I claim:

1. A process to make an improved spray-dried fluid catalyst by the removal of greater than fifty percent (50%) of particles above a threshold of 85 microns and in which the catalyst fraction above the threshold is processed so that its average particle size is reduced by at least 10 microns where such removal results in a fraction with improved accessibility or diffusion.

~~2. The process of claim 1 wherein the threshold is 85 microns and in which the catalyst fraction above the threshold is processed so that its average particle size is reduced by at least 10 microns.~~

~~3~~2. The process of claim 1, in which the catalyst fraction above the threshold is processed so that its average particle size is reduced by at least 10 microns, and the catalyst which has been processed is re-blended with another catalyst or catalyst fraction.

~~4~~3. The process of claims ~~2~~1 or ~~3~~2 where the particle size reduction is done via a milling-type operation to produce a milled product.

~~5~~4. The process of claims ~~2, 3 or 4~~3 where all or part of the milled product is reclassified to remove fines particles smaller than a minimum value.

65. The process of claim 54 where the fines particles of the milled product below the minimum value microns are re-milled to less than 10 microns and subsequently combined with other catalyst components to produce spray-dried products of average particle size greater than the minimum value.

~~7. A process to make an improved spray-dried fluid catalyst by the removal of greater than fifty percent (50%) of particles below a minimum threshold and greater than fifty percent (50%) of particles above a maximum threshold, to create a catalyst with improved diffusion constraint and in which most particles that are insufficiently retained by commercial cyclones have been removed.~~

~~8. The process of claim 7 such that the minimum threshold is equal or smaller than 41 microns, preferably 31 microns, and the maximum threshold is equal or larger than 70 microns, preferably larger than 89 microns.~~

~~9. The processes of claims 7 or 8 where all the particles above the stated threshold are processed as set out in claims 2, 3 or 4.~~

106. The process of claim 94 in which ~~the~~ fines particles generated by the particle size reduction process are removed via air classification or screening, or a similar process.

117. The process of claim 106 in which the fines particles are re-milled in order that they can be re spray-dried into useful product.

~~12~~8. A process as recited in claim 1 ~~to make an improved catalyst~~ in which the catalyst is split by use of physical screening process.

~~13~~9. A process as recited in claim 1~~to make an improved catalyst in which~~ wherein the catalyst is first separated via air classification and then further separated into one or more fractions via a physical screening process.

~~14~~10. The process of claim 1, applied to spray-dried catalyst precursors used to make "In-Situ" hydrocarbon processing catalysts in order to obtain improved "In-Situ" hydrocarbon conversion catalysts.

~~15~~11. An improved catalyst composition created by spray-draying a mixture of components and removing greater than 50% of the particles below a minimum threshold and greater than 50% of particles above a maximum threshold, wherein the minimum threshold is between 20 and 50 microns and the maximum threshold is between 70 and 110 microns and in which the catalyst fraction above the threshold is processed so that its average particle size is reduced by at least 10 microns, where such removal results in a fraction with improved accessibility or diffusion.

~~16~~12. The improved catalyst composition of claim ~~15~~11 to which fines particles of lesser economic value are added to improve the fluidization characteristics of the formulation.

~~17. The improved catalyst compositions of claims 15 or 16 in which the minimum threshold is between 20 and 50 microns and the maximum threshold is between 70 and 110 microns~~

~~18~~13. The improved catalyst compositions of claims ~~15 or 16~~11 in which the minimum threshold is 40 microns and the maximum threshold is 90 microns.

~~19~~14. The improved catalyst compositions of claims ~~15 or 16~~11 in which the minimum threshold is preferably 30 microns and the maximum threshold is preferably 90 microns.

~~20~~15. The improved catalyst compositions of claims ~~15 or 16~~11 in which the minimum threshold is preferably 30 microns and the maximum threshold is preferably 100 microns.

~~21~~16. The improved compositions of claims ~~15, 16, 17, 18, 19, or 20~~11 applied to the spray-dried intermediates which are then used to make improved In-Situ catalysts.

~~22~~17. The improved catalysts compositions created by ~~one or more of~~ the process of claim 1~~, 2, 3, 4, 5 or 6~~.

~~23~~18. A hydrocarbon conversion process using the improved catalyst compositions described in claims ~~15, 16, 17, 18, 19, 20, 21 or 22~~11.

~~24~~19. An improved Fluid Catalytic Cracking process using the improved catalyst compositions described in claims ~~15, 16, 17, 18, 19, 20, 21 or 22~~11.

~~25~~20. An improved Deep Catalytic Cracking process using the improved catalyst compositions described in claims ~~15, 16, 17, 18, 19, 20, 21 or 22~~11.

~~26~~21. An improved BIOMASS conversion process using the improved catalyst compositions described in claims ~~15, 16, 17, 18, 19, 20, 21 or 22~~11.

~~27~~22. An improved naphtha cracking process using the improved catalyst compositions described in claims ~~15, 16, 17, 18, 19, 20, 21 or 22~~11.