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Paper 7
Entered: January 27, 2016

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HYDRITE CHEMICAL CO.,
Petitioner,

v.

SOLENIS TECHNOLOGIES, L.P.,
Patent Owner.

Case IPR2015-01592
Patent 8,962,059 B1

Before ERICA A. FRANKLIN, DONNA M. PRAISS, and JENNIFER MEYER CHAGNON, *Administrative Patent Judges.*

PRAISS, *Administrative Patent Judge.*

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

Hydrite Chemical Co. ("Petitioner") filed a Petition (Paper 1, "Pet.") to institute an *inter partes* review of claims 1–16 of U.S. Patent No. 8,962,059 B1 ("the '059 patent").[1] A Preliminary Response (Paper 6, "Prelim. Resp.") was filed by Solenis Technologies, L.P. ("Patent Owner").

We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may be authorized only if "the information presented in the petition . . . and any [preliminary] response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a).

Petitioner challenges claims 1–16 of the '059 patent under 35 U.S.C. § 103(a). Pet. 6. We institute an *inter partes* review as to claims 1–16 as discussed below.

I. BACKGROUND

A. Related Proceedings

We are informed that the '059 patent and commonly owned U.S. Patent 8,841,469 (the '469 patent) are the subject of *Hydrite Chemical Co. v. Solenis Technologies, L.P.*, 2-15-cv-00856 (E.D. Wis.). Pet. ix–x;[2]

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[1] The Petition also identifies Hydrite Chemical International Co. and Hydrite Advanced Resins LLC as real parties in interest as required by 35 U.S.C. § 312(a)(2). Pet. ix. This and other information on pages ix–xi not explicitly excluded by 37 C.F.R. § 42.24(a)(1) should have been included within the 60 page limit of the Petition. *See* 37 C.F.R. § 42.8(a)(1), (b); 37 C.F.R. § 42.24(a)(1)(i). We waive this requirement in this instance, rather than expunge or return the Petition pursuant to 37 C.F.R. § 42.24(a)(2), in view of the Petition being less than 60 pages.

[2] This information also should have been included within the 60 page limit of the Petition.

Paper 5, 2. The '059 and '469 patents were the subject of *Superior Oil Company, Inc. v. Solenis Technologies L.P.*, 1:15-cv-00183-GMS (D. Del.), which was dismissed with prejudice. Pet. ix–x; Paper 5, 2. The '469 patent is the subject of concurrently-filed *inter partes* review proceeding IPR2015-01586. Pet. x; Paper 5, 3.

B. The '059 Patent (Ex. 1001)

The '059 patent, titled "Bio-Based Oil Composition and Method for Producing the Same," is directed to a method of extracting oil, particularly corn oil, from a byproduct stream of an ethanol production process for the purpose of improving the value of the byproduct stream. Ex. 1001, Abstr., 1:6–10, 2:3–5. The method comprises mixing an oil concentrator with the byproduct stream. *Id*. at Abstr., 2:59–61. The oil concentrator is described as "a compound having a hydrophilic group and a lipophilic group" which "provide a hydrophile-lipophile balance (HLB) of about 12 to about 18" or "about 10 to about 19" or "preferably, around 15." *Id*. at 3:1–4, 6:57–64, 7:53–57. The '059 patent explains that HLB values are typically calculated for a particular compound to make a stable emulsion between a non-polar and polar substance. In the case of corn oil in water, the HLB requirement to form a stable emulsion is 10. *Id*. at 6:45–49. That means a surfactant having an HLB of 10 is likely to form a stable emulsion of corn oil in water. *Id*. at 6:49–51. The invention, on the other hand, is said to involve "forming an emulsion with marked instability so that the oil is easily separable from the aqueous phase." *Id*. at 6:55–56.

Examples of surfactants used as the oil concentrator in a sample of liquid stillage from an ethanol production facility using corn as the source material listed in Table 1 of the '059 patent (*id.* at 8:50–67) include

polyoxyethylene (20) sorbitan monooleate and polyoxyethelene (20) sorbitan trioleate with HLBs of 15 and 11, respectively. These oil concentrators are observed to be two of "only four of the listed surfactants [that] contribute to an enhancement of oil recovery over the benchmark." *Id*. at 10:4–11.

Figure 2 of the '059 patent, below, schematically describes a method of extracting oil from an ethanol production byproduct stream referred to as "whole stillage":

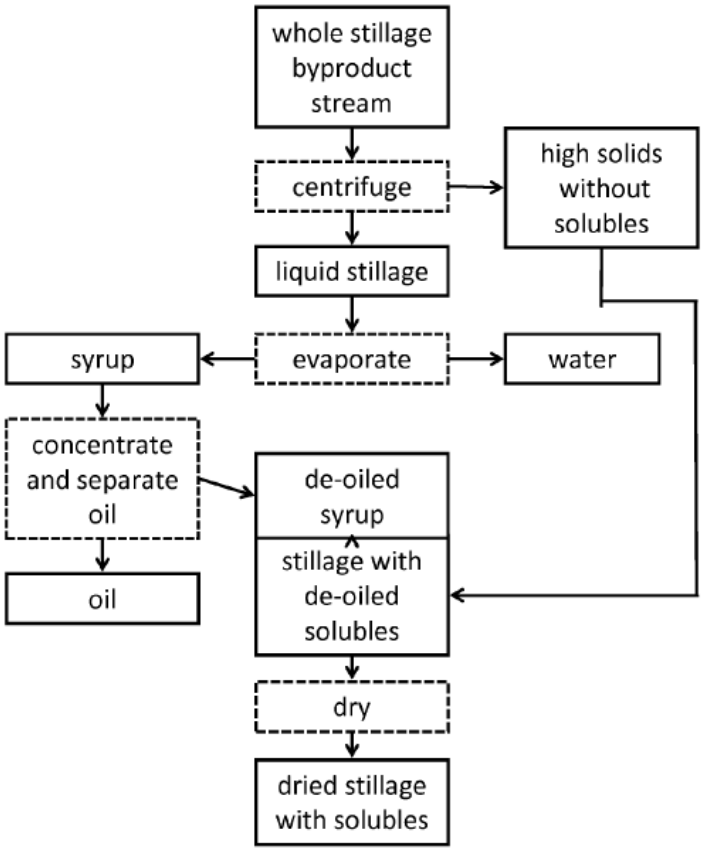

FIG. 2

Figure 2 depicts the process steps in dashed boxes and the byproduct streams in solid line boxes. *Id*. at 4:26–29. According to the '059 patent, centrifugation is commonly used to separate a liquid stillage stream from the

whole stillage byproduct stream. *Id.* at 4:29–32. The prior art also discloses mechanical means for obtaining oil from a syrup. *Id*. at 4:50–51. The disadvantage of mechanical separation techniques is that additional energy is required to generally increase yield, making the removal inefficient as "substantial oil is left within the byproduct streams to maximize the cost-benefit of the extraction." *Id*. at 2:25–53. Embodiments in the '059 patent describe adding an oil concentrator to the syrup to facilitate separation of the oil from the liquid (*id*. at 4:53–57 (referring to Figure 3)) and adding an oil concentrator directly to the whole stillage by product stream prior to separation into high solids and liquid stillage byproduct streams (*id*. at 4:65–5:2 (referring to Figure 4)).

C. Illustrative Claims

Independent claims 1 and 13 are illustrative of the claims at issue:

> 1. A method of extracting oil from a byproduct stream of a bio-based ethanol production process, comprising:
>
> mixing an ethoxylated sorbitan ester with the byproduct stream;
>
> centrifuging the mixture of the ethoxylated sorbitan ester and the byproduct stream; and
>
> separating the oil from the mixture.

Ex. 1001, 13:25–31.

> 13. A method of extracting oil from a liquid stillage byproduct of a bio-based ethanol production process, comprising:
>
> evaporating water from the liquid stillage to produce a syrup;
>
> processing the syrup to a temperature between 100°F and 212°F and a pH between 3 and 7;

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