

Supplementary material

Stability of Ruthenium/Carbon Catalytic Materials during Operation in Carbon Monoxide Methanation Process

Elżbieta Truszkiewicz ^{1,*}, Klaudia Latoszek ¹, Milena Ojrzyńska ², Andrzej Ostrowski ¹ and Leszek Kępiński ³

¹ Faculty of Chemistry, Warsaw University of Technology, Noakowskiego 3, 00-664 Warsaw, Poland; klaudia.latoszek.stud@pw.edu.pl (K.L.); andrzej.ostrowski@pw.edu.pl (A.O.)

² Faculty of Physics, Warsaw University of Technology, Koszykowa 75, 00-662 Warsaw, Poland; Milena.Ojrzyńska@pw.edu.pl

³ Institute of Low Temperature and Structure Research, Polish Academy of Sciences, Okólna 2, 50-950 Wrocław, Poland; l.kepinski@intibs.pl

* Correspondence: elzbieta.truszkiewicz@pw.edu.pl; Tel.: +48-22-2341786

Number of pages: 5

Number of figures: 3

Number of tables: 1

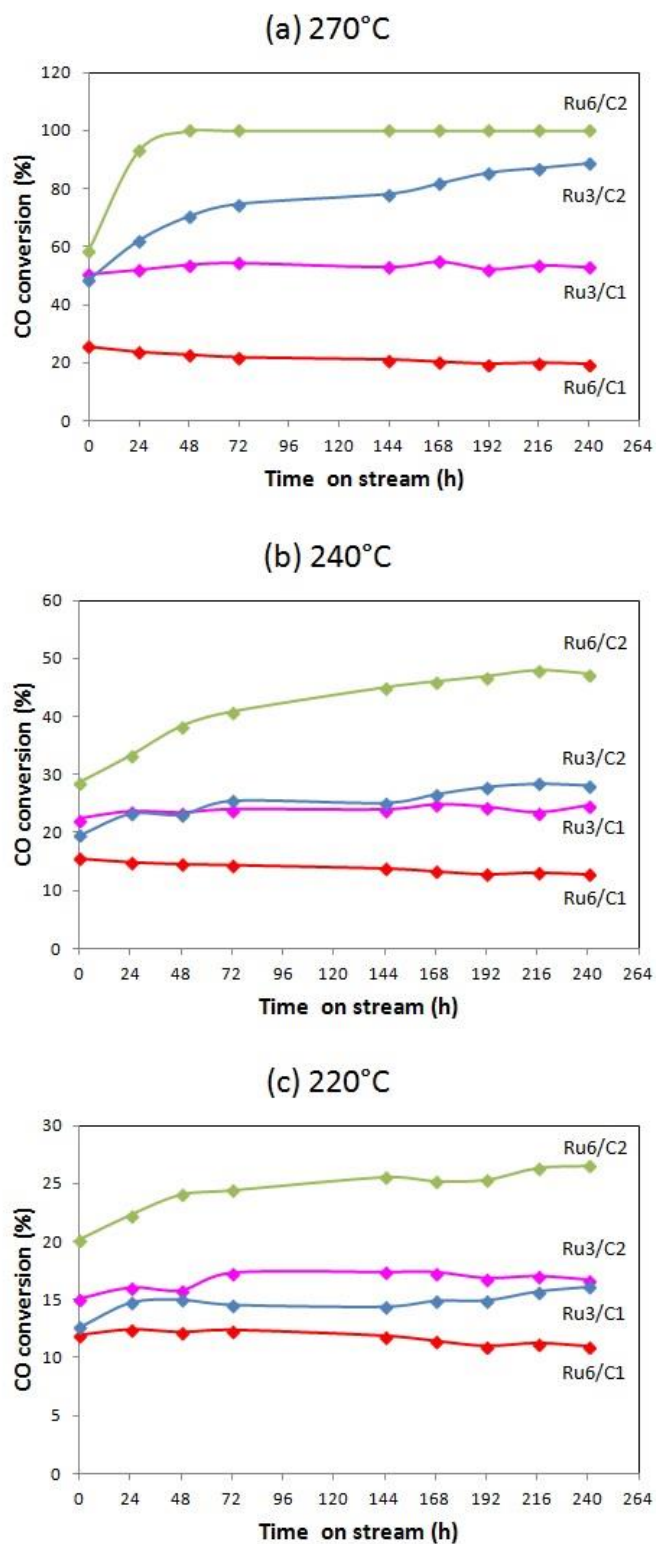


Figure S1. CO conversion changes during time of stream tests of the Ru/carbon catalysts (a) 270°C, (b) 240°C and (c) 220°C; Measurements conditions: 0.1 MPa, 5000 ppm CO in CO-H₂ mixture, 80 cm³/min; Overheating conditions: 300°C, 0.1 MPa, 5000 ppm CO in CO-H₂ mixture, 80 cm³/min.

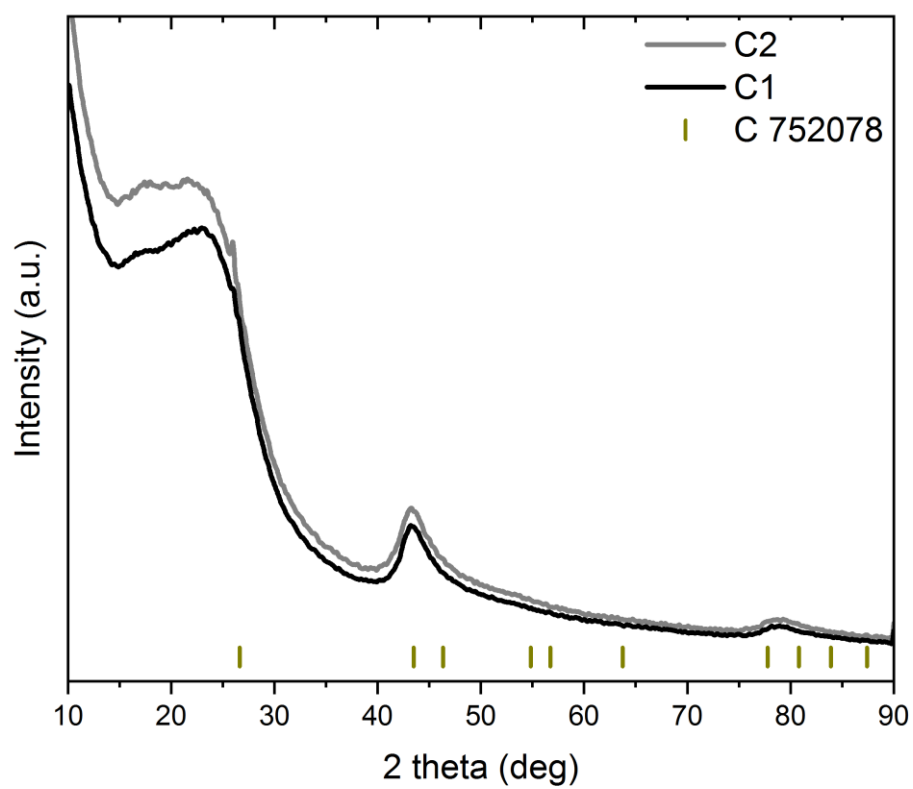


Figure S2. XRPD patterns of the carbon supports used for Ru/carbon systems preparation.

Table S1. Full width at half maximum of D (Γ_D) and G (Γ_G) bands and position of the G peak (ω_G) in Raman spectra.

Sample	Γ_D		Γ_G		ω_G (cm^{-1})	
	Fresh	Spent	Fresh	Spent	Fresh	Spent
C1	73.9	–	61.7	–	1583.4	–
Ru3/C1	52.3	51.6	49.5	51.5	1577.0	1581.3
Ru6/C1	51.2	43.2	50.3	43.5	1580.5	1580.1
C2	50.2	–	48.6	–	1583.7	–
Ru3/C2	67.1	55.7	60.6	46.1	1575.1	1571.9
Ru6/C2	60.4	45.1	60.7	41.2	1580.1	1578.6

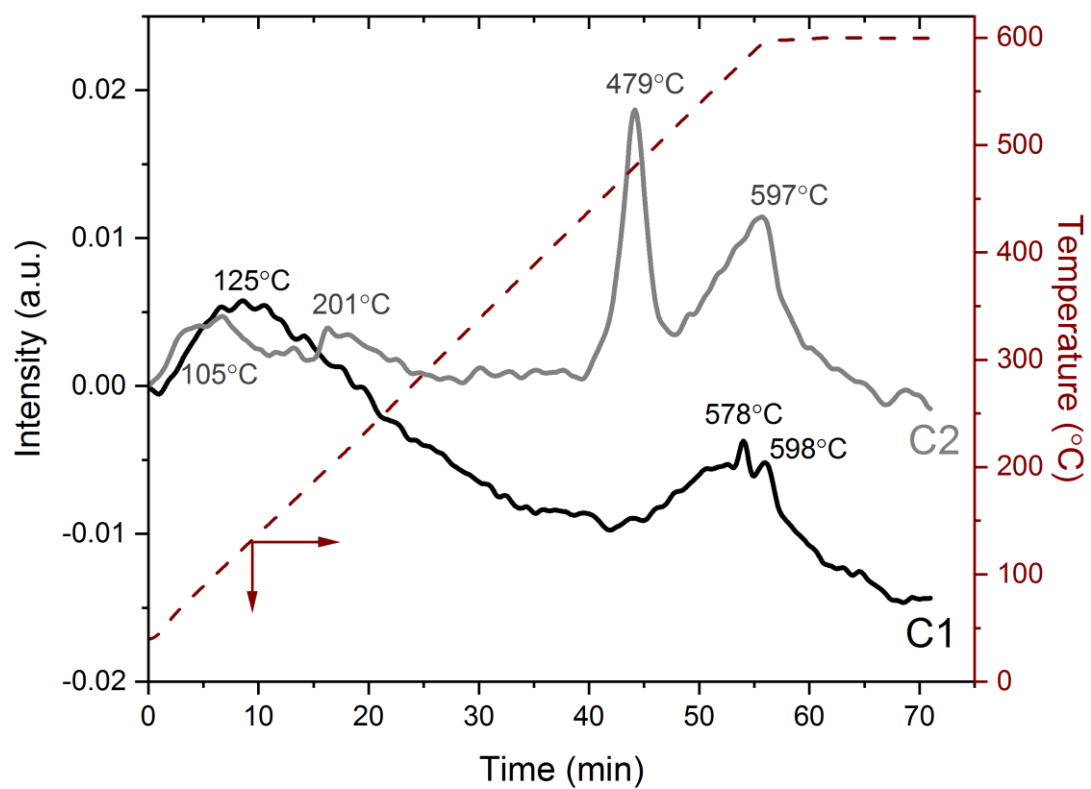


Figure S3. CO-TPD profiles of two carbon supports used in the study.