

***THIS OPINION WAS NOT WRITTEN FOR PUBLICATION***

The opinion in support of the decision being entered today  
(1) was not written for publication in a law journal and  
(2) is not binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* WARREN A. THALER,  
JOHN C. NEWLOVE, CRUISE K. JONES  
and DAVID B. ACKER

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Appeal No. 94-3973  
Application 08/029,754<sup>1</sup>

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ON BRIEF

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Before JOHN D. SMITH, GARRIS and WARREN, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

*Decision on Appeal*

This is an appeal under 35 U.S.C. <sup>1</sup> 134 from the decision of the examiner finally rejecting claims 1 through 4, 8 and 9. Claims 1 and 8 are illustrative of the claims on appeal:

1. A drilling mud additive concentrate for use in oil-based drilling muds consisting essentially of:  
a hydrocarbon oil and viscosification agent, the viscosification agent being selected from sulfonated and neutralized sulfonated polymers and being present in amounts ranging from about 5 gm to about 20 gm per 100 gm of oil.

Claim 8. In the method of preparing an oil-based drilling mud fluid composition by combining a viscosification agent selected from the group consisting of sulfonated and neutralized sulfonated

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<sup>1</sup> Application for patent filed March 11, 1993. According to appellants, this application is a continuation of application 07/909,321, filed July 6, 1992, now abandoned, which in turn is a continuation of application 07/720,043, filed June 24, 1991, now abandoned.

polymers with a base oil mud formulation, the improvement consisting essentially of:

first forming a solution of a low unsaturated polymer in a hydrocarbon oil in amounts to provide from about 5 wt.% to about 20 wt.% of the polymer in the oil; and

adding a sulfonating agent to the solution of the polymer in the oil in an amount sufficient to provide about 50 mmol to about 100 mmol of pendant sulfonate groups per 100 gm of polymer, whereby a solution of sulfonated polymer in the oil is obtained and when the viscosification agent is a neutralized sulfonated polymer adding a base to the solution of sulfonated polymer in an amount sufficient to neutralize the polymer; and

thereafter combining the solution of the sulfonated polymer or neutralized sulfonated polymer with the base oil mud formulation, whereby an oil-based drilling fluid composition is prepared.

The appealed claims as represented by claims 1 and 8.<sup>2</sup> Claim 1 is drawn to drilling mud additive concentrate compositions which consist essentially of a hydrocarbon oil and a sulfonated or neutralized sulfonated polymer as a viscosification agent. Claim 8 is drawn to methods of preparing an oil based drilling mud fluid wherein the improvement consists essentially of preparing a solution of a sulfonated or neutralized sulfonated polymer viscosification agent in a hydrocarbon oil by adding a sulfonating agent to a solution of a low unsaturated polymer in the hydrocarbon oil, optionally neutralizing with a base, and thereafter combining the solution of the sulfonated or neutralized sulfonated polymer in the hydrocarbon oil with a base oil mud formulation. According to appellants, the solution of a sulfonated polymer or neutralized sulfonated polymer in a hydrocarbon oil is <sup>A</sup>readily incorporated<sup>@</sup> into oil based drilling mud fluids (specification, e.g., page 3).

The references relied on by the examiner are:

Thaler et al. (Thaler)	4,442,011	Apr. 10, 1984
Lundberg et al. (Lundberg)	4,447,338	May 8, 1984
Jachnik	WO 83/02951	Sep. 1, 1983

(published World Intel. Prop. Org. Application)

T.W. Duke, P.R. Parrish, et al., <sup>A</sup>Acute Toxicity of Eight Laboratory-Prepared Generic Drilling Fluids to Mysids,<sup>@</sup>U.S. Environmental Protection Agency Report No. EPA-600/3-84-067. June 1984. (Duke)

The examiner has rejected appealed claims 1 through 3, 8 and 9 under 35 U.S.C. ' 103 as being unpatentable over Lundberg or Thaler and appealed claim 4 under 35 U.S.C. ' 103 as being unpatentable over Lundberg or Thaler as previously applied, further in view of Duke and Jachnik. We affirm the first ground of rejection with respect to appealed claims 1 through 3 but reverse this ground

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<sup>2</sup> Appellants have grouped claims 1 through 4 together and claims 8 and 9 together for purposes of appeal (brief, page 2). Thus, we decide this appeal based on appealed claims 1 and 8. 37 CFR ' 1.192(c)(5) and (6)(1993).

with respect to appealed claims 8 and 9. We affirm the second ground of rejection.

Rather than reiterate the respective positions advanced by the examiner and appellants, we refer to the examiner's answer (Paper No. 12) and to appellants' brief (Paper No. 9) for a complete exposition thereof.

#### *Opinion*

We have carefully considered the record before us, and based thereon, find that we cannot sustain the ground of rejection of method claims 8 and 9 on appeal under 35 U.S.C. § 103 over Lundberg or Thaler. In determining the subject matter sought to be patented, and mindful that we must give the broadest reasonable interpretation to the terms of the appealed claims consistent with appellant's specification as it would be interpreted by one of ordinary skill in this art, we find that one of ordinary skill in this art would have concluded from appellants' specification (e.g., pages 4, 5, 7 and 9) that the term "hydrocarbon oil" appearing in appealed claim 8 is an "oil used in oil-based drilling mud compositions" (specification, page 4). *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *York Prods., Inc. v. Central Tractor Farm & Family Ctr.*, 99 F.3d 1568, 1572-73, 40 USPQ2d 1619, 1622 (Fed. Cir. 1996), and cases cited therein (a claim term will be given its ordinary meaning unless appellant discloses a novel use of that term); *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). *supra* (During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow. When the applicant states the meaning that the claim terms are intended to have, the claims are examined with that meaning, in order to achieve a complete exploration of the applicant's invention and its relation to the prior art.).

We are of the opinion that the examiner has failed to make out a *prima facie* case of obviousness because the non-reactive hydrocarbon solvents taught in both Lundberg (e.g., col. 4, lines 46-48, and Examples 1-3) and Thaler (col. 3, lines 50-51) are *volatile* hydrocarbon *liquids* and not hydrocarbon *oils* as specified in appealed claim 8. We find no evidence or explanation on this record why one of ordinary skill in this art would have considered conducting the sulfonation reaction as taught in Lundberg and Thaler in hydrocarbon oils that are used in oil-based drilling muds or that such volatile hydrocarbon solvents as hexane are used as oils in oil-based drilling mud compositions. Indeed, the examiner's position is based on his conclusion that the "reaction media are no different from media for the end use of the product" (answer, page 5). Thus, even if one of ordinary skill in this art modified the process of Lundberg and of Thaler by omitting the recovery steps used to obtain the sulfonated or neutralized sulfonated polymer *per se* as proposed by the examiner, it is not apparent on this record that

the resulting solution of sulfonated or neutralized sulfonated polymer in a volatile hydrocarbon liquid is the same as or similar to the solution of sulfonated polymer or neutralized sulfonated polymer in hydrocarbon oil obtained by the process in appealed claim 8. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1050-54, 5 USPQ2d 1434, 1438-41 (Fed. Cir.), *cert. denied*, 488 U.S. 825 (1988); *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531-32 (Fed. Cir. 1988); *compare In re Spada*, 911 F.2d 705, 708-09, 15 USPQ2d 1655, 1657-58 (Fed. Cir. 1990); *In re Best*, 562 F.2d 1252, 1255-56, 195 USPQ 430, 433-34 (CCPA 1977).

We do not reach the same conclusion with respect to the drilling mud additive concentrate compositions of appealed claims 1 through 4. All that claim 1 requires is the combination of a hydrocarbon oil used in oil-based drilling muds and a sulfonated or neutralized sulfonated polymer as a viscosification agent. Indeed, we find no limitation in claim 1 which requires that the sulfonated or neutralized sulfonated polymer must be dissolved in the hydrocarbon oil even to some extent.. We are of the opinion that such a mixture would have been reasonably suggested to one of ordinary skill in this art by the teachings of Lundberg and Thaler, which person would have been further motivated to use a low toxicity hydrocarbon oil in such a composition by Duke and Jachnik. Indeed, Lundberg discloses that <sup>A</sup>*[i]t has been observed* that sulfonated polymers formed by sulfonation often do not readily dissolve in hydrocarbons such as diesel oil or solvent 100 neutral and similar hydrocarbon solvents<sup>@</sup> (col. 6, lines 8-11; emphasis ours). Thus, Lundberg teaches that as little as 1 part by weight of a polar solvent, which is soluble or miscible with the oil-based drilling fluids, per 100 parts by weight of oil in the drilling fluid can be used to more rapidly and completely dissolve sulfonated polymers, which are normally insoluble in the oil, in the oil-based drilling muds (col. 6, lines 16-30 and 38-62). Lundberg further teaches that the addition of the polar solvent is optional and that <sup>A</sup>at lower sulfonate levels, . . . these polymers can be dissolved in the absence of such cosolvents<sup>@</sup> (col. 2, lines 31-37, and col. 6, lines 30-33). Thaler provides similar teachings with respect to other sulfonated and neutralized sulfonated polymers (col. 2, lines 36-43; and col. 4, line 62, to col. 5, line 43).

We are of the opinion that one of ordinary skill in this art armed with the knowledge in the art that sulfonated polymers had been observed to dissolve at least to some extent in hydrocarbons *per se*, such as diesel fuel, that are used as hydrocarbon oils in oil-based drilling muds, as acknowledged by Lundberg and Thaler, would have been motivated to combine a lower level sulfonated polymer with such a hydrocarbon oil *without* the aid of a polar cosolvent as well as to combine a higher level sulfonated polymer with such a hydrocarbon oil *with* the aid of a polar cosolvent in the amount in

relationship to the amount of hydrocarbon oil in the oil-based drilling muds as taught by Lundberg and Thaler, with the reasonable expectation of successfully obtaining a composition which could be used in oil-based drilling. *Compare In re Castner*, 518 F.2d 1234, 1238-39, 186 USPQ 213, 217 (CCPA 1975) (A[W]hen the ingredients are associated in an obvious manner set forth in the claims, they do not co-act with each other in any new or unexpected way and define nothing patentable over the prior art.®).

With respect to appellants' arguments presented in their brief (pages 3-4), we recognize that the polar cosolvent taught to be optional by Lundberg and Thaler is not specified in appealed claim 1. However, we conclude that appealed claim 1 would read on drilling mud additive concentrate compositions that contain polar solvents as permitted by the use of the phrase Aconsisting essentially of® as we find no basis in the specification for excluding ingredients from the claimed compositions that do not materially affect the basic and novel characteristics of the claimed compositions. *See In re Herz*, 537 F.2d 549, 551-552, 190 USPQ 461, 463 (CCPA 1976); *Ex parte Boukidis*, 154 USPQ 444 (Bd. App. 1966). We are of the view that the one of ordinary skill in the art would have recognized the expediency of using a polar cosolvent in connection with sulfonated polymer and hydrocarbon oils for oil-based drilling muds as seen from Lundberg and Thaler and we note that the specification teaches that the compositions can contain polar additives in connection with the neutralization of the sulfonated polymer (pages 6-7).

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of obviousness found in the combination of Lundberg and Thaler with respect to appealed claims 1 through 3 and in the combination thereof with Duke and Jachnik with respect to appealed claim 4 with appellants' countervailing evidence of and argument for nonobviousness and conclude that by a preponderance of the evidence the claimed invention as a whole encompassed by claims 1 through 4 on appeal would have been obvious as a matter of law under 35 U.S.C. ' 103.

Accordingly, we have affirmed the rejection of appealed claims 1 through 3 over Lundberg or Thaler and the rejection of appealed claim 4 over Lundberg or Thaler further in view of Duke and Jachnik, but we have reversed the rejection of appealed claims 8 and 9 over Lundberg and Thaler.

The examiner's decision is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR ' 1.136(a).

*AFFIRMED-IN-PART*

JOHN D. SMITH  
Administrative Patent Judge

BRADLEY R. GARRIS  
Administrative Patent Judge

CHARLES F. WARREN  
Administrative Patent Judge

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Exxon Research and Engineering Company  
P.O. Box 390  
Florham Park, NJ 07932-0390