Supporting Information

Efficient scrap waste automotive converter Ru-based catalysts for the continuous-flow selective hydrogenation of cinnamaldehyde

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Table S.1 ICP-MS analysis of CC0 (scrap catalytic converter, untreated)

Element	%wt
Mg	3.9
Al	36.4
Si	41.1
Fe	4.0
Ce	4.2
Ti	0.8
Zn	0.5
Zr	2.8
Pt	0.4

Fig.S.1 XRD patterns of 10%Ru/SiO_2, 10%Ru/Al_2O_3 activated and 10%Ru/Al_2O_3 catalysts

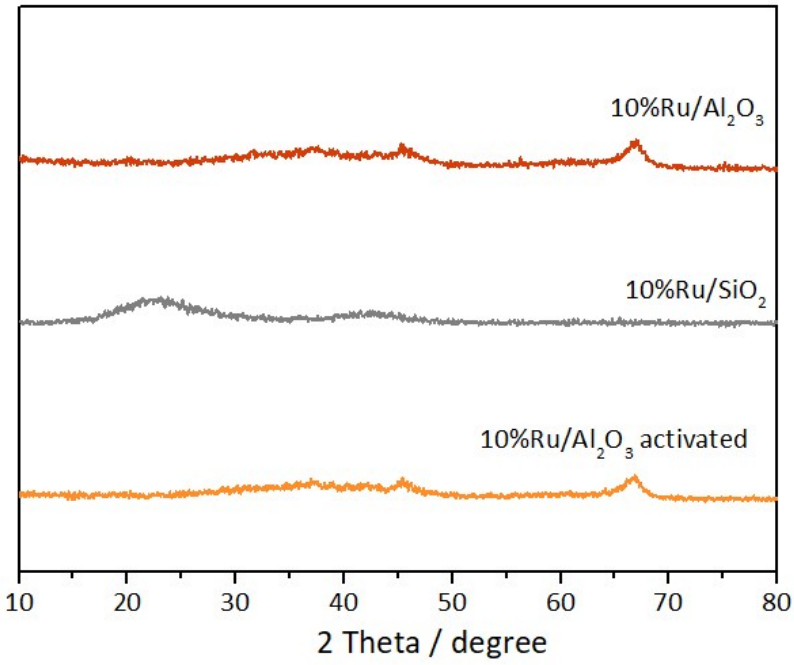
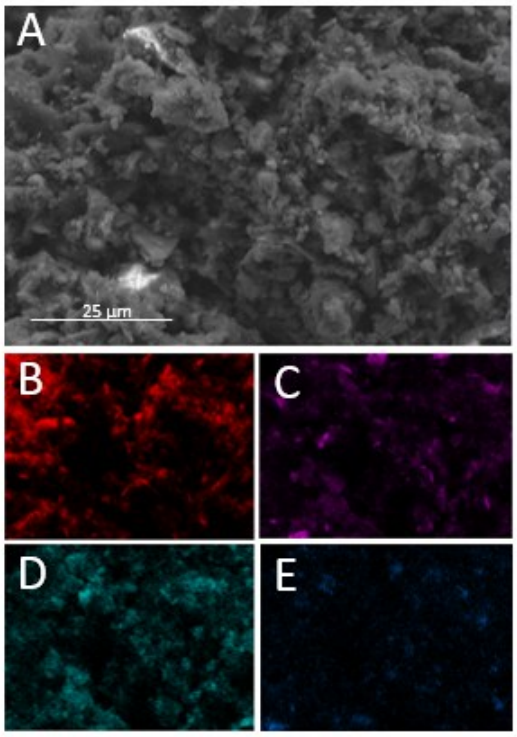
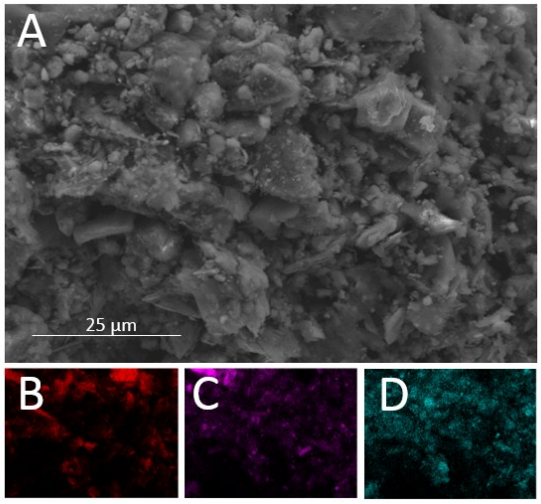


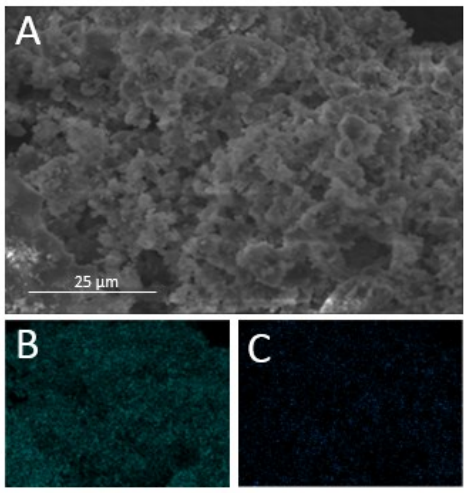
Fig.S.2 SEM mapping of 5%Ru/CC, 0%Ru/CC, 10%Ru/SiO_2, 10%Ru/Al_2O_3 activated and 10%Ru/Al_2O_3



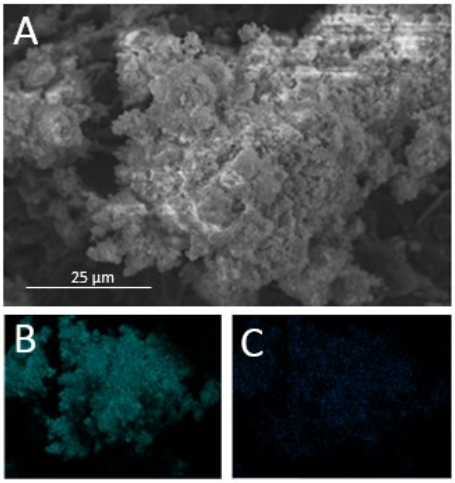
SEM images with mapping analysis of 0%Ru/CC catalyst (a) Distribution of Carbon (b), Silicon (c), Aluminum (d) and Ruthenium (e).



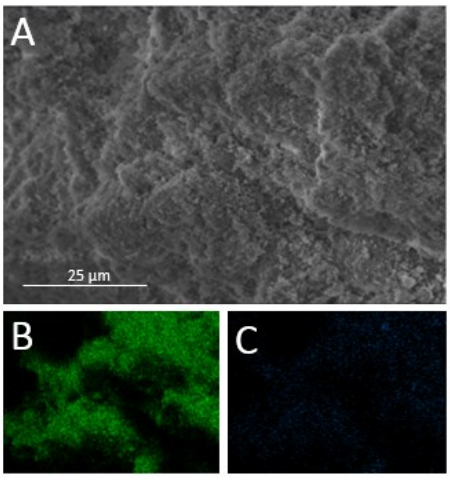
SEM images with mapping analysis of 0%Ru/CC (a) Distribution of Carbon (b), Silicon (c) and Aluminum (d).



SEM images with mapping analysis of 10%Ru/SiO_2 catalyst (a) Distribution Silicon (b) and Ruthenium (c).



SEM images with mapping analysis of 10%Ru/Al_2O_3 activated catalyst (a) Distribution Aluminum (b) and Ruthenium (c).



SEM images with mapping analysis of 10%Ru/Al_2O_3 catalyst (a) Distribution Aluminum (b) and Ruthenium (c).

Fig.S.3 HRTEM images of 10%Ru/CC

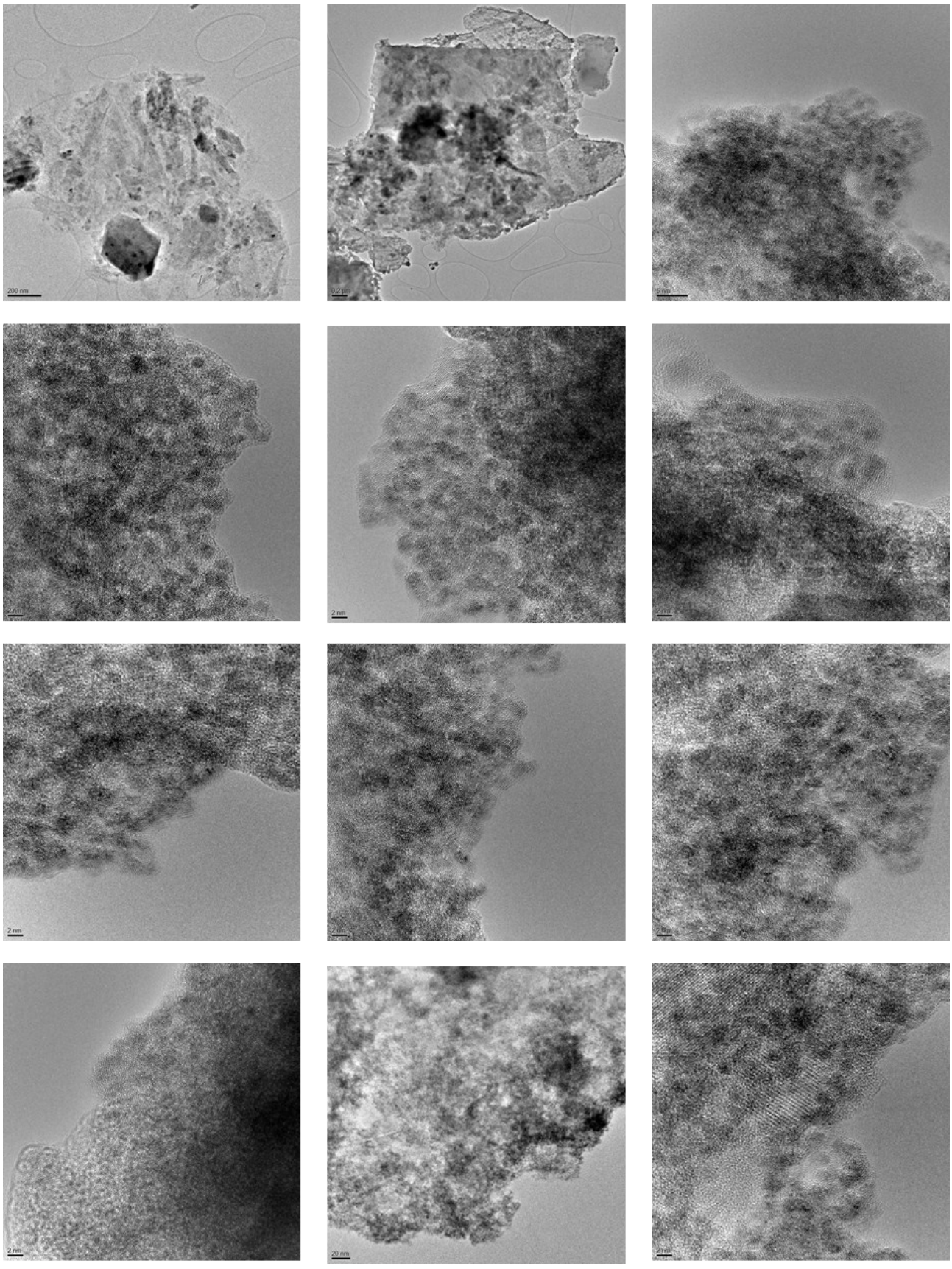


Fig.S.4 N_2 adsorption−desorption isotherm of CC0, 10%Ru/CC (before the chemical reduction) and 10%Ru/CC

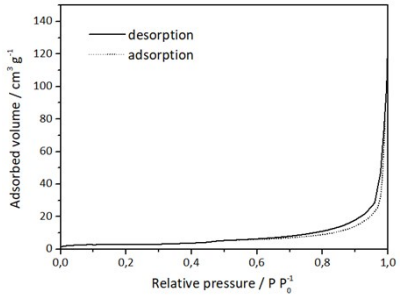
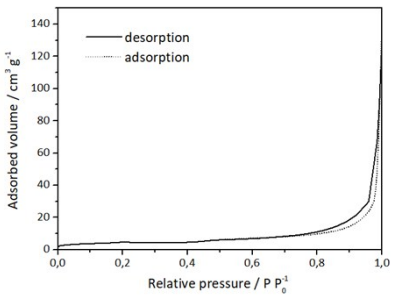
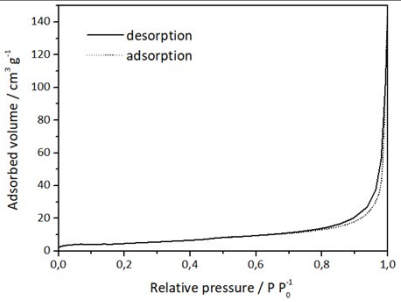
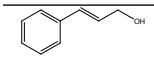
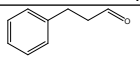
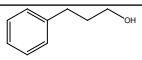
CC0	10%Ru/CC before chemical reduction	10%Ru/CC
		
13.5132+/-0.0725 m^2 g^{-1}	16.3807+/-0.0408 m^2 g^{-1}	21.3616+/-0.0699 m^2 g^{-1}

Table S.2 Selectivity and yield data for Ru/CC catalysts

Catalyst	Conversion / %	Selectivity / %				Yield to COL / %
		 COL	 HCAL	 HCOL	Others	
10%Ru/CC	94.4	79.7	-	9.2	11.1	75.2
5%Ru/CC	64.0	85.1	-	5.1	9.8	54.5
2.5%Ru/CC	29.1	82.4	-	7.0	10.6	24.0
1%Ru/CC	16.4	62.5	17.6	4.0	15.9	10.2
0%Ru/CC	4.9	57.3	22.1	5.8	14.8	2.8
CC0	<1%	-	-	-	-	-