

Supporting Information

Anti-Coke Behaviour of Alumina Nanosheets Supported Pt-Sn Catalyst for Isobutane

Dehydrogenation

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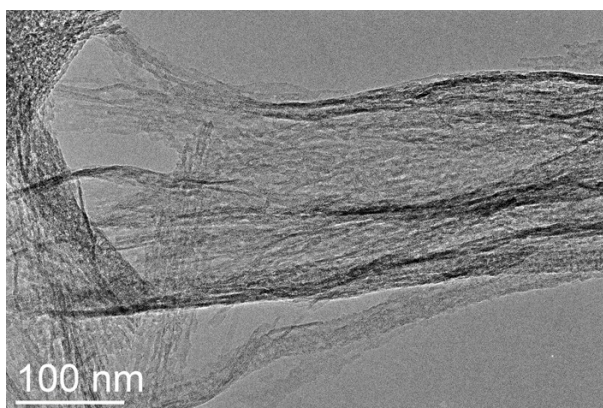


Fig. S1. TEM image of the alumina nanosheets.

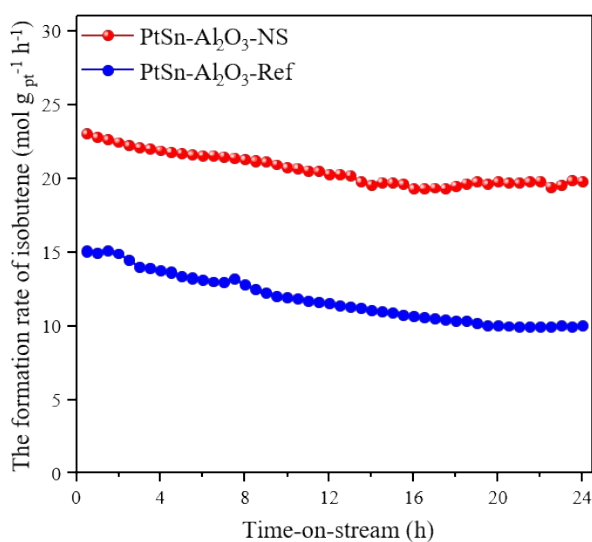


Fig. S2. Catalytic performances of IDH over PtSn-Al₂O₃-NS and PtSn-Al₂O₃-NS catalysts.

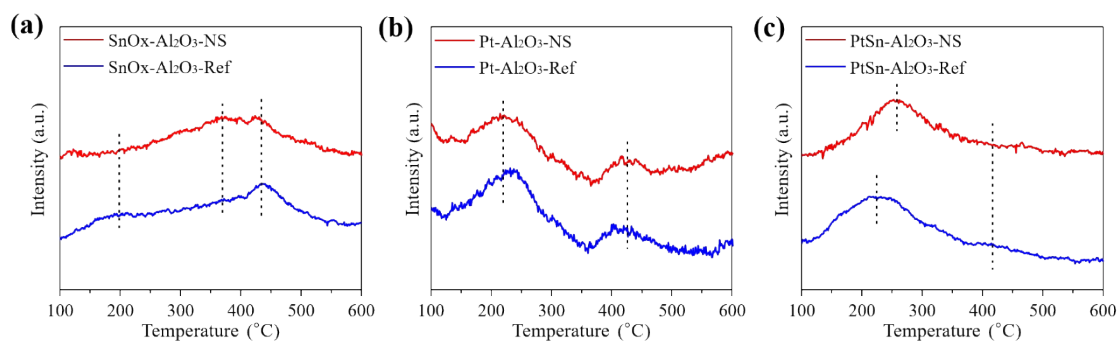


Fig. S3. H₂-TPR spectra of SnO_x-Al₂O₃ (a), Pt-Al₂O₃ (b), and PtSn-Al₂O₃ (c).

Table S1 Coordination states of Al³⁺ in different samples

Sample	Percentage of different coordinated Al ³⁺ sites (%)		
	Al (VI)	Al (V)	Al (IV)
Al ₂ O ₃ -NS	53.7	26.3	20.0
Al ₂ O ₃ -Ref	74.1	7.2	18.7
PtSn-Al ₂ O ₃ -NS	59.3	21.7	19.0
PtSn-Al ₂ O ₃ -Ref	73.6	7.3	19.1

Table S2 Acid strength distribution of different catalysts

Sample	Tmax (°C)			Total acid sites (μmol NH ₃ g ⁻¹)	Area fraction (%)	
	I	II	III		Weak acid	Medium-strong acid
PtSn-Al ₂ O ₃ -Ref	170	224	306	310	21	79
PtSn-Al ₂ O ₃ -NS	172	229	307	248	40	60

Table S3 The intensity and area ratio of the D to G band on the spent catalyst surfaces

Sample	I _{D1} /I _G	A _{D1} /A _G
PtSn-Al ₂ O ₃ -NS	0.79	4.78
PtSn-Al ₂ O ₃ -Ref	0.67	3.53