

Dehydrochlorination of 1,2-dichloroethane over Ba modified Al_2O_3 catalysts

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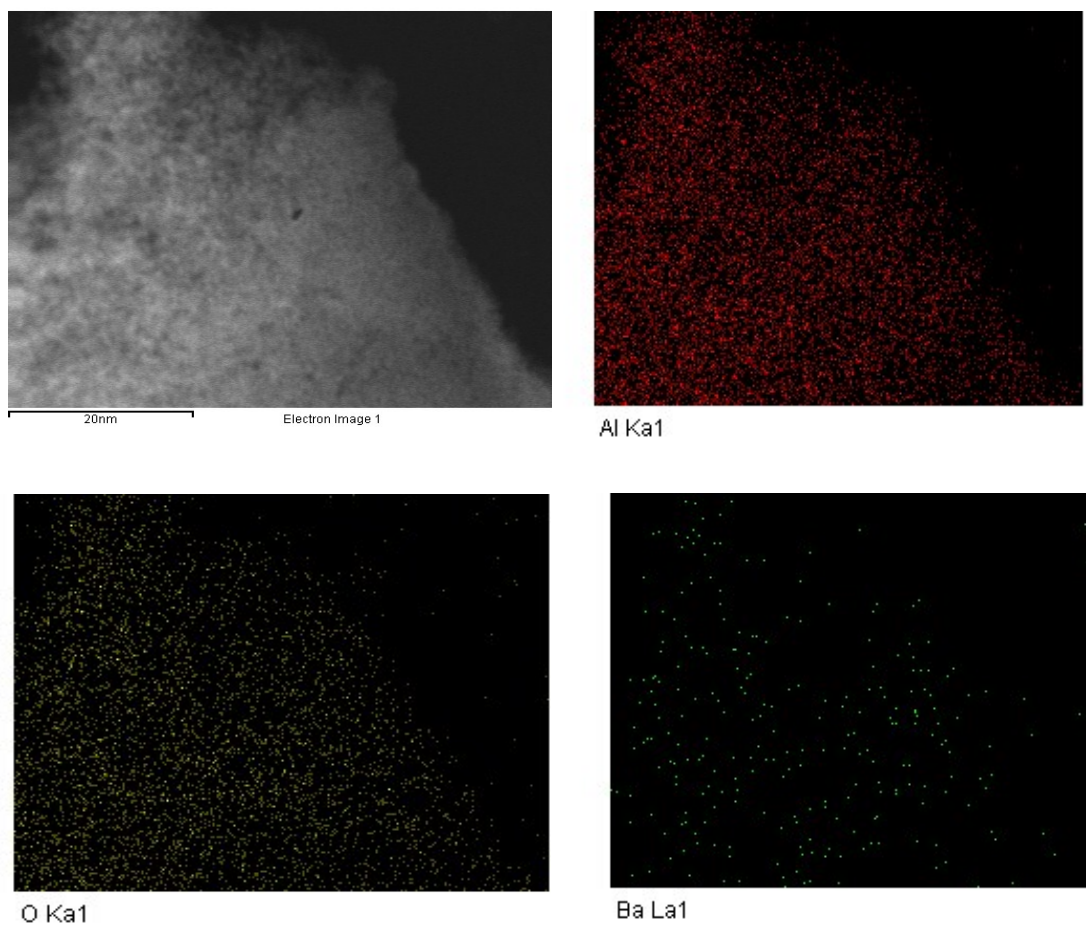
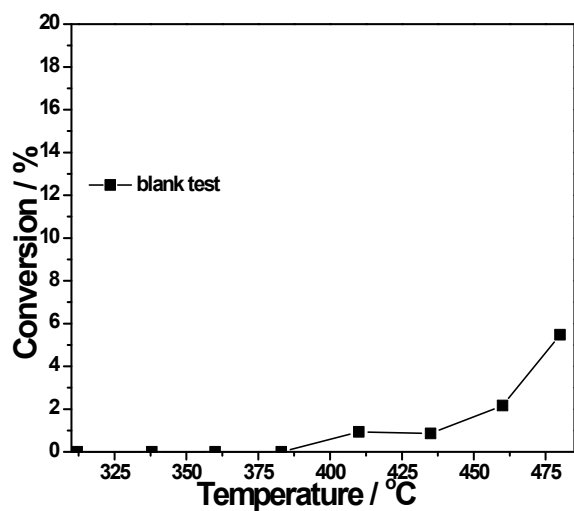


Fig. S1. The mapping of 4Ba/Al₂O₃ catalyst.

Element	Peak Area	Area Sigma	K factor	Abs Corn.	Weight %	Weight% Sigma	Atomic %
O K	13009	200	0.758	1.000	42.48	0.45	56.86
Al K	28458	283	0.437	1.000	53.58	0.45	42.53
Ba L	1103	75	0.828	1.000	3.93	0.26	0.61
Totals					100.00		



Conversion curves of 1, 2-DCE in blank test

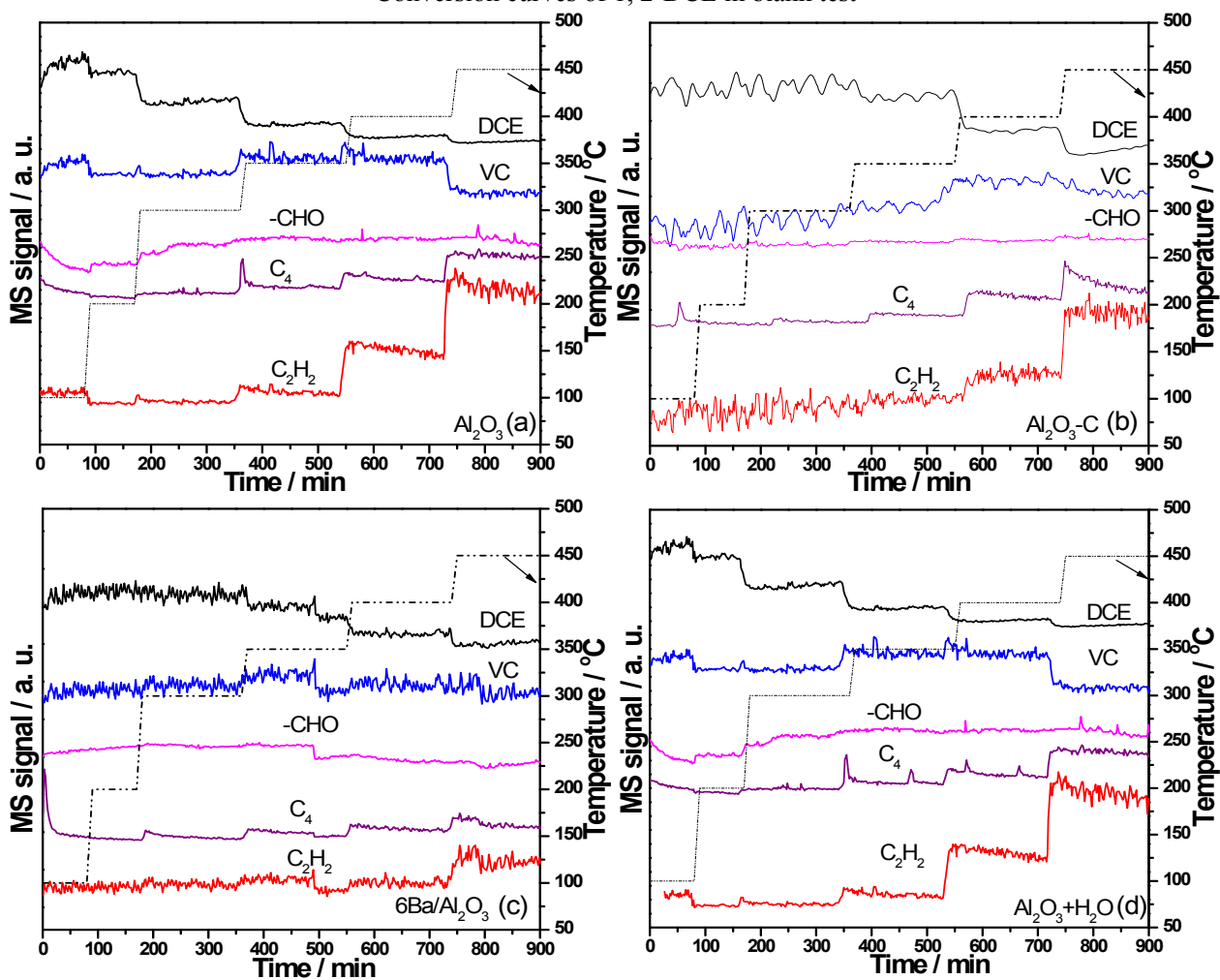


Fig. S2. TPSR of 1, 2-DC over Al_2O_3 and $\text{Ba}/\text{Al}_2\text{O}_3$; reaction gas: 1000 ppm 1,2-DCE and Ar balance; $\text{SV}=30,000 \text{ mL g}^{-1} \text{ h}^{-1}$.

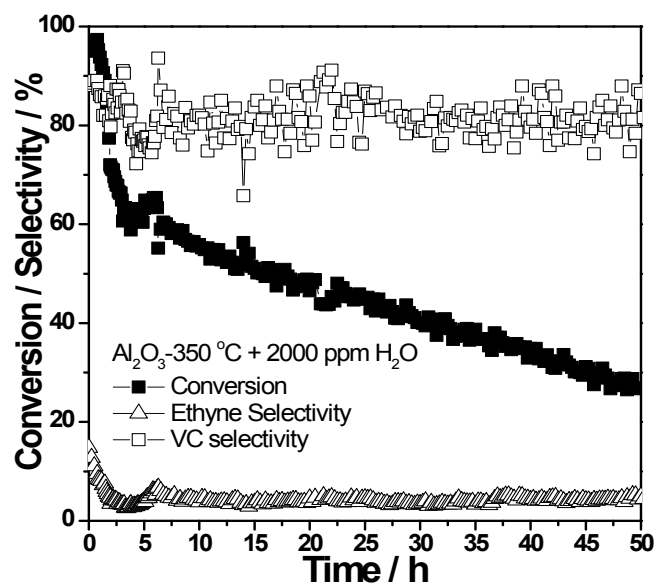


Fig. S3. The stability of Al₂O₃ catalyst on wet feed stream at 350 °C; reaction gas: 1000 ppm 1,2-DCE, 2000 ppm H₂O and Ar balance; SV=30,000 mL g⁻¹ h⁻¹.

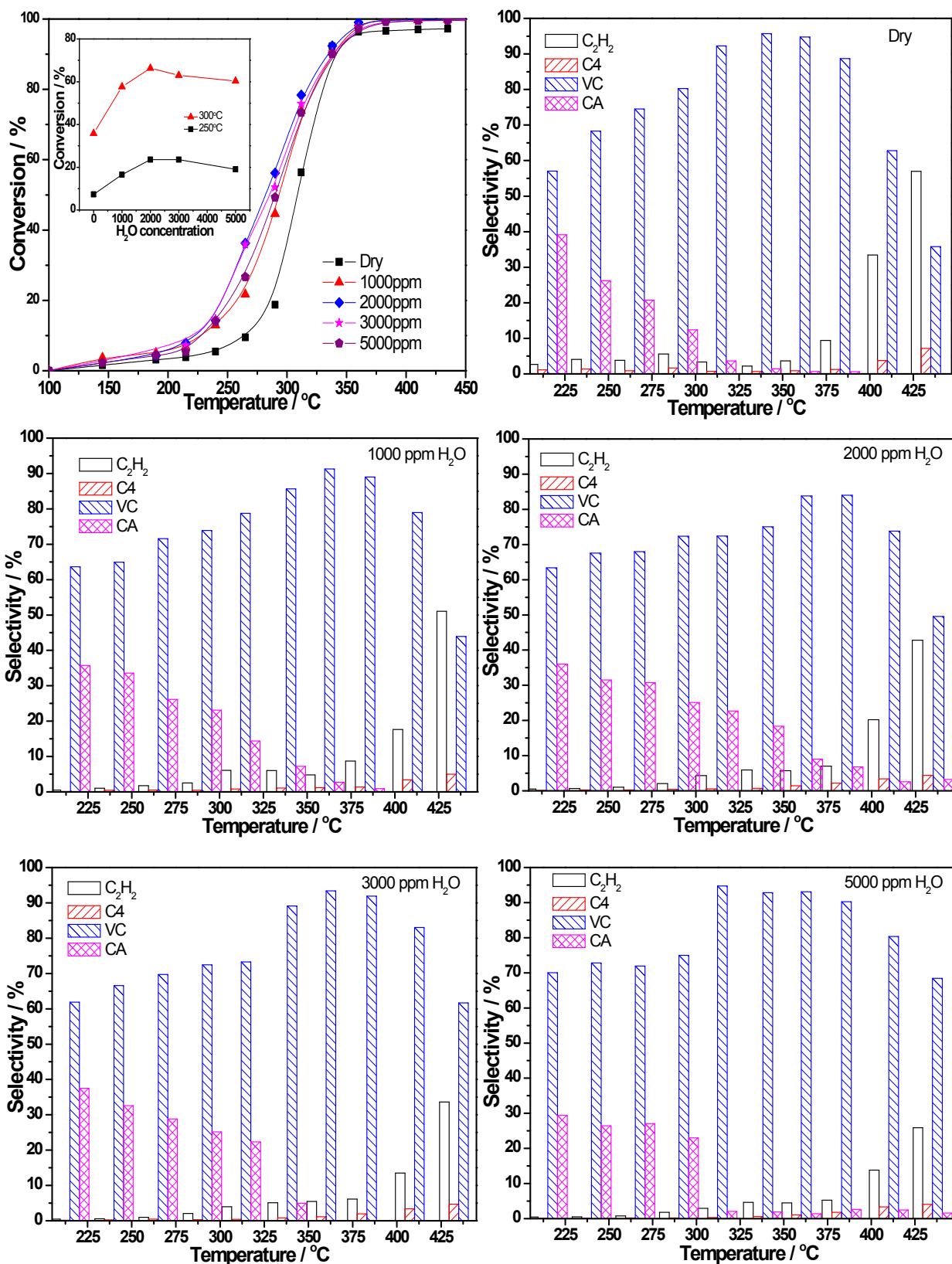


Fig. S4. Water influence on 1,2-DCE dehydrochlorination over Al_2O_3 catalysts; reaction gas: 1000 ppm 1,2-DCE and Ar balance; $\text{SV}=30,000 \text{ mL g}^{-1} \text{ h}^{-1}$.

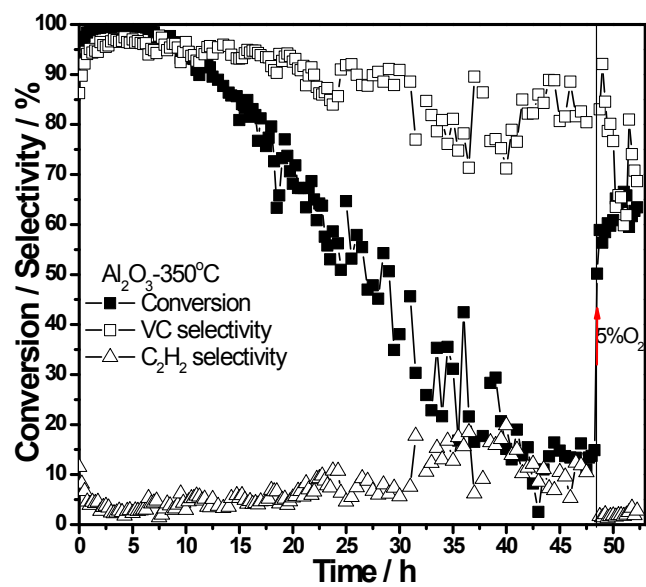


Fig. S5. The stability on feed stream at 350°C of Al_2O_3 catalysts; reaction gas: 1000 ppm 1,2-DCE and Ar balance; $\text{SV}=30,000 \text{ mL g}^{-1} \text{ h}^{-1}$.

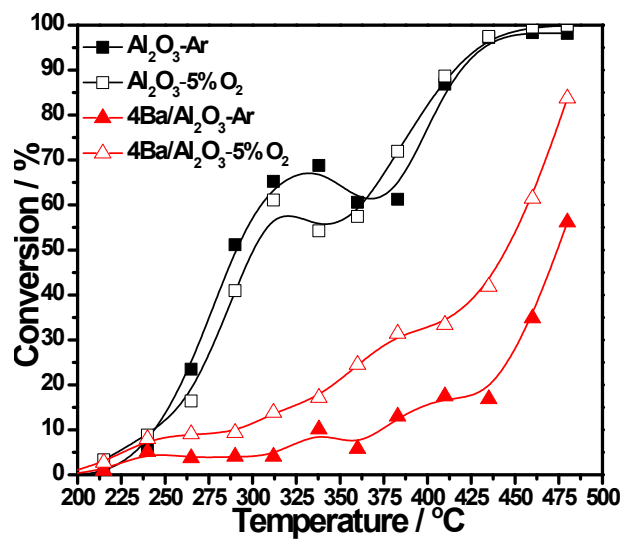


Fig. S6. The conversion curves of VC over Al_2O_3 and $4\text{Ba/Al}_2\text{O}_3$ catalysts ; reaction gas: 1000 ppm VC and Ar balance; $\text{SV}=30,000 \text{ mL g}^{-1} \text{ h}^{-1}$.

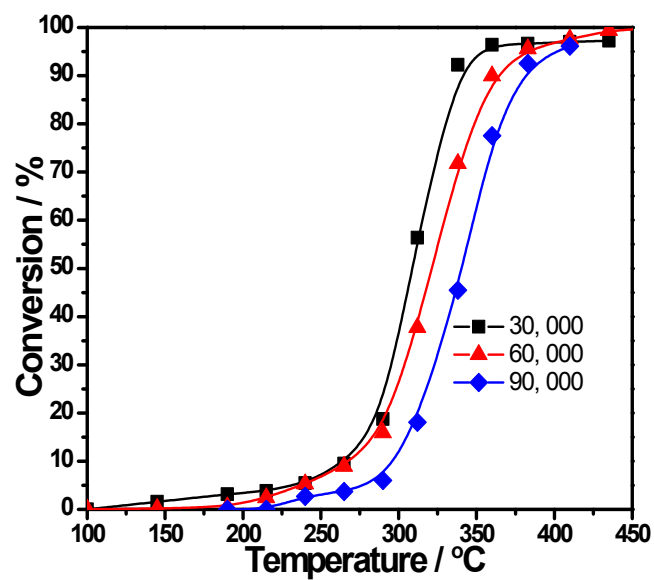


Fig. S7. Conversion curves of 1, 2-DCE over Al₂O₃ at various space velocities; reaction gas: 1000 ppm 1,2-DCE and Ar balance.

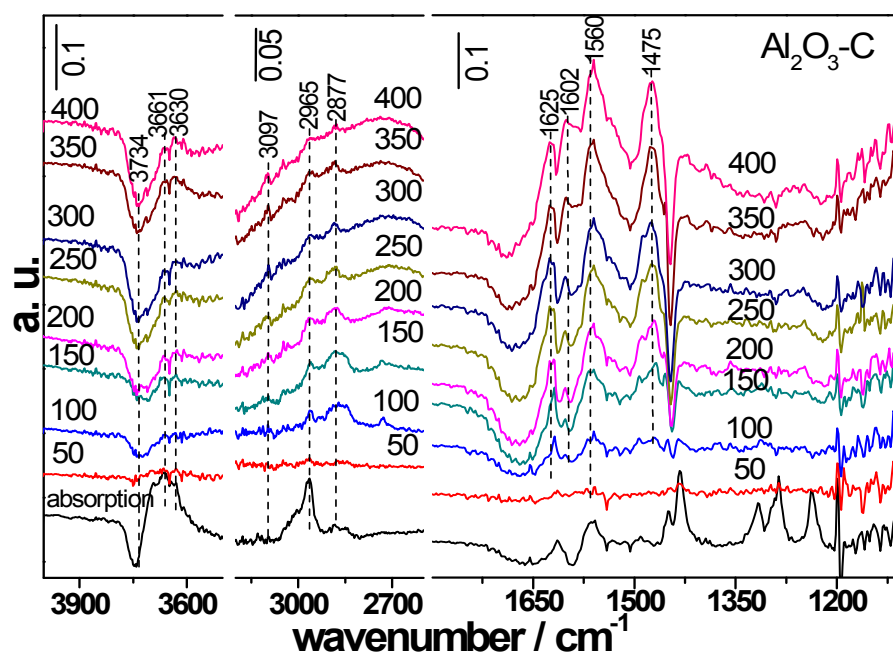


Fig. S8. *In situ* FTIR spectra in 1100-4000 cm^{-1} region for $\text{Al}_2\text{O}_3\text{-C}$ in a 1000 ppm 1,2-DCB/Ar stream from 50 to 400 °C after the treatment in Ar at 550 °C.

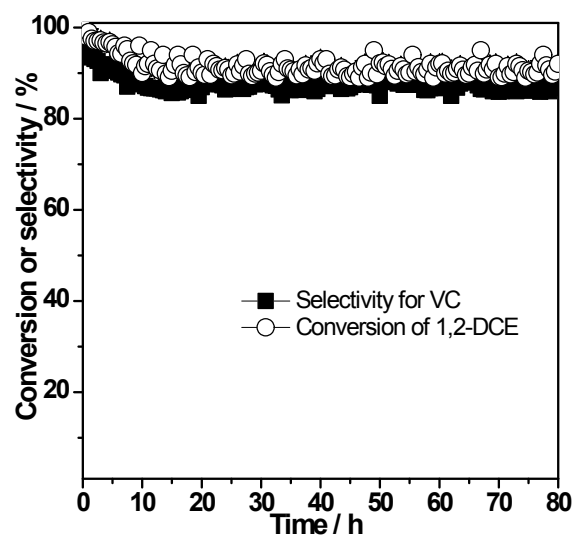


Fig S9. The stability on the feed streams at 400 °C of 4Ba/Al₂O₃ catalysts; reaction gas: 1000 ppm 1,2-DCE, 5% O₂ and Ar balance; SV=30,000 mL g⁻¹ h⁻¹.