaltene to come out of solution, a dissolving step with a solvent, and a collecting and analyzing step to determine the stability of the asphaltenes Ex. 1002, 31:12–22.

Schabron claim 5 recites a specific manner of dissolving the asphaltene and changing the solvent - resulting in a final mobile phase solvent having a solubility parameter that is at least 1 $MPa^{0.5}$ higher than the alkane mobile phase. *Id.*, 31:38–42.

Rogel is of the view that the differing approaches of the parties to the dissolving step is a fundamental difference between the two processes. Rogel urges that these differences result in different elution profiles that require different analysis to determine the characteristics of the precipitated and dissolved asphaltenes. Paper 71, 2, citing Ex. 1012, ¶¶ 15-20. Specifically, during the dissolving step, Schabron is said to change the solvent mobile phase in a step-wise fashion, resulting in a separation profile with peaks representing different soluble portions of asphaltene being spaced apart in time. *Id.,* citing Ex. 1012, ¶ 16. On the other hand, Rogel is said to gradually and continuously modify the mobile phase solvents, resulting in a more detailed solubility profile of connected peaks or a peak and a shoulder. *Id.,* citing Ex. 1012, ¶ 17.

This decision turns on a matter of claim interpretation.

iii. Arguments

Written Description

"Gradually and Continuously Changing the First Final Mobile Phase Solvent to a Second Final Mobile Phase Solvent"

Rogel first asserts that claim 5 of Schabron's '425 patent recites "gradually and continuously changing the alkane mobile phase solvent to a final mobile phase solvent" (referred to generally as the "gradually and continuously" limitation). Paper 71, 6. According to Rogel, Schabron's '425 patent does not mention or provide a sufficient written description of the concept of "gradually and continuously changing the alkane mobile phase solvent to a final mobile phase solvent." *Id.,* citing Ex. 1012, ¶ 23.

In short, Rogel asserts that "[t]his limitation is disclosed and amply supported by Rogel's '814 application but is not disclosed in Schabron's '425 specification. *Id.*, citing Ex. 1012, ¶¶ 23–24 and Ex. 1001, ¶¶ 37–40. Thus, according to Rogel, Schabron lacks written description and enablement support for the subject matter of the Count." Paper 71, 4.

Rogel's contention appears to have some superficial merit as "gradually and continuously" does *not* occur verbatim within the specification of the '425 patent, until it appears in claim 12. Ex. 1002, generally, *see esp.* 32:7–19. However, as noted above, the test is not whether the terms occur *verbatim.*

We start with an interpretation of the phrase "gradually and continuously." Rogel asserts that, as the phrase appears nowhere in Schabron's specification, it must be interpreted according to Rogel's specification as the originating disclosure. *Agilent Techs., Inc. v. Affymetrix, Inc.*, 567 F.3d 1366, 1375 (Fed. 19 Cir. 2009).

It does appear that Schabron attempted to become involved in an interference by copying claim language. Paper 71, 9. *See also* Ex. 1009, 2. As noted during prosecution in a filing dated July 6, 2012 in the involved patent:

> The Office should also be aware that the instant application, owned by WRI, has claims with which claims of an application (US Pat. App. No. 12/833,814) owned by a different entity may interfere. Declaration of an interference would be premature at this point in time because neither the

> instant case, nor US Pat. App. No. 12/833,814 has received a notice of allowance. It is also of note that the instant application (owned by WRI) claims priority to a first nonprovisional application filed in August of 2006 and a US provisional application filed in 2005, while US Pat. App. No. 12/833,814 claims priority to a provisional applications filed several years later in 2009 and 2010.

Id.

Rogel urges that the broadest reasonable interpretation of "continuously" is "without interruption." Paper 71, 6. Dr. Carbognani so testifies. Ex. 1012, ¶ 25. He asserts that continuously changing the solvent means changing the solvent without interruption. Schabron does not challenge this interpretation. Paper 92, 6. This is a reasonable interpretation of the claim term, and we find "continuously" to mean "without interruption."

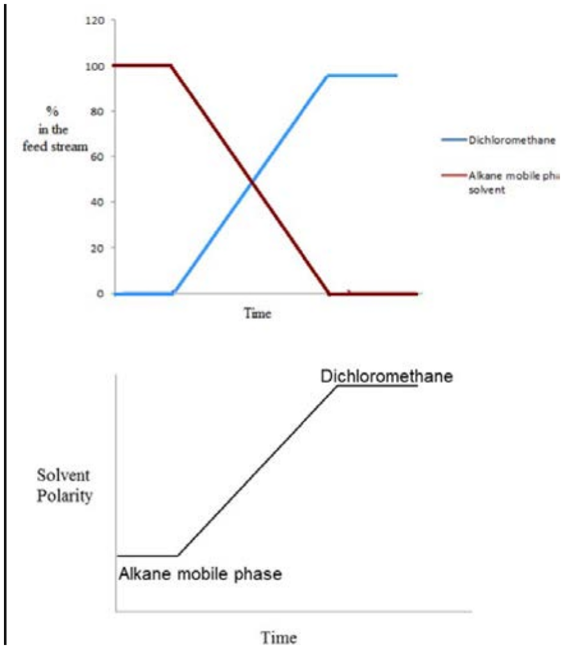
The term "gradually" is a bit more problematic. On the surface, the term "gradually" might seem by its plain meaning to exclude more rapid changes. Rogel, however, urges that the copied term is specifically defined in the Rogel '814 application. *Id.*, 7.

We are cited to the following definition for "gradually" in the '814 application:

> The term gradually as used herein shall be understood to mean that the alkane mobile phase solvent is incrementally removed from the column over a period of time by continuously adding a final mobile phase solvent having a solubility parameter at least 1 $MPa^{0.5}$ higher than the alkane mobile phase solvent to the column.

Ex. 1001, ¶ 37.

Dr. Carbognani testifies that this relationship can be graphically illustrated in this manner:



The figures are graphical representations of feed stream and polarity over time.

Ex. 1012, ¶ 28.

According to Dr. Carbognani, a linear gradient of polarity changes over time, and asphaltenes eluted from the column at each time are related to the solvent power of the mobile phase. *Id.* ¶ 29. Thus, a person of ordinary skill in the art would understand the phrase "'gradually and continuously changing the alkane mobile phase solvent to a final mobile phase solvent' as required by the Count to mean the amount of alkane mobile phase solvent fed into the column is incrementally decreased from 100% to 0% over a period of time without interruption while the amount of final mobile phase solvent fed into the column is incrementally increased from 0% to 100% over the same period of time." *Id.* ¶ 31. While this certainly makes a degree of sense when one considers the invention of Rogel and Schabron, we do not agree that the language of the Count requires us to import such specific limitations.

Schabron, on the other hand, urges that Rogel's interpretation is incorrect. Paper 92, 3. According to Schabron, the term gradually changing solvent is only properly defined in terms of *removal* of the solvent from the column. *Id.* Vladislav Lobodin, Ph. D.[5] testifies that the only factor in assessing whether a solvent change is "gradual" should be whether it results in "incremental removal" of the solvent from the column. Ex. 2021, ¶ 6. Both parties seem to agree that there is no upper or lower limit on the period of time over which the change takes place. Ex. 1012, ¶ 31 and 2021, ¶ 7. However, we observe that Schabron overly limits the definition to focus on removal. The *removal* is accomplished, according to the specification, by none other than *addition* of the new solvent.

Dr. Lobodin is somewhat more persuasive than Dr. Carbognani in this regard, as Dr. Carobgnani adds much that is exemplary from the '814 application specification into his limiting definition. However, we see no persuasive reason even from Dr. Lobodin to deviate from the intrinsic evidence in this situation. As we cannot rely on the plain meaning of gradually (given the definition given in the specification) we conclude that "gradually," therefore, for purposes of this decision means that "the alkane mobile phase solvent is incrementally removed from the column over a period of time by continuously adding a final mobile phase solvent." Ex. 1001, ¶ 37.

We next turn to whether this claim, so construed, has written descriptive support within the Schabron specification.

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[5] Dr. Lobodin is Schabron's technical witness in this proceeding. We find him qualified to testify to the technical matters in this interference by virtue of his training and experience. Ex. 2016 ¶¶ 1–16 and Ex. 2017.

According to Rogel, the portions Schabron cited to support the term "gradually" in claim 5 of the '425 patent are contained in the parent application of the '425 patent, as follows:

> The solvent is then switched to a stronger solvent, or a series of stronger solvents of increasing solvent strength, which dissolves a portion or all of the precipitated material.

Ex. 1011, 21:14–16.

According to Rogel and its witness Dr. Carbognani, these sentences do not convey to persons of ordinary skill in the art that the solvents are changed gradually and continuously. Ex. 1012, ¶¶ 58-60. Rather, the solvents are "switched," abruptly, from one to the other. Ex. 1012, ¶¶ 26, 58. Rogel also asserts that the hardware of the '425 Specification is not capable of gradually and continuously changing the mobile phase solvent. Paper 71, 8.

Schabron, on the other hand, points out that Schabron's Provisional Application No. 60/711,599 (the "Schabron '599 Application") (Ex. 2006), filed in 2005, and Schabron's 2006 priority Application No. 11/510,491 (the "Schabron '491 Application")(Ex. 2007) show where certain claim limitations are adequately supported. Paper 92, 6. Schabron also observes that the above two priority applications are incorporated into the Schabron '425 Patent (see Ex. 2005, col. 1, ll. 7-24). *Id.*

Schabron and Dr. Lobodin urge that a gradual solvent change, as properly construed, is any solvent change at the column inlet (as there is no lower limit on time duration of such change) that results in a replaced solvent output (versus time) removal curve from the column that is smooth and non-vertical (this is said to be incremental removal). Paper 92, 5, citing Ex. 2,016 ¶¶ 37-53. According to

Schabron, such a construction – much broader than the few examples provided in the Rogel ’814 Application – includes Schabron’s quicker solvent switches. Ex. 2016, ¶¶ 69-80. Therefore, Schabron asserts that Rogel is incorrect when it treats “gradually” changing as excluding such single step changes. Paper 92, citing Paper 71, 8, ll. 23-25.

We find Dr. Lobodin’s testimony to be more persuasive on this point. We agree with his observation that with changes in input, elution columns take time to effect changes in output. His experimental data, to the extent we deem it reliable, tends to confirm this. Ex. 2016, ¶¶ 46–48.[6] We are provided no contrary persuasive evidence that the outflow from the column does not change over time.

The problem lies in the claim language used – gradually is a term of degree and not specifically defined as a specific input change, but rather on the removal of one solvent by the addition of another, which is not quite the same. While an instantaneous changeover of feed may seem outside the normal scope of the term “gradually,” we are persuaded that the fluid dynamics of the column act to make the claimed *changeover* occur over a period of time.

We turn to the crux of Rogel’s claim – that nowhere does Schabron’s ’425 patent disclose, let alone explain in terms sufficient to establish Schabron’s possession of, the concept of “gradually and continuously changing the alkane mobile phase solvent to a final mobile phase solvent.” Paper 71, 10; Ex. 1012, ¶ 44. Rogel asserts that the term “step gradient” is used, repeatedly and

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[6] Rogel has raised issues relating to the accuracy of the graphs provided, especially regarding the upper ends and sensor saturation. Paper 81, 19, citing Ex. 2016, ¶ 48. We think that, although the sensors may be saturated, it nevertheless takes some period of time to get there. Accordingly, we find that graphs 2A and 2B can be relied upon in part to show outflows that change over time.

consistently, to describe the solvent changing step. Ex. 1012, ¶¶ 44-61. According to Rogel, Schabron's '425 specification unequivocally conveys to persons of ordinary skill in the art to implement a step gradient sequence for the solvent-changing step change—i.e., to change solvents discretely, in a step-wise fashion, rather than "gradually and continuously." Paper 71, 10, citing Ex. 1012, ¶¶ 44-61.

We think the evidence of record supports a broader interpretation of the description in Schabron '425. The term "step gradient" is, as noted above, not necessarily an abrupt shift of the output – it reflects the change of the solvent input into the column. Rogel points to two particular examples in Schabron's '425 specification:

> 4. Step gradient times: 0 min. heptane, 15 min. cyclohexane, 30 min, toluene:methanol (98:2) (v:v), 40 min. heptane."

Ex. 1002, 15:21–23.

> 4. Step gradient times: 0 min. heptane, 15 min. cyclohexane, 30 min. toluene, 40 min. solvent four (cyclohexanone or methylene chloride), 50 min. heptane.

Id., 16:29–32.

Each of these examples occurs over some period of time, even if changes in input are abrupt. Moreover, although omitted by Rogel in its discussion, the description discusses variables such as injection volume and column size, which at least in part we think inevitably would affect solvent residence times, and solvent changeover times, in the column. *Id.* 15:9–11.

The Schabron changeover therefore appears to us to meet the incremental removal contemplated by the term "gradually" in that the changeover occurs over a period of time, even if the input is abruptly changed from one solvent to another.

Rogel also observes that Schabron's apparatus includes a solvent selection valve that only provides discrete changes between solvents, having no capability to mix the solvents in a gradual and continuous manner. Paper 71, 13, citing Ex. 1012, ¶¶ 49-52. Rogel also points to differences in the separation profiles achieved in Schabron when compared to Rogel as "further underscore[ing] this lack of support." *Id.*

While we understand that there are differing levels of resolution depending on the rate of change of solvent changeover, both parties agree that the claims at issue have no upper or lower limits on the changeover. While we understand Rogel's point of view that it appears the term "gradually" is rendered meaningless by this interpretation (Paper 97, 1), the difficulty in this situation arises from Rogel's own definition of the term - and the lack of specific parameters in the claim. Accordingly, although it is a close call, we are not persuaded by Rogel's assertion.

Solubility Profile of the Dissolved Asphaltenes

Rogel next asserts that Schabron does not have support for this limitation. According to Rogel, Rogel's '814 application provides a detailed description regarding how to create a solubility profile of the asphaltenes. Paper 71, 14, citing Ex. 1012, ¶¶ 34–37 and Ex. 1001, ¶¶ 44–45. Dr. Carbognani testifies that persons of ordinary skill would understand that "a solubility profile of the dissolved asphaltenes" of the Count means an elution profile having a curve that represents the solubility parameter distribution of the asphaltenes, which can be presented with either a time scale or a solubility parameter scale. Ex. 1012, ¶ 38.

Schabron asserts that this interpretation is incorrect. Paper 92, 14. Schabron does assert a solubility profile is a profile that merely, in some way, represents or is based on solubility (of the asphaltenes). *Id.,* 15, citing Ex. 2021, ¶ 24. Schabron asserts that it is not proper to import "solubility parameter" into the term's construction.

We find the broadest reasonable interpretation is more in keeping with Schabron's interpretation, but we also find the intrinsic evidence in the Rogel application even more persuasive - *i.e.*, a solubility profile is simply a characteristic elution pattern. Ex. 1001, ¶ 38.

Rogel asserts that the specification of Schabron's '425 patent fails to disclose, describe, or define the term "solubility profile" and instead is silent about the limitation of "creating a solubility profile of the dissolved asphaltenes" of the Count. Ex. 1012, ¶ 33.

More specifically, Dr. Carbognani testifies that, to obtain an elution profile having a curve that represents the solubility parameter distribution of the asphaltenes (i.e., a solubility profile), the solvents in the mobile phase have to be changed gradually such that the asphaltenes eluted from the column at each time are related to the solvent power of the mobile phase. Ex. 1012, ¶ 63.

He testifies further that Schabron's '425 patent does not describe changing the solvents "gradually and continuously." Ex. 1012, ¶¶ 44-61. Instead, Dr. Carbognani observes that Schabron '425 describes changing solvents discretely, in a step-wise fashion, replacing one solvent with a different solvent, to separate asphaltenes into different fractions, separated in time and shown as discrete and distinct peaks in an elution profile. According to Dr. Carbognani, Schabron's '425 patent describes its elution profile acquired by Schabron's step-gradient sequence not as a "solubility profile" but, rather, as a "separation profile." Paper 71, 16, citing Ex. 1002, 9:49; Ex. 1012, ¶¶ 42-61. The separation profile, it is said, does not have a curve that represents the solubility parameter distribution of the asphaltenes. Ex. 1012, ¶ 64.

Rather, Rogel urges it is to show asphaltenes separated into different fractions by the step-gradient sequence based on the solvent by which they were eluted. Ex. 1012, ¶ 64. Accordingly, Rogel asserts that Schabron's '425 patent does not describe "a solubility profile of the dissolved asphaltenes," let alone how to create one. Ex. 1012, ¶ 65.

On the other hand, for Schabron Dr. Lobodin testifies that the term "distribution profiles" is what its separation profiles actually show – the distribution of the asphaltene fractions in terms of their solubilities, and thus of the entire asphaltene. Ex. 2021, ¶ 26.

Schabron further urges that there are various separation profiles in the Schabron '425 Patent (e.g., Figs. 1, 5, 6, 8) – which each show how much of the precipitated asphaltenes (based on, e.g., peak heights/areas) are soluble in each of the various solvents – as solubility profiles. These, it is urged, are the "rapid measurements of asphaltene solubility" to which the Schabron '425 Patent refers. Paper 92, 15, citing Ex. 2005, col. 10, l. 40-43. Ex. 2021, ¶ 26.

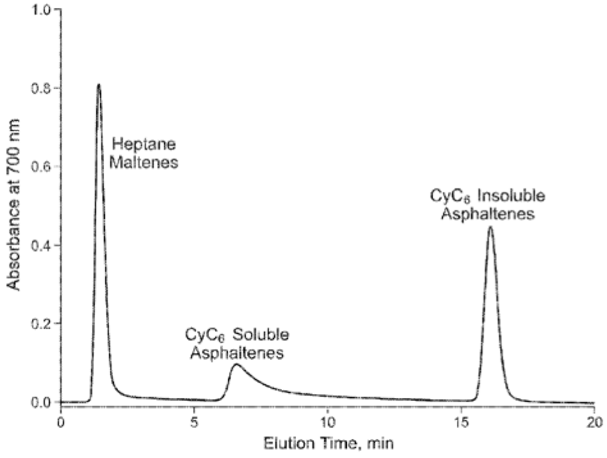

Fig. 1

Schabron Figure 1 is a graphical illustration
of absorption v. elution time

We find this evidence and line of argument to be more persuasive, in that it gives the claim its most reasonably broad interpretation without reading additional limitations into it. Moreover, we find Schabron's evidence persuasive that a person of ordinary skill in the art would understand that the exemplary graphs are profiles of solubility in differing solvent materials.

Accordingly, we find that Rogel has not shown by a preponderance of the evidence that Schabron's claims fail to meet the written description requirement of 35 U.S.C. § 112.

Enablement of Claims 5, 6, 12–17, 24–27 and 30 of the '425 Patent

Rogel next asserts that Schabron's '425 patent fails to describe the concept of "gradually and continuously changing the first final mobile phase solvent to a second final mobile phase solvent" as required. Paper 71, 16, citing Ex. 1012, ¶¶ 42–61.

Rogel notes that Schabron's '425 patent teaches instead using step-gradient sequence to generate separation profiles with peaks separated apart from one another (i.e., no overlapping area between peaks). According to Rogel, Schabron's '425 patent emphasizes that a "separation profile" must have separate, discrete peaks with high resolution. *Id.,* 17, citing Ex. 1002, 14:51–55 (stating that "[p]eaks must be resolved well.").

Dr. Carbognani testifies that one of ordinary skill in the art, considering the '425 patent as a whole, would have understood that a profile having peaks with overlapping areas (*e.g*., Ex. 1001, Figure 2) or one peak and one shoulder as described in the '814 application (*e.g.*, *id*., Figure 1) was not Schabron's invention. According to Dr. Carbogani, Schabron's '425 patent is completely silent about how to analyze these profiles. Ex. 1012, ¶ 68. More specifically, Dr. Carbognani testifies that Schabron's '425 patent provides no guidance that would have enabled a person of ordinary skill in the art to analyze such an elution profile for determining the characteristics of the asphaltenes in the sample. Ex. 1012, ¶ 69.

On the other hand, Schabron urges that a person of ordinary skill in the art would be able to "creat[e] a solubility profile" by practicing a separation-type solubility profile of Schabron's '425 Patent, not an overlapping-type profile. Paper 92, 22, citing Ex. 2021 ¶ 53. Schabron urges that the equipment used in the '425 patent used to generate it enables it. *Id.*, citing Ex. 2005, 12:52–62; 15:18–28; and 16:26–39. Schabron specifically urges that the Waters 600 Controller is such a piece of equipment. *Id.*

We reproduce a pertinent section from Schabron's specification below:

> On-Column Asphaltene Precipitation:
>
> The on-column asphaltene precipitation and re-dissolution experiments were conducted using a Waters 717 auto sampler, a Waters 60F pump with 600 controller, a Waters 1487 ultraviolet/visible absorbance detector, and an Alltech ELSD 800 detector. Elution solvents were reagent grade, with step gradients between solvents. Solutions of residua and asphaltenes were injected. Peak area integration was performed using a Chrom Perfect Spirit 5.5 data system. Various columns and conditions were tested. Pyrolyzed sample solutions were filtered through a 0.45 micron PTFE filter prior to injection. ELSD separation peak areas were corrected for small blank peaks due to the step gradient solvent changes.

Ex. 1002, 12:52–64. We find that the above describes analyzing peak area of eluted asphaltenes with step gradients between solvents.

Dr. Lobodin also testifies that the graphs created by Schabron have time versus detector response axes (as does Rogel), and each therefore also reflects solubility of the asphaltenes. Ex. 2016, ¶ 25. According to him, “they absolutely represent solubility of the asphaltene.” *Id.* Dr. Lobodin also testifies that a determination of the “ratio of the second peak area to the first peak area” can be done with a separation profile. Ex. 2021, ¶ 55.

Moreover, Dr. Lobodin points to this paragraph in Schabrel ’425:

> Those methods, whether analytical or processing, involving successive dissolution, afford considerable opportunity to characterize the solution of interest. Indeed, for certain applications, it may only be necessary to simply generate a material in the vessel (e.g., by precipitation), and then analyze the material and/or the remnant substance (e.g., remnant liquid). But in some applications, more information about the solution of interest may be desired; such additional information may be acquired upon the afore-described successive dissolution protocol. Such additional information, whether stemming from a separation profile 21 (e.g., peak values, such as peak heights, peak sharpness, and peak areas, and ratios thereof; times until, between or during elution(s), absence of peaks,

> sharpness of peaks, etc.) or from other data, can be, if required, mathematically manipulated (in a manner well known in the art) to provide even more information, thereby enabling even greater control over all types of operations.

Ex. 2005, 9:39–55.

We find this evidence of Schabron's to be persuasive, as it makes apparent that analyzing the profiles is contemplated by the '425 patent, and possible by one of ordinary skill in the art. Accordingly, we are unpersuaded by this second argument.

Accordingly, Rogel has not carried its burden of persuasion by a preponderance of the evidence, and we therefore deny Rogel Motion 1.

III. Rogel Motion 2 – Designating Schabron Claims 1–4, 7–11, 18–23, and 28–30 Not Corresponding to the Count

i. Standard

A claim corresponds to a Count if the subject matter of the Count, treated as prior art to the claim, would have anticipated or rendered obvious the subject matter of the claim. 37 C.F.R. § 41.207(b)(2). The moving party bears the burden of showing that the Count does not anticipate the subject matter of the claims or would not have made the subject matter of the claims at issue obvious to a person of ordinary skill in the art.

ii. Arguments

Somewhat unusually, Rogel moves to have Schabron claims 1–4, 7–11, 18–23, and 28–30 designated as not corresponding to the Count. Paper 72, 1. The basis for this assertion is that Schabron's claims require a step-gradient sequence, not gradually and continuously. *Id.*, 9.

Gradually and Continuously

Rogel notes that Dr. Carbognani has testified that persons of ordinary skill in the art would understand the phrase "gradually and continuously changing the alkane mobile phase solvent to a final mobile phase solvent" to mean the amount of alkane mobile phase solvent fed into the column is incrementally decreased from 100% to 0% without interruption over a period of time while the amount of final mobile phase solvent fed into the column is incrementally increased from 0% to 100% without interruption over the same period of time. Paper 72, 3–4 citing Ex. 1012, ¶ 31.

Rogel again further asserts that the ordinary meaning of the term "continuously" is without interruption. Ex. 1012, ¶ 25. As a consequence, Rogel asserts that persons of ordinary skill in the art would understand that "continuously" changing the solvent means that the solvent is changed without interruption. *Id.,* citing Ex. 1012, ¶ 25. We have already addressed these contentions above.

Schabron's Involved Claims 1–4, 7–11, 18–234, and 28–30

In the Declaration, Schabron Claims 1–30 were designated as corresponding to the Count. Paper 1, 4–5. This designation is presumed to be correct. In order to persuade us to grant the motion, Rogel bears the burden of establishing that the claims are patentably distinct from the Count.

In terms of anticipation, Rogel urges that the Schabron '425 patent claims 1-4, 7-11, 18-23, and 28-30 require the step of "changing the alkane mobile phase solvent to a final mobile phase solvent." Paper 72, 17. Rogel takes the position that Schabron's '425 specification and prosecution history establish that the solvent is only changed discretely, i.e., in a step-wise fashion. As the Count does not disclose the same discrete, step-wise change in solvent claimed by these claims of Schabron's '425 patent, Rogel reasons that the Count does not anticipate claims 1–4, 7–11, 18–23, and 28–30 of Schabron's '425 patent. *Id.*

Schabron observes that Rogel is importing a limitation it should not. According to Schabron, the Schabron '425 Patent and its priority applications disclose more than one embodiment of "changing the alkane mobile phase solvent to a final mobile phase solvent" of Schabron claim 1, therefore making it improper to import a "step-wise" limit (which Schabron refers to as a single step gradient) into the claim. Paper 82, 5. According to Schabron, the Schabron '425 Patent discloses a repeated incremental step gradient changing of solvents and allows for gradients other than single step. *Id.*

Dr. Lobodin testifies that the Schabron '425 Patent and its priority applications provide "use of gradients other than a single step" and "solvent transitions that are generated from other than single step solvent switching." Ex. 2016, ¶ 89. He observes that the Schabron '425 Patent provides disclosure regarding "solvent mixtures" (i.e., "the term solvent is a broad term that includes … solvent mixtures." *Id.,* citing Schabron '491 Application, Ex. 2007, p.9, l. 22-24.) We, however, disagree that simply mixing solvents amounts to a disclosure of changing the solvent.

However, we do observe that the '425 patent describes:

> In particular embodiments, the present invention may provide exploration of rapid measurements of asphaltene solubility perhaps using an on-column material precipitation and dissolution technique. Measurements may be automated perhaps using liquid chromatography equipment (e.g., high performance liquid chromatography ("HPLC") equipment), perhaps with a step gradient sequence using solvents of increasing solvent strength such as

> but not limited to heptane, cyclohexane, toluene:methanol mixtures and the like.

Ex. 1002, 10:40–48. This evidence supports a finding that the ’425 patent contemplates multiple steps of differing solvent strengths as a possibility.

As a consequence, we agree with Schabron that Schabron’s claim 1 is broader than Rogel’s claim 5, which is one embodiment of the Count, and as a consequence, anticipated thereby. No further arguments were made for dependent claims.

We need not address Rogel’s arguments concerning obviousness. Accordingly, Rogel Motion 2 is denied.

IV. Schabron Motion 3 – For Benefit of Provisional Application 60/711,599 and Nonprovisional Application 11/510,491

i. Standard

A party seeking the benefit of an earlier application must establish that the earlier application is a “constructive reduction to practice” of an embodiment within the scope of the Count. It must also satisfy both the written description and enablement requirements of 35 U.S.C. § 112. *See* 37 C.F.R. § 41.202.

The test for sufficiency of the written description is whether the disclosure reasonably conveys to those skilled in the art that the inventor possessed the claimed subject matter as of the filing date. *Ariad Pharm., Inc. v. Eli Lilly & Co.,* 598 F.3d 1336, 1351 (Fed. Cir. 2010) (*en banc*). This is an objective inquiry based on the four corners of the specification. *Id.* It requires “possession as shown in the disclosure.” The specification must describe the invention in a manner understandable to one of ordinary skill and evidence that the inventor actually invented the claimed invention. *Id*.

ii. Argument

Schabron asserts that the Schabron ’599 Provisional Application and the Schabron ’491 Application each discloses, and would have disclosed to a person having ordinary skill in the art at the time the invention was made, all the limitations of Rogel Claim 1, in an enabling manner, and therefore anticipates that claim. Paper 53, 17, citing Dr. Lobodin’s testimony, Ex. 2016, ¶ 87.

Accordingly, Schabron urges that each of the Schabron ’599 Provisional Application and the Schabron ’491 Application is a constructive reduction to practice of Count 1 of this interference (defined as Rogel claim 1 or Schabron claim 5), and Schabron should be accorded the benefit for Count 1 of the filing date of each the ’599 Application (Aug. 25, 2005) and the ’491 Application (August 25, 2006). *Id.*

We turn first to the ’491 Application (Ex. 2007), and Schabron’s contentions.

It should be noted that Schabron has observed both continuity of prosecution and inventorship, as well as incorporation by reference of the applications. Rogel has not made a material challenge to those contentions.

> *Rogel Claim 1. A method for determining asphaltene stability in a hydrocarbon-containing material having solvated asphaltenes therein, the method comprising the steps of:*

We are pointed by Schabron to Ex. 2007, page 2, lines 15–18.[7] Paper 53, 9. That section states that "It is therefore an object of certain embodiments of the present inventive technology to provide a rapid on-column precipitation and dissolution method for rapid measurement of a cyclohexane soluble portion of asphaltenes precipitated from a hydrocarbonaceous solution of interest." *Id.*

> *(a) precipitating an amount of the asphaltenes from a liquid sample of the hydrocarbon-containing material with an alkane mobile phase solvent in a column;*

We are pointed by Schabron to Ex. 2007, page 6, lines 19–25. Paper 53, 10. That section states that:

> …precipitating a material (e.g., a solid material, a viscous liquid material, and/or a gel material) from the solution of interest; and generating a remnant liquid upon performing the step of precipitating a material from the solution of interest. The step of establishing a precipitant (any material that effects precipitation) in a vessel may be performed by adding the precipitant (heptane, pentane, and/or isooctane, as but a few examples) to the vessel in liquid form, but indeed other methods (e.g., adding a powder form of the precipitant to the vessel and then adding a dissolving liquid) may be used.

Id.

> *(b) dissolving a first amount and a second amount of the precipitated asphaltenes by gradually and continuously changing the alkane mobile phase solvent to a final mobile phase solvent having a solubility parameter at least 1 MPa$^{0.5}$ higher than the alkane mobile phase solvent;*

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[7] In many instances in Rogel Motion 3, we are presented with an array of citations, frequently without explanation. While we have considered the citations, we see no need to belabor the record with a discussion of them, citing only the first mentioned citation if we find it persuasive.

We are pointed by Schabron to Ex. 2007, page 13, lines 1–8. Paper 53, 10. That section states that:

> Successive dissolution protocols may involve the step of successively dissolving at least one additional portion (e.g., in addition to that dissolved by the first non-precipitating solvent) of the generated material with at least one additional solvent to generate at least one additional dissolved material solution. Of course, as mentioned, it is typically necessary to separate the existing dissolved material solution from a space contacting the generated material so that the subsequent solvent can then dissolve at least an additional portion of the generated material (at some point, a solvent may dissolve all of the remaining generated material).

Id.

Dr. Lobodin testifies that this disclose dissolving portions of generated material. Ex. 2016, ¶¶ 64–66; Chart 3.

Schabron next asserts that Ex. 2007, page 30, lines 2–4 describes the alkane mobile phase solvent limitation. Paper 53, 10. That section states that "[t]hen, as the molecules coated onto the PTFE surface are exposed to solvents of increasing polarity, they are dissolved from the solid surface based on enthalpic solubility parameter interactions, and they go into solution" Ex. 2007, page 30, lines 2–4.

Dr. Lobodin testifies that and additional citations disclose generally the use of heptane to precipitate asphaltenes that are then dissolved, in portions, using final mobile phase solvents that are of increasing polarity. Each cyclohexane and toluene:methanol have a solubility parameter that is at least 1MPa$^{0.5}$ higher than heptane. Ex. 2016, ¶¶ 64–66; Chart 3.

As regards "gradually and continuously" Schabron asserts that Exhibit 2007 discloses a step gradient solvent change sequence at Ex. 2007, page 3, lines 9-11 and Figures 1, 4, and 5. Paper 53, 11. Dr. Lobodin testifies that flow dynamics would attenuate any such step gradient as it passes through a column so as to produce a smooth, non-vertical output curve, regardless of column size or flow rate. He concludes that single step gradients are also "gradually changing" the alkane solvent. Ex. 2016, ¶¶ 74–75. As for continuous, Schabron asserts that the '599 provisional application discloses a continuous flow system. Paper 53, 12, citing Ex. 2007, page 14, lines 9-10.

(c) monitoring the concentration of eluted fractions from the column;

Schabron next asserts that Ex. 2007, page 13, lines 13–25 describes monitoring the concentration of eluted fractions. Paper 53, 10. That section states that:

> In certain embodiments of the inventive technology, a solvent may be established in the vessel so that it contacts the generated material (such contact is observed whenever any dissolution occurs). Whenever dissolution of the generated material occurs, a dissolved material solution is generated. Such solution may be analyzed, as mentioned, perhaps with a detector 22, thereby determining a characteristic (by providing any information whatsoever about the solution of interest). Of course, such analysis may be accomplished through the use of any of a number of detectors employing evaporative light scattering, mass spectrometry, conductivity, oxidation/reduction, refractive index, polarimetry, atomic spectroscopy, optical absorbance, x-ray, ultrasound, and/or fluorescence, as but a few of the available techniques. Such detection may occur as the analyzed substance leaves the vessel, while it is in the vessel, or after it leaves the vessel. A typical setup of a detector may be not dissimilar to that found in some liquid chromatography set-ups, where the detector detects liquid as it elutes from the column (in the case of columnar, analytical embodiments), or as it is drained from a batch type vat (e.g., as in processing embodiment).

Ex. 2007, page 13, lines 12–25.

Dr. Lobodin testifies that this is monitoring the asphaltene containing elution. Ex. 2016, ¶¶ 64–66 (Chart 3).

> (d) *creating a solubility profile of the dissolved asphaltenes in the hydrocarbon-containing material*; *and*

Schabron next asserts that Ex. 2007, Figures 1, 5, and 10 show solubility profiles. Paper 53, 10. Dr. Lobodin testifies that these separation profiles are solubility profiles. Ex. 2016, ¶¶ 64–65 (Chart 3).

> *(e) determining one or more asphaltene stability parameters of the hydrocarbon-containing material.*

Schabron next asserts that Ex. 2007, page 14, line 26 to page 15, line 1 describes stability parameters. Paper 53, 11. That section states:

> But in some applications, more information about the solution of interest may be desired; such additional information may be acquired upon the afore-described successive dissolution protocol. Such additional information, whether stemming from a separation profile 21 (e.g., peak values, such as peak heights, peak sharpness, and peak areas; ratios thereof; times until, between or during elution(s), absence of peaks, sharpness of peaks, etc.) or from other data, can be, if required, mathematically manipulated (in a manner well known· in the art) to provide even more information, thereby enabling even greater control over all types of operations.

Ex. 2007, page 14, line 26 to page 15, line 2.

More specifically, we find a stability gauge is described, which is the ratio of peak area for the cyclohexane soluble asphaltenes peak to the cyclohexanone or methylene chloride soluble asphaltenes peak area from the on-column precipitation and re-dissolution profile. *Id.* p. 28, lines 27–28.

We turn next to the ’599 Provisional Application (Ex. 2006), and Schabron’s contentions.

> *Rogel Claim 1. A method for determining asphaltene stability in a hydrocarbon-containing material having solvated asphaltenes therein, the method comprising the steps of:*

We are pointed by Schabron to Ex. 2006, page 9, lines 9–11. Paper 53, 14. That section states that "[e]mbodiments may include using a continuous flow system to precipitate and redissolve asphaltenes from residuum, oil, and the like to provide in order to determine the asphaltenes and the cyclohexane soluble portion of asphaltenes." *Id.*

> *(a) precipitating an amount of the asphaltenes from a liquid sample of the hydrocarbon-containing material with an alkane mobile phase solvent in a column;*

We are pointed by Schabron to Ex. 2006, page 10, lines 17–19. Paper 53, 14. That section states that "[o]nce a decalin solution may enter a column with a heptane mobile phase, heptane may displace and may even dilute the decalin, and heptane asphaltenes may precipitate." *Id.*

> *(b) dissolving a first amount and a second amount of the precipitated asphaltenes by gradually and continuously changing the alkane mobile phase solvent to a final mobile phase solvent having a solubility parameter at least 1* $MPa^{0.5}$ *higher than the alkane mobile phase solvent;*

We are pointed by Schabron to Ex. 2006, page 10, lines 20–24. Paper 53, 14. That section states that: "A solvent may be switched to cyclohexane. A portion of precipitated asphaltenes that may be soluble in cyclohexane may dissolve, and elute from a column. A solvent may be switched to a toluene:methanol mixture, which may elute the remaining material which may consists of a cyclohexane insoluble portion of the asphaltenes." *Id.*

Dr. Lobodin testifies that this is dissolving a first and second amount of asphaltenes. Ex. 2016, ¶¶ 64–65.

Schabron next asserts that Ex. 2006, page 16, lines 7–10 describes the alkane mobile phase solvent limitation. Paper 53, 14. That section states that "[a]n initial solvent may be heptane, and after sample injection, a solvent may be switched to cyclohexane at about 2 minutes. At 12 minutes, a solvent can be switched to toluene:methanol (98:2) (v:v), 10 and at about 15 minutes, a solvent may be switched back to heptane." Ex. 2006, page 16, lines 7–10.

Dr. Lobodin testifies that cyclohexane is the first mobile phase and toluene"methanol is the second mobile phase, each with the appropriate solubility parameter. Ex. 2016, ¶¶ 64–65.

As regards "gradually and continuously" Schabron asserts that Exhibit 2006 discloses a step gradient solvent change sequence at Ex. 2006, page 4, lines 9-12; page 7, lines 28-30; and page 11, lines 23-25. Dr. Lobodin testifies that flow dynamics would attenuate any such step gradient as it passes through a column so as to produce a smooth, non-vertical output curve, regardless of column size or flow rate. He concludes that single step gradients are also "gradually changing" the alkane solvent. Ex. 2016, ¶¶ 77, 78, 79. As for continuous, Schabron asserts that the '599 provisional application discloses a continuous flow system.

(c) monitoring the concentration of eluted fractions from the column;

Schabron next asserts that Ex. 2006, page 10, line 27 to page 11 line 1 describes monitoring the concentration of eluted fractions. Paper 53, 14. That section states that "[a]n optical absorbance detector can be used; however, as discussed above, there may be some variation in the absorptivities between asphaltenes from different residua, pyrolyzed and unpyrolyzed asphaltenes, and the cyclohexane soluble and insoluble portions of asphaltenes. Embodiments may include the use of an evaporative light scattering detector ("ELSD").” Ex. 2006, page 10, line 27– page 11, line 1.

Dr. Lobodin testifies that ELSD detectors are used to monitor “concentration of eluted fractions from the column.” Ex. 2016, ¶¶ 64 (Chart 3).

> (d) *creating a solubility profile of the dissolved asphaltenes in the hydrocarbon-containing material*; *and*

Schabron next asserts that Ex. 2006, page 16, lines 12–13 describe creating a solubility profile. Paper 53, 15. That section states that “[a]n example of a separation profile for 10 mg of unpyrolyzed Redwater, B.C. residuum is shown in Figure 6. A separation profile may show no shoulders or perhaps even distorted peaks that may occur with undesired adsorption effects.” Ex. 2006, page 16, lines 12–14. Further, “[i]t may be desirable in embodiments, to establish a single set of conditions to perform a method with a suite of original and pyrolyzed residua generated in the earlier phases of a study. An optical absorption detector separation profiles could be evaluated at about 400 nm. As mentioned earlier, another type of detector that can be used may include a ELSD evaporative light scattering HPLC detector, which may provides more uniform response than an optical absorbance detector.” *Id.*, page 17, line 29–page 18, line 5.

Dr. Lobodin testifies that solubility profiles result from data generated by detecting column elutions, and Figure 8 illustrates a solubility profile. Ex. 2016, ¶¶ 64–65 (Chart 3).

> *(e) determining one or more asphaltene stability parameters of the hydrocarbon-containing material.*

Schabron next asserts that the provisional application, Ex. 2006, page 1, lines 21–23, describes determining an asphaltene stability parameter. Paper 53, 15.

That section states "[a] proximity to coke formation can be measured using WRI Coking Indexes, which may be calculations based on flocculation titration data or even a solubility of heptane asphaltenes in cyclohexane." Ex. 2006, page 1, lines 21–23

According to Schabron, other various examples of stability parameters are given - coking index based on "solubility of heptane asphaltenes in cyclohexane at p. 5, l. 21-24; determination of "mass fraction of heptane asphaltenes that dissolve in cyclohexane" at p. 6, l. 10-12, and others.

We find Schabron's positions and evidence as to the above elements to be persuasive, prior to considering the opposition.

The Opposition

Rogel takes issue with the Schabron characterization of the claim, and its broadest reasonable interpretation. Paper 81, 2. More specifically, Rogel urges that Neither Schabron's '599 Provisional Application nor Schabron's '491 Non-Provisional Application discloses or provides written description or enabling disclosure of the term "gradually and continuously changing the alkane mobile phase solvent to a final mobile phase solvent." *Id.,* citing Exs. 2006, 2007.

The reasoning is that Schabron's '599 and '491 Applications disclose stopping a flow of 100% of a first solvent and replacing it with a flow of 100% of a different, second or subsequent solvent—in what Schabron calls a "step gradient." Dr. Carbognani testifies that during the "gradually and continuously" solvent-changing step, the amount of initial alkane mobile phase solvent fed into the column is incrementally decreased while the amount of the final mobile phase solvent fed into the column is incrementally increased, without interruption, resulting in a blend or mixture of the two solvents. Ex. 1012 at ¶ 29.

He further testifies that in Schabron's '599 and '491 Applications (Exs. 2006 and 2007), the solvent is changed using a "step gradient," in which the flow of the first mobile phase solvent is interrupted and replaced with a second, different final mobile phase solvent. Accordingly, Schabron's '599 and '491 "step-gradient" solvent replacement results in a sudden change of polarity. Ex. 2016, ¶ 80.

Rogel urges that even Dr. Lobodin acknowledges that the "gradually and continuously" solvent-changing step required by the Count is different from Schabron's "step gradient" change: "Rogel discloses a repeated 1% step gradient over 5 minutes while Schabron discloses only a single step gradient (100% change)." Paper 81, 3, citing Ex. 2016, ¶ 80.

According to Rogel, Schabron's '599 and '491 Applications (Exs. 2006, 2007) disclose only discrete, instantaneous changes by interrupting the flow of one solvent and replacing it with another. Paper 81, 3 and 12–16. Accordingly, Rogel urges that these applications do not establish that the Schabron inventors had possession of the subject matter of the Count. *Id.*

The underlying facts in this situation are, for the most part, not in dispute. Schabron's example utilizes abrupt solvent input changes (Ex. 2016, ¶ 80 and 89), while Rogel's examples use solvent changes that are less so (Ex. 1001, ¶ 38). However, the *claim* which forms the Count reads more broadly than the particular embodiments. The Count uses the term "gradually and continuously" as defined in the Rogel application.

To recap that definition as provided for in Rogel's specification – "The term gradually as used herein shall be understood to mean that the alkane mobile phase solvent is incrementally removed from the column over a period of time by continuously adding a final mobile phase solvent having a solubility parameter at least 1 $MPa^{0.5}$ higher than the alkane mobile phase solvent to the column." *Id.* ¶ 37.

The definition given by Rogel does not give ratios or percentages, time limits, flow rates, or volumes. To the extent the Rogel's technical witness asserts that one of ordinary skill in the art would have understood the claims to be so limited, we find that testimony having not sufficient weight to be persuasive when compared to the intrinsic evidence of the definition in the specification. All the Count requires as regards "gradually and continually" is the ongoing addition of a final mobile phase solvent to displace the alkane mobile phase solvent. There is no specific definition given to incremental, which we ascribe its common meaning of occurring in increments, which are the amount of positive or negative change in the value of one or more of a set of variables.[8] Whatever the preferred embodiments are, they are not recited in Rogel claim 1 nor the definition of gradually and continuously.

Rogel criticizes, among other things, Schabron's proposed construction of "gradually and continuously." Paper 81, 7–9. As we relied strictly upon the intrinsic evidence in the Rogel specification, we are unpersuaded by this argument. Rogel also criticizes the experimental data of Dr. Lobodin. *Id.,* 9–11 and 17–20. As we have not found it necessary to rely upon the experimental data of Dr. Lobodin beyond its value to illustrate the change in column outflow as discussed above, we are unpersuaded by this argument.

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[8] https://www.merriam-webster.com/dictionary/incremental

Accordingly, as Schabron has met its burden of showing entitlement to benefit for Count one of the filing date of each the ’599 Application (Aug. 25, 2005) and the ’491 Application (August 25, 2006), we grant Schabron Motion 3.

IV. Judgment

Rogel filed a Priority Statement that indicated that its earliest corroborated conception coupled with diligence is March 1, 2009, a date after the benefit date now accorded Schabron. Paper 38, 1. This interference is now redeclared to reflect this change in status. Paper 106.

Accordingly, as Rogel cannot prevail on priority, this interference shall not proceed to priority. Judgment against Rogel accompanies this decision on motions. Paper 107.

Interference 106,064

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