

Metallocyclobutane substitution and its effect on alkene metathesis for propylene production over W-H/Al₂O₃: Case of isobutene/2-butene cross-metathesis.

Kai C. Szeto,[†] Etienne Mazoyer,[†] Nicolas Merle,[†] Sebastien Norsic,[†] Jean-Marie Basset,^{††} Christopher P. Nicholas^{‡,*} Mostafa Taoufik^{†,*},
E-mail: Christopher.Nicholas@uop.com; taoufik@cpe.fr
Fax: (+1) 8473911287 (CPN); (+33) 472431795 (MT)

[†] Laboratoire de Chimie Organométallique de Surface, Université Lyon 1, C2P2, CNRS UMR 5265, ICL, CPE Lyon, 43 Bd du 11 Novembre 1918, 69616 Villeurbanne, France
^{††} Exploratory Catalysis Research, UOP LLC, a Honeywell Company
25 East Algonquin Road, Des Plaines, IL 60017 (USA)

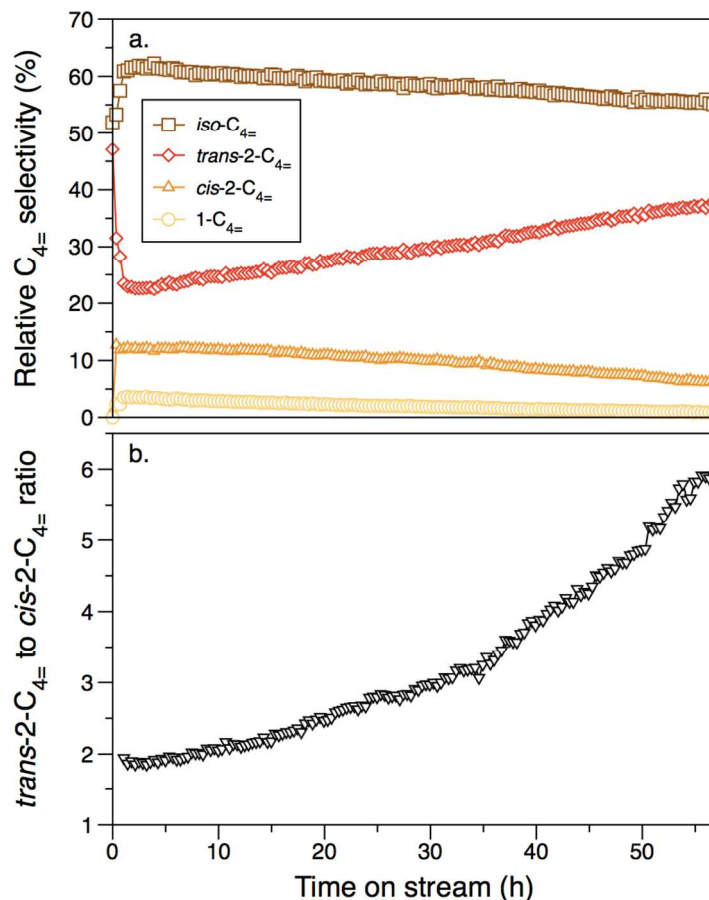


Figure S1. Relative selectivity of butenes over W-H/Al₂O_{3-500°C} / (a); *trans*/*cis*-2-butene ratio with time on stream W-H/Al₂O_{3-500°C} (b).

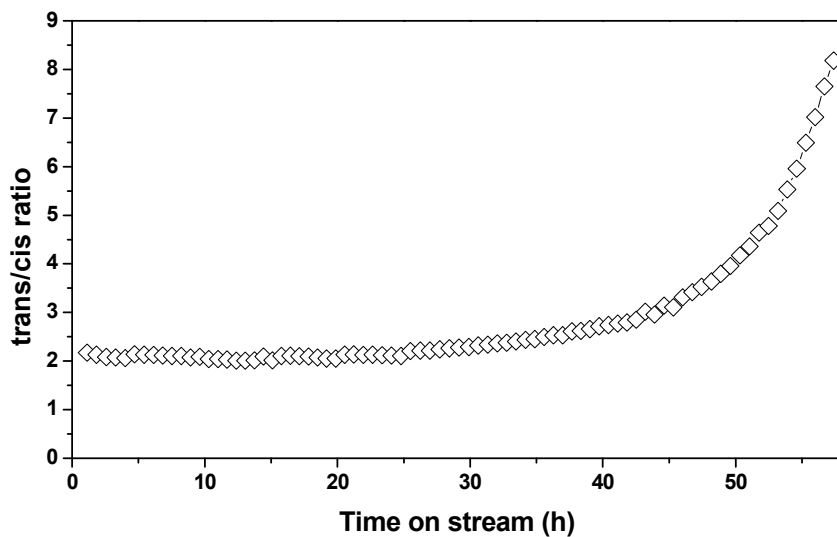
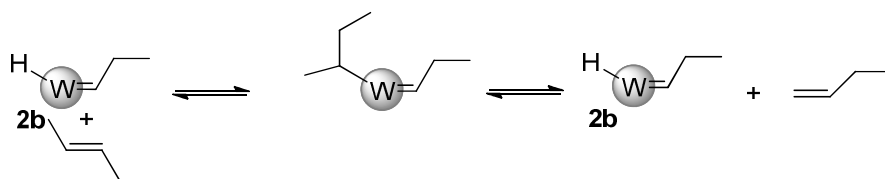


Figure S2. Blank experiment showing the trans/cis 2-butene ratio with time on stream of isobutene/trans-2-butene over Al_2O_3 -500°C at 150 °C.



Scheme S1. Formation of 1-butene from 2-butene by insertion-elimination on W-H sites

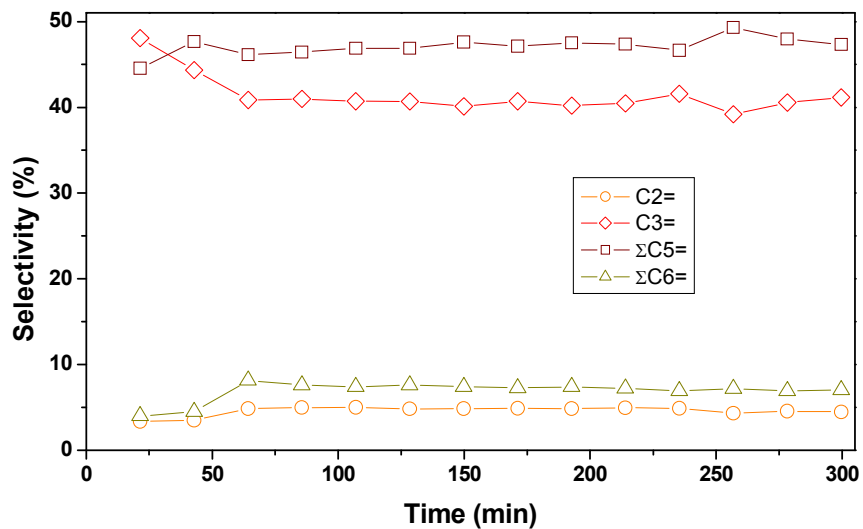
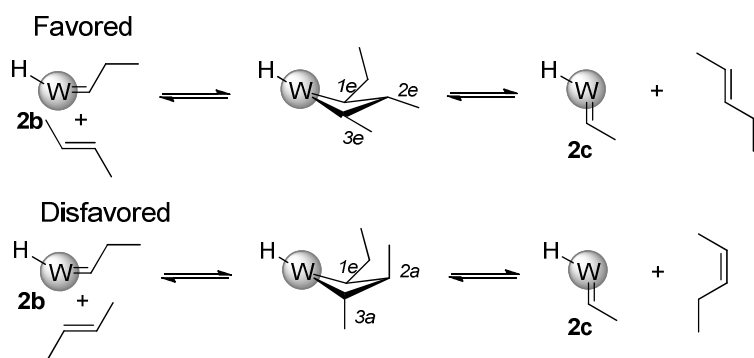


Figure S3. Initial product selectivities of isobutene/trans-2-butene cross metathesis W-H/Al₂O₃-500°C.



Scheme S2. Formation of linear 2-pentenes

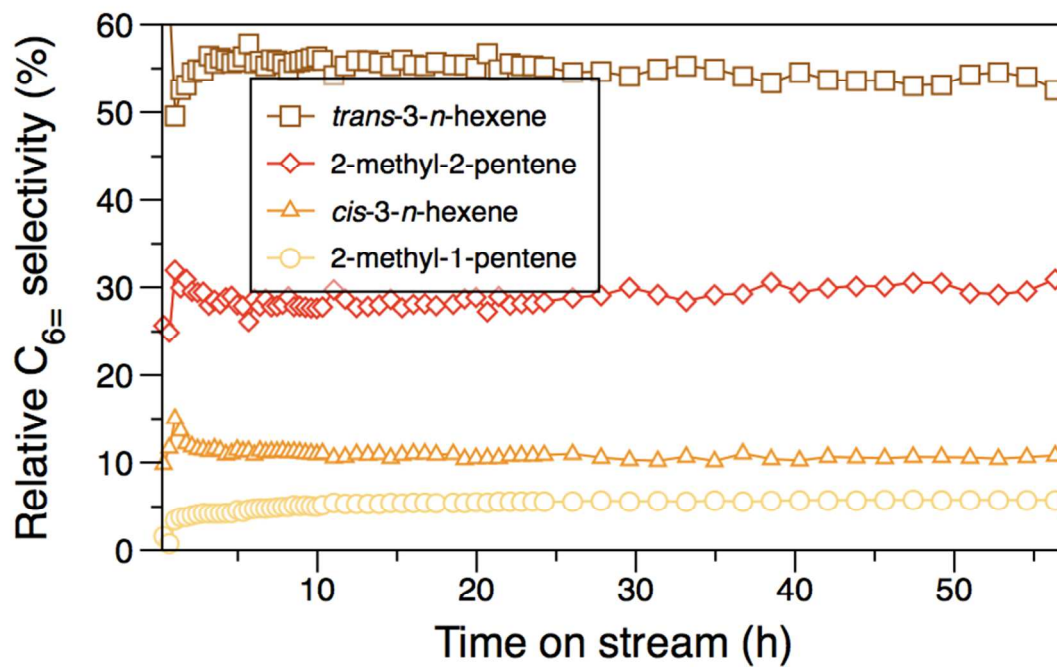
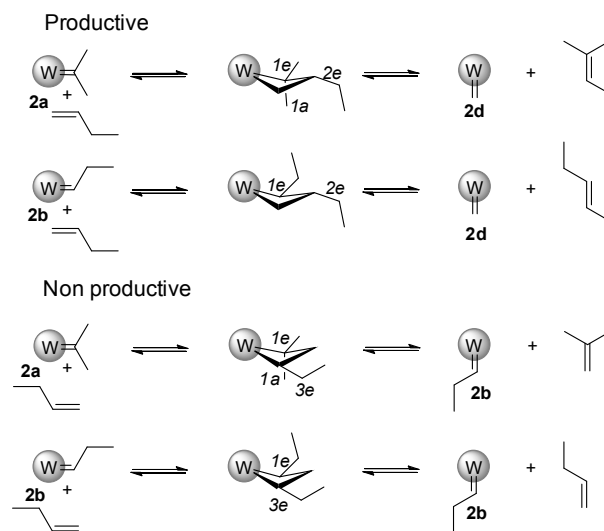


Figure S4. Relative selectivity of C6 alkenes over W-H/Al₂O₃-500°C.



Scheme S3. Formation of branched or linear hexenes