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The time period for reply, if any, is set in the attached communication.

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* THE FU YEN and  
WILLIAM TSUNG-CHIEH FAN

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Appeal 2012-001013  
Application 12/015,861  
Technology Center 1700

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Before EDWARD C. KIMLIN, TERRY J. OWENS, and  
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-5, 7, 9-17 and 19-24. We have jurisdiction under 35 U.S.C. § 6(b). Claim 1 is illustrative:

1. A method for separating impurities from used oil comprising:  
selecting a used oil;  
selecting a polar solvent;  
selecting a non-polar solvent;  
mixing the used oil, polar solvent, and non-polar solvent such that the used oil, polar solvent and non-polar solvent form a single phase mixture and wherein the polar solvent comprises between 85 and 95 percent of the combined volume of polar and non-polar solvent, and wherein the non-polar

solvent comprises between 5 and 15 percent of the combined volume of polar and non-polar solvent; and  
separating particulate ash from the mixture of used oil polar solvent, and non-polar solvent.

The Examiner relies upon the following references as evidence of obviousness:

Habiby et al. (Habiby)	4,021,333	May 3, 1977
Forsberg	4,154,670	May 15, 1979

Appellants' claimed invention is directed to a method for separating impurities from used oil. The method entails mixing the used oil with a mixture of a polar solvent, such as acetone, and a non-polar solvent, such as hexane. The polar solvent comprises between 85 and 95 percent of the combined volume of polar and a non-polar solvent.

Appealed claims 1-5, 7, 9, 10, 12, and 14-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Habiby. Claims 11 and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Habiby in view of Forsberg.

We have thoroughly reviewed each of Appellants' arguments for patentability. However, we are in complete agreement with the Examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of §103 in view of the applied prior art. Accordingly, we will sustain the Examiner's rejections for essentially those reasons expressed in the Answer, and we add the following primarily for emphasis.

There is no dispute that Habiby, like Appellants, disclose a method for separating impurities from used oil by treating the used oil with a mixture of

a polar and non-polar solvent which may be acetone and hexane, respectively (col. 3, ll. 34-56). Habiby teaches that the mixture of solvents, or diluents, may be added to the used oil to remove insoluble impurities. Accordingly, based on this cogent disclosure of Habiby, we find no error in the Examiner's legal conclusion that it would have been obvious for one of ordinary skill in the art to perform the presently claimed method for separating impurities from used oil.

We find no merit in Appellants' argument that Habiby only discloses hexane and acetone in hypothetical lists of diluents and only hypothetically lists mixtures thereof. Habiby provides an express teaching that suitable diluents are hydrocarbons such as naphtha and hexane and lower alkanols such as acetone. While it is true, as argued by Appellants, that Habiby does not exemplify a mixture of hexane and acetone, it is well settled that a reference must be considered for all that it fairly teaches, and is not limited to its preferred or exemplified embodiments. Appellants have presented no convincing rationale for why one of ordinary skill in the art would not have selected a mixture of hexane and acetone from the relatively small lists provided by Habiby.

As for the recited ranges of concentrations for the polar and non-polar solvents, Habiby teaches that the ratio of diluent to oil maybe chosen so as to provide optimum separation for the insoluble impurities. Therefore, it logically follows that one of ordinary skill in the art would have also selected the optimum ratio of polar to non-polar solvent to maximize the separation of impurities from the used oil. Also, where patentability is predicated upon a change in a condition of a prior art composition, such as a

change in concentration or the like, the burden is on the applicant to establish with objective evidence that the change in critical, i.e., it leads to a new, unexpected result. *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990). In the present case, the Examiner has properly pointed out that Appellants have not proffered any objective evidence of unexpected results attached to the claimed concentrations.

Appellants submit that Habiby teaches away from the claimed invention by disclosing that “a different step, heating the used oil to high temperatures with a strongly alkaline material such as sodium hydroxide, is necessary to remove metallic constituents from the oil” (Prin. Br. 9, first para.). However, Habiby does not teach that such step is necessary to remove metallic impurities but, rather, the alkaline treatment is an optional step which advantageously produces a concentrated, solid sludge. As explained by the Examiner, since the reference teaches treating the used oil with the same polar and non-polar solvents presently claimed, it logically follows that the mixture of Habiby would necessarily remove the same impurities as Appellants’ mixture. There is simply no factual basis for Appellants’ argument that “ Habiby teaches that dilution and filtration of the oil does not remove metallic constituents” (Prin. Br. 15, last para.).

In conclusion, based on the foregoing and the reasons well stated by the Examiner, the Examiner’s decision rejecting the appealed claims is affirmed.

The decision of the Examiner is affirmed.

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Application 12/015,861

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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