(c) recovering conjunct polymer-depleted ionic liquid catalyst from the second stream.

13. The process of claim 11 or 12, further comprising contacting the deactivated ionic liquid catalyst containing conjunct polymer with a guard bed material having 10 μm (10,000 nm) or larger pores with an average pore diameter of 100 to 1,000 μm prior to step (a).

14. The process of claim 11 or 12, further comprising recycling the recovered conjunct polymer-depleted ionic liquid catalyst to a hydrocarbon conversion process.

15. The process of claim 11 or 12, wherein the first noble metal catalyst has an average pore diameter of from 25 to 800 nm (0.025 to 0.8 μm).

16. The process of claim 11 or 12, wherein the first noble metal catalyst has a total pore volume of from 0.85 to 1.5 cc/g.

17. The process of claim 11, wherein the first support is alumina.

18. The process of claim 12, wherein the first support, the second support, or both the first support and the second support is alumina.

19. The process of claim 11 or 12, wherein the deactivated ionic liquid catalyst is a chloroaluminate ionic liquid catalyst.