Electronic Supplementary Information

Continuous flow homogeneous alkene metathesis with built-in catalyst separation

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Table 2 from the paper is copied here for ease of reference to the Figures below.

Table2: Methyl oleate and dimethyl maleate cross metathesis parameters using **3** under SILP conditions.[a]

Run	Dimethyl maleate fold excess	Temperature /Pressure (ºC)/(bar)	Substrate flow (ml min^{-1})	Catalyst loading (wt% Ru/SiO_2)[b]	Cross TON after 5 h	Total TON after 5 h[c]
1	4	50/100	0.15	0.023	502	2607
2	8	50/100	0.15	0.024	360	1409
3	8	r.t./30	0.15	0.021	223	981
4	4	r.t./100	0.15	0.020	56	1911
5	4	70/100	0.15	0.020	359	1641
6[d]	4	50/100	0.1	0.021	1226	1813
7[e]	4	50/100	0.1	0.022	265	1701
8[e]	8	50/100	0.1	0.019	287	1397
9[f]	8	50/100	0.15	0.019	15	1780
10[g]	4	50/100	0.1	0.020	445	1705
11[h]	8	50/100	0.15	0.019	847	1727
12[i]	8	50/100	0.15	0.018	3	1447

[a] BMIM·NTf_2 (29 % w/w on silica; m of silica = 4.4 g), CO_2 flow, p = 100 bar, total flow = 645 cm^3 min^{-1} at NTP, [b] g (g $silica^{-1}$); [c] total mol product (mol catalyst)$^{-1}$ after 5 hours; [d] 2-octene in place of dimethyl maleate, [e] 2-octene in place of methyl oleate, [f] **4** (5 mol (mol **3**)$^{-1}$ added, [g] The dimethyl maleate flow was started 1 h before the methyl oleate flow, [h] diethyl maleate in place of dimethyl maleate and OMIM NTf_2 in place of BMIM NTF_2, [i] diethyl fumarate in place of dimethyl maleate and OMIM NTf_2 in place of BMIM NTF_2

Graphical data obtained from various metathesis reactions described in the main text are included below.

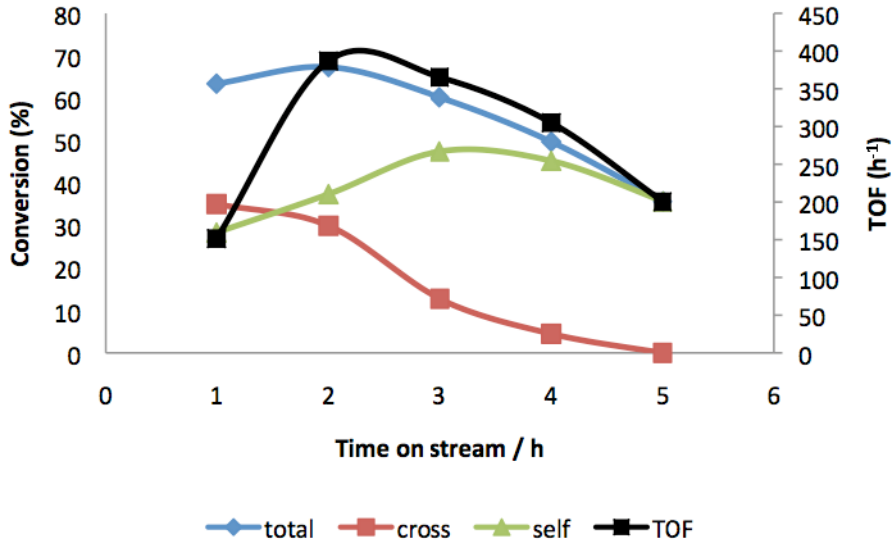


Fig. S1. Cross metathesis of methyl oleate with dimethyl maleate (8 fold excess). For conditions see Run 2, Table 2.

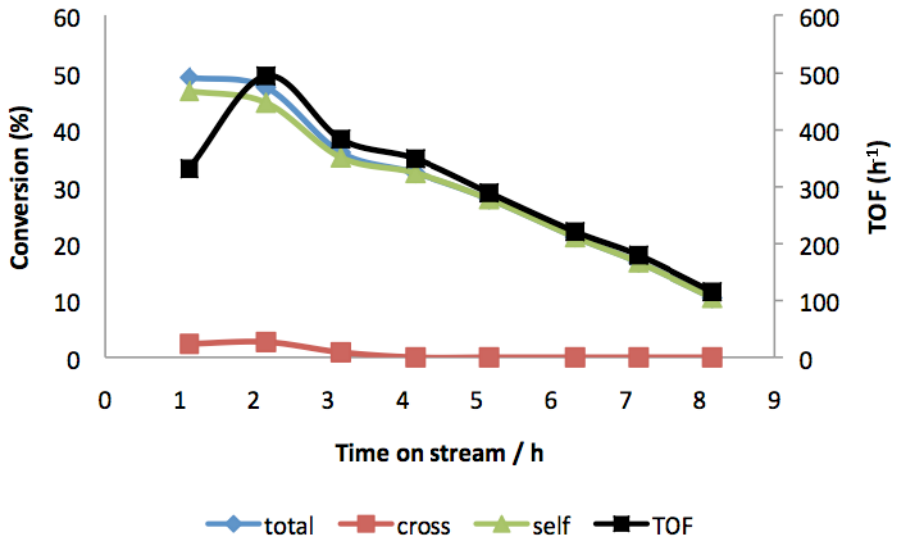


Fig. S2 Cross metathesis of methyl oleate with dimethyl maleate at room temperature. For conditions see Run 4, Table 2.

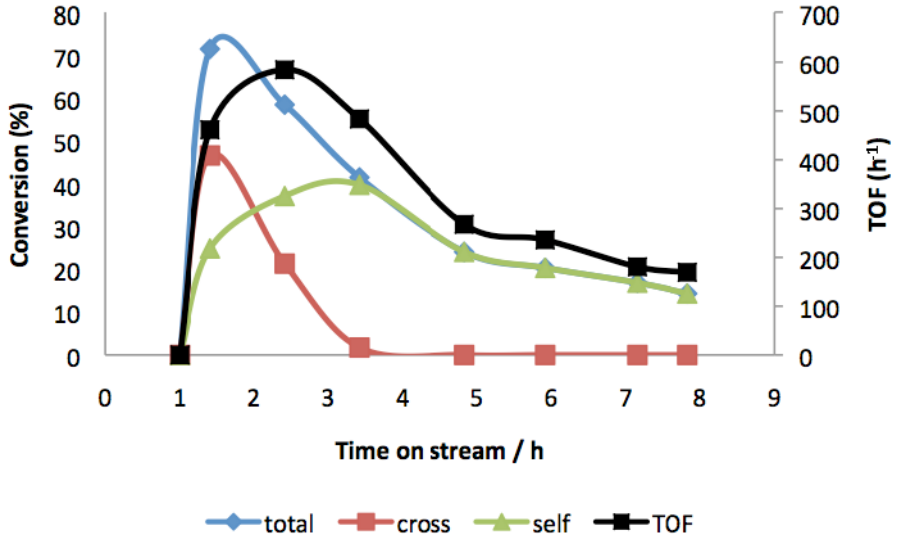


Fig. S3 Cross metathesis of methyl oleate with dimethyl maleate at 70 ^{o}C. For conditions see Run 5, Table 2.

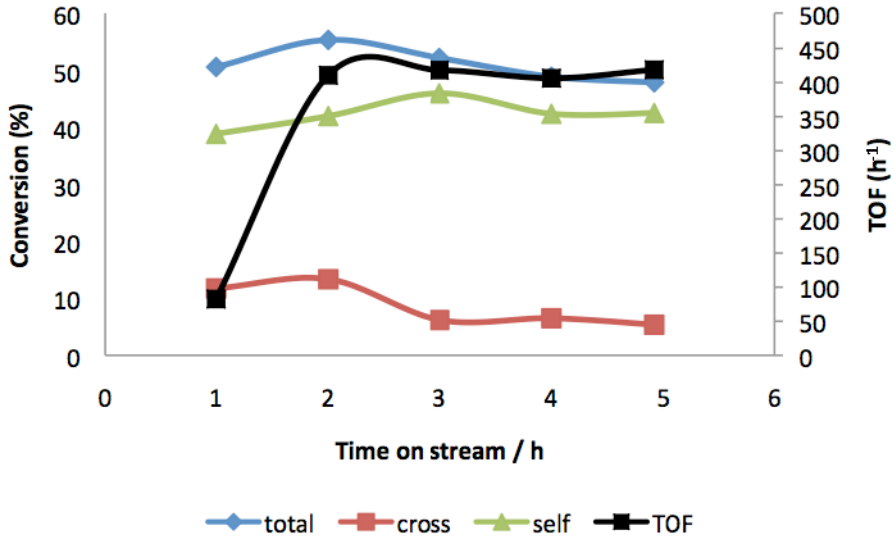


Fig. S4 Cross metathesis of 2-octene with dimethyl maleate (1:4). For conditions see Run 7, Table 2.

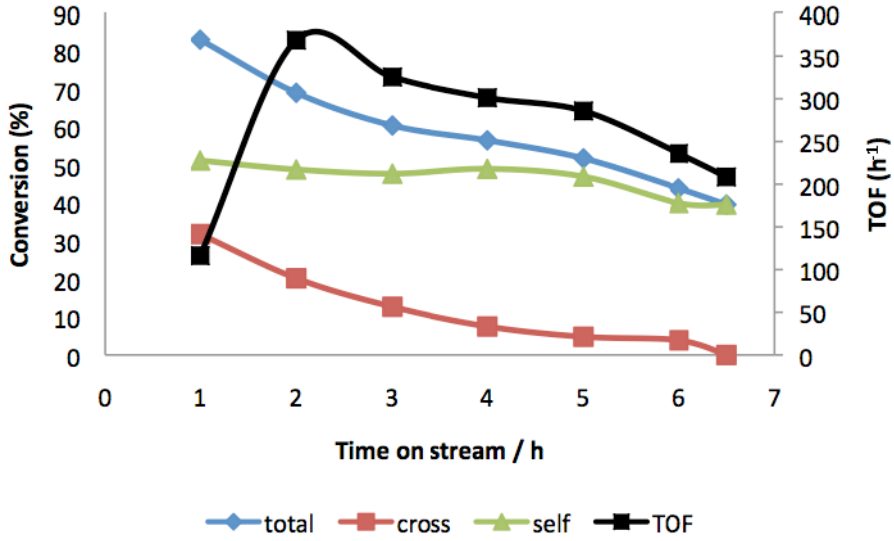
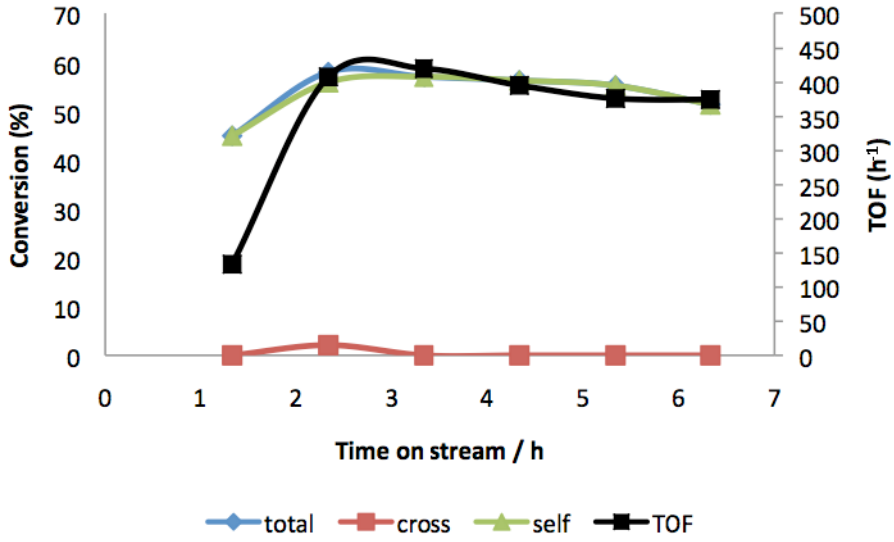


Fig. S5 Cross metathesis of 2-octene with dimethyl maleate (1:8). For conditions see Run 8, Table 2.



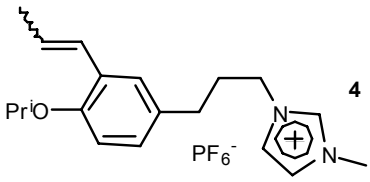


Fig. S6 Cross metathesis of methyl oleate with dimethyl maleate in the presence of **4** For conditions see Run 9, Table 2.

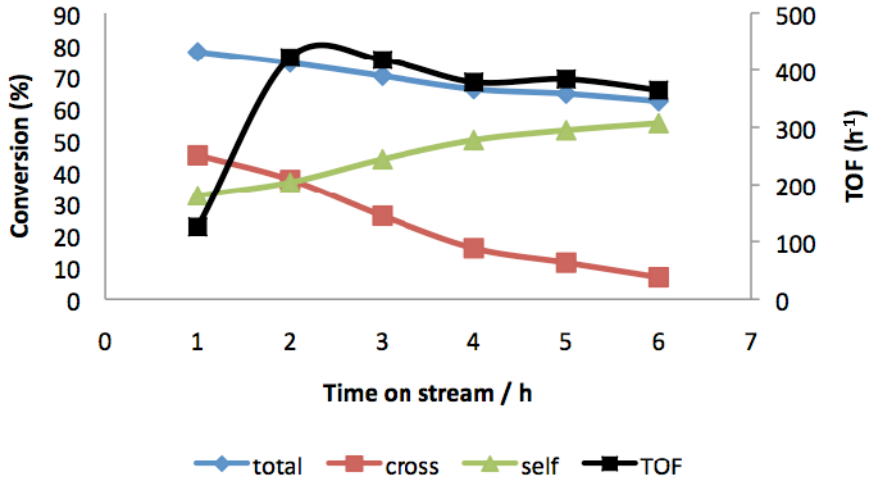


Fig. S7 Cross metathesis of methyl oleate and diethyl maleate. OMIM·NTf_2 in place of BMIM·NTf_2. For conditions see Run 11, Table 2.

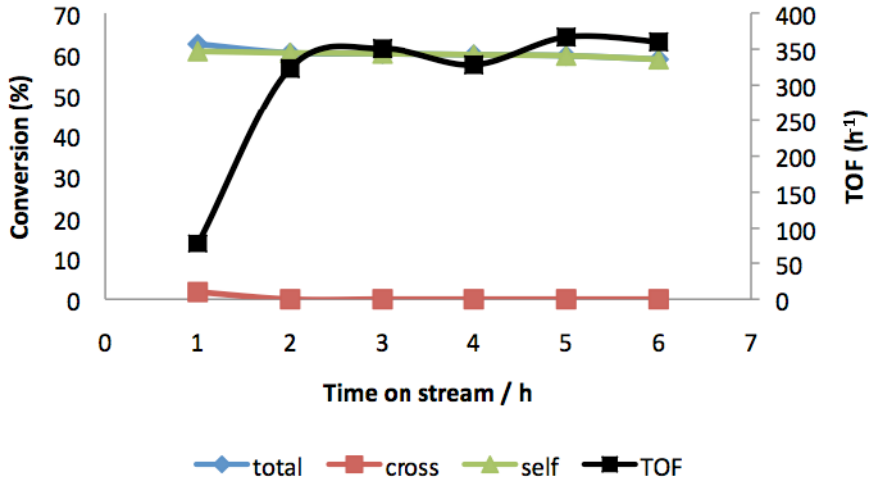


Fig. S8 Cross metathesis of methyl oleate and diethyl fumarate. OMIM·NTf_2 in place of BMIM·NTf_2. For conditions see Run 12, Table 2.

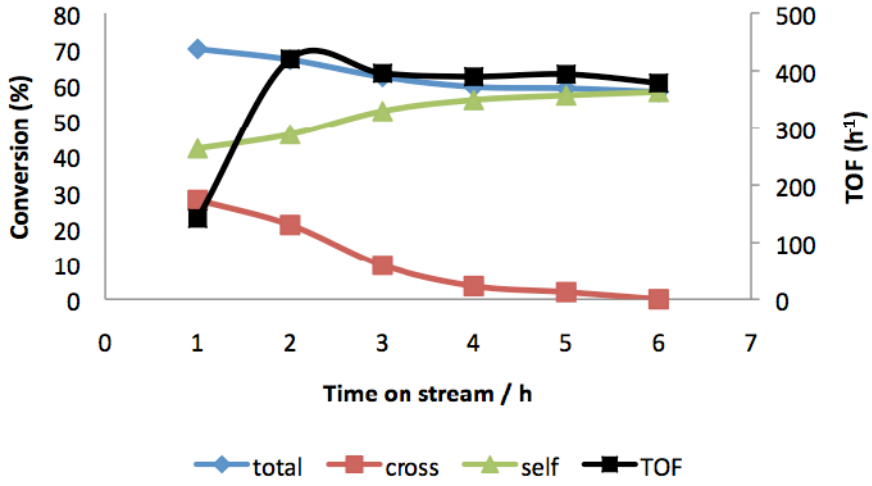
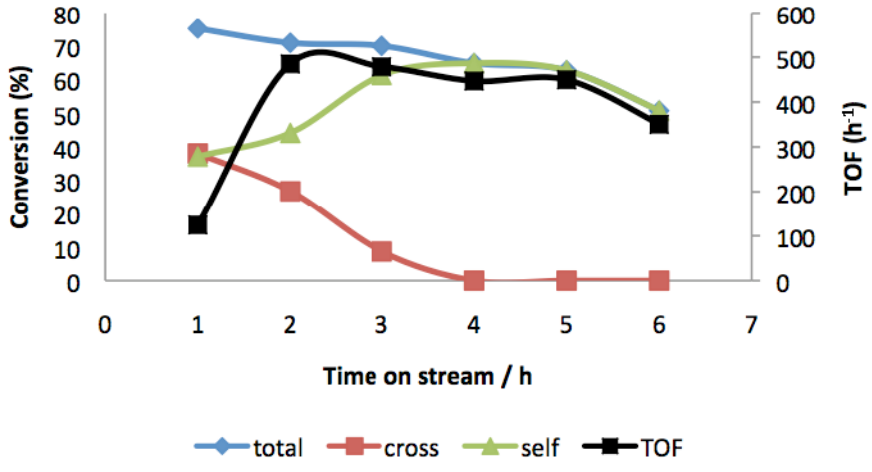


Fig. S9 Cross metathesis of methyl oleate and diethyl maleate / diethyl fumarate (50/50). OMIM·NTf_2 in place of BMIM·NTf_2. Conditions as Run 11, Table 2.



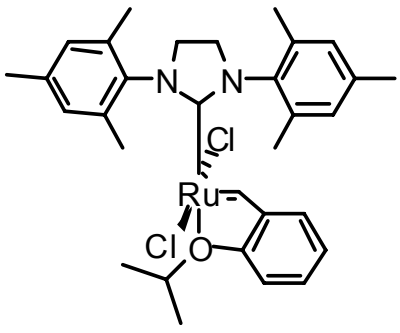


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Fig. S10 Cross metathesis of methyl oleate with dimethylmaleate using Grubbs Hoveyda 2nd Generation catalyst without an ionic tag, **5**. Conditions as Run 2, Table 2.

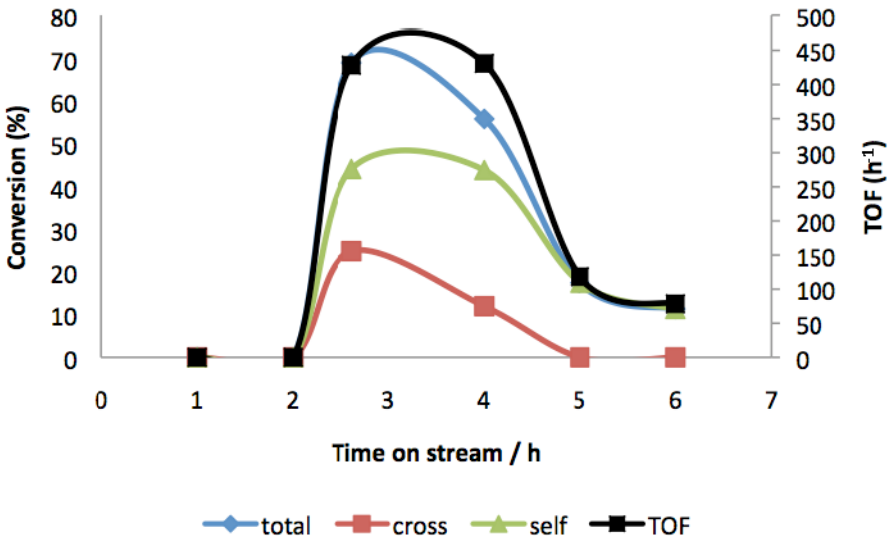

Fig. S11 Cross metathesis of methyl oleate with dimethyl maleate using N_2 flow in place of **CO_2.** Conditions as Run 2, Table 2, but with N_2 (30 bar) in place of CO_2.