We claim:

1. A process for recycling solvent used in an ethylene-based polymerization comprising:

passing a solvent stream which has been used in a first ethylene-based solvent polymerization reactor through an online purification bed to produce a recycle solvent stream,

wherein the solvent stream prior to being passed through the online purification bed comprises solvent, ethylene, hydrogen, polymerization by-products and optionally comonomer; and

passing the recycle solvent stream from the online purification bed to a second ethylene-based solvent polymerization reactor;

wherein the second ethylene-based solvent polymerization reactor exhibits a catalyst efficiency dip of less than or equal to 20% for no longer than a forty-eight hour period following a swap of the online purification bed to a regenerated purification bed which contains an adsorbent which, upon exposure to a chlorooctane and ethylene produces less than or equal to 650 mg ethylene dimer/(kg adsorbent * h).

~~2. The process according to Claim 1, wherein the first and second ethylene-based solvent polymerization reactors are the same reactor.~~

~~3. The process according to Claim 1, wherein the first and second ethylene-based solvent polymerization reactors are different reactors.~~

~~4. The process according to any one of the preceding Claims, wherein the adsorbent is a hybrid zeolite/modified alumina adsorbent.~~

~~5~~2. The process according to claim 1 ~~any one of the preceding Claims~~, wherein the adsorbent is an alumina-zeolite composite comprising an alkali metal aluminosilicate having the general formula $Na_x[(AlO_2)_x(SiO_2)_y] \cdot z\ H2O$ hybrid with alumina.

~~6. The process according to any one of the preceding Claims, wherein the catalyst efficiency dip is 12% or less.~~

~~7~~3. The process according to any one of the preceding Claims, wherein the catalyst efficiency dip is 6% or less.

~~8~~4. The process according to any one of the preceding Claims, wherein the catalyst efficiency dip is 2% or less.

~~9. The process according to any one of the preceding Claims, wherein at least one of the first and second ethylene-based solvent polymerization reactors contains a coordination catalyst.~~

~~10. The process according to any one of the preceding Claims, wherein at least one of the first and second ethylene-based solvent polymerization reactors contains a Ziegler-Natta catalyst.~~

~~11~~5. The process according to any one of the preceding Claims, wherein at least one of the first and second ethylene-based solvent polymerization reactors contains a molecular catalyst.

~~12. The process according to any one of the preceding Claims, wherein the recycle solvent further comprises a component selected from the group consisting of calcium stearate, reaction by-products of calcium stearate, and combinations thereof.~~

~~13~~6. The process according to any one of the preceding Claims, wherein the recycle solvent further comprises a component selected from the group consisting of a natural hydrotalcite, a synthetic hydrotalcite-type material, reaction by-products of the natural or synthetic hydrotalcite-type material, and combinations thereof.

~~14~~7. A system for recycling a solvent used in an ethylene-based polymerization reaction comprising:

an ethylene-based solvent polymerization reactor, wherein the ethylene-based solvent polymerization reactor utilizes a solvent thereby producing a solvent stream;

an online purification bed, wherein the purification bed is configured to accept the solvent stream; and

a regenerated purification bed containing an adsorbent which, upon exposure to a chlorooctane and ethylene produces less than or equal to 650 mg ethylene dimer/(kg adsorbent * h), wherein the online and regenerated purification beds are configured to permit a swap between the beds for accepting the solvent stream, and wherein upon such swap, the regenerated purification bed exhibits a catalyst efficiency dip of less than or equal to 20% for no longer than a forty-eight hour period following the swap.

~~15~~8. The system according to Claim 7 ~~14~~ wherein the adsorbent is an alumina-zeolite composite comprising an alkali metal aluminosilicate having the general formula $Na_x[(AlO_2)_x(SiO_2)_y] \cdot z\ H2O$ hybrid with alumina.

~~16~~9. The system according to any one of Claims 7-8 ~~14-15~~, wherein the ethylene-based solvent polymerization reactor is a solution polymerization reactor.

~~17~~10. The system according to any one of Claims 7-9 ~~14-16~~ wherein the ethylene-based solvent polymerization reactor is a slurry reactor.

~~18. The system according to any one of Claims 16-17, wherein the solution polymerization or slurry reactor comprises one or more loop reactors, isothermal reactors, pipe flow reactors, stirred tank reactors, batch reactors, with the proviso that when the solution polymerization or slurry reactor comprises two or more reactors, the reactors may be arranged in parallel or series or combinations thereof.~~