

Perspectives

Phase to Performance: The Advancing Role of Molybdenum Carbides in Reverse Water-Gas Shift (RWGS) Reaction

Fleur A. E. Bruekers⁺, Tess I. van Benthem⁺, Rajamohanan Sobhana Anju^{*}, N. Raveendran Shiju^{*}

Supporting Information

Table S1: Performance metrics of the catalysts shown in Figure 3, along with additional state-of-the-art benchmarks.

Catalyst	Temperature (°C)	CO rate (mmol _{CO} /g _{cat} /h)	Label in Figure 3
α -MoC	300	926.6	1
Cu/ β -Mo ₂ C (1.3 wt %)	300	253.6	2
	600	1,703	11
K-Mo ₂ C@ γ -Al ₂ O ₃ (1:4:15) (20 wt%)	300	71.2	3
Co/ β -Mo ₂ C (7.5 wt%)	300	49.8	4
Mo _n -Mo ₂ C	400	2,071	5
Mo _x C/SiO ₂	400	17.0	6
Mo _x C/Al ₂ O ₃	400	14.8	7
Hexagonal α -Mo ₂ C	400	1.7	8
2D-Mo ₂ C	430	142.3	9
Ir-MoO ₃	600	17,500	10
MoC	600	7,544.6	12
β -Mo ₂ C	600	720	13
cubic α -Mo ₂ C	600	395	14
1K-Cu/Mo ₂ C	600	176	15
Nanowired β -Mo ₂ C	600	61.7	16
Nanowired α -MoC _{1-x}	600	61.7	17
Cs-Mo ₂ C	600	24.6	18
3D printed Mo ₂ C	600	17.6	19
Ru/TiO ₂	300	80	20
Ni-CeO ₂	400	185.4	21
Ru/Ti/Mn	400	90	22
Pt-TiO ₂	400	180	23
Co/r-TiO ₂	400	8.1	24
1Na-Rh ₁ /ZrO ₂	440	80	25
O ₂ 5FeO ₂ 75Cu	450	74.2	26
Pd/SiO ₂	450	20	27
Cu-Zn-Al	500	939.6	28
Ni-Cu	500	142.2	29
Co-N-C	500	40	30
Cu-Al ₂ O ₃	500	32.4	31
Pt-K/mullite	550	160	32
La _{0.75} Sr _{0.25} FeO ₃	550	131.0	33
15CuCe	600	5,280	34
Cu/Al ₂ O ₃	600	2,100	35
Cu/ZnO/Al ₂ O ₃	600	2,010	36