

**CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION  
UNDER 37 CFR 1.102(e)** (Page 1 of 1)

First Named Inventor:	Cody Nath	Nonprovisional Application Number (if known):	
Title of Invention:	Process For Removing Hydrocarbons And Noxious Gasses From Reactors And Media-Packed Equipment		

**APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.**

1. The processing fee set forth in 37 CFR 1.17(i), the prioritized examination fee set forth in 37 CFR 1.17(c), and if not already paid, the publication fee set forth in 37 CFR 1.18(d) have been filed with the request. The basic filing fee, search fee, examination fee, and any required excess claims and application size fees are filed with the request or have been already been paid.
2. The application contains or is amended to contain no more than four independent claims and no more than thirty total claims, and no multiple dependent claims.
3. The applicable box is checked below:

**I.  Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)**

- i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.  
---OR---  
(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.
- ii. An executed oath or declaration under 37 CFR 1.63 is filed with the application.

**II.  Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)**

- i. A request for continued examination has been filed with, or prior to, this form.
- ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
- iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
- iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
- v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature /R. Scott Reese/	Date 2014-07-16
Name (Print/Typed) R. Scott Reese	Practitioner Registration Number 47,891

**Note:** Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required in accordance with 37 CFR 1.33 and 11.18. Please see 37 CFR 1.4(d) for the form of the signature. If necessary, submit multiple forms for more than one signature, see below\*.

\*Total of 1 forms are submitted.

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The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

## CLAIMS

1. A method for removing a contaminant from a process system, comprising the steps of:
  - (i) providing a carrier gas source;
  - (ii) providing a non-aqueous solvent source;
  - (iii) delivering the carrier gas and the non-aqueous solvent from their respective sources to the process system; and
  - (iv) removing said contaminant out of said system, wherein substantial amount of said contaminant is dissolved in said solvent in a vapor or liquid state as it is being removed from said system.
2. The method of claim 1, wherein the process system is selected from the group consisting of a reactor, an absorbent chamber containing a molecular sieve, and a pressure vessel.
3. The method of claim 1, wherein the process system comprises a reactor circuit used in a refining hydrotreating process and associated equipment.
4. The method of claim 1 wherein the carrier gas is at least one member selected from the group consisting of inert gas, purchase fuel gas and hydrogen.
5. The method of claim 1 wherein the carrier gas is at least one dry gas with the chemical formula  $C_nH_{2n+2}$ , wherein n is an integer greater than 0 but less than 6.
6. The method of claim 1 wherein the carrier gas is hydrogen.
7. The method of claim 6 wherein said organic contaminant comprises at least one member selected from the group consisting of crude oil and its derivatives, hydrocarbons and noxious gases.
8. The method of claim 6, wherein said organic contaminant is a noxious gas, said noxious gas being at least one member selected from the group consisting of

hydrogen sulfide, benzene, carbon monoxide, and a light end hydrocarbon, said light end hydrocarbon being capable of resulting in a positive reading when tested for the Lower Explosive Limit (or “LEL”).

9. The method of claim 1, wherein the carrier gas is circulated through the system using a compressor.

10. The method of claim 1, wherein the temperature of the equipment in the system is adjusted to a range of between 225 F and 400 F prior to the introduction of the solvent.

11. The method of claim 1 wherein the solvent is introduced into the carrier gas by connecting the gas and solvent sources.

12. The method of claim 1 wherein the solvent is a non-polar organic solvent.

13. The method of claim 1 wherein the solvent is a C1-C50 hydrocarbon.

14. The method of claim 1 wherein the solvent comprises at least one member selected from the group consisting of aliphatic, paraffinic, isoparaffinic, aromatic, naphthenic, olefinic, diene, terpene, polymeric or halogenated hydrocarbon, and wherein the solvent is a naturally occurring, synthetic or processed organic solvent.

15. The method of claim 1 wherein the solvent is a natural terpene or its hydrogenated derivatives.

16. The method of claim 1 wherein the solvent is a processed solvent selected from the group consisting of an aromatic solvent, virgin naphtha, terpene and hexane.

17. The method of claim 1 wherein the solvent comprises one or more organic compounds.

18. The method of claim 1 wherein the solvent is delivered to the system as a vapor and the volumetric or weight ratio of said solvent vapor and the carrier gas is accurately controlled.

19. The method of claim 18 wherein the weight ratio between said solvent vapor and said carrier gas is in the range of about 0.1 to about 6.

20. The method of claim 18 wherein the weight ratio between said solvent vapor and said carrier gas is in the range of about 2 to about 4.

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