

WHAT IS CLAIMED IS:

1. A method for removing metal impurities from an organic solvent,
comprising:
5 passing the organic solvent through first and second filter units to obtain a
purified organic solvent,
 wherein the first filter unit comprises a first housing and at least one first filter in
the first housing, and the first filter comprises a filtration medium comprising a positively
charged ion exchange resin; and
10 wherein the second filter unit comprises a second housing and at least one
second filter in the second housing, and the second filter comprises a filtration medium
comprising a negatively charged ion exchange resin.
2. The method of claim 1, wherein the filtration medium in the first or second
15 filter comprises a polyamide, a polyolefin, a fluoropolymer, or a copolymer thereof.
3. The method of claim 1, wherein the filtration medium in the first filter
comprises a polyamide.
- 20 4. The method of claim 3, wherein the filtration medium in the first filter
comprises a nylon.
5. The method of claim 1, wherein the filtration medium in the first filter
comprises quaternary ammonium groups.
25 6. The method of claim 1, wherein the filtration medium in the second filter
comprises high density polyethylene.
7. The method of claim 1, wherein the filtration medium in the second filter
30 comprises sulfonate groups.

8. The method of claim 1, wherein the filtration medium in the first or second filter comprises a polytetrafluoroethylene.

9. The method of claim 1, wherein the first filter unit comprises 1 to 20 first filters, and the second filter unit comprises 1 to 20 second filters.

10. The method of claim 1, wherein passing the organic solvent through the first or second filter unit is performed at a temperature of at most about 80°F.

11. The method of claim 1, further comprising passing the organic solvent through at least one heat exchanger to maintain the temperature of the organic solvent at most about 80°F.

12. The method of claim 1, further comprising passing the organic solvent through at least one particle removal filter unit, wherein the at least one particle removal filter unit is disposed upstream of the first and second filter units, between the first and second filter units, or downstream of the first and second filter units.

13. The method of claim 1, further comprising moving the purified solvent to a packaging station.

14. The method of claim 1, wherein the organic solvent comprises cyclohexanone, ethyl lactate, n-butyl acetate, propylene glycol monomethyl ether, propylene glycol monomethyl ether acetate, 4-methyl-2-pentanol, or propylene carbonate.

15. The method of claim 1, wherein the organic solvent comprises metal impurities comprising a metal selected from the group consisting of alkali metals, alkaline earth metals, main group metals, transition metals, and lanthanide metals.

16. The method of claim 15, wherein the metal impurities comprises a metal selected from the group consisting of Cu, Fe, Cr, K, Ni, and Zn.

17. The method of claim 15, wherein the purified organic solvent comprises a
5 metal impurity at an amount of at most about 15 ppt of the purified organic solvent.

18. A system, comprising:
first and second filter units in fluid communication with each other,
wherein the first filter unit comprises a first housing and at least one first filter in
10 the first housing, and the first filter comprises a filtration medium comprising a positively
charged ion exchange resin; and
wherein the second filter unit comprises a second housing and at least one
second filter in the second housing, and the second filter comprises a filtration medium
comprising a negatively charged ion exchange resin.

15

19. The system of claim 18, wherein the filtration medium in the first or second
filter comprises a polyamide, a polyolefin, a fluoropolymer, or a copolymer thereof.

20. The system of claim 19, wherein the filtration medium in the first filter
20 comprises a polyamide.

21. The system of claim 20, wherein the filtration medium in the first filter
comprises a nylon.

22. The system of claim 18, wherein the filtration medium in the first filter
25 comprises quaternary ammonium groups.

23. The system of claim 18, wherein the filtration medium in the second filter
comprises high density polyethylene.

30

24. The system of claim 18, wherein the filtration medium in the second filter comprises sulfonate groups.

25. The system of claim 18, wherein the filtration medium in the first or second
5 filter comprises a polytetrafluoroethylene.

26. The system of claim 18, wherein the first filter unit comprises 1 to 20 first filters, and the second filter unit comprises 1 to 20 second filters.

10 27. The system of claim 18, further comprising at least one heat exchanger upstream of the first and second filter units, between the first and second filter units, or downstream of the first and second filter units.

28. The system of claim 18, further comprising at least one particle removal
15 filter unit upstream of the first and second filter units, between the first and second filter units, or downstream of the first and second filter units.