CLAIMS:

1. A method for purifying an organic solvent, comprising:

distilling the organic solvent in a first distillation column to obtain an intermediate organic solvent, wherein the first distillation column has an inlet positioned at a location that is from 80% to 100% of the height of the first distillation column;

transferring the intermediate organic solvent to a second distillation column, wherein the second distillation column has an inlet positioned at a location that is from 0% to 30% of the height of the second distillation column; and

distilling the intermediate organic solvent in the second distillation column to obtain a distilled organic solvent.

2. The method of claim 1, wherein distilling the organic solvent in the first distillation column removes impurities having a boiling point lower than the boiling point of the organic solvent.

3. The method of claim 1 or claim 2, wherein distilling the intermediate organic solvent in the second distillation column removes impurities having a boiling point higher than the boiling point of the organic solvent.

4. The method of any one of claims 1 to 3, further comprising preheating the organic solvent to a temperature at least about 20°C below the boiling point of the organic solvent before distilling the organic solvent in the first distillation column, wherein the preheating is performed by a preheater upstream of and in fluid communication with the first distillation column.

5. The method of any one of claims 1 to 4, further comprising passing the organic solvent through a first filter unit upstream of the first distillation column, wherein the first filter unit comprises a first housing and at least one first filter in the first housing, and the at least one first filter comprises a filtration medium.

6. The method of claim 5, wherein the filtration medium in the at least one first filter comprises a polyolefin, a polyamide, a fluoropolymer, or a copolymer thereof.

7. The method of claim 6, wherein the filtration medium in the at least one first filter comprises polypropylene or polytetrafluoroethylene.

8. The method of claim 5, 6 or 7, wherein the filtration medium in the at least one first filter has an average pore size from 50 nm to 250 nm.

9. The method of any one of claims 5 to 8, wherein the at least one first filter is a particle removal filter.

10. The method of any one of claims 1 to 9, further comprising passing the distilled organic solvent through a second filter unit downstream of the second distillation column, wherein the second filter unit comprises a second housing and at least one second filter in the second housing, and the at least one second filter comprises a filtration medium.

11. The method of claim 10, wherein the filtration medium in the at least one second filter comprises a polyolefin, a polyamide, a fluoropolymer, or a copolymer thereof.

12. The method of claim 11, wherein the filtration medium in the at least one second filter comprises nylon or polytetrafluoroethylene.

13. The method of claim 10, 11 or 12, wherein the filtration medium in the at least one second filter has an average pore size from 2 nm to 10 nm.

14. The method of any one of claims 10 to 13, wherein the at least one second filter is a particle removal filter.

15. The method of any one of claims 10 to 14, further comprising recirculating the organic solvent exiting the second filter unit.

16. The method of claim 15, wherein the recirculating comprises moving the organic solvent exiting the second filter unit to a distilled solvent tank and subsequently passing the organic solvent through the second filter unit, and the distilled solvent tank is between and in fluid communication with the second distillation column and the second filter unit.

17. The method of any one of claims 1 to 16, further comprising moving the distilled organic solvent to a product container downstream of and in fluid communication with the second distillation column.

18. The method of any one of claims 1 to 17, 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.

19. A system, comprising:

a first distillation column having a first inlet and a first outlet, wherein the first inlet is positioned at a location that is from 80% to 100% of the height of the first distillation column; and

a second distillation column downstream of the first distillation column and having a second inlet and a second outlet, wherein the second inlet is in fluid communication with the first outlet, and the second inlet is positioned at a location that is from 0% to 30% of the height of the second distillation column.

20. The system of claim 19, further comprising a preheater, wherein the preheater is upstream of and in fluid communication with the first distillation column.

21. The system of claim 20, further comprising a first filter unit upstream of and in fluid communication with the preheater, wherein the first filter unit comprises a first housing and at least one first filter in the first housing, and the at least one first filter comprises a filtration medium.

22. The system of claim 21, wherein the filtration medium in the at least one first filter comprises a polyolefin, a polyamide, a fluoropolymer, or a copolymer thereof.

23. The system of claim 22, wherein the filtration medium in the at least one first filter comprises polypropylene or polytetrafluoroethylene.

24. The system of claim 21, 22 or 23, wherein the filtration medium in the at least one first filter has an average pore size from 50 nm to 250 nm.

25. The system of any one of claims 21 to 24, wherein the at least one first filter is a particle removal filter.

26. The system of any one of claims 19 to 25, further comprising a second filter unit downstream of the second distillation column, wherein the second filter unit comprises a second housing and at least one second filter in the second housing, and the at least one second filter comprises a filtration medium.

27. The system of claim 26, wherein the filtration medium in the at least one second filter comprises a polyolefin, a polyamide, a fluoropolymer, or a copolymer thereof.

28. The system of claim 27, wherein the filtration medium in the at least one second filter comprises nylon or polytetrafluoroethylene.

29. The system of any one of claims 26 to 28, wherein the filtration medium in the at least one second filter has an average pore size from 2 nm to 10 nm.

30. The system of any one of claims 26 to 29, wherein the at least one second filter is a particle removal filter.

31. The system of any one of claims 26 to 30, further comprising a distilled solvent tank between and in fluid communication with the second distillation column and the second filter unit.

32. The system of claim 31, further comprising a recirculation loop, wherein the recirculation loop comprises the second filter unit and the distilled solvent tank.

33. The system of any one of claims 19 to 32, further comprising a product container downstream of and in fluid communication with the second distillation column.