Supplementary Material

M.P. Burke, F.L. Dryer, Y. Ju, "Assessment of kinetic modeling for lean $H_2/CH_4/O_2$/diluent flames at high pressures," *Proc. Combust. Inst.* (2010), doi:10.1016/j.proci.2010.05.021.

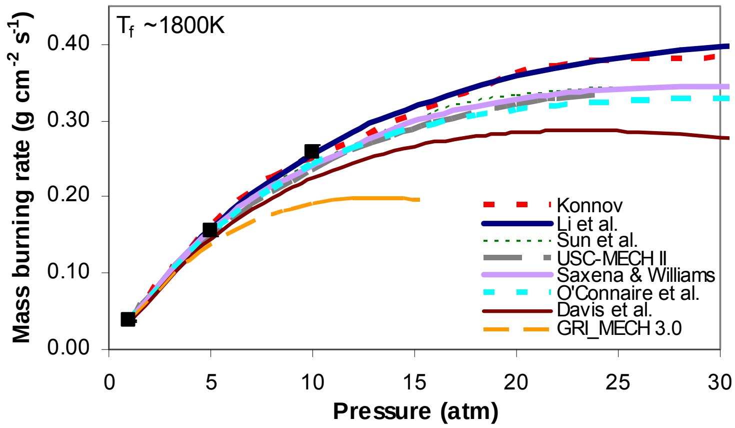

Fig. S1. Pressure dependence of mass burning rates for H_2/O_2/He flames of equivalence ratio 0.70 with He concentration varied to achieve a flame temperature of 1800K. Symbols show experimental data. Lines show predictions from models considered in this study [10-16]. For ease in viewing predictions, the models are ranked (approximately) in the legend from highest to lowest burning rate.

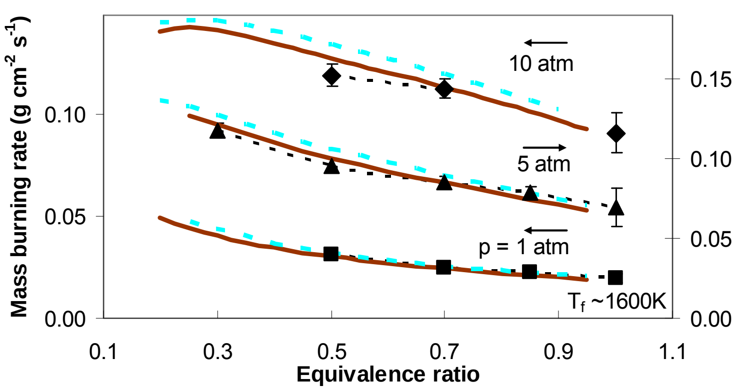

Fig. S2. Mass burning rate for various equivalence ratios for H_2/O_2/He with dilution adjusted to achieve flame temperatures near 1600K for different pressures. Symbols show experimental data. Lines show predictions from models [11,14].

Table S1. Experimental results. Initial temperature is 295K.

φ	$T_{f,nom}$ (K)	p (atm)	x_{H2}	x_{CH4}	x_{O2}	x_{HE}	R_L (cm)	R_U (cm)	s_u^o (cm s^{-1})	f (g cm^{-2} s^{-1})	σ_f (g cm^{-2} s^{-1})
0.30	1400	1	0.1071	0.0000	0.1785	0.7144	0.6	1.5	55.4	0.020	0.001
0.30	1400	2.5	0.1071	0.0000	0.1785	0.7144	0.6	1.5	34.0	0.031	0.003
0.30	1400	5	0.1071	0.0000	0.1785	0.7144	0.6	1.0	17.3	0.031	0.003
0.30	1400	10	0.1071	0.0000	0.1785	0.7144	0.6	1.5	5.9	0.021	0.002
0.30	1600	5	0.1305	0.0000	0.2175	0.6519	0.6	1.5	58.2	0.118	0.004
0.50	1400	1	0.1026	0.0000	0.1026	0.7948	0.6	1.5	61.0	0.017	0.001
0.50	1400	2.5	0.1026	0.0000	0.1026	0.7948	0.6	1.5	37.9	0.026	0.003
0.50	1400	5	0.1026	0.0000	0.1026	0.7948	0.6	1.5	23.1	0.032	0.003
0.50	1400	7.5	0.1026	0.0000	0.1026	0.7948	0.6	1.5	15.0	0.031	0.003
0.50	1400	10	0.1026	0.0000	0.1026	0.7948	0.6	1.5	8.2	0.023	0.002
0.50	1600	1	0.1236	0.0000	0.1236	0.7528	0.5	1.5	105.1	0.031	0.001
0.50	1600	5	0.1236	0.0000	0.1236	0.7528	0.5	1.0	64.3	0.096	0.004
0.50	1600	10	0.1236	0.0000	0.1236	0.7528	0.5	1.0	40.1	0.120	0.005
0.70	1400	1	0.1008	0.0000	0.0720	0.8272	1.0	2.5	59.7	0.014	0.001
0.70	1400	2.5	0.1008	0.0000	0.0720	0.8272	1.0	2.5	42.3	0.025	0.002
0.70	1400	5	0.1008	0.0000	0.0720	0.8272	1.0	2.5	27.6	0.033	0.002
0.70	1400	7.5	0.1008	0.0000	0.0720	0.8272	1.0	2.5	17.7	0.032	0.002
0.70	1400	10	0.1008	0.0000	0.0720	0.8272	1.0	2.5	10.3	0.025	0.002
0.70	1600	1	0.1209	0.0000	0.0863	0.7928	0.5	1.5	97.7	0.025	0.001
0.70	1600	5	0.1209	0.0000	0.0863	0.7928	0.5	1.5	67.0	0.085	0.004
0.70	1600	10	0.1209	0.0000	0.0863	0.7928	0.5	1.5	44.3	0.113	0.005
0.70	1600	15	0.1209	0.0000	0.0863	0.7928	0.5	1.5	31.4	0.120	0.008
0.70	1600	20	0.1209	0.0000	0.0863	0.7928	0.5	1.0	22.4	0.114	0.007
0.70	1600	25	0.1209	0.0000	0.0863	0.7928	0.5	1.0	16.3	0.104	0.012
0.70	1800	1	0.1406	0.0000	0.1004	0.7590	1.0	2.5	139.3	0.038	0.001
0.70	1800	5	0.1406	0.0000	0.1004	0.7590	1.0	2.5	114.6	0.155	0.006
0.70	1800	10	0.1406	0.0000	0.1004	0.7590	0.5	1.5	96.0	0.259	0.009
0.70	1600	1	0.0901	0.0100	0.0929	0.8070	1.0	2.5	75.3	0.020	0.001
0.70	1600	5	0.0901	0.0100	0.0929	0.8070	1.0	2.5	39.5	0.053	0.003
0.70	1600	10	0.0901	0.0100	0.0929	0.8070	1.0	2.5	21.7	0.059	0.003
0.70	1600	15	0.0901	0.0100	0.0929	0.8070	1.0	2.5	14.9	0.060	0.004
0.70	1600	20	0.0901	0.0100	0.0929	0.8070	1.0	2.5	11.0	0.059	0.004
0.70	1600	25	0.0901	0.0100	0.0929	0.8070	1.0	2.5	7.9	0.054	0.003
0.85	1600	1	0.1197	0.0000	0.0704	0.8099	1.0	2.5	95.3	0.023	0.003
0.85	1600	5	0.1197	0.0000	0.0704	0.8099	1.0	2.5	66.2	0.078	0.004
1.00	1600	1	0.1183	0.0000	0.0592	0.8225	1.0	2.5	87.0	0.019	0.002
1.00	1600	5	0.1183	0.0000	0.0592	0.8225	1.0	2.5	61.9	0.069	0.012
1.00	1600	10	0.1183	0.0000	0.0592	0.8225	1.0	2.5	40.7	0.091	0.010