CLAIMS:

1. A method for removing impurities from an organic solvent, comprising:

distilling the organic solvent in a distillation column to obtain a distilled organic solvent; and

passing the distilled organic solvent through an ion exchange filter unit to obtain a purified organic solvent;

wherein the ion exchange filter unit comprises at least one first ion exchange filter and at least one second ion exchange filter, the at least one first ion exchange filter and the at least one second ion exchange filter are both negatively charged ion exchange filters and are connected in series, the at least one first ion exchange filter comprises a filtration medium that comprises a polyolefin or a copolymer thereof, the at least one second ion exchange filter comprises a filtration medium that comprises a fluoropolymer or a copolymer thereof, and the at least one second ion exchange filter is disposed downstream of the at least one first ion exchange filter.

2. The method of claim 1, wherein the organic solvent comprises an alcohol.

3. The method of claim 1 or claim 2, wherein the organic solvent comprises isopropyl alcohol.

4. The method of any one of claims 1 to 3, wherein the filtration medium in the at least one first ion exchange filter comprises a polyethylene having sulfonate groups or a copolymer thereof.

5. The method of any one of claims 1 to 4, wherein the ion exchange filter unit comprises two to five first ion exchange filters.

6. The method of claim 5, wherein the first ion exchange filters are connected in parallel.

7. The method of any one of claims 1 to 6, wherein the at least one first ion exchange filter is capable of removing at least 90 wt% of Fe, Ni, Cr, Zn, or Cu from the organic solvent.

8. The method of any one of claims 1 to 7, wherein the filtration medium in the at least one second ion exchange filter comprises a polytetrafluoroethylene having sulfonate groups or a copolymer thereof.

9. The method of any one of claims 1 to 8, wherein the ion exchange filter unit comprises two to five second ion exchange filters.

10. The method of claim 9, wherein the second ion exchange filters are connected in parallel.

11. The method of any one of claims 1 to 10, wherein the at least one second ion exchange filter is capable of removing at least 70 wt% of K, Na, or Ca from the organic solvent.

12. The method of any one of claims 1 to 11, further comprising passing the organic solvent through a filter unit in fluid communication with and between the distillation column and the ion exchange filter unit.

13. The method of claim 12, wherein the filter unit between the distillation column and the ion exchange filter unit comprises a housing and at least one particle removal filter in the housing.

14. The method of claim 13, wherein the at least one particle removal filter comprises a filtration medium that comprises a polyolefin, a polyamide, a fluoropolymer, or a copolymer thereof.

15. The method of claim 14, wherein the at least one particle removal filter comprises a filtration medium that comprises a polytetrafluoroethylene.

16. The method of any one of claims 13 to 15, wherein the at least one particle removal filter comprises a filtration medium having an average pore size of from about 5 nm to about 50 nm.

17. The method of any one of claims 1 to 16, further comprising passing the organic solvent through a filter unit downstream of and in fluid communication with the ion exchange filter unit.

18. The method of claim 17, wherein the filter unit downstream of the ion exchange filter unit comprises a housing and at least one particle removal filter in the housing.

19. The method of claim 18, wherein the at least one particle removal filter in the filter unit downstream of the ion exchange filter unit comprises a filtration medium that comprises a polyolefin, a polyamide, a fluoropolymer, or a copolymer thereof.

20. The method of claim 19, wherein the at least one particle removal filter in the filter unit downstream of the ion exchange filter unit comprises a filtration medium that comprises a polytetrafluoroethylene.

21. The method of any one of claims 18 to 20, wherein the at least one particle removal filter in the filter unit downstream of the ion exchange filter unit comprises a filtration medium having an average pore size of from about 2 nm to about 10 nm.

22. The method of any one of claims 17 to 21, further comprising recirculating the organic solvent exiting the filter unit downstream of the ion exchange filter unit.

23. The method of claim 22, wherein the recirculating comprises moving the organic solvent exiting the filter unit downstream of the ion exchange filter unit to a storage tank and subsequently passing the organic solvent through the ion exchange filter unit.

24. The method of any one of claims 1 to 23, further comprising moving the purified solvent to a packaging station.

25. The method of any one of claims 1 to 24, wherein the purified organic solvent comprises metal impurities in a total amount of at most about 200 ppt of the purified organic solvent.

26. A system, comprising:

a distillation column; and

an ion exchange filter unit downstream of and in fluid communication with the distillation column;

wherein the ion exchange filter unit comprises at least one first ion exchange filter and at least one second ion exchange filter, the at least one first ion exchange filter and the at least one second ion exchange filter are both negatively charged ion exchange filters and are connected in series, and the at least first ion exchange filter comprises a filtration medium that comprises a polyolefin or a copolymer thereof, the at least one second ion exchange filter comprises a filtration medium that comprises a fluoropolymer or a copolymer thereof, and the at least one second ion exchange filter is disposed downstream of the at least one first ion exchange filter.