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(54) Title: PROCESSES FOR MAKING ETHYLENE GLYCOL AND/OR PROPYLENE GLYCOL FROM ALDOSE- AND/OR KETOSE-YIELDING CARBOHYDRATES WITH INTEGRATED TUNGSTEN CATALYST RECOVERY

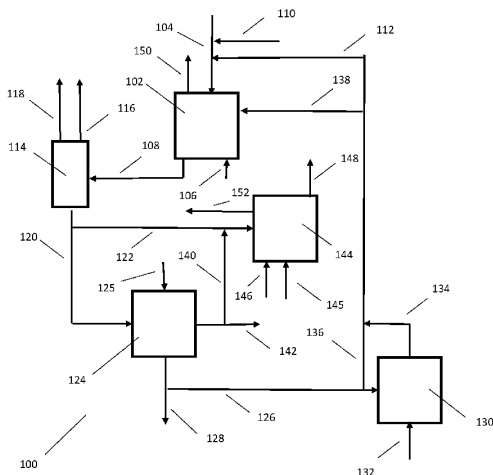


FIG. 1

(57) Abstract: Integrated processes are disclosed for the catalytic conversion of carbohydrate to ethylene glycol and/or propylene glycol using a homogeneous, tungsten-containing retro-aldol catalyst. In these processes, the carbohydrate is subjected to retro-aldol conversion and hydrogenation to provide a reaction product containing ethylene glycol and/or propylene glycol, other reaction process including organic acids, itols and tungsten species. Ethylene glycol and propylene glycol are separated from the reaction product for purification, and at least a portion of the remaining fraction is subjected to ion exclusion chromatography to provide an eluant containing tungsten species and a subsequent eluant containing organic acids and a substantially reduced concentration of tungsten species. At least a portion of the eluant containing tungsten species can be recycled for reuse directly or with intervening unit operations to enhance the catalytic activity of the tungsten species. The organic-containing fraction can be subjected to one or more unit operations to provide salable products or subjected to selective hydrogenolysis to lower glycols.

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