

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte UWE KLINGLER, HANS-GEORG PIRKL,  
THOMAS SCHIEB, and DIETMAR WASTIAN

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Appeal No. 2001-0405  
Application No. 09/169,087

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ON BRIEF

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Before GARRIS, PAK, and PAWLIKOWSKI, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the final rejection of claims 1-12 which are all of the claims in the application.

The subject matter on appeal relates to a process for producing dinitrotoluene comprising reacting toluene with nitric acid under adiabatic conditions, concentrating the reaction

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mixture to a water content of up to 30% by weight and adding solvent to vapor generated during the concentrating step to keep any dinitrotoluene present liquid. By way of explanation concerning this last mentioned step, when solvent is not added to a vapor generated during the concentrating step, the dinitrotoluene present in the vapor forms solid deposits in the subsequent vapor condensation stage thereby resulting in a fouling problem. By adding solvent to the vapor, the dinitrotoluene manifests in a liquid rather than solid form in the vapor condensation stage, thereby avoiding a fouling problem. This appealed subject matter is adequately illustrated by independent claim 1 which reads as follows:

1. A process for producing dinitrotoluene comprising:
  - a) reacting toluene with nitric acid at a temperature of from about 60 to 200°C in amounts such that the molar ratio of toluene to nitric acid is from about 1:1.5 to about 1:3.0 under adiabatic conditions,
  - b) concentrating the reaction mixture from step a) to a water content of up to 30% by weight,
  - c) removing the dinitrotoluene present in the reaction mixture produced in a) completely or partially from the reaction mixture before or after concentration in step b),
  - d) adding solvent to vapor generated during step b) to keep any dinitrotoluene present liquid,
  - e) recovering dinitrotoluene from the concentrated mixture formed in step b), and

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f) collecting the solvent and any dinitrotoluene present therein.

The reference set forth below is relied upon by the examiner in the section 102 and section 103 rejections before us:

Klingler et al. (Klingler)      CA 2155561      Feb. 12, 1996

Claims 1-11 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Klingler, and claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Klingler.<sup>1</sup>

Rather than reiterate the respective positions advocated by the appellants and by the examiner concerning the above noted rejections, we refer to the brief and reply brief and to the answer for a complete exposition thereof.

OPINION

We will sustain each of these rejections for the reasons expressed in the answer and below.

The section 102 rejection

The examiner considers the appealed claim 1 step of adding solvent to the vapor generated during the reaction mixture concentrating step as inherently practiced by the process of

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<sup>1</sup> As indicated on page 3 of the brief, the claims have been grouped and argued on this appeal in accordance with the manner in which they have been rejected. Accordingly, in assessing the merits of these rejections, we need focus only on independent claim 1 and dependent claim 12.

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Klingler due to the presence of mononitrotoluene (MNT) solvent which is maintained in Klingler's reaction mixture. We agree. During the concentrating step, the MNT in Klingler's reaction mixture becomes vaporized along with water and a small amount of dinitrotoluene product so as to ensure that the vapor condensate is in fluid form, thereby avoiding the fouling problem caused when dinitrotoluene deposits out in solid form (i.e., when solvent is not present in the vapors to-be-condensed). Clearly, during Klingler's concentrating step wherein MNT solvent is vaporized along with water and dinitrotoluene, the solvent is "added" (i.e., by virtue of being vaporized) to the vapor generated during the concentrating step. In this way, Klingler's concentrating step necessarily and inherently effects the here claimed step of "adding solvent to vapor generated during [the concentrating] step b) to keep any dinitrotoluene present liquid."

In support of their contrary view, the appellants argue that Klingler's process must not inherently practice the solvent adding step of the here claimed process because the former process can not achieve the high product yields that are obtainable via the latter process. Even accepting that Klingler's process is not capable of achieving the yields

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possible with the here claimed process, the aforementioned argument nevertheless is unpersuasive. This is for the simple reason that the independent claim on appeal has been drafted so broadly that it encompasses the less yield-efficient process of Klingler.

As further support for their contrary view, the appellants present on page 3 of the reply brief the argument set forth below:

In short, in Klingler et al's process, a certain minimal amount of MNT must be present in the reaction vessel during the concentration step and consequently will be present in the vapor generated during removal of water. In Appellants' process, MNT need only be added to vapor generated during removal of water to concentrate the reaction mixture.

Appellants' submit that Klingler et al's process in which MNT is present in two stages **does not inherently** teach their process in which MNT need be present in only one stage.

This argument also is unpersuasive for reasons analogous to those expressed above. More specifically, the appealed independent claim before us does not exclude the presence of MNT "in two stages" and thus is not limited to the presence of MNT "in only one stage."

In light of the foregoing and for the reasons expressed in the answer, we will sustain the examiner's section 102(b) rejection of claims 1-11 as being anticipated by Klingler.

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The section 103 rejection

Concerning this rejection, the appellants advance the following argument in the sentence bridging pages 5 and 6 of the brief:

As has already been discussed above, Klingler et al does not teach or suggest the **addition** of any solvent much less the amount of solvent necessary to generate a vapor satisfying the added solvent to DNT ratio specified in Appellants' Claim 12.

This argument is unconvincing because, as previously explained, the process of Klingler necessarily and inherently practices the solvent adding step of the independent claim on appeal. Moreover, it is appropriate to emphasize that the ratios of solvent to dinitrotoluene present in the vapor which are disclosed by Klingler (e.g., see the paragraph bridging pages 3 and 4) are encompassed by the broad range of ratios defined by here rejected claim 12. For these reasons, we also shall sustain the examiner's section 103 rejection of claim 12 as being unpatentable over Klingler.

Summary

The decision of the examiner is affirmed.

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

AFFIRMED

Bradley R. Garris	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
Chung K. Pak	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
	)	
Beverly A. Pawlikowski	)	
Administrative Patent Judge	)	

BRG:tdl

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