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(54) Title: NORMAL ALPHA OLEFIN SYNTHESIS USING DECARBONYLATIVE OLEFINATION

(57) Abstract: An alpha olefin synthesis process includes (i) subjecting a first normal alpha olefin to hydroformylation in the presence of carbon monoxide and hydrogen to form a first linear aldehyde, (ii) subjecting the first linear aldehyde to decarbonylative olefination to form a linear internal olefin, (iii) subjecting the linear internal olefin to isomerization-hydroformylation in the presence of carbon monoxide and hydrogen to form a second linear aldehyde, and (iv) subjecting the second linear aldehyde to hydrogenation to form a linear alcohol followed by dehydration to form a second normal alpha olefin, or subjecting the second linear aldehyde to combined hydrogenation-dehydration in a single step to form a second normal alpha olefin. Using this process, for example, ethylene can be converted to 1-hexene, and 1-butene can be converted to 1-decene.



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