Electronic Supplementary Information (ESI)

High-Throughput Screening and Literature Data Driven Machine Learning Assisting Investigation of Multi-component La_2O_3-based Catalysts for Oxidative Coupling of Methane

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[Table of contents]

[ML prediction results of C_2 yield, reaction condition, and multicomponent La_2O_3]

Data-1.csv: Results of SVR on HTS dataset
Data-2.csv: Results of RFR on HTS and literature dataset
Data-3.csv: Results of SVR on HTS and literature dataset
Data-4.csv: Results of Bayesian-1 on HTS and literature dataset
Data-5.csv: Results of Bayesian-2 on HTS and literature dataset
The treatment of C_2 yield divided by 100 and 10 for Gaussian process regression is recovered in the file for easy understanding.

[RawData]

Results of reference catalyst and blank at CH_4/O_2 = 2.0 (**Table S5**), CH_4/O_2 = 3.5 (**Table S6**), and CH_4/O_2 = 5.0 (**Table S7**).

Results of multicomponent La_2O_3 catalyst predicted with SVR on HTS dataset at CH_4/O_2 = 2.0 (**Table S8**).

Results of multicomponent La_2O_3 catalyst predicted with ICM on the SVR worldview on HTS dataset at CH_4/O_2 = 2.0 (**Table S9**).

Results of selected multicomponent La_2O_3 catalyst predicted with SVR regression on HTS dataset and LCM at CH_4/O_2 = 3.5 (**Table S10**) and CH_4/O_2 = 5.0 (**Table S11**).

Results of multicomponent La_2O_3 catalyst predicted with RFR on HTS and literature dataset at CH_4/O_2 = 2.0 (**Table S12**).

Results of multicomponent La_2O_3 catalyst predicted with SVR on HTS and literature dataset at CH_4/O_2 = 2.0 (**Table S13**).

Results of multicomponent La_2O_3 catalyst predicted with the Bayesian-1 inference on HTS and literature dataset at CH_4/O_2 = 2.0 (**Table S14**).

Results of multicomponent La_2O_3 catalyst predicted with the Bayesian-2 inference on HTS and literature dataset at CH_4/O_2 = 2.0 (**Table S15**).

Results of selected multicomponent La_2O_3 catalyst predicted with the RF, SVR, and Bayesian-1 and Bayesian-2 inference on HTS and literature dataset at CH_4/O_2 = 3.5 (**Table S16**) and 5.0 (**Table S17**).

Reproducibility tests (in parts) at CH_4/O_2 = 2.0 (**Table S18**).

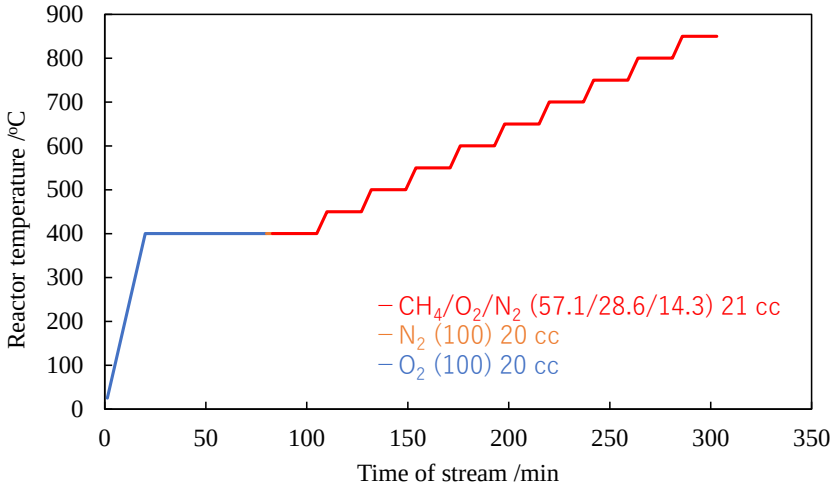

Fig. S1 Sequence of reaction temperatures and gas composites for catalyst evaluation.

Conversion of reactant and yield of product are determined by the following equations:

$$\mathrm{CH_4\ conversion} = \frac{\mathrm{CH_{4\_input} - CH_{4\_output}}}{\mathrm{CH_{4\_input}}} \times 100\ (\%)$$

$$\mathrm{O_2\ conversion} = \frac{\mathrm{O_{2\_input} - O_{2\_output}}}{\mathrm{O_{2\_input}}} \times 100\ (\%)$$

$$\mathrm{H_2\ yield} = \frac{\frac{1}{2}\mathrm{H_{2\_output}}}{\mathrm{CH_{4\_input}}} \times 100\ (\%)$$

$$\mathrm{CO\ yield} = \frac{\mathrm{CO\_output}}{\mathrm{CH_{4\_input}}} \times 100\ (\%)$$

$$\mathrm{CO_2\ yield} = \frac{\mathrm{CO_{2\_output}}}{\mathrm{CH_{4\_input}}} \times 100\ (\%)$$

$$\mathrm{C_2H_6\ yield} = \frac{2\mathrm{C_2H_{6\_output}}}{\mathrm{CH_{4\_input}}} \times 100\ (\%)$$

$$\mathrm{C_2}H_4\ \mathrm{yield} = \frac{2\mathrm{C_2H_{4\_output}}}{\mathrm{CH_{4\_input}}} \times 100\ (\%)$$

$$\mathrm{C_2\ yield} = \mathrm{C_2H_6\ yield} + \mathrm{C_2H_4\ yield}\ (\%)$$

$$\mathrm{C_2\ selectivity} = \frac{\mathrm{C_2\ yield}}{\mathrm{CH_4\ conv.}} \times 100\ (\%)$$

$$\mathrm{Carbon\ missing} = \mathrm{CH_4\ conv.} - (\mathrm{sum\ of\ CO, CO_2, C_2H_6\ and\ C_2H_4\ yield})\ (\%)$$

$$\mathrm{Standard\ dviation}\ (\sigma) = \sqrt{\frac{(\mathrm{C_2\ yield_{1st}} - \mathrm{C_2\ yield_{ave}})^2 + (\mathrm{C_2\ yield_{2nd}} - \mathrm{C_2\ yield_{ave}})^2}{2}}\ (\%)$$

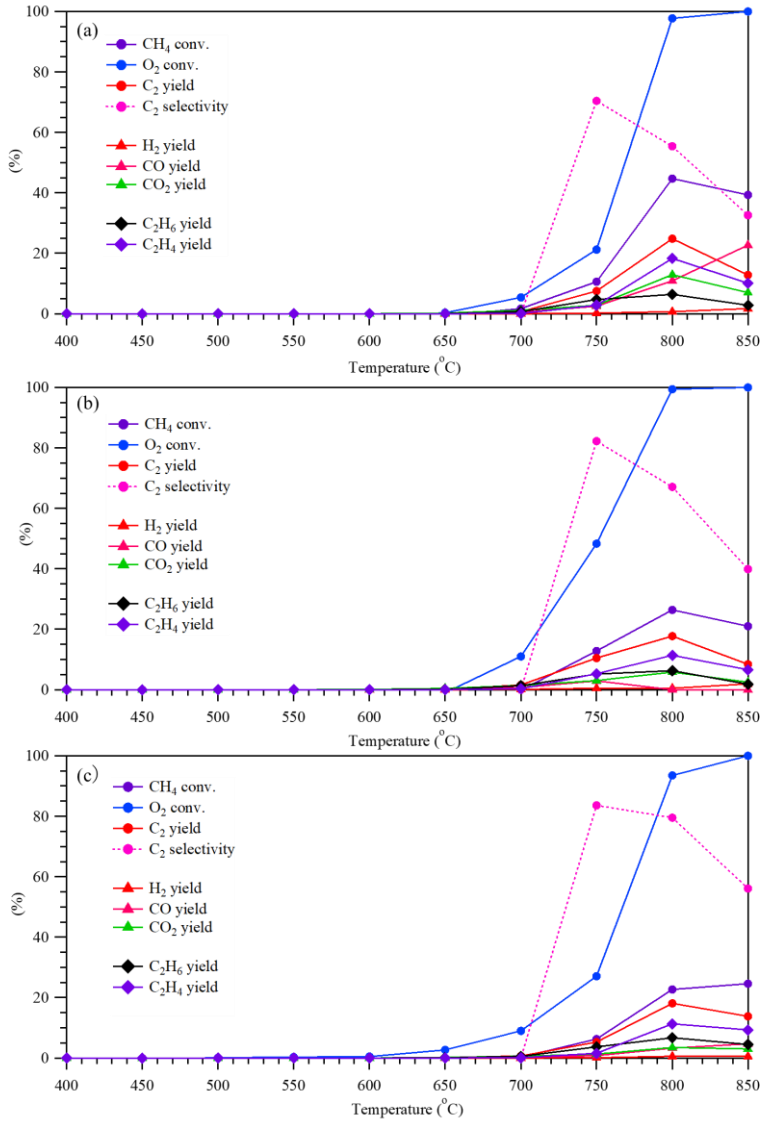

Fig. S2 OCM performance of standard NaMnW/SiO_2 catalyst under present experiment conditions at CH_4/O_2 = (a) 2.0, (b) 3.5, and (c) 5.0. Note that C_2 selectivity sets 0% when C_2 yield below 5.0%.

Conventional NaMnW/SiO_2 is prepared with co-impregnation as follow: 0.267 g of $Mn(NO_3)_2{\cdot}6H_2O$ and 0.152 g of $Na_2WO_4{\cdot}2H_2O$ are mixed with 2.5 g scale of SiO_2 in 300 mL of deionized water for 24 h at 50°C under vigorous stirring, and then the solvent is evaporated with a rotary evaporator (N-1000, EYELA) before dry at 110°C for overnight (ON-300S, ETTAS). Obtained powder is grinded and calcined at 1000°C for 3 h in a furnace (3000 plus, KDF). Approx. 2.2 g catalyst is generated.

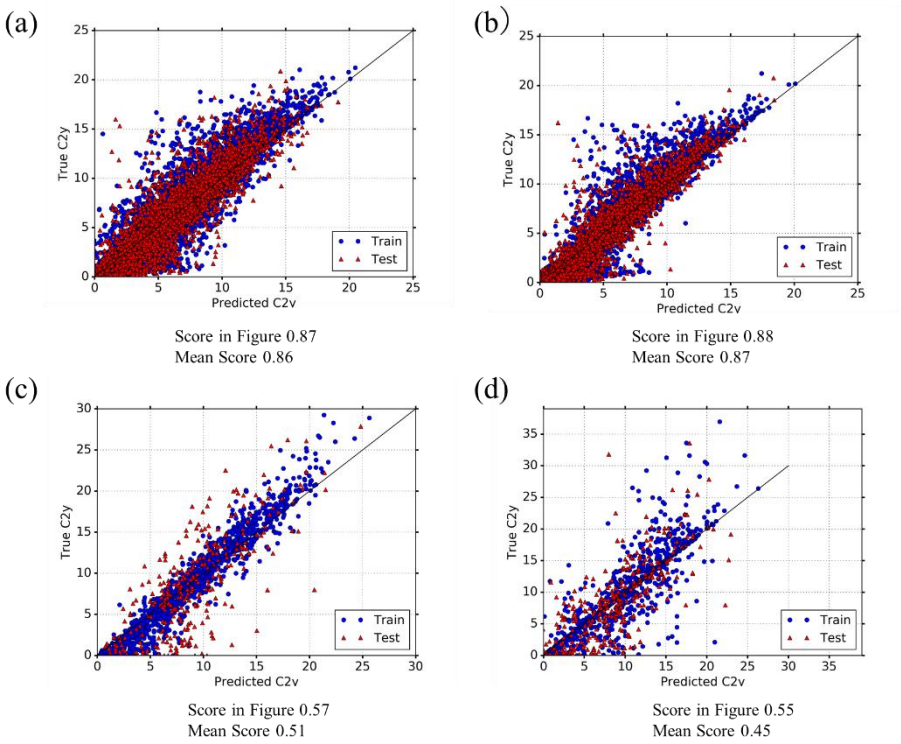

Fig. S3 True and predicted C_2 yield using (a) SVR at HTS datasets (350 cat.), (b) SVR at HTS datasets (291 cat.) for LCM, and (c) RFR and (b) SVR at HTS (291 + 1286 cat.) and Literature datasets.

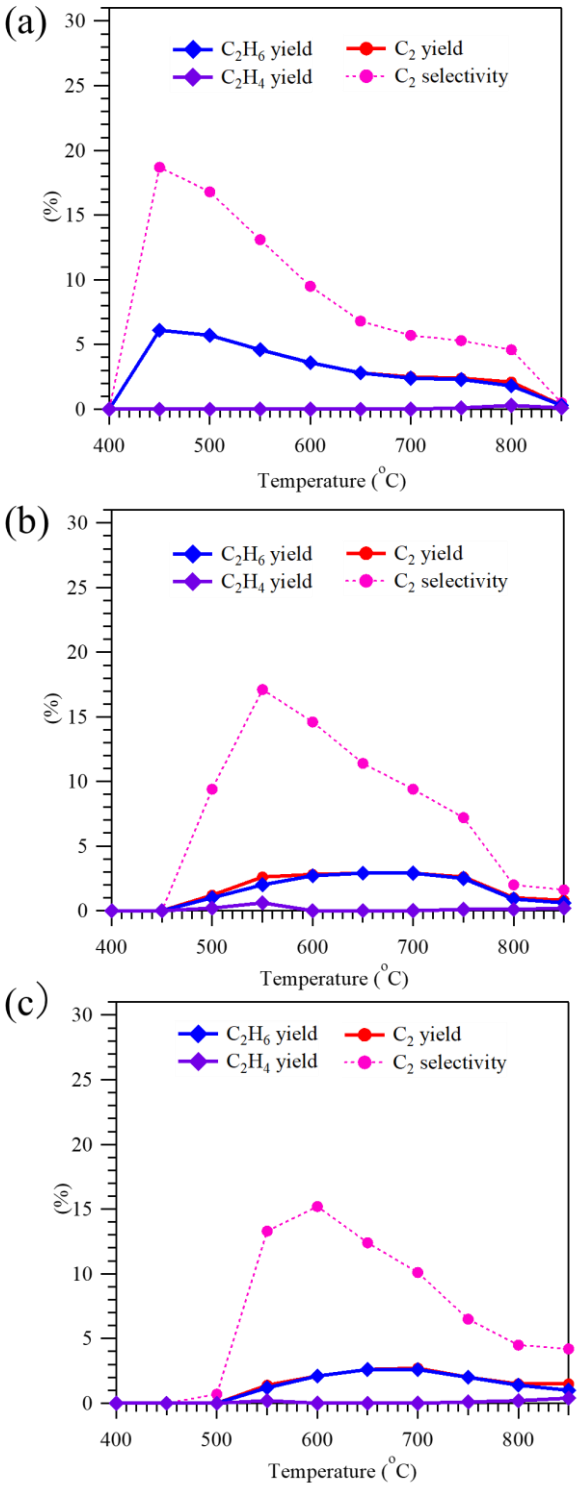

Fig. S4 C_2 component of $CaNiY/La_2O_3$ catalyst under the present experiment conditions at CH_4/O_2 = (a) 2.0, (b) 3.5, and (c) 5.0.

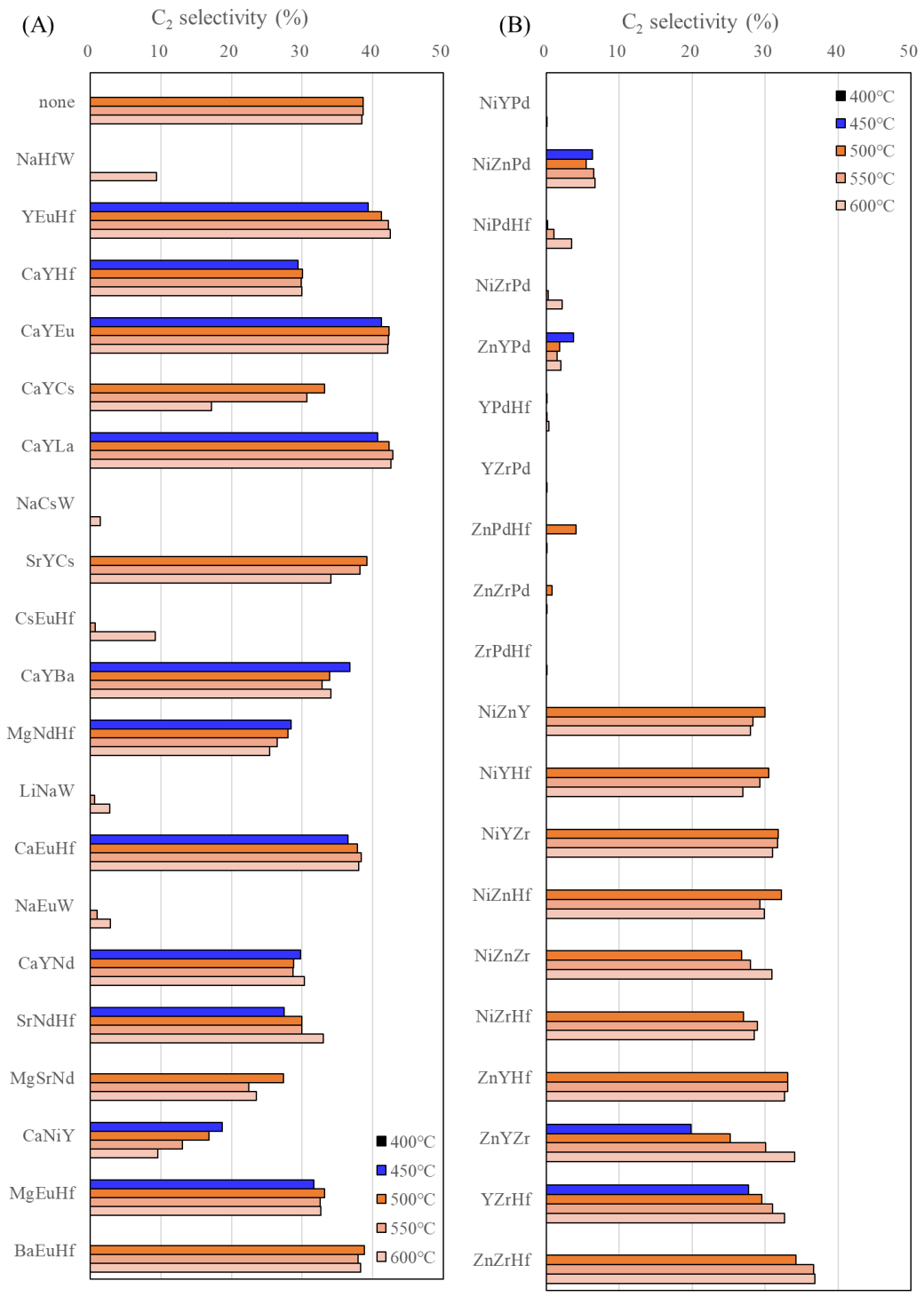

Fig. S5 Plots of C_2 selectivity of multicomponent La_2O_3 of 20 types prepared based on (A) SVR of HTS data and (b) ICM approach, together with none/La_2O_3 and blank yield at CH_4/O_2 = 2.0. All raw data are presented in **Tables S8 and S9**.

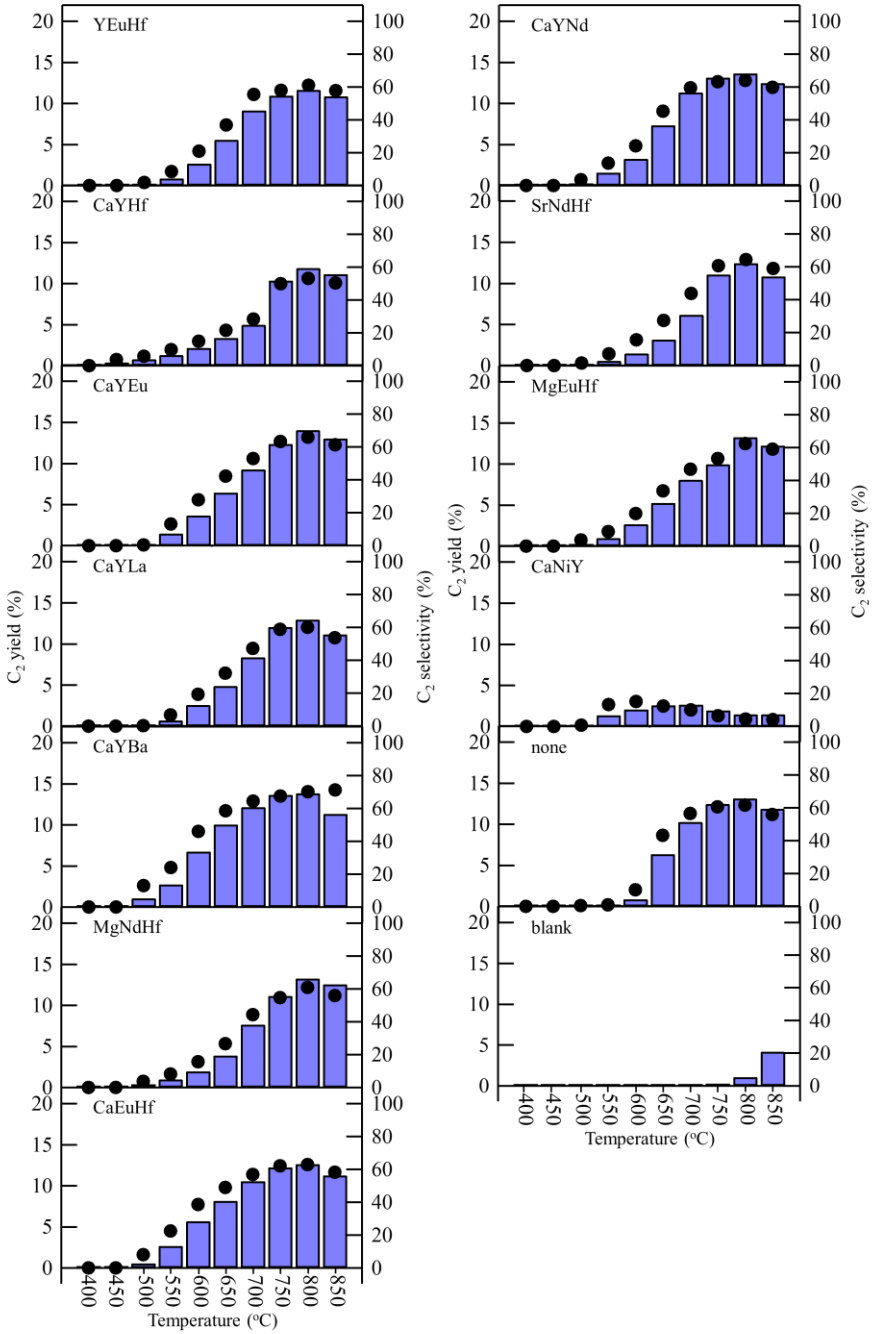

Fig. S6 Plots of C_2 yield (bar) and C_2 selectivity (closed sphere) of selected catalysts predicted from HTS data-driven ML at CH_4/O_2 = 5.0. Raw data are listed in **Table S11**.

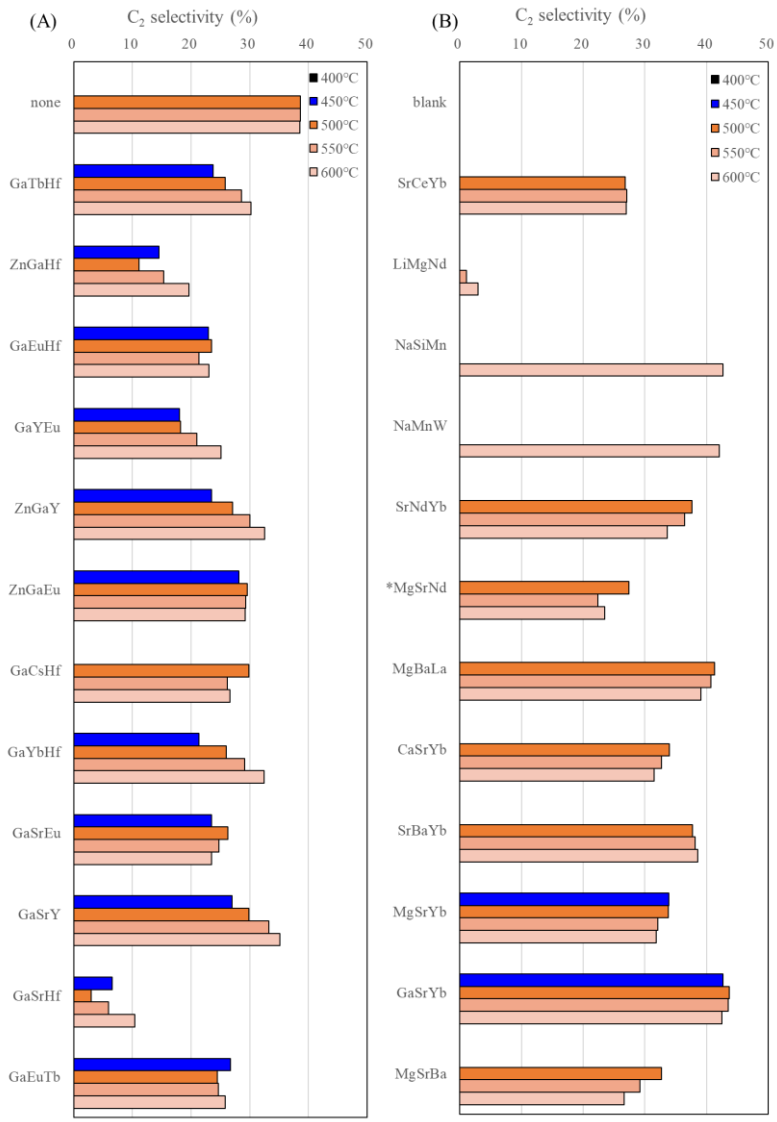

Fig. S7 Plots of C_2 selectivity of multicomponent La_2O_3 of 12 types prepared based on (A) RFR and SVR of HTS data, together with none/La_2O_3 and blank yield at CH_4/O_2 = 2.0. All raw data are presented in **Tables S12 and S13**.

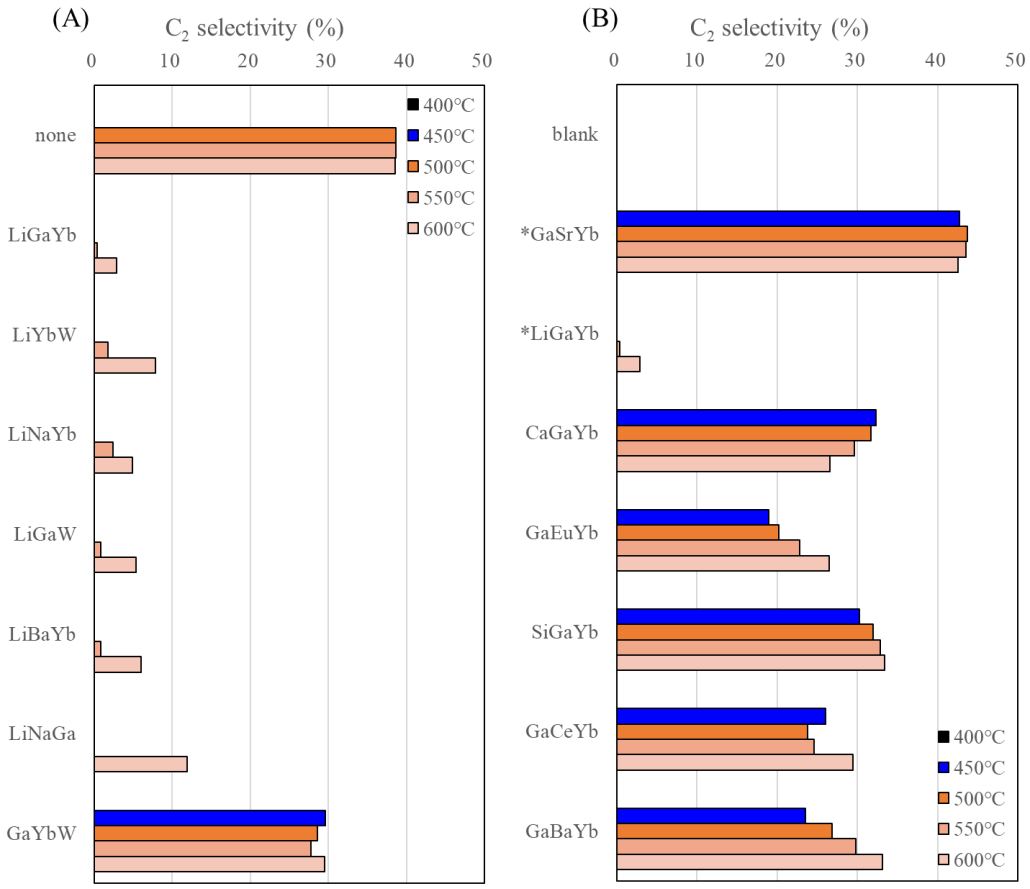

Fig. S8 Plots of C_2 selectivity of multicomponent La_2O_3 of 17 types prepared based on (A) Bayesian-1 and (b) Bayesian-2 data of HTS and the literature, together with none/La_2O_3 and blank yield at CH_4/O_2 = 2.0. All raw data are presented in **Tables S14 and S15**.

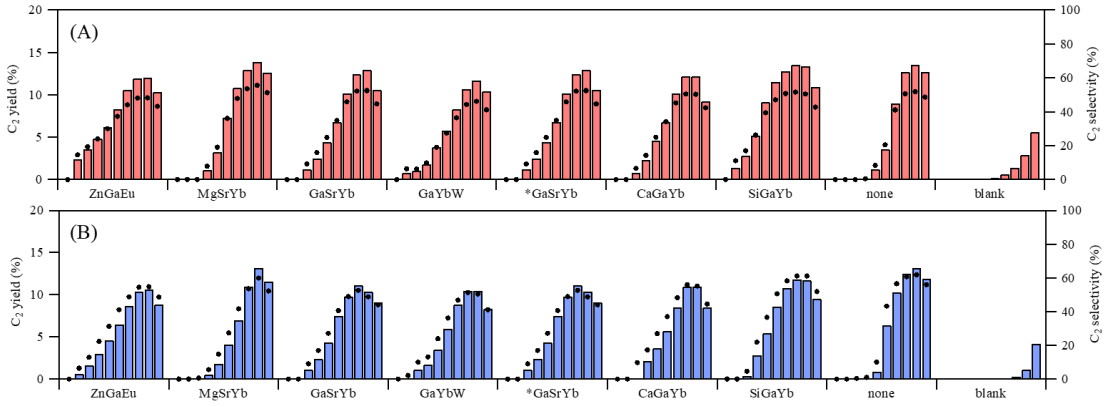

Fig. S9 Plots of the C_2 yield (bar) and C_2 selectivity (closed sphere) of the selected catalyst predicted from HTS and literature data-driven ML at CH_4/O_2 = (A) 3.5 and (B) 5.0. The bar from left to right is contributed to the reaction temperature from 400ºC to 850ºC in 50ºC step. Raw data are listed in **Tables S16 - S17**.

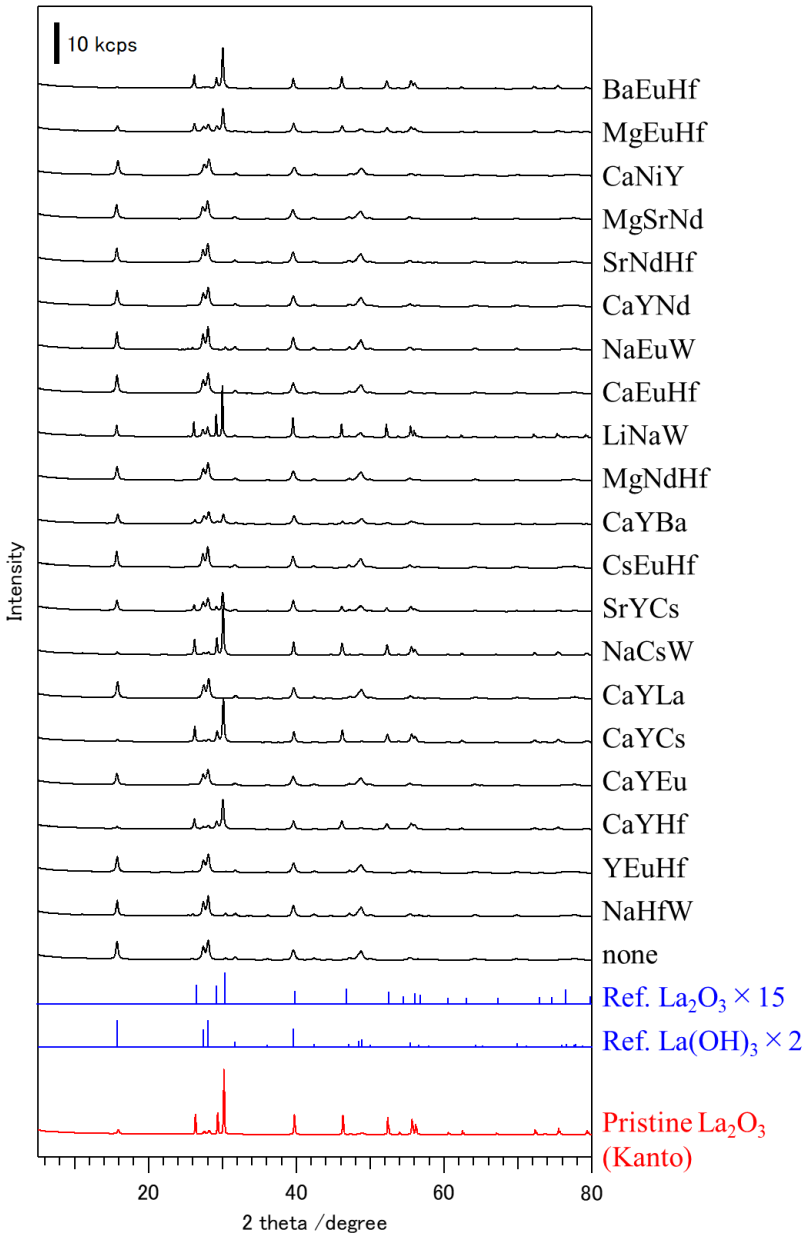

Fig. S10 XRD patterns of catalysts for the Validation 1.

XRD patterns were collected by using a Rigaku MiniFlex at the range of 2θ = 5 - 80 degree with Cu-K_α X-ray resources (Ni filter use) acerated at 40 KV and 15 mA. It was observed that ratio of La_2O_3 [PDF Card No. 7235][1] and $La(OH)_3$ [PDF Card No. 10403][1] was differed by the variation of M1-M2-M3, however the trend of composition and structural factors as lower temperature OCM performance was not clear.

References:

1) S. Grazulis, D. Chateigner, R. T. Downs, A. F. T. Yokochi, M. Quiros, L. Lutterotti, E. Manakova, J. Butkus, P. Moeck and A. L. Bail, *J. Appl. Cryst.*, 2009, **42**, 726-729.

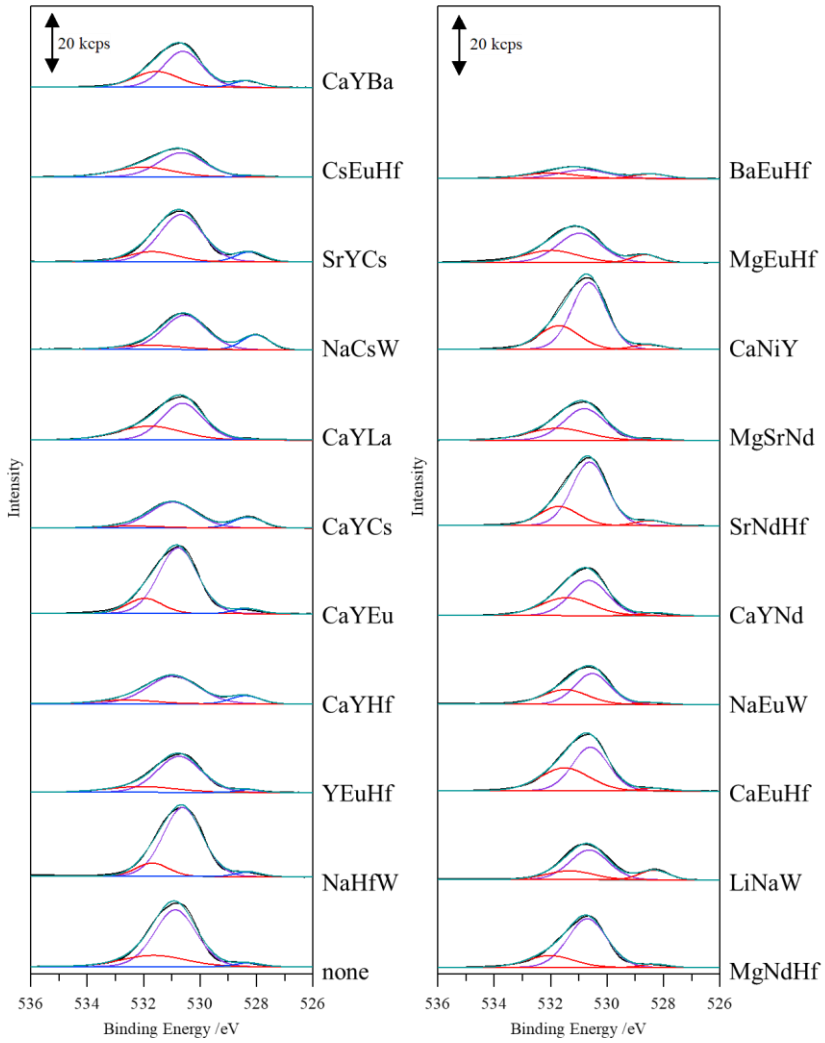

Fig. S11 XPS data with curve-fitting of catalysts for the Validation 1.

XPS spectra were obtained with an Axis-Ultra DLD spectrometer (Shimadzu Co. and Kratos Analytical Ltd.) with a monochromatic Al-K_α X-ray resource operated at the power of 15 KV and 10 mA. The binding energy was calibrated with a C 1s region as an internal standard. The O 1s region was deconvoluted with the following three classifications: i) superoxides (O_2^-), ii) peroxide ions (O^-), hydroxide ions (OH^-), and carbonates (CO_3^{2-}), and iii) lattice oxygens (O^{2-}) in accordance with previous reports.[2-4] Curve-fitting and quantification results are shown in **Table S4**.

References:

2) J. Xu, Y. Zhang, X. Xu, X. Fang, R. Xi, Y. Liu, R. Zheng and X. Wang, *ACS Catal.*, 2019, **9**, 4030-4045.

3) D. Kitasaengthong, K. Jaroenpanon, P. Somchuea, T. Chukeaw, M. Chareonpanich, K. Faungnawakij, H. Sohn, G. Rupprechter and A. Seubsai, *ACS Omega*, 2022, **7**, 1785-1793.

4) B. M. Sollier, M. Bonne, N. Khenoussi, L. Michelin, E. E. Miro, L. E. Gomez, A. V. Boix and B. Lebeau, *Ind. Eng. Chem. Res.*, 2020, **59**, 11419-11430.

Table S1 List of chemicals

Element (Atomic number)	Chemical formula	Supplier	Assay
Li (3)	$LiNO_3$	Wako	98.0%
Na (11)	$Na_2CO_3 \cdot 10H_2O$	Wako	99.0%
Mg (12)	$Mg(NO_3)_2 \cdot 6H_2O$	Wako	99.0%
Si (14)	$Si(OC_2H_5)_4$ (TEOS)	Aldrich	98%
	SiO_2 (support)	Kanto	60N
Ca (20)	$Ca(NO_3)_2 \cdot 4H_2O$	Wako	98.5%
Mn (25)	$Mn(NO_3)_2 \cdot 6H_2O$	Wako	99.9%
Ni (28)	$Ni(NO_3)_2 \cdot 6H_2O$	Wako	98.0%
Y (39)	$Y(NO_3)_2 \cdot 6H_2O$	Aldrich	99.8%
Hf (72)	$Cl_2HfO \cdot 8H_2O$	STREM	98.0% + 1.5% Zr
Zn (30)	$Zn(NO_3)_2 \cdot 6H_2O$	Wako	99.0%
Ga (31)	$Ga(NO_3)_3 \cdot nH_2O$	Wako	99.9%
Sr (38)	$Sr(NO_3)_3$	Alfa Aesar	99.9965%
Zr (40)	$ZrCl_2O \cdot 8H_2O$	Kanto	99.0%
Nb (41)	$Nd(NO_3)_3 \cdot 6H_2O$	Aldrich	99.9%
Pd (46)	$Pd(NO_3)_2$	Wako	99.9%
Cs (55)	$CsNO_3$	Aldrich	99.0%
Ba (56)	$(CH_3COO)_2Ba$	Wako	99.9%
La (57)	$La(NO_3)_3 \cdot 6H_2O$	Wako	99.9%
	La_2O_3 (support)	Kanto	98.0%
Ce (58)	$Ce(NO_3)_3 \cdot 6H_2O$	Wako	98.0%
Nd (60)	$Nd(NO_3)_3 \cdot 6H_2O$	Aldrich	99.9%
Eu (63)	$Eu(NO_3)_3 \cdot 5H_2O$	Aldrich	99.9%
Tb (65)	$Tb(NO_3)_3 \cdot 6H_2O$	Kanto	99.95%
Yb (70)	$Yb(NO_3)_3 \cdot 5H_2O$	Aldrich	99.9%
W (74)	$5(NH_4)_2O \cdot 12(WO_3) \cdot 5H_2O$	Kanto	88.0%
NaW	$Na_2WO_4 \cdot 2H_2O$	Aldrich	>99%

Table S2 List of multiple components follows the role of ICM shown in **Table S3**

CeCrCs	CeNiZr	CrNiZn	CsYZr	PdYZn
CeCrEu	CeYSm	CrNiHf	CsSmZn	PdYHf
CeCrPd	CeYZn	CrNiZr	CsSmHf	PdYZr
CeCrNi	CeYHf	CrYSm	CsSmZr	PdSmZn
CeCrY	CeYZr	CrYZn	CsZnHf	PdSmHf
CeCrSm	CeSmZn	CrYHf	CsZnZr	PdSmZr
CeCrZn	CeSmHf	CrYZr	CsHfZr	PdZnHf
CeCrHf	CeSmZr	CrSmZn	EuPdNi	PdZnZr
CeCrZr	CeZnHf	CrSmHf	EuPdY	PdHfZr
CeCsEu	CeZnZr	CrSmZr	EuPdSm	NiYSm
CeCsPd	CeHfZr	CrZnHf	EuPdZn	NiYZn
CeCsNi	CrCsEu	CrZnZr	EuPdHf	NiYHf
CeCsY	CrCsPd	CrHfZr	EuPdZr	NiYZr
CeCsSm	CrCsNi	CsEuPd	EuNiY	NiSmZn
CeCsZn	CrCsY	CsEuNi	EuNiSm	NiSmHf
CeCsHf	CrCsSm	CsEuY	EuNiZn	NiSmZr
CeCsZr	CrCsZn	CsEuSm	EuNiHf	NiZnHf
CeEuPd	CrCsHf	CsEuZn	EuNiZr	NiZnZr
CeEuNi	CrCsZr	CsEuHf	EuYSm	NiHfZr
CeEuY	CrEuPd	CsEuZr	EuYZn	YSmZn
CeEuSm	CrEuNi	CsPdNi	EuYHf	YSmHf
CeEuZn	CrEuY	CsPdY	EuYZr	YSmZr
CeEuHf	CrEuSm	CsPdSm	EuSmZn	YZnHf
CeEuZr	CrEuZn	CsPdZn	EuSmHf	YZnZr
CePdNi	CrEuHf	CsPdHf	EuSmZr	YHfZr
CePdY	CrEuZr	CsPdZr	EuZnHf	SmZnHf
CePdSm	CrPdNi	CsNiY	EuZnZr	SmZnZr
CePdZn	CrPdY	CsNiSm	EuHfZr	SmHfZr
CePdHf	CrPdSm	CsNiZn	PdNiY	ZnHfZr
CePdZr	CrPdZn	CsNiHf	PdNiSm	
CeNiY	CrPdHf	CsNiZr	PdNiZn	
CeNiSm	CrPdZr	CsYSm	PdNiHf	
CeNiZn	CrNiY	CsYZn	PdNiZr	
CeNiHf	CrNiSm	CsYHf	PdYSm	

Table S3 List of common roles in the SVR of HTS datasets of random 300 catalysts determined by ICM

'actinoid:<:0.25',	'noble_gas:<:0.25',
'actinoid:>=:0.0',	'noble_gas:>=:0.0',
'chalcogen:<:0.25',	'post_transition_metal:<:0.25',
'chalcogen:>=:0.0',	'post_transition_metal:>=:0.0'
'g_11:<:0.25',	
'g_11:>=:0.0',	
'g_13:<:0.25',	
'g_13:>=:0.0',	
'g_14:<:0.25',	
'g_14:>=:0.0',	
'g_15:<:0.25',	
'g_15:>=:0.0',	
'g_16:<:0.25',	
'g_16:>=:0.0',	
'g_17:<:0.25',	
'g_17:>=:0.0',	
'g_18:<:0.25',	
'g_18:>=:0.0',	
'g_5:<:0.25',	
'g_5:>=:0.0',	
'g_7:<:0.25',	
'g_7:>=:0.0',	
'g_8:<:0.25',	
'g_8:>=:0.0',	
'g_9:<:0.25',	
'g_9:>=:0.0',	
'halogen:<:0.25',	
'halogen:>=:0.0',	
'metal:<:1.25',	
'metal:>=:1.0',	
'metalloid:<:0.25',	
'metalloid:>=:0.0',	

*here, g_x denotes the atomic fraction of elements belonging to the group number x

Table S4 Curve-fitting and quantification results of XPS O 1s as shown in **Fig. S11** for the Validation 1.

Sample	O 1s fraction /%			O_2^-/O^{2-} ratio	C_2 yield at 450°C
	O_2^-	O^-, OH^-, and/or CO_3^{2-}	O^{2-}		
none	22.5	74.5	3.1	7.3	0
NaHfW	13.3	82.9	3.8	3.5	0
YEuHf	19.3	77.5	3.2	6.0	13.1
CaYHf	11.8	75.1	13.0	0.9	10.1
CaYEu	16.4	79.3	4.3	3.8	15.1
CaYCs	7.8	71.9	20.2	0.4	0
CaYLa	36.3	61.2	2.5	14.5	15.0
NaCsW	12.2	68.9	18.9	0.6	0
SrYCs	17.4	72.6	10.0	1.7	0
CsEuHf	33.5	64.6	2.0	16.8	0
CaYBa	31.3	61.0	7.7	4.1	13.6
MgNdHf	21.8	74.6	3.6	6.1	9.5
LiNaW	22.7	61.9	15.4	1.5	0
CaEuHf	40.5	56.5	3.0	13.5	13.2
NaEuW	36.8	59.7	3.6	10.2	0
CaYNd	39.5	57.0	3.5	11.3	10.2
SrNdHf	23.6	71.4	5.0	4.7	9.7
MgSrNd	34.5	63.4	2.1	16.4	0
CaNiY	27.9	67.6	4.4	6.3	6.1
MgEuHf	30.5	59.6	9.9	3.1	11.4
BaEuHf	33.3	49.0	17.7	1.9	0

It was reported that the O_2 species were believed to have a crucial role on CH_4 activation.[2] However, as shown in **Table S4**, correlations between the O_2^-/O^{2-} ratio and C_2 yield at 450°C is scarcely observed in this study. It was observed in our previous report that the presences of alkaline and alkaline earth elements led the out of trend at C_2 yield at OCM and O_2^-/O^{2-} ratio.[5] Therefore, other factors such like basic nature would be a dominant factor as lower temperature OCM performance observed in this study. To reveal the hidden layer factor, the discussions on the relationships between characteristic nature and OCM performance are ongoing subject.

References:

5) J. Ohyama, T. Kinoshita, E. Funada, H. Yoshida, M. Machida, S. Nishimura, T. Uno, J. Fujima, I. Miyazato, L. Takahashi and K. Takahashi, *Catal. Sci. Technol.*, 2021, **11**, 524-530.

Table S5 Results of reference catalyst and blank at CH_4/O_2 = 2.0

No.	Cat	Temp /°C	Sampling	O_2 Conv. /%	CH_4 Conv. /%	H_2 yield /%	CO yield /%	C_2H_6 yield /%	CO_2 yield /%	C_2H_4 yield /%	C_2 yield /%	C missing /%	C_2 sel /%	σ
Std1	Blank	400	1	-2.7	-4.6	0.0	0.0	0.0	0.0	0.0	**0.0**	-4.6	0.0	0.0
		400	2	-2.6	-4.1	0.0	0.0	0.0	0.0	0.0	**0.0**	-4.1	0.0	
		450	1	-2.4	-3.2	0.0	0.0	0.0	0.0	0.0	**0.0**	-3.2	0.0	0.0
		450	2	-2.0	-3.0	0.0	0.0	0.0	0.0	0.0	**0.0**	-3.0	0.0	
		500	1	-1.7	-2.5	0.0	0.0	0.0	0.0	0.0	**0.0**	-2.5	0.0	0.0
		500	2	-1.9	-2.7	0.0	0.0	0.0	0.0	0.0	**0.0**	-2.7	0.0	
		550	1	-1.6	-2.1	0.0	0.0	0.0	0.0	0.0	**0.0**	-2.2	0.0	0.0
		550	2	-1.8	-2.4	0.0	0.0	0.0	0.0	0.0	**0.0**	-2.4	0.0	
		600	1	-1.3	-1.9	0.0	0.1	0.1	0.0	0.0	**0.1**	-2.0	-	0.0
		600	2	-1.2	-2.0	0.0	0.1	0.1	0.0	0.0	**0.1**	-2.1	-	
		650	1	-0.3	-1.4	0.1	0.3	0.3	0.0	0.0	**0.4**	-2.1	-	0.0
		650	2	-0.1	-1.3	0.1	0.3	0.3	0.0	0.0	**0.4**	-1.9	-	
		700	1	4.0	1.0	0.4	1.5	1.1	0.0	0.3	**1.4**	-2.0	-	0.0
		700	2	4.3	1.1	0.4	1.5	1.1	0.0	0.3	**1.4**	-1.9	-	
		750	1	18.9	8.7	1.4	5.9	2.6	0.3	2.3	**4.8**	-2.2	55.2	0.0
		750	2	19.1	8.7	1.4	5.9	2.5	0.3	2.3	**4.8**	-2.3	55.2	
		800	1	62.0	26.1	4.7	19.1	2.7	2.3	7.0	**9.7**	-4.9	37.1	0.0
		800	2	62.1	26.1	4.7	19.1	2.7	2.3	7.0	**9.6**	-4.9	36.9	
		850	1	90.9	36.9	9.4	29.2	1.5	4.6	7.9	**9.4**	-6.2	25.3	0.0

		850	2	91.0	37.0	9.4	29.2	1.5	4.7	7.9	**9.4**	-6.2	25.3	
Std2	$NaMnW/SiO_2$	400	1	-5.2	-6.4	0.0	0.0	0.0	0.0	0.0	**0.0**	-6.4	0.0	0.0
		400	2	-2.4	-3.5	0.0	0.0	0.0	0.0	0.0	**0.0**	-3.5	0.0	
		450	1	-1.9	-2.6	0.0	0.0	0.0	0.0	0.0	**0.0**	-2.6	0.0	0.0
		450	2	-2.1	-2.7	0.0	0.0	0.0	0.0	0.0	**0.0**	-2.7	0.0	
		500	1	-1.8	-2.3	0.0	0.0	0.0	0.0	0.0	**0.0**	-2.3	0.0	0.0
		500	2	-1.0	-1.7	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.7	0.0	
		550	1	-1.5	-1.7	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.7	0.0	0.0
		550	2	-1.1	-1.5	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.5	0.0	
		600	1	-1.1	-1.5	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.6	0.0	0.0
		600	2	-1.0	-1.4	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.4	0.0	
		650	1	0.3	-0.6	0.0	0.1	0.0	0.2	0.0	**0.0**	-1.0	0.0	0.0
		650	2	0.3	-0.7	0.0	0.1	0.0	0.2	0.0	**0.0**	-1.1	0.0	
		700	1	4.8	1.4	0.0	0.4	0.6	1.1	0.1	**0.7**	-0.9	-	0.0
		700	2	5.4	1.7	0.0	0.5	0.7	1.1	0.1	**0.7**	-0.5	-	
		750	1	21.1	10.7	0.2	2.5	4.6	2.8	2.7	**7.3**	-1.9	68.3	0.1
		750	2	21.2	10.6	0.2	2.5	4.7	2.8	2.8	**7.5**	-2.2	70.4	
		800	1	97.5	44.6	0.7	10.9	6.4	12.8	18.3	**24.6**	-3.7	55.2	0.1
		800	2	97.7	44.7	0.7	10.9	6.4	12.9	18.3	**24.8**	-3.9	55.4	
		850	1	100	39.2	1.7	22.8	2.8	7.0	10.0	**12.8**	-3.4	32.6	0.0
		850	2	100	39.3	1.7	22.7	2.8	7.0	10.1	**12.8**	-3.3	32.6	
Std3	$none/La_2O_3$	400	1	-1.6	-3.0	0.1	0.1	0.0	0.2	0.0	**0.0**	-3.2	0.0	0.0
		400	2	-1.4	-2.5	0.1	0.1	0.0	0.2	0.0	**0.0**	-2.7	0.0	

450	1	1.9	-0.6	0.6	0.4	0.0	0.9	0.0	**0.0**	-2.0	0.0	0.0
450	2	1.9	-0.5	0.6	0.4	0.0	0.9	0.0	**0.0**	-1.8	0.0	
500	1	82.4	28.8	4.4	5.1	5.5	19.3	5.6	**11.1**	-6.7	38.5	0.1
500	2	80.8	29.1	4.2	5.0	5.6	19.3	5.7	**11.2**	-6.5	38.7	
550	1	87.5	32.1	4.4	5.1	5.9	21.1	6.4	**12.3**	-6.4	38.4	0.0
550	2	87.3	32.1	4.4	5.1	5.9	20.9	6.5	**12.4**	-6.3	38.6	
600	1	91.1	33.8	4.5	4.9	6.0	22.0	6.8	**12.8**	-5.9	37.9	0.2
600	2	91.5	34.2	4.4	4.9	6.1	21.9	7.0	**13.2**	-5.7	38.5	
650	1	93.9	35.5	4.6	4.7	6.1	22.7	7.3	**13.5**	-5.3	38.0	0.2
650	2	94.1	35.6	4.4	4.7	6.3	22.7	7.5	**13.8**	-5.7	38.9	
700	1	94.3	35.6	4.7	4.7	5.7	22.5	7.7	**13.3**	-5.0	37.4	0.2
700	2	94.5	35.7	4.7	4.7	5.8	22.6	7.9	**13.7**	-5.3	38.5	
750	1	97.4	37.6	4.6	4.6	5.6	23.1	9.2	**14.8**	-4.9	39.3	0.1
750	2	97.5	37.6	4.5	4.6	5.7	23.2	9.3	**15.0**	-5.3	39.9	
800	1	99.5	38.7	4.9	5.1	5.1	23.8	10.0	**15.2**	-5.4	39.2	0.1
800	2	99.7	38.5	4.9	5.1	5.2	23.7	10.2	**15.4**	-5.7	40.1	
850	1	100	38.4	7.7	8.0	3.1	23.2	9.1	**12.2**	-5.1	31.8	0.3
850	2	100	38.5	8.1	8.7	2.9	23.0	8.7	**11.6**	-4.8	30.2	

Table S6 Results of reference catalyst and blank at CH_4/O_2 = 3.5

No.	Cat	Temp /°C	Sampling	O_2 Conv. /%	CH_4 Conv. /%	H_2 yield /%	CO yield /%	C_2H_6 yield /%	CO_2 yield /%	C_2H_4 yield /%	C_2 yield /%	C missing /%	C_2 sel /%	σ
Std1	Blank	400	1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	**0.0**	0.3	0.0	0.0
		400	2	-0.5	-0.7	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.7	0.0	
		450	1	-0.6	-0.6	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.6	0.0	0.0
		450	2	-1.0	-1.1	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.2	0.0	
		500	1	-0.6	-0.7	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.7	0.0	0.0
		500	2	-0.4	-0.8	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.8	0.0	
		550	1	-0.2	-1.0	0.1	0.0	0.0	0.1	0.0	**0.0**	-1.1	0.0	0.0
		550	2	-0.1	-0.8	0.1	0.0	0.0	0.1	0.0	**0.0**	-0.9	0.0	
		600	1	0.7	-0.6	0.1	0.1	0.1	0.2	0.0	**0.1**	-0.9	-	0.0
		600	2	0.8	-0.5	0.1	0.1	0.0	0.2	0.0	**0.0**	-0.9	0.0	
		650	1	2.2	0.0	0.2	0.2	0.2	0.3	0.0	**0.2**	-0.7	-	0.0
		650	2	2.3	0.0	0.2	0.2	0.2	0.3	0.0	**0.2**	-0.7	-	
		700	1	3.7	0.7	0.3	0.4	0.5	0.3	0.1	**0.6**	-0.6	-	0.0
		700	2	3.3	0.3	0.3	0.4	0.5	0.3	0.1	**0.6**	-1.0	-	
		750	1	5.4	0.7	0.5	0.6	1.0	0.4	0.4	**1.4**	-1.7	-	0.0
		750	2	6.2	1.6	0.5	0.6	1.0	0.4	0.4	**1.4**	-0.8	-	
		800	1	15.7	5.1	1.1	1.6	1.6	0.7	1.4	**3.0**	-0.2	59.0	0.0
		800	2	15.0	4.9	1.1	1.6	1.6	0.7	1.4	**2.9**	-0.3	60.1	
		850	1	40.8	11.7	3.2	5.4	1.9	1.6	3.8	**5.6**	-0.9	48.1	0.0

		850	2	40.1	11.5	3.2	5.6	1.9	1.5	3.7	**5.6**	-1.1	48.5	
Std2	$NaMnW/SiO_2$	400	1	-4.3	-3.9	0.0	0.1	0.0	0.0	0.0	**0.0**	-3.9	0.0	0.0
		400	2	-5.5	-4.8	0.0	0.0	0.0	0.0	0.0	**0.0**	-4.8	0.0	
		450	1	-5.0	-4.2	0.0	0.0	0.0	0.0	0.0	**0.0**	-4.2	0.0	0.0
		450	2	-5.1	-4.3	0.0	0.0	0.0	0.0	0.0	**0.0**	-4.3	0.0	
		500	1	-4.7	-3.8	0.0	0.0	0.0	0.0	0.0	**0.0**	-3.9	0.0	0.0
		500	2	-4.3	-3.5	0.0	0.0	0.0	0.0	0.0	**0.0**	-3.6	0.0	
		550	1	-4.3	-3.6	0.0	0.0	0.0	0.0	0.0	**0.0**	-3.7	0.0	0.0
		550	2	-4.2	-3.5	0.0	0.0	0.0	0.0	0.0	**0.0**	-3.6	0.0	
		600	1	-3.8	-3.5	0.0	0.0	0.0	0.1	0.0	**0.0**	-3.6	0.0	0.0
		600	2	-3.7	-3.4	0.0	0.0	0.0	0.1	0.0	**0.0**	-3.5	0.0	
		650	1	-0.7	-3.0	0.1	0.2	0.1	0.4	0.0	**0.1**	-3.6	-	0.0
		650	2	-1.0	-3.3	0.0	0.2	0.1	0.4	0.0	**0.1**	-3.9	-	
		700	1	11.2	0.1	0.1	0.7	1.3	1.4	0.3	**1.5**	-3.5	-	0.0
		700	2	11.0	-0.2	0.1	0.7	1.3	1.4	0.3	**1.6**	-3.8	-	
		750	1	48.6	12.9	0.5	2.9	5.3	3.1	5.5	**10.8**	-3.9	83.8	0.2
		750	2	48.3	12.8	0.5	2.9	5.2	3.0	5.3	**10.5**	-3.6	82.2	
		800	1	99.4	26.8	0.4	0.0	6.4	5.8	11.6	**17.9**	3.0	67.0	0.1
		800	2	99.4	26.4	0.5	0.0	6.3	5.8	11.4	**17.7**	2.9	67.1	
		850	1	100	20.9	1.9	0.0	1.8	2.5	6.5	**8.3**	10.0	40.0	0.0
		850	2	100	21.0	1.9	0.0	1.8	2.5	6.6	**8.4**	10.1	39.9	
Std3	$none/La_2O_3$	400	1	0.7	-1.9	0.2	0.1	0.0	0.0	0.0	**0.0**	-2.0	0.0	0.0
		400	2	0.8	-1.1	0.2	0.1	0.0	0.1	0.0	**0.0**	-1.3	0.0	

450	1	6.9	0.4	0.7	0.3	0.0	1.0	0.0	**0.0**	-0.9	0.0	0.0
450	2	5.1	-0.4	0.6	0.3	0.0	0.9	0.0	**0.0**	-1.6	0.0	
500	1	18.0	3.5	1.8	1.3	0.0	2.5	0.0	**0.0**	-0.4	0.0	0.0
500	2	15.8	3.3	1.6	1.2	0.0	2.2	0.0	**0.0**	-0.1	0.0	
550	1	38.2	7.5	4.3	3.4	0.1	5.4	0.0	**0.1**	-1.4	0.9	0.0
550	2	31.6	7.0	3.5	2.9	0.0	4.3	0.0	**0.0**	-0.2	0.5	
600	1	68.1	13.9	7.0	5.3	0.9	9.7	0.2	**1.2**	-2.3	8.4	0.0
600	2	66.6	13.8	6.9	5.2	0.9	9.6	0.2	**1.2**	-2.1	8.4	
650	1	81.9	17.6	6.8	5.2	2.5	11.4	1.1	**3.6**	-2.6	20.5	0.0
650	2	81.4	17.7	6.8	5.2	2.5	11.4	1.1	**3.6**	-2.6	20.5	
700	1	91.4	22.0	4.9	3.7	4.5	11.8	4.4	**8.9**	-2.4	40.4	0.1
700	2	91.4	22.0	4.9	3.7	4.6	11.8	4.5	**9.0**	-2.5	41.1	
750	1	97.5	25.1	3.7	2.8	5.5	11.9	7.1	**12.6**	-2.2	50.1	0.1
750	2	97.5	25.2	3.7	3.4	5.6	11.8	7.2	**12.7**	-2.8	50.6	
800	1	99.8	26.1	3.7	3.0	5.1	12.0	8.1	**13.2**	-2.0	50.6	0.1
800	2	99.8	26.0	3.7	3.0	5.2	11.8	8.3	**13.5**	-2.2	51.9	
850	1	100	25.9	4.7	3.7	3.8	11.7	8.9	**12.7**	-2.1	49.0	0.0
850	2	100	26.1	4.6	3.6	3.8	11.7	8.9	**12.7**	-1.9	48.7	

Table S7 Results of reference catalyst and blank at CH_4/O_2 = 5.0

No.	Cat	Temp /°C	Sampling	O_2 Conv. /%	CH_4 Conv. /%	H_2 yield /%	CO yield /%	C_2H_6 yield /%	CO_2 yield /%	C_2H_4 yield /%	C_2 yield /%	C missing /%	C_2 sel /%	σ
Std1	Blank	400	1	3.6	2.3	0.0	0.0	0.0	0.0	0.0	**0.0**	2.3	0.0	0.0
		400	2	0.9	0.7	0.0	0.0	0.0	0.0	0.0	**0.0**	0.7	0.0	
		450	1	-0.5	0.1	0.0	0.0	0.0	0.0	0.0	**0.0**	0.1	0.0	0.0
		450	2	-1.0	-0.1	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.1	0.0	
		500	1	-0.8	-0.2	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.2	0.0	0.0
		500	2	-0.7	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	
		550	1	-0.9	-0.2	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.2	0.0	0.0
		550	2	-0.8	-0.1	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.1	0.0	
		600	1	-0.4	0.3	0.0	0.0	0.0	0.0	0.0	**0.0**	0.3	0.0	0.0
		600	2	-0.3	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.1	0.0	
		650	1	-0.2	-0.1	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.2	0.0	0.0
		650	2	-0.1	0.1	0.0	0.0	0.0	0.0	0.0	**0.0**	0.1	0.0	
		700	1	0.2	0.3	0.0	0.1	0.1	0.0	0.0	**0.1**	0.2	-	0.0
		700	2	-0.2	0.0	0.0	0.1	0.1	0.0	0.0	**0.1**	-0.1	43.6	
		750	1	1.7	0.6	0.1	0.2	0.2	0.1	0.0	**0.3**	0.1	37.6	0.0
		750	2	1.8	0.8	0.1	0.2	0.3	0.1	0.0	**0.3**	0.3	-	
		800	1	7.1	2.1	0.4	0.6	0.7	0.2	0.3	**1.1**	0.2	51.6	0.0
		800	2	6.6	1.0	0.4	0.6	0.8	0.2	0.3	**1.1**	-0.9	-	
		850	1	35.2	8.7	1.7	3.5	1.5	0.3	2.5	**4.0**	0.9	45.9	0.1

		850	2	36.6	8.8	1.8	3.7	1.6	0.3	2.6	**4.2**	0.6	48.0	
Std2	$NaMnW/SiO_2$	400	1	-1.1	-2.2	0.0	0.0	0.0	0.0	0.0	**0.0**	-2.2	0.0	0.0
		400	2	-0.9	-1.8	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.8	0.0	
		450	1	-0.4	-1.4	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.4	0.0	0.0
		450	2	-0.3	-1.0	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.0	0.0	
		500	1	0.0	-1.3	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.3	0.0	0.0
		500	2	0.1	-1.1	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.1	0.0	
		550	1	0.4	-0.9	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.9	0.0	0.0
		550	2	0.3	-0.9	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.9	0.0	
		600	1	0.8	-0.8	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.9	0.0	0.0
		600	2	0.5	-1.0	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.0	0.0	
		650	1	2.7	-0.5	0.0	0.0	0.1	0.2	0.0	**0.1**	-0.8	-	0.0
		650	2	2.7	-0.5	0.0	0.0	0.1	0.2	0.0	**0.1**	-0.8	-	
		700	1	9.1	0.2	0.0	0.2	0.6	0.7	0.1	**0.7**	-1.4	-	0.0
		700	2	9.0	0.3	0.0	0.2	0.6	0.6	0.1	**0.7**	-1.3	-	
		750	1	27.0	6.0	0.1	0.8	3.7	1.3	1.6	**5.2**	-1.4	87.5	0.0
		750	2	27.1	6.3	0.1	0.8	3.7	1.3	1.6	**5.3**	-1.1	83.6	
		800	1	93.2	22.8	0.6	3.3	6.6	3.5	11.1	**17.8**	-1.7	78.0	0.1
		800	2	93.5	22.7	0.6	3.3	6.7	3.5	11.3	**18.1**	-2.1	79.5	
		850	1	100	21.5	0.6	5.0	4.7	3.3	9.8	**14.5**	-1.4	67.6	0.4
		850	2	100	24.6	0.6	4.7	4.5	3.0	9.3	**13.8**	3.1	56.1	
Std3	$none/La_2O_3$	400	1	0.5	-0.8	0.2	0.5	0.0	0.0	0.0	**0.0**	-1.2	0.0	0.0
		400	2	0.0	-0.5	0.1	0.1	0.0	0.1	0.0	**0.0**	-0.6	0.0	

450	1	7.2	1.3	0.6	0.4	0.0	0.7	0.0	**0.0**	0.2	0.0	0.0
450	2	5.7	0.8	0.5	0.3	0.0	0.7	0.0	**0.0**	-0.2	0.0	
500	1	18.9	2.8	1.5	1.2	0.0	1.9	0.0	**0.0**	-0.3	0.0	0.0
500	2	16.2	2.7	1.3	1.0	0.0	1.6	0.0	**0.0**	0.1	0.0	
550	1	39.0	6.4	3.4	2.7	0.1	3.8	0.0	**0.1**	-0.3	1.5	0.0
550	2	31.3	5.2	2.8	2.3	0.1	3.1	0.0	**0.1**	-0.3	1.0	
600	1	60.4	10.0	4.9	3.9	0.8	6.0	0.1	**0.9**	-0.8	9,4	0.0
600	2	58.0	8.8	4.9	3.8	0.8	5.9	0.1	**0.9**	-1.8	10.1	
650	1	78.5	14.3	4.2	3.3	3.5	7.3	2.1	**5.6**	-2.0	39.6	0.4
650	2	79.6	14.9	4.0	3.1	3.9	7.2	2.5	**6.4**	-1.9	43.3	
700	1	90.4	18.4	3.1	2.7	5.5	7.6	4.7	**10.2**	-2.0	55.2	0.1
700	2	90.3	18.3	3.1	2.5	5.6	7.6	4.8	**10.3**	-2.2	56.6	
750	1	96.2	20.7	2.8	3.1	6.1	7.9	6.3	**12.3**	-2.6	59.6	0.1
750	2	96.5	20.5	2.8	2.4	6.1	7.8	6.3	**12.5**	-2.1	60.7	
800	1	99.5	21.4	3.1	2.5	5.7	7.7	7.3	**12.9**	-1.7	60.3	0.1
800	2	99.5	21.3	3.1	2.4	5.8	7.8	7.4	**13.2**	-2.1	61.8	
850	1	100	21.8	4.3	4.3	4.0	7.9	7.8	**11.8**	-2.2	54.3	0.0
850	2	100	21.2	4.3	3.2	4.1	7.8	7.8	**11.9**	-1.7	56.0	

Table S8 Results of multicomponent La_2O_3 catalyst predicted with SVR on HTS dataset at CH_4/O_2 = 2.0

Cat	M1	M2	M3	Temp /°C	Sampling	O_2 Conv. /%	CH_4 Conv. /%	H_2 yield /%	CO yield /%	C_2H_6 yield /%	CO_2 yield /%	C_2H_4 yield /%	C_2 yield /%	C missing /%	C_2 sel /%	σ
A1	Na	Hf	W	400	1	-1.7	-1.2	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.2	0.0	0.0
				400	2	-1.9	-1.8	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.8	0.0	
				450	1	-1.6	-1.8	0.1	0.1	0.0	0.0	0.0	**0.0**	-1.9	0.0	0.0
				450	2	-0.9	-1.5	0.1	0.1	0.0	0.0	0.0	**0.0**	-1.6	0.0	
				500	1	-0.4	-1.5	0.2	0.2	0.0	0.2	0.0	**0.0**	-1.9	0.0	0.0
				500	2	-0.1	-1.5	0.3	0.2	0.0	0.2	0.0	**0.0**	-1.9	0.0	
				550	1	3.7	-0.1	0.9	0.7	0.0	0.9	0.0	**0.0**	-1.7	0.0	0.0
				550	2	3.3	-0.4	0.8	0.7	0.0	0.9	0.0	**0.0**	-2.0	0.0	
				600	1	11.6	2.6	1.9	1.4	0.2	3.2	0.0	**0.2**	-2.2	7.8	0.0
				600	2	11.2	2.1	1.9	1.5	0.2	3.2	0.0	**0.2**	-2.8	9.4	
				650	1	38.3	12.8	4.2	3.0	2.7	10.2	0.9	**3.7**	-4.0	28.5	0.1
				650	2	39.4	12.7	4.6	3.3	2.8	10.7	1.0	**3.8**	-5.0	29.8	
				700	1	99.9	35.9	3.4	3.1	6.8	23.6	9.5	**16.3**	-7.2	45.4	0.1
				700	2	100	35.9	3.4	3.2	6.9	23.5	9.5	**16.4**	-7.2	45.8	
				750	1	100	35.8	3.8	3.4	6.2	23.4	9.5	**15.7**	-6.7	43.7	0.1
				750	2	100	35.6	3.8	3.5	6.3	23.7	9.6	**15.9**	-7.4	44.6	
				800	1	100	35.6	4.5	4.1	5.2	23.8	9.8	**14.9**	-7.3	42.0	0.1
				800	2	100	35.5	4.5	4.1	5.2	23.4	9.8	**15.0**	-7.1	42.3	
				850	1	100	35.4	9.4	9.5	2.2	22.9	7.7	**9.9**	-6.9	28.1	0.0

				850	2	100	35.5	9.8	10.2	2.2	22.9	7.7	**9.9**	-7.4	27.8	
A2	Y	Eu	Hf	400	1	-1.9	-1.3	0.2	0.1	0.0	0.6	0.0	**0.0**	-2.0	0.0	0.0
				400	2	-2.1	-2.3	0.2	0.1	0.0	0.6	0.0	**0.0**	-2.9	0.0	
				450	1	97.1	33.3	3.6	5.7	5.8	21.1	6.9	**12.6**	-6.2	38.0	0.3
				450	2	96.5	33.4	3.4	5.6	6.0	21.8	7.1	**13.1**	-7.1	39.4	
				500	1	98.4	34.3	3.2	5.1	6.3	22.4	7.8	**14.1**	-7.4	41.1	0.0
				500	2	98.5	34.3	3.2	5.1	6.3	22.3	7.8	**14.1**	-7.3	41.2	
				550	1	99.4	35.0	3.3	4.6	6.4	23.0	8.3	**14.7**	-7.3	42.0	0.0
				550	2	99.4	34.9	3.3	4.7	6.5	22.9	8.3	**14.7**	-7.4	42.3	
				600	1	99.9	35.1	3.4	4.2	6.4	23.4	8.5	**14.9**	-7.5	42.6	0.0
				600	2	99.9	35.2	3.4	4.2	6.4	23.0	8.5	**14.9**	-7.0	42.5	
				650	1	100	35.2	3.4	3.9	6.3	23.1	8.6	**14.9**	-6.8	42.4	0.0
				650	2	100	35.2	3.4	3.9	6.4	23.4	8.6	**15.0**	-7.1	42.6	
				700	1	100	35.3	3.5	3.8	6.3	23.6	8.7	**15.1**	-7.1	42.6	0.0
				700	2	100	35.4	3.5	3.8	6.4	23.4	8.8	**15.1**	-7.0	42.8	
				750	1	100	35.8	3.9	4.0	6.1	23.4	9.1	**15.2**	-6.8	42.3	0.0
				750	2	100	35.7	3.9	4.0	6.1	23.3	9.1	**15.2**	-6.8	42.5	
				800	1	100	36.0	4.9	5.0	5.1	23.6	9.7	**14.8**	-7.4	41.1	0.0
				800	2	100	36.0	4.9	5.1	5.1	23.5	9.7	**14.8**	-7.4	41.2	
				850	1	100	35.5	9.1	9.6	2.2	22.5	7.8	**10.0**	-6.6	28.2	0.0
				850	2	100	35.1	9.2	9.6	2.2	22.0	7.7	**9.9**	-6.5	28.3	
A3	Ca	Y	Hf	400	1	0.1	-0.9	0.2	0.1	0.0	0.5	0.0	**0.0**	-1.5	0.0	0.0
				400	2	1.1	0.7	0.2	0.1	0.0	0.5	0.0	**0.0**	0.1	0.0	

				450	1	96.0	33.5	5.6	6.3	4.6	18.9	4.8	**9.4**	-1.1	28.1	0.3
				450	2	92.9	34.3	4.8	6.0	4.8	19.2	5.3	**10.1**	-1.0	29.4	
				500	1	94.9	35.3	5.2	6.1	4.9	20.0	5.4	**10.3**	-1.1	29.2	0.2
				500	2	94.7	35.3	5.1	6.0	5.0	20.1	5.6	**10.6**	-1.4	30.1	
				550	1	95.7	36.0	5.7	5.9	4.9	20.4	5.5	**10.4**	-0.8	29.0	0.2
				550	2	95.6	35.9	5.6	5.9	5.0	20.5	5.7	**10.7**	-1.3	29.9	
				600	1	95.9	36.0	6.2	5.8	5.0	20.8	5.5	**10.5**	-1.1	29.1	0.2
				600	2	95.9	36.1	6.0	5.7	5.1	20.8	5.7	**10.8**	-1.2	29.9	
				650	1	96.3	36.7	6.3	5.5	5.0	21.1	5.8	**10.9**	-0.8	29.6	0.2
				650	2	96.5	36.7	6.0	5.4	5.2	20.8	6.2	**11.3**	-0.8	30.8	
				700	1	97.6	37.8	5.9	5.2	5.1	21.1	7.0	**12.2**	-0.7	32.2	0.3
				700	2	97.7	38.0	5.7	5.2	5.4	21.3	7.4	**12.7**	-1.1	33.4	
				750	1	98.5	39.0	5.8	5.2	4.9	20.9	8.4	**13.3**	-0.4	34.1	0.3
				750	2	98.6	39.1	5.7	5.1	5.2	21.2	8.8	**14.0**	-1.2	35.8	
				800	1	99.7	40.2	6.0	5.5	4.4	21.6	9.9	**14.3**	-1.1	35.6	0.2
				800	2	99.8	40.0	5.9	5.4	4.6	21.6	10.2	**14.8**	-1.8	36.9	
				850	1	100	39.3	9.1	9.0	2.4	20.8	8.7	**11.1**	-1.6	28.4	0.2
				850	2	100	39.2	9.6	9.5	2.3	20.5	8.4	**10.7**	-1.5	27.3	
A4	Ca	Y	Eu	400	1	0.3	0.0	0.2	5.0	0.0	0.6	0.0	**0.0**	-5.5	0.0	0.0
				400	2	1.1	0.3	0.2	0.1	0.0	0.6	0.0	**0.0**	-0.4	0.0	
				450	1	99.9	36.3	3.3	3.7	6.8	21.8	7.7	**14.5**	-3.7	40.0	0.3
				450	2	99.8	36.7	3.1	3.7	7.0	22.1	8.1	**15.1**	-4.3	41.3	
				500	1	100	37.0	3.2	3.5	7.1	22.5	8.4	**15.5**	-4.5	41.9	0.1

				500	2	100	37.0	3.1	3.5	7.2	22.3	8.5	**15.7**	-4.5	42.4	
				550	1	100	37.2	3.4	3.3	7.1	22.3	8.4	**15.5**	-4.0	41.8	0.1
				550	2	100	37.1	3.3	3.4	7.1	22.3	8.5	**15.7**	-4.3	42.3	
				600	1	100	37.1	3.6	3.2	7.0	22.6	8.5	**15.4**	-4.1	41.6	0.1
				600	2	100	37.1	3.6	3.2	7.1	22.6	8.6	**15.6**	-4.4	42.2	
				650	1	100	37.2	3.7	3.1	6.9	22.7	8.7	**15.6**	-4.2	41.9	0.1
				650	2	100	37.2	3.6	3.1	6.9	22.8	8.8	**15.7**	-4.4	42.3	
				700	1	100	37.6	3.7	3.1	6.8	22.7	9.1	**15.9**	-4.0	42.3	0.1
				700	2	100	37.6	3.7	3.0	6.8	22.6	9.2	**16.0**	-4.0	42.6	
				750	1	100	37.8	4.0	3.2	6.5	22.6	9.7	**16.3**	-4.3	43.0	0.1
				750	2	100	37.8	3.9	3.2	6.6	22.8	9.8	**16.4**	-4.6	43.3	
				800	1	100	38.1	4.4	3.7	5.7	23.0	10.5	**16.2**	-4.8	42.5	0.1
				800	2	100	38.3	4.4	3.7	5.8	22.7	10.6	**16.4**	-4.5	42.8	
				850	1	100	37.3	7.7	7.3	2.8	22.0	9.2	**12.0**	-4.0	32.2	0.0
				850	2	100	37.1	7.9	7.5	2.8	22.3	9.1	**12.0**	-4.5	32.2	
A5	Ca	Y	Cs	400	1	0.7	0.1	0.1	0.0	0.0	0.2	0.0	**0.0**	0.0	0.0	0.0
				400	2	1.1	0.8	0.1	0.0	0.0	0.2	0.0	**0.0**	0.6	0.0	
				450	1	3.6	2.1	0.3	0.1	0.0	0.9	0.0	**0.0**	1.1	0.0	0.0
				450	2	3.5	2.1	0.3	0.1	0.0	0.8	0.0	**0.0**	1.2	0.0	
				500	1	96.7	34.5	4.1	3.4	6.0	22.5	5.5	**11.5**	-2.8	33.2	0.0
				500	2	94.8	34.7	3.5	3.5	5.9	23.2	5.6	**11.5**	-3.5	33.2	
				550	1	97.9	35.2	4.0	3.5	5.5	24.4	4.8	**10.3**	-3.0	29.3	0.3
				550	2	97.8	35.4	3.9	3.5	5.7	24.6	5.1	**10.8**	-3.6	30.7	

				600	1	98.4	31.6	4.1	3.6	3.8	25.8	1.8	**5.6**	-3.4	17.6	0.1
				600	2	98.2	31.3	4.0	3.7	3.7	26.2	1.7	**5.4**	-3.9	17.2	
				650	1	98.5	32.6	4.0	3.3	4.2	25.9	2.7	**6.9**	-3.4	21.1	0.1
				650	2	98.5	32.2	3.9	3.3	4.2	25.9	2.6	**6.7**	-3.7	20.9	
				700	1	99.2	34.8	3.6	2.8	5.0	25.5	5.0	**10.0**	-3.5	28.7	0.0
				700	2	99.0	34.8	3.6	2.9	4.9	25.4	5.0	**9.9**	-3.5	28.6	
				750	1	99.7	35.9	3.1	2.6	4.7	24.9	7.0	**11.7**	-3.3	32.6	0.0
				750	2	99.6	35.9	3.2	2.7	4.8	25.2	7.0	**11.8**	-3.7	32.8	
				800	1	100	38.1	5.6	4.7	3.6	24.8	8.2	**11.8**	-3.2	31.0	0.6
				800	2	100	39.0	5.4	4.5	4.1	24.8	8.9	**13.1**	-3.4	33.5	
				850	1	100	39.4	9.2	8.6	2.4	23.5	8.5	**10.9**	-3.5	27.6	0.1
				850	2	100	39.4	9.2	8.6	2.5	23.7	8.5	**11.0**	-3.9	27.9	
A6	Ca	Y	La	400	1	0.5	0.1	0.2	0.1	0.0	0.5	0.0	**0.0**	-0.6	0.0	0.0
				400	2	1.3	0.5	0.2	0.1	0.0	0.5	0.0	**0.0**	-0.1	0.0	
				450	1	99.5	36.2	2.9	3.5	6.7	20.9	7.6	**14.3**	-2.5	39.4	0.4
				450	2	99.3	36.8	2.6	3.5	7.0	21.3	8.0	**15.0**	-3.1	40.7	
				500	1	99.5	36.9	2.3	3.2	7.2	21.6	8.3	**15.4**	-3.2	41.7	0.1
				500	2	99.5	36.8	2.2	3.2	7.3	21.9	8.3	**15.6**	-3.9	42.3	
				550	1	99.6	36.9	2.2	2.9	7.3	22.0	8.4	**15.7**	-3.6	42.4	0.1
				550	2	99.6	36.9	2.2	2.9	7.3	21.9	8.5	**15.8**	-3.7	42.8	
				600	1	99.7	36.9	2.2	2.6	7.2	22.0	8.4	**15.6**	-3.2	42.2	0.1
				600	2	99.7	37.0	2.2	2.6	7.3	22.2	8.5	**15.8**	-3.6	42.6	
				650	1	99.8	37.0	2.1	2.3	7.2	22.0	8.5	**15.8**	-3.0	42.6	0.1

				650	2	99.8	37.0	2.1	2.3	7.3	22.2	8.7	**16.0**	-3.6	43.3	
				700	1	99.9	36.9	2.1	2.1	7.1	22.1	8.7	**15.8**	-3.1	42.8	0.1
				700	2	99.9	37.0	2.1	2.1	7.2	22.4	8.8	**16.0**	-3.5	43.2	
				750	1	100	37.1	2.3	2.2	6.7	22.3	9.0	**15.7**	-3.1	42.3	0.2
				750	2	100	37.2	2.3	2.2	6.8	22.1	9.2	**16.1**	-3.2	43.2	
				800	1	100	38.1	3.9	3.5	5.6	22.6	10.0	**15.6**	-3.6	40.8	0.2
				800	2	100	38.0	3.9	3.5	5.7	22.7	10.2	**16.0**	-4.2	42.0	
				850	1	100	36.7	7.0	6.7	2.9	22.1	8.8	**11.7**	-3.8	31.8	0.1
				850	2	100	36.8	7.3	7.0	2.9	22.4	8.7	**11.6**	-4.2	31.5	
A7	Na	Cs	W	400	1	-0.3	-1.7	0.0	5.1	0.0	0.0	0.0	**0.0**	-6.8	0.0	0.0
				400	2	0.7	-0.2	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.2	0.0	
				450	1	0.9	0.1	0.0	0.0	0.0	0.1	0.0	**0.0**	0.1	0.0	0.0
				450	2	1.2	0.4	0.0	0.0	0.0	0.1	0.0	**0.0**	0.3	0.0	
				500	1	1.9	0.9	0.1	0.0	0.0	0.2	0.0	**0.0**	0.8	0.0	0.0
				500	2	2.1	1.1	0.1	0.0	0.0	0.2	0.0	**0.0**	1.0	0.0	
				550	1	4.9	2.2	0.2	0.2	0.0	0.6	0.0	**0.0**	1.4	0.0	0.0
				550	2	4.9	2.2	0.2	0.2	0.0	0.6	0.0	**0.0**	1.4	0.0	
				600	1	12.7	4.3	0.3	0.4	0.1	2.6	0.0	**0.1**	1.1	1.6	0.0
				600	2	11.7	4.1	0.3	0.4	0.1	2.5	0.0	**0.1**	1.1	1.4	
				650	1	96.7	37.8	1.8	3.2	7.2	21.6	9.2	**16.4**	-3.3	43.4	0.0
				650	2	96.5	37.8	2.0	3.8	7.3	21.4	9.2	**16.5**	-3.8	43.6	
				700	1	96.1	38.5	2.4	3.1	7.3	21.9	9.5	**16.8**	-3.3	43.7	0.0
				700	2	96.1	38.6	2.6	3.2	7.3	21.8	9.5	**16.8**	-3.3	43.6	

				750	1	98.3	39.3	2.8	3.1	6.6	22.3	10.0	**16.7**	-2.9	42.5	0.0
				750	2	98.3	39.3	2.9	3.3	6.7	22.4	10.1	**16.7**	-3.2	42.6	
				800	1	99.5	39.4	3.4	3.7	5.7	22.4	10.3	**16.0**	-2.7	40.6	0.1
				800	2	99.6	39.4	3.5	3.9	5.7	22.7	10.4	**16.1**	-3.4	40.9	
				850	1	99.9	38.9	4.5	5.1	4.0	22.5	10.2	**14.1**	-2.8	36.3	0.0
				850	2	99.9	38.9	4.5	5.4	4.0	22.5	10.2	**14.2**	-3.1	36.4	
A8	Sr	Y	Cs	400	1	0.6	1.1	0.1	0.0	0.0	0.2	0.0	**0.0**	0.9	0.0	0.0
				400	2	0.8	0.7	0.1	0.0	0.0	0.2	0.0	**0.0**	0.6	0.0	
				450	1	3.6	1.5	0.4	0.2	0.0	0.8	0.0	**0.0**	0.5	0.0	0.0
				450	2	3.4	1.2	0.4	0.2	0.0	0.8	0.0	**0.0**	0.2	0.0	
				500	1	99.7	37.1	3.6	2.7	6.2	21.5	7.7	**14.0**	-1.0	37.6	0.3
				500	2	99.7	37.0	3.7	2.9	6.4	22.7	8.1	**14.5**	-3.1	39.2	
				550	1	99.9	37.2	4.1	3.0	6.1	22.3	7.9	**14.0**	-2.1	37.7	0.1
				550	2	99.8	37.0	4.1	3.0	6.2	22.6	8.0	**14.2**	-2.8	38.2	
				600	1	99.6	35.9	5.0	3.4	5.5	23.6	6.2	**11.7**	-2.8	32.7	0.1
				600	2	99.6	35.3	5.1	3.4	5.6	23.7	6.4	**12.0**	-3.8	34.1	
				650	1	99.7	36.0	5.1	3.5	5.3	23.6	6.5	**11.8**	-2.9	32.8	0.1
				650	2	99.5	36.0	5.2	3.5	5.4	23.9	6.6	**12.0**	-3.4	33.3	
				700	1	99.6	37.0	4.7	3.4	5.3	23.2	7.8	**13.1**	-2.6	35.4	0.2
				700	2	99.5	36.0	4.7	3.4	5.5	23.8	8.0	**13.6**	-4.8	37.7	
				750	1	99.7	37.4	4.5	3.5	5.3	22.7	9.0	**14.4**	-3.2	38.4	0.2
				750	2	99.6	37.9	4.3	3.4	5.6	22.8	9.2	**14.8**	-3.1	38.9	
				800	1	100	38.4	4.5	3.9	5.3	24.0	10.2	**15.5**	-5.0	40.3	0.2

				800	2	100	38.0	4.6	3.8	5.4	23.4	10.4	**15.9**	-5.0	41.7	
				850	1	100	37.1	8.0	7.5	2.8	22.5	9.0	**11.8**	-4.7	31.9	0.1
				850	2	100	37.1	8.2	7.8	2.8	22.8	8.9	**11.7**	-5.2	31.6	
A9	Cs	Eu	Hf	400	1	-1.2	-2.9	0.1	0.0	0.0	0.3	0.0	**0.0**	-3.2	0.0	0.0
				400	2	-0.5	-1.8	0.1	1.3	0.0	0.3	0.0	**0.0**	-3.4	0.0	
				450	1	4.1	0.3	0.5	0.4	0.0	1.3	0.0	**0.0**	-1.4	0.0	0.0
				450	2	4.2	0.4	0.5	0.4	0.0	1.4	0.0	**0.0**	-1.3	0.0	
				500	1	49.0	11.0	2.5	2.5	0.4	11.2	0.1	**0.5**	-3.1	4.6	0.3
				500	2	18.5	4.4	0.6	0.9	0.0	4.9	0.0	**0.0**	-1.3	0.0	
				550	1	82.0	21.1	2.9	3.9	0.4	20.1	0.1	**0.4**	-3.3	2.1	0.2
				550	2	67.6	17.1	2.1	3.1	0.1	17.8	0.0	**0.1**	-3.9	0.7	
				600	1	95.2	27.1	3.7	4.8	1.9	24.6	0.7	**2.7**	-5.0	9.8	0.1
				600	2	93.9	27.1	4.1	5.1	1.8	24.3	0.7	**2.5**	-4.9	9.2	
				650	1	98.1	31.4	3.9	4.0	4.0	25.2	2.9	**6.9**	-4.7	22.0	0.0
				650	2	97.8	31.6	4.1	4.1	4.1	25.6	2.9	**7.0**	-5.2	22.2	
				700	1	99.8	34.8	3.3	2.8	4.9	25.3	5.9	**10.8**	-4.1	31.1	0.1
				700	2	99.8	34.8	3.4	3.0	5.0	25.4	6.0	**11.0**	-4.5	31.7	
				750	1	100	34.8	2.2	1.9	4.5	25.3	6.9	**11.4**	-3.7	32.6	0.1
				750	2	100	35.1	2.4	2.1	4.6	25.4	7.0	**11.6**	-4.0	33.0	
				800	1	100	36.9	9.6	9.1	1.3	24.4	5.9	**7.2**	-3.9	19.5	0.2
				800	2	100	36.8	9.3	9.1	1.5	24.2	6.0	**7.5**	-4.1	20.5	
				850	1	100	38.1	7.8	9.7	2.5	22.2	7.5	**10.0**	-3.7	26.2	0.2
				850	2	100	37.9	7.4	8.5	2.7	23.1	7.8	**10.5**	-4.2	27.7	

A10	Ca	Y	Ba	400	1	2.2	2.1	0.2	0.1	0.0	0.4	0.0	**0.0**	1.6	0.0	0.0
				400	2	3.1	2.5	0.2	0.1	0.0	0.4	0.0	**0.0**	2.0	0.0	
				450	1	99.1	35.7	3.4	3.1	5.9	21.6	7.0	**12.9**	-1.9	36.1	0.4
				450	2	98.8	37.1	3.2	2.9	6.1	22.1	7.5	**13.6**	-1.6	36.7	
				500	1	98.8	37.0	3.3	3.0	5.7	22.0	6.9	**12.7**	-0.6	34.3	0.2
				500	2	98.3	36.3	3.3	3.1	5.6	22.2	6.7	**12.3**	-1.3	33.9	
				550	1	98.5	36.3	3.4	3.1	5.5	22.4	6.5	**11.9**	-1.1	32.9	0.1
				550	2	98.1	35.9	3.4	3.2	5.4	22.5	6.4	**11.8**	-1.6	32.8	
				600	1	98.3	36.2	3.3	3.0	5.6	22.0	6.7	**12.2**	-1.0	33.8	0.1
				600	2	98.0	36.2	3.3	3.0	5.6	22.2	6.7	**12.3**	-1.4	34.1	
				650	1	98.4	37.3	2.8	2.6	6.0	22.1	7.5	**13.5**	-1.0	36.4	0.2
				650	2	98.3	36.8	2.7	2.6	6.2	22.1	7.8	**14.0**	-2.0	38.0	
				700	1	99.0	38.1	2.3	2.2	6.7	21.6	8.6	**15.3**	-1.0	40.2	0.3
				700	2	98.9	38.1	2.2	2.2	6.9	22.0	8.9	**15.8**	-1.9	41.5	
				750	1	99.6	38.7	2.2	2.1	6.9	21.8	9.6	**16.4**	-1.5	42.4	0.1
				750	2	99.6	38.8	2.2	2.0	7.0	21.8	9.7	**16.7**	-1.7	43.0	
				800	1	100	38.0	2.2	2.0	6.0	22.6	9.5	**15.5**	-2.1	40.8	0.2
				800	2	100	37.9	2.3	2.0	6.1	22.4	9.7	**15.8**	-2.3	41.7	
				850	1	100	38.0	9.5	9.2	2.0	21.6	7.6	**9.7**	-2.5	25.5	0.0
				850	2	100	38.1	9.8	9.5	2.0	21.6	7.7	**9.6**	-2.7	25.3	
A11	Mg	Nd	Hf	400	1	0.0	0.6	0.3	0.1	0.0	0.5	0.0	**0.0**	0.0	0.0	0.0
				400	2	0.8	1.2	0.2	0.1	0.0	0.5	0.0	**0.0**	0.6	0.0	
				450	1	94.8	33.3	5.7	5.9	3.8	18.8	4.6	**8.4**	0.2	25.2	0.5

				450	2	92.8	33.3	5.0	5.6	4.2	18.8	5.2	**9.5**	-0.7	28.5			
				500	1	92.7	33.5	5.3	5.6	4.1	18.7	5.1	**9.2**	0.0	27.5	0.1		
				500	2	91.8	33.3	5.2	6.1	4.2	18.7	5.1	**9.3**	-0.8	28.0			
				550	1	91.9	32.4	6.0	5.8	4.1	19.3	4.7	**8.8**	-1.5	27.1	0.0		
				550	2	91.4	33.2	5.7	5.8	4.1	19.0	4.7	**8.8**	-0.4	26.5			
				600	1	90.9	32.8	6.1	5.9	3.9	18.7	4.4	**8.3**	-0.2	25.4	0.0		
				600	2	90.2	32.7	6.1	6.0	4.0	18.7	4.3	**8.3**	-0.3	25.4			
				650	1	92.9	33.9	5.2	5.3	4.6	19.1	5.9	**10.4**	-0.9	30.7	0.0		
				650	2	92.6	34.1	5.1	5.2	4.6	18.9	5.8	**10.4**	-0.4	30.5			
				700	1	95.8	35.6	4.4	4.7	4.8	19.3	7.2	**11.9**	-0.3	33.6	0.2		
				700	2	95.8	35.4	4.3	5.1	4.7	18.5	7.0	**11.6**	0.2	32.8			
				750	1	98.4	36.9	4.1	4.6	4.7	19.6	8.0	**12.7**	0.1	34.4	0.1		
				750	2	98.5	36.9	4.1	4.3	4.8	19.7	8.0	**12.8**	0.1	34.8			
				800	1	99.8	37.3	4.6	4.9	4.2	19.9	8.4	**12.6**	-0.1	33.8	0.1		
				800	2	99.8	37.2	4.6	5.4	4.2	19.5	8.3	**12.4**	-0.2	33.4			
				850	1	100	37.0	9.6	10.0	1.9	19.4	6.7	**8.5**	-1.0	23.1	0.0		
				850	2	100	37.4	9.7	10.3	1.8	19.5	6.7	**8.5**	-0.9	22.7			
A12	Li	Na	W	400	1	0.5	1.5	0.0	0.0	0.0	0.0	0.0	**0.0**	1.5	0.0	0.0		
				400	2	1.0	1.5	0.0	0.0	0.0	0.0	0.0	**0.0**	1.5	0.0			
				450	1	1.4	1.7	0.0	0.0	0.0	0.0	0.0	**0.0**	1.7	0.0	0.0		
				450	2	1.7	1.7	0.0	0.0	0.0	0.0	0.0	**0.0**	1.7	0.0			
				500	1	2.2	2.0	0.2	0.0	0.0	0.0	0.0	**0.0**	1.9	0.0	0.0		
				500	2	2.2	1.7	0.1	0.0	0.0	0.0	0.0	**0.0**	1.7	0.0			

				550	1	3.1	2.2	0.3	0.1	0.0	0.1	0.0	**0.0**	1.9	0.0	0.0
				550	2	3.1	2.1	0.3	0.1	0.0	0.2	0.0	**0.0**	1.8	0.0	
				600	1	5.6	3.0	0.6	0.4	0.1	0.8	0.0	**0.1**	1.7	2.7	0.0
				600	2	5.3	2.7	0.6	0.4	0.1	0.9	0.0	**0.1**	1.3	2.8	
				650	1	13.2	5.7	1.4	0.9	0.8	2.9	0.1	**0.9**	1.0	15.0	0.0
				650	2	12.9	5.4	1.4	1.0	0.7	2.9	0.1	**0.8**	0.7	15.3	
				700	1	95.2	37.7	2.1	2.2	6.4	19.9	9.9	**16.3**	-0.7	43.2	0.1
				700	2	95.5	37.6	2.4	2.7	6.4	20.0	9.7	**16.1**	-1.2	42.7	
				750	1	98.9	38.8	3.2	3.2	5.9	20.9	9.9	**15.8**	-1.2	40.8	0.0
				750	2	98.9	38.8	3.3	3.5	5.9	21.0	9.9	**15.9**	-1.5	40.9	
				800	1	99.7	39.0	4.0	4.0	5.0	21.2	10.2	**15.2**	-1.3	38.9	0.1
				800	2	99.7	38.4	4.0	4.2	5.1	21.4	10.3	**15.4**	-2.6	40.1	
				850	1	100	37.5	7.0	7.9	2.8	20.8	8.6	**11.3**	-2.6	30.3	0.1
				850	2	100	37.8	7.2	8.4	2.7	20.6	8.4	**11.1**	-2.4	29.4	
A13	Ca	Eu	Hf	400	1	-0.6	0.2	0.2	0.1	0.0	0.5	0.0	**0.0**	-0.3	0.0	0.0
				400	2	-0.2	0.0	0.2	0.1	0.0	0.5	0.0	**0.0**	-0.5	0.0	
				450	1	99.0	35.4	3.9	5.3	5.7	19.0	6.5	**12.2**	-1.1	34.5	0.5
				450	2	98.8	36.2	3.5	5.0	6.1	19.4	7.1	**13.2**	-1.5	36.5	
				500	1	99.4	37.0	3.4	4.7	6.3	19.7	7.6	**13.9**	-1.3	37.5	0.1
				500	2	99.3	36.9	3.3	4.7	6.3	19.7	7.7	**14.0**	-1.5	37.9	
				550	1	99.8	37.3	3.4	4.4	6.3	19.9	8.0	**14.3**	-1.3	38.3	0.0
				550	2	99.7	37.2	3.3	4.4	6.3	19.9	8.0	**14.3**	-1.4	38.4	
				600	1	99.9	37.5	3.5	4.2	6.2	19.6	8.0	**14.2**	-0.5	37.9	0.0

				600	2	99.8	37.4	3.5	4.2	6.2	19.9	8.0	**14.2**	-0.9	38.1	
				650	1	99.8	37.7	3.5	4.0	6.1	19.5	8.1	**14.2**	0.0	37.7	0.0
				650	2	99.6	37.6	3.5	4.1	6.1	19.5	8.1	**14.2**	-0.2	37.8	
				700	1	99.8	38.0	3.5	3.9	6.1	19.2	8.3	**14.4**	0.6	37.9	0.1
				700	2	99.7	37.9	3.4	3.9	6.1	19.2	8.4	**14.5**	0.3	38.2	
				750	1	100	38.2	3.7	3.9	5.9	19.2	8.7	**14.6**	0.4	38.3	0.1
				750	2	99.9	38.1	3.6	3.9	6.0	19.5	8.8	**14.8**	-0.1	38.8	
				800	1	100	38.2	4.4	4.3	5.3	20.3	9.3	**14.6**	-1.0	38.2	0.0
				800	2	100	38.1	4.4	4.3	5.4	20.1	9.3	**14.7**	-1.0	38.4	
				850	1	100	37.3	10.2	10.6	1.9	18.8	6.7	**8.6**	-0.8	23.0	0.0
				850	2	100	37.3	10.4	10.9	1.9	18.7	6.6	**8.5**	-0.9	22.8	
A14	Na	Eu	W	400	1	-0.5	0.3	0.1	0.0	0.0	0.0	0.0	**0.0**	0.2	0.0	0.0
				400	2	-0.2	0.1	0.1	0.0	0.0	0.0	0.0	**0.0**	0.1	0.0	
				450	1	0.8	0.0	0.1	0.3	0.0	0.2	0.0	**0.0**	-0.5	0.0	0.0
				450	2	1.2	0.5	0.1	0.1	0.0	0.2	0.0	**0.0**	0.2	0.0	
				500	1	3.3	0.9	0.2	0.3	0.0	0.6	0.0	**0.0**	0.0	0.0	0.0
				500	2	2.9	0.8	0.2	0.3	0.0	0.5	0.0	**0.0**	0.0	0.0	
				550	1	6.7	1.9	0.3	0.5	0.0	1.2	0.0	**0.0**	0.2	0.0	0.0
				550	2	4.7	1.1	0.2	0.4	0.0	0.9	0.0	**0.0**	-0.3	0.0	
				600	1	12.6	3.4	0.5	0.9	0.1	2.7	0.0	**0.1**	-0.2	2.4	0.0
				600	2	11.4	2.9	0.5	0.9	0.1	2.6	0.0	**0.1**	-0.6	2.8	
				650	1	94.2	35.8	1.8	1.7	7.1	20.9	9.1	**16.2**	-3.0	45.3	0.1
				650	2	95.1	35.6	2.0	2.3	7.3	21.5	9.2	**16.4**	-4.6	46.2	

				700	1	98.6	37.4	2.3	2.6	7.1	22.0	9.5	**16.5**	-3.7	44.1	0.1
				700	2	98.6	37.2	2.4	2.8	7.2	21.8	9.6	**16.7**	-4.1	44.9	
				750	1	99.6	37.7	2.7	3.0	6.6	22.2	9.7	**16.4**	-3.9	43.4	0.1
				750	2	99.5	37.5	2.7	3.1	6.7	22.2	9.8	**16.5**	-4.3	43.9	
				800	1	99.9	37.7	3.3	3.5	5.8	22.3	10.2	**16.0**	-4.1	42.5	0.0
				800	2	99.9	37.7	3.3	3.7	5.8	21.8	10.2	**16.0**	-3.7	42.4	
				850	1	100	36.7	7.2	7.9	2.8	21.5	8.3	**11.1**	-3.8	30.4	0.1
				850	2	100	36.6	7.5	8.4	2.8	21.6	8.2	**11.0**	-4.4	30.0	
A15	Ca	Y	Nd	400	1	1.5	0.8	0.3	0.0	0.0	0.5	0.0	**0.0**	0.3	0.0	0.0
				400	2	0.8	0.5	0.3	0.1	0.0	0.5	0.0	**0.0**	-0.2	0.0	
				450	1	97.7	32.9	6.1	5.4	4.6	21.3	4.5	**9.1**	-2.8	27.5	0.6
				450	2	96.8	34.1	5.4	5.2	4.9	21.2	5.3	**10.2**	-2.4	29.8	
				500	1	97.2	34.5	6.0	5.2	4.7	21.4	4.9	**9.6**	-1.7	27.7	0.1
				500	2	96.7	34.2	5.9	5.3	4.8	21.7	5.0	**9.8**	-2.6	28.8	
				550	1	97.0	34.6	6.2	5.2	4.7	21.8	4.8	**9.5**	-2.0	27.5	0.2
				550	2	96.8	34.5	6.0	5.2	4.9	21.4	5.0	**9.9**	-2.0	28.7	
				600	1	97.1	35.1	6.0	5.0	5.0	21.6	5.3	**10.2**	-1.7	29.2	0.2
				600	2	97.0	35.2	5.9	4.9	5.2	21.5	5.5	**10.7**	-1.9	30.4	
				650	1	97.5	36.0	5.5	4.7	5.3	21.4	6.3	**11.6**	-1.7	32.2	0.1
				650	2	97.4	35.8	5.4	4.7	5.4	21.3	6.4	**11.7**	-1.9	32.8	
				700	1	98.1	36.8	5.0	4.4	5.3	20.8	7.4	**12.8**	-1.2	34.7	0.2
				700	2	97.9	36.2	4.9	4.4	5.5	21.1	7.6	**13.1**	-2.4	36.1	
				750	1	99.0	37.2	4.9	4.4	5.1	20.7	8.5	**13.6**	-1.5	36.6	0.1

				750	2	99.0	37.4	4.8	4.3	5.2	20.6	8.6	**13.8**	-1.4	37.0	
				800	1	100	37.7	5.5	5.1	4.2	21.4	9.0	**13.3**	-2.0	35.2	0.1
				800	2	100	37.6	5.5	5.0	4.3	21.0	9.2	**13.5**	-1.9	36.0	
				850	1	100	36.8	9.9	9.9	1.8	20.3	7.0	**8.8**	-2.2	23.9	0.0
				850	2	100	36.9	10.0	10.1	1.8	20.5	7.1	**8.9**	-2.6	24.0	
A16	Sr	Nd	Hf	400	1	0.7	2.1	0.2	0.1	0.0	0.3	0.0	**0.0**	1.7	0.0	0.0
				400	2	1.1	2.0	0.2	0.1	0.0	0.4	0.0	**0.0**	1.5	0.0	
				450	1	90.1	30.0	6.8	6.3	3.1	17.0	2.8	**5.9**	0.8	19.8	1.9
				450	2	94.6	35.2	5.0	5.4	4.3	18.7	5.3	**9.7**	1.5	27.4	
				500	1	93.7	35.5	4.8	5.9	4.6	18.5	5.4	**10.0**	1.1	28.2	0.1
				500	2	92.6	34.3	4.9	5.6	4.8	18.8	5.4	**10.3**	-0.4	30.0	
				550	1	93.7	35.4	4.6	5.8	5.2	18.8	5.9	**11.1**	-0.3	31.2	0.2
				550	2	93.4	35.7	4.6	5.3	5.1	18.2	5.6	**10.7**	1.5	30.0	
				600	1	94.6	36.2	4.2	5.5	5.6	18.8	6.4	**12.0**	-0.1	33.2	0.0
				600	2	94.4	36.4	4.1	4.6	5.6	18.7	6.4	**12.0**	1.2	33.0	
				650	1	95.8	37.0	3.7	4.1	5.6	17.9	6.8	**12.4**	2.6	33.5	0.3
				650	2	95.7	37.3	3.6	4.3	5.9	18.6	7.2	**13.1**	1.3	35.1	
				700	1	97.7	37.8	3.6	4.0	5.7	18.7	7.7	**13.4**	1.8	35.4	0.0
				700	2	97.7	38.1	3.5	4.1	5.7	18.4	7.6	**13.4**	2.2	35.0	
				750	1	99.3	39.0	3.7	4.4	5.5	19.1	8.3	**13.8**	1.7	35.5	0.3
				750	2	99.3	39.0	3.7	4.3	5.8	19.7	8.6	**14.4**	0.7	36.8	
				800	1	100	39.0	4.4	4.9	5.0	19.7	8.9	**13.9**	0.4	35.6	0.1
				800	2	100	38.7	4.3	4.3	4.9	19.6	8.8	**13.8**	1.0	35.7	

				850	1	100	37.9	8.1	8.6	2.4	19.1	7.0	**9.4**	0.8	24.8	0.1
				850	2	100	37.9	8.5	9.1	2.3	19.3	6.9	**9.3**	0.2	24.5	
A17	Mg	Sr	Nd	400	1	0.6	0.7	0.2	0.0	0.0	0.4	0.0	**0.0**	0.3	0.0	0.0
				400	2	1.4	1.2	0.2	0.0	0.0	0.4	0.0	**0.0**	0.8	0.0	
				450	1	6.8	3.0	0.9	0.4	0.0	1.9	0.0	**0.0**	0.7	0.0	0.0
				450	2	6.7	2.5	0.9	0.4	0.0	1.9	0.0	**0.0**	0.3	0.0	
				500	1	82.9	28.4	5.6	4.4	3.3	19.5	3.7	**7.0**	-2.5	24.6	0.2
				500	2	76.3	26.9	4.9	4.1	3.5	17.9	3.9	**7.4**	-2.5	27.4	
				550	1	91.5	31.2	6.7	4.8	3.3	22.3	3.8	**7.1**	-2.9	22.6	0.1
				550	2	90.5	30.7	6.8	4.8	3.2	22.5	3.7	**6.9**	-3.4	22.4	
				600	1	95.0	32.5	7.1	4.7	3.6	23.6	3.8	**7.4**	-3.2	22.6	0.1
				600	2	94.6	31.9	7.1	4.8	3.6	23.8	3.9	**7.5**	-4.2	23.5	
				650	1	96.8	34.0	6.5	4.6	4.1	23.4	4.8	**9.0**	-3.0	26.3	0.2
				650	2	96.6	33.0	6.5	4.6	4.3	23.7	5.0	**9.3**	-4.6	28.1	
				700	1	98.0	35.6	5.7	4.3	4.6	23.1	6.8	**11.3**	-3.1	31.8	0.1
				700	2	97.8	35.6	5.6	4.4	4.7	23.0	6.9	**11.5**	-3.3	32.4	
				750	1	98.5	36.9	5.4	4.4	4.6	22.6	8.5	**13.1**	-3.3	35.5	0.2
				750	2	98.5	37.0	5.3	4.4	4.7	22.5	8.7	**13.5**	-3.4	36.5	
				800	1	99.8	38.6	5.7	5.0	4.4	22.9	9.8	**14.2**	-3.6	36.9	0.3
				800	2	99.9	38.2	5.5	4.9	4.7	23.1	10.2	**14.9**	-4.8	39.1	
				850	1	100	37.3	8.6	8.3	2.3	22.2	8.4	**10.6**	-3.9	28.5	0.1
				850	2	100	37.2	8.5	8.3	2.3	22.2	8.5	**10.8**	-3.9	28.9	
A18	Ca	Ni	Y	400	1	1.6	1.1	0.1	0.0	0.0	0.4	0.0	**0.0**	0.7	0.0	0.0

				400	2	1.3	0.3	0.1	0.0	0.0	0.4	0.0	**0.0**	-0.1	0.0	
				450	1	100	32.4	6.7	4.0	5.9	24.3	0.0	**5.9**	-1.8	18.0	0.1
				450	2	100	32.6	7.5	4.5	6.1	25.8	0.0	**6.1**	-3.8	18.7	
				500	1	100	33.5	9.3	5.4	5.8	26.0	0.0	**5.8**	-3.7	17.3	0.1
				500	2	100	33.7	9.9	5.6	5.7	25.9	0.0	**5.7**	-3.5	16.8	
				550	1	100	35.1	13.3	8.0	4.6	25.3	0.0	**4.6**	-2.8	13.1	0.0
				550	2	100	35.3	13.9	8.4	4.6	26.5	0.0	**4.6**	-4.1	13.1	
				600	1	100	37.5	17.8	12.1	3.6	25.5	0.0	**3.6**	-3.8	9.7	0.0
				600	2	100	37.8	18.1	12.3	3.6	25.9	0.0	**3.6**	-4.0	9.5	
				650	1	100	40.8	23.2	17.9	2.7	24.3	0.0	**2.7**	-4.0	6.7	0.0
				650	2	100	40.9	23.2	17.9	2.8	24.5	0.0	**2.8**	-4.2	6.8	
				700	1	100	43.9	27.3	23.0	2.3	22.5	0.0	**2.4**	-4.0	5.4	0.1
				700	2	100	43.6	26.9	22.7	2.4	22.9	0.0	**2.5**	-4.4	5.7	
				750	1	100	45.9	29.8	27.0	2.1	20.9	0.1	**2.2**	-4.2	4.9	0.1
				750	2	100	45.3	28.8	26.0	2.3	20.9	0.1	**2.4**	-4.0	5.3	
				800	1	100	45.2	29.3	28.2	1.6	19.8	0.3	**1.9**	-4.7	4.2	0.1
				800	2	100	44.4	27.4	26.3	1.8	20.0	0.3	**2.1**	-3.9	4.6	
				850	1	100	61.6	50.8	52.4	0.3	12.1	0.1	**0.3**	-3.2	0.6	0.0
				850	2	100	62.9	0.0	53.9	0.3	11.7	0.1	**0.3**	-3.0	0.5	
A19	Mg	Eu	Hf	400	1	2.1	2.7	0.2	0.1	0.0	0.5	0.0	**0.0**	2.1	0.0-	0.0
				400	2	2.2	2.4	0.2	0.1	0.0	0.5	0.0	**0.0**	1.8	0.0	
				450	1	98.0	36.1	4.5	5.4	4.8	18.6	5.4	**10.2**	1.9	28.2	0.6
				450	2	97.6	36.0	4.2	5.3	5.3	19.9	6.1	**11.4**	-0.6	31.7	

				500	1	98.7	36.8	4.2	5.0	5.4	20.4	6.6	**11.9**	-0.6	32.5	0.1
				500	2	98.6	36.6	4.2	5.0	5.5	20.6	6.7	**12.2**	-1.2	33.2	
				550	1	99.3	36.8	4.4	4.9	5.2	20.6	6.6	**11.8**	-0.4	32.0	0.1
				550	2	99.2	36.7	4.4	4.9	5.3	20.9	6.7	**12.0**	-1.0	32.5	
				600	1	99.7	37.1	4.6	4.6	5.2	21.0	6.8	**12.0**	-0.6	32.3	0.0
				600	2	99.6	36.9	4.6	4.6	5.2	21.2	6.8	**12.1**	-1.0	32.7	
				650	1	99.8	37.6	4.7	4.4	5.1	20.7	6.9	**12.0**	0.4	32.0	0.2
				650	2	99.7	37.8	4.6	4.4	5.3	21.1	7.1	**12.3**	-0.2	32.7	
				700	1	99.8	38.5	4.4	4.2	5.4	20.9	7.8	**13.3**	0.1	34.4	0.2
				700	2	99.8	38.0	4.4	4.2	5.6	21.2	8.0	**13.6**	-0.9	35.7	
				750	1	99.9	38.8	4.4	4.2	5.3	20.7	8.6	**14.0**	-0.1	36.1	0.1
				750	2	99.9	38.8	4.3	4.2	5.4	20.8	8.7	**14.1**	-0.4	36.4	
				800	1	100	38.8	4.9	4.8	4.6	20.9	9.2	**13.7**	-0.5	35.4	0.0
				800	2	100	38.7	4.9	4.8	4.6	20.5	9.2	**13.8**	-0.3	35.6	
				850	1	100	39.1	8.1	8.2	2.3	19.8	7.4	**9.7**	1.5	24.7	0.0
				850	2	100	37.8	8.6	8.6	2.3	20.2	7.4	**9.6**	-0.6	25.4	
A20	Ba	Eu	Hf	400	1	1.2	0.7	0.2	1.7	0.0	0.3	0.0	**0.0**	-1.3	0.0	0.0
				400	2	1.5	0.7	0.2	0.5	0.0	0.3	0.0	**0.0**	-0.1	0.0	
				450	1	7.0	2.1	0.9	0.6	0.0	1.8	0.0	**0.0**	-0.2	0.0	0.0
				450	2	6.9	1.8	0.9	0.6	0.0	1.8	0.0	**0.0**	-0.6	0.0	
				500	1	99.5	36.7	3.9	4.3	6.2	21.3	8.0	**14.3**	-3.1	38.8	0.0
				500	2	99.4	36.8	3.9	4.3	6.2	21.1	8.1	**14.3**	-2.9	38.9	
				550	1	99.3	37.5	4.1	4.4	6.1	21.2	7.8	**14.0**	-2.1	37.2	0.0

550	2	99.0	37.0	4.1	4.5	6.2	20.9	7.8	**14.0**	-2.4	37.9	
600	1	99.6	37.3	4.2	4.3	6.1	21.4	8.0	**14.1**	-2.5	37.9	0.1
600	2	99.4	37.1	4.1	4.3	6.2	21.1	8.0	**14.2**	-2.5	38.3	
650	1	99.8	36.9	4.1	4.1	6.2	21.6	8.5	**14.7**	-3.4	39.7	0.1
650	2	99.7	37.4	4.1	4.1	6.2	21.4	8.3	**14.6**	-2.7	38.9	
700	1	99.9	37.6	4.1	3.9	6.1	21.3	8.7	**14.8**	-2.4	39.3	0.1
700	2	99.9	37.3	4.1	3.9	6.1	21.7	8.8	**14.9**	-3.3	40.0	
750	1	100	37.9	4.2	3.9	5.8	21.3	9.0	**14.8**	-2.0	39.0	0.1
750	2	100	37.7	4.2	3.9	5.9	21.4	9.1	**15.0**	-2.6	39.8	
800	1	100	37.8	4.8	4.3	5.1	21.9	9.4	**14.4**	-2.9	38.2	0.1
800	2	100	37.5	4.8	4.3	5.1	22.0	9.6	**14.7**	-3.4	39.2	
850	1	100	36.6	8.2	7.9	2.7	21.5	7.8	**10.5**	-3.3	28.7	0.1
850	2	100	36.5	8.6	8.3	2.6	21.7	7.7	**10.3**	-3.9	28.3	

Table S9 Results of multicomponent La_2O_3 catalyst predicted with ICM on the SVR worldview on HTS dataset at CH_4/O_2 = 2.0

Cat	M1	M2	M3	Temp /℃	Sampling	O_2 Conv. /%	CH_4 Conv. /%	H_2 yield /%	CO yield /%	C_2H_6 yield /%	CO_2 yield /%	C_2H_4 yield /%	C_2 yield /%	C missing /%	C_2 sel /%	σ
B1	Ni	Y	Pd	400	1	-0.1	-3.3	0.1	0.0	0.0	0.4	0.0	**0.0**	-3.7	0.0	0.0
				400	2	-0.5	-3.1	0.1	0.0	0.0	0.4	0.0	**0.0**	-3.5	0.0	
				450	1	6.4	-0.9	0.5	0.0	0.0	2.4	0.0	**0.0**	-3.3	0.0	0.0
				450	2	6.0	-0.9	0.5	0.0	0.0	2.5	0.0	**0.0**	-3.4	0.0	
				500	1	100	33.7	23.1	9.1	0.0	34.0	0.0	**0.0**	-9.4	0.0	0.0
				500	2	100	32.0	19.6	7.3	0.0	33.7	0.0	**0.0**	-9.0	0.0	
				550	1	100	35.5	24.3	12.0	0.0	32.6	0.0	**0.0**	-9.1	0.0	0.0
				550	2	100	33.1	20.2	9.4	0.0	32.5	0.0	**0.0**	-8.8	0.0	
				600	1	100	34.9	21.7	12.3	0.0	31.1	0.0	**0.0**	-8.6	0.0	0.0
				600	2	100	31.5	16.2	8.8	0.0	30.7	0.0	**0.0**	-8.0	0.0	
				650	1	100	33.6	17.4	11.5	0.2	28.9	0.0	**0.2**	-6.8	0.5	0.0
				650	2	100	31.1	13.7	9.1	0.2	29.0	0.0	**0.2**	-7.1	0.7	
				700	1	100	34.9	17.7	13.7	0.7	27.0	0.0	**0.7**	-6.5	2.0	0.2
				700	2	100	31.6	12.8	9.9	1.0	27.5	0.1	**1.1**	-6.9	3.3	
				750	1	100	37.1	19.9	17.2	1.2	25.1	0.1	**1.3**	-6.5	3.5	0.0
				750	2	100	36.1	18.5	16.1	1.3	25.8	0.1	**1.4**	-7.2	3.8	
				800	1	100	46.7	33.8	31.3	0.7	21.1	0.1	**0.8**	-6.5	1.6	0.0
				800	2	100	45.2	31.4	29.2	0.7	21.7	0.1	**0.8**	-6.5	1.8	
				850	1	100	59.6	52.1	51.2	0.2	15.2	0.0	**0.2**	-6.9	0.3	0.0

				850	2	100	59.3	50.5	50.7	0.2	15.1	0.0	**0.2**	-6.7	0.4	
B2	Ni	Zn	Pd	400	1	0	-0.8	0.1	0.0	0.0	0.4	0.0	**0.0**	-1.2	0.0	0.0
				400	2	0.8	-0.5	0.1	0.0	0.0	0.4	0.0	**0.0**	-0.8	0.0	
				450	1	100	24.6	2.6	0.8	2.0	26.3	0.0	**2.0**	-4.4	8.0	0.2
				450	2	100	24.3	2.3	0.7	1.5	27.1	0.0	**1.5**	-5.0	6.3	
				500	1	100	24.7	2.4	0.9	1.4	27.1	0.0	**1.4**	-4.8	5.9	0.1
				500	2	100	24.4	2.2	0.9	1.3	27.0	0.0	**1.3**	-4.7	5.5	
				550	1	100	25.1	2.8	1.4	1.7	26.8	0.0	**1.7**	-4.9	6.9	0.1
				550	2	100	24.9	2.5	1.3	1.6	27.1	0.0	**1.6**	-5.2	6.5	
				600	1	100	25.9	3.1	1.9	1.9	26.8	0.1	**2.0**	-4.7	7.5	0.1
				600	2	100	25.4	2.9	1.9	1.6	26.4	0.1	**1.7**	-4.7	6.7	
				650	1	100	26.6	4.0	2.9	1.8	26.2	0.1	**1.9**	-4.5	7.0	0.2
				650	2	100	25.6	4.5	3.4	1.5	27.1	0.1	**1.5**	-6.5	6.0	
				700	1	100	27.5	6.3	5.1	1.4	26.4	0.1	**1.4**	-5.5	5.2	0.1
				700	2	100	27.6	6.6	5.6	1.2	26.1	0.1	**1.3**	-5.4	4.6	
				750	1	100	30.2	10.1	9.1	1.4	25.2	0.1	**1.5**	-5.6	5.1	0.2
				750	2	100	31.8	12.4	11.4	1.1	24.6	0.1	**1.2**	-5.4	3.8	
				800	1	100	40.3	24.3	23.6	0.6	21.3	0.1	**0.7**	-5.2	1.8	0.0
				800	2	100	41.0	25.1	24.5	0.6	21.1	0.1	**0.6**	-5.2	1.6	
				850	1	100	59.6	49.3	50.4	0.1	13.6	0.0	**0.2**	-4.6	0.3	0.0
				850	2	100	64.1	55.4	56.3	0.1	11.7	0.0	**0.1**	-4.1	0.2	
B3	Ni	Pd	Hf	400	1	-1.1	-3.0	0.1	0.0	0.0	0.4	0.0	**0.0**	-3.4	0.0	0.0
				400	2	-0.5	-2.0	0.1	0.0	0.0	0.4	0.0	**0.0**	-2.4	0.0	

				450	1	4.3	-0.3	0.3	0.0	0.0	1.8	0.0	**0.0**	-2.1	0.0	0.0
				450	2	4.0	-0.5	0.3	0.0	0.0	1.7	0.0	**0.0**	-2.2	0.0	
				500	1	100	32.8	20.0	8.5	0.0	32.9	0.0	**0.0**	-8.6	0.1	0.0
				500	2	100	30.7	16.2	6.6	0.1	32.7	0.0	**0.1**	-8.7	0.2	
				550	1	100	30.3	14.5	7.2	0.2	31.9	0.0	**0.2**	-8.9	0.7	0.1
				550	2	100	27.7	9.8	4.8	0.3	31.0	0.0	**0.3**	-8.5	1.1	
				600	1	100	25.7	4.9	3.3	0.8	29.6	0.1	**0.8**	-8.1	3.3	0.0
				600	2	100	25.3	4.1	3.1	0.8	29.4	0.1	**0.9**	-8.1	3.5	
				650	1	100	27.7	7.4	5.6	0.9	28.7	0.1	**1.0**	-7.7	3.7	0.0
				650	2	100	27.3	7.2	5.6	0.9	28.5	0.1	**1.0**	-7.7	3.6	
				700	1	100	31.5	13.3	10.6	0.9	27.9	0.1	**1.0**	-8.0	3.2	0.0
				700	2	100	31.0	12.4	10.0	0.9	27.8	0.1	**1.0**	-7.8	3.2	
				750	1	100	36.8	20.6	17.9	0.8	26.2	0.1	**0.9**	-8.2	2.4	0.0
				750	2	100	35.8	19.0	16.5	0.9	26.3	0.1	**1.0**	-7.9	2.7	
				800	1	100	46.5	34.3	31.9	0.3	22.0	0.1	**0.4**	-7.8	0.8	0.0
				800	2	100	46.2	33.7	31.4	0.3	22.0	0.0	**0.4**	-7.6	0.8	
				850	1	100	55.1	45.0	44.7	0.2	17.6	0.1	**0.3**	-7.5	0.5	0.0
				850	2	100	53.7	43.4	43.2	0.2	17.6	0.1	**0.3**	-7.4	0.6	
B4	Ni	Zr	Pd	400	1	-0.7	-1.2	0.1	0.0	0.0	0.4	0.0	**0.0**	-1.5	0.0	0.0
				400	2	0.9	-0.3	0.1	0.0	0.0	0.4	0.0	**0.0**	-0.6	0.0	
				450	1	6.1	0.6	0.3	0.0	0.0	2.0	0.0	**0.0**	-1.4	0.0	0.0
				450	2	6.1	0.9	0.3	0.0	0.0	2.0	0.0	**0.0**	-1.1	0.0	
				500	1	100	36.4	21.1	9.6	0.0	30.9	0.0	**0.0**	-4.1	0.0	0.0

				500	2	100	35.8	16.8	7.2	0.0	30.8	0.0	**0.0**	-2.3	0.0	
				550	1	100	30.0	13.1	6.5	0.0	29.5	0.0	**0.0**	-6.0	0.1	0.0
				550	2	100	27.4	8.7	4.3	0.1	28.9	0.0	**0.1**	-5.9	0.3	
				600	1	100	25.4	3.0	2.0	0.5	27.1	0.0	**0.5**	-4.2	2.0	0.0
				600	2	100	24.0	2.0	1.6	0.5	27.3	0.0	**0.5**	-5.4	2.2	
				650	1	100	25.5	3.0	2.5	0.9	26.4	0.1	**1.0**	-4.4	3.8	0.0
				650	2	100	24.8	2.8	2.4	0.8	26.6	0.1	**0.9**	-5.1	3.7	
				700	1	100	27.6	6.6	5.5	1.1	26.6	0.1	**1.2**	-5.7	4.4	0.0
				700	2	100	26.8	6.1	5.1	1.1	26.6	0.1	**1.2**	-6.1	4.4	
				750	1	100	34.0	16.1	14.2	0.8	24.8	0.1	**0.9**	-5.9	2.6	0.0
				750	2	100	34.4	16.8	15.0	0.8	24.4	0.1	**0.8**	-5.8	2.4	
				800	1	100	46.5	33.2	31.7	0.3	20.0	0.0	**0.3**	-5.5	0.7	0.0
				800	2	100	46.6	33.4	32.0	0.3	20.0	0.0	**0.3**	-5.7	0.7	
				850	1	100	55.5	44.0	45.4	0.2	15.5	0.1	**0.3**	-5.6	0.5	0.0
				850	2	100	54.5	42.9	44.2	0.2	15.2	0.1	**0.3**	-5.1	0.5	
B5	Zn	Y	Pd	400	1	-1.3	-1.9	0.2	0.0	0.0	0.5	0.0	**0.0**	-2.4	0.0	0.0
				400	2	-0.8	-2.0	0.2	0.0	0.0	0.5	0.0	**0.0**	-2.4	0.0	
				450	1	100	23.2	3.0	1.3	1.7	26.5	0.2	**1.9**	-6.5	8.0	0.5
				450	2	100	23.5	4.3	2.5	0.8	27.6	0.1	**0.9**	-7.4	3.7	
				500	1	100	24.4	5.1	3.4	0.5	27.1	0.1	**0.6**	-6.8	2.4	0.1
				500	2	100	24.3	5.1	3.7	0.4	27.0	0.0	**0.4**	-6.9	1.8	
				550	1	100	24.6	5.3	3.8	0.4	26.9	0.0	**0.5**	-6.6	1.9	0.0
				550	2	100	24.7	5.2	3.9	0.3	27.0	0.0	**0.4**	-6.6	1.5	

				600	1	100	24.9	5.2	3.7	0.5	27.1	0.1	**0.5**	-6.4	2.1	0.0
				600	2	100	23.6	5.1	3.8	0.4	27.4	0.1	**0.5**	-8.1	2.0	
				650	1	100	24.4	5.2	3.9	0.8	27.2	0.1	**0.9**	-7.5	3.7	0.0
				650	2	100	24.5	5.0	3.8	0.7	27.2	0.1	**0.8**	-7.3	3.4	
				700	1	100	26.2	5.6	4.7	1.1	26.4	0.1	**1.2**	-6.1	4.6	0.0
				700	2	100	26.1	5.8	4.9	1.0	26.5	0.1	**1.1**	-6.3	4.3	
				750	1	100	29.0	9.7	8.8	0.9	24.9	0.1	**1.1**	-5.8	3.7	0.1
				750	2	100	29.4	10.5	9.7	0.8	25.0	0.1	**0.9**	-6.2	3.0	
				800	1	100	31.7	14.8	14.6	0.4	23.7	0.1	**0.5**	-7.1	1.6	0.1
				800	2	100	32.9	15.8	15.6	0.3	23.3	0.1	**0.4**	-6.4	1.2	
				850	1	100	40.8	25.6	26.9	0.1	19.7	0.0	**0.2**	-6.0	0.4	0.0
				850	2	100	46.6	33.6	34.7	0.1	17.5	0.0	**0.1**	-5.8	0.2	
B6	Y	Pd	Hf	400	1	-1.7	-2.8	0.2	0.0	0.0	0.5	0.0	**0.0**	-3.3	0.0	0.0
				400	2	-0.8	-1.3	0.2	0.0	0.0	0.5	0.0	**0.0**	-1.8	0.0	
				450	1	100	29.3	15.9	5.9	0.0	30.1	0.0	**0.0**	-6.8	0.1	0.0
				450	2	100	29.4	13.0	4.9	0.0	31.8	0.0	**0.0**	-7.3	0.0	
				500	1	100	32.1	16.9	7.9	0.0	31.5	0.0	**0.0**	-7.3	0.0	0.0
				500	2	100	31.2	15.2	7.3	0.0	31.3	0.0	**0.0**	-7.4	0.0	
				550	1	100	32.5	16.9	9.9	0.0	30.6	0.0	**0.0**	-8.0	0.0	0.0
				550	2	100	30.0	12.7	7.9	0.0	29.7	0.0	**0.0**	-7.6	0.1	
				600	1	100	26.3	6.0	5.4	0.1	27.8	0.0	**0.1**	-7.0	0.4	0.0
				600	2	100	26.4	6.1	5.7	0.1	28.3	0.0	**0.1**	-7.7	0.3	
				650	1	100	28.5	9.5	7.5	0.2	28.2	0.0	**0.2**	-7.5	0.8	0.0

				650	2	100	28.7	10.2	8.0	0.2	28.5	0.0	**0.2**	-8.0	0.7	
				700	1	100	34.1	18.3	14.4	0.2	27.8	0.0	**0.2**	-8.3	0.7	0.0
				700	2	100	33.6	17.6	14.1	0.2	27.6	0.0	**0.2**	-8.3	0.7	
				750	1	100	38.4	24.5	20.7	0.3	26.1	0.0	**0.3**	-8.7	0.8	0.0
				750	2	100	39.3	25.8	22.0	0.2	25.8	0.0	**0.2**	-8.8	0.6	
				800	1	100	54.7	47.5	44.2	0.0	19.1	0.0	**0.0**	-8.6	0.1	0.0
				800	2	100	55.9	49.0	46.0	0.0	18.4	0.0	**0.0**	-8.6	0.0	
				850	1	100	55.9	47.2	47.2	0.1	17.1	0.0	**0.1**	-8.6	0.1	0.0
				850	2	100	55.2	46.8	46.9	0.1	17.2	0.0	**0.1**	-8.9	0.1	
B7	Y	Zr	Pd	400	1	-1.6	-3.7	0.1	0.0	0.0	0.5	0.0	**0.0**	-4.3	0.0	0.0
				400	2	-0.6	-2.4	0.1	0.0	0.0	0.5	0.0	**0.0**	-2.9	0.0	
				450	1	100	26.7	15.4	4.9	0.0	30.9	0.0	**0.0**	-9.0	0.0	0.0
				450	2	100	27.5	12.4	3.9	0.0	32.6	0.0	**0.0**	-9.0	0.0	
				500	1	100	31.1	17.3	7.2	0.0	33.0	0.0	**0.0**	-9.1	0.0	0.0
				500	2	100	30.5	16.1	6.8	0.0	32.9	0.0	**0.0**	-9.2	0.0	
				550	1	100	33.9	20.2	10.8	0.0	31.5	0.0	**0.0**	-8.5	0.0	0.0
				550	2	100	31.6	16.4	8.9	0.0	30.6	0.0	**0.0**	-8.0	0.0	
				600	1	100	25.8	6.1	4.4	0.0	28.8	0.0	**0.0**	-7.3	0.0	0.0
				600	2	100	25.1	4.5	3.9	0.0	28.3	0.0	**0.0**	-7.2	0.1	
				650	1	100	27.0	6.8	5.4	0.1	28.0	0.0	**0.1**	-6.5	0.3	0.0
				650	2	100	27.4	7.5	6.0	0.1	28.5	0.0	**0.1**	-7.1	0.2	
				700	1	100	33.6	16.3	13.1	0.1	27.0	0.0	**0.1**	-6.5	0.2	0.0
				700	2	100	33.6	16.5	13.4	0.1	27.3	0.0	**0.1**	-7.1	0.2	

				750	1	100	41.8	27.4	23.7	0.1	24.3	0.0	**0.1**	-6.3	0.2	0.0
				750	2	100	41.0	26.3	22.9	0.1	24.5	0.0	**0.1**	-6.6	0.4	
				800	1	100	54.1	44.1	41.0	0.1	18.9	0.0	**0.1**	-6.0	0.1	0.0
				800	2	100	54.1	44.2	41.3	0.1	19.1	0.0	**0.1**	-6.4	0.1	
				850	1	100	53.7	42.1	42.5	0.1	17.6	0.0	**0.2**	-6.6	0.3	0.0
				850	2	100	51.6	39.4	39.5	0.2	17.9	0.0	**0.2**	-6.0	0.4	
B8	Zn	Pd	Hf	400	1	-0.1	-0.6	0.2	0.0	0.0	0.4	0.0	**0.0**	-1.0	0.0	0.0
				400	2	-0.1	-0.6	0.2	0.0	0.0	0.4	0.0	**0.0**	-1.0	0.0	
				450	1	10.5	2.8	0.4	0.0	0.0	3.2	0.0	**0.0**	-0.3	0.0	0.0
				450	2	10.5	2.8	0.4	0.0	0.0	3.2	0.0	**0.0**	-0.3	0.0	
				500	1	90.6	21.9	0.0	0.0	0.8	24.1	0.1	**0.9**	-3.1	4.1	0.0
				500	2	90.6	21.9	0.0	0.0	0.8	24.1	0.1	**0.9**	-3.1	4.1	
				550	1	100	24.1	0.9	0.3	0.0	28.6	0.0	**0.0**	-4.8	0.0	0.0
				550	2	100	24.1	0.9	0.3	0.0	28.6	0.0	**0.0**	-4.8	0.0	
				600	1	100	24.1	0.7	0.3	0.0	28.5	0.0	**0.0**	-4.7	0.1	0.0
				600	2	100	24.1	0.7	0.3	0.0	28.5	0.0	**0.0**	-4.7	0.1	
				650	1	100	24.2	0.8	0.4	0.2	28.9	0.0	**0.2**	-5.4	1.0	0.0
				650	2	100	24.2	0.8	0.4	0.2	28.9	0.0	**0.2**	-5.4	1.0	
				700	1	100	25.3	1.9	1.3	0.5	28.3	0.1	**0.5**	-4.9	2.1	0.0
				700	2	100	25.3	1.9	1.3	0.5	28.3	0.1	**0.5**	-4.9	2.1	
				750	1	100	28.6	6.7	5.6	0.4	28.1	0.1	**0.5**	-5.6	1.7	0.0
				750	2	100	28.6	6.7	5.6	0.4	28.1	0.1	**0.5**	-5.6	1.7	
				800	1	100	33.3	14.0	13.3	0.3	25.8	0.1	**0.3**	-6.1	1.0	0.0

				800	2	100	33.3	14.0	13.3	0.3	25.8	0.1	**0.3**	-6.1	1.0	
				850	1	100	48.8	35.5	35.7	0.1	19.1	0.0	**0.1**	-6.1	0.1	0.0
				850	2	100	48.8	35.5	35.7	0.1	19.1	0.0	**0.1**	-6.1	0.1	
B9	Zn	Zr	Pd	400	1	-0.9	-3.1	0.2	0.0	0.0	0.6	0.0	**0.0**	-3.7	0.0	0.0
				400	2	0.6	-1.1	0.2	0.0	0.0	0.7	0.0	**0.0**	-1.7	0.0	
				450	1	11.3	1.9	0.5	0.0	0.0	3.4	0.0	**0.0**	-1.5	0.0	0.0
				450	2	9.0	1.6	0.4	0.0	0.0	3.1	0.0	**0.0**	-1.5	0.0	
				500	1	99.5	22.3	0.8	0.2	0.3	23.7	0.0	**0.3**	-2.0	1.5	0.1
				500	2	100	22.7	0.6	0.2	0.2	28.2	0.0	**0.2**	-5.9	0.8	
				550	1	100	23.2	1.4	0.5	0.0	28.9	0.0	**0.0**	-6.1	0.0	0.0
				550	2	100	22.9	1.0	0.4	0.0	29.7	0.0	**0.0**	-7.1	0.0	
				600	1	100	23.0	1.0	0.4	0.0	29.1	0.0	**0.0**	-6.6	0.1	0.0
				600	2	100	22.8	0.6	0.3	0.0	29.3	0.0	**0.0**	-6.8	0.1	
				650	1	100	23.0	0.7	0.5	0.2	29.0	0.0	**0.2**	-6.6	0.9	0.0
				650	2	100	22.9	0.5	0.4	0.2	29.4	0.0	**0.2**	-7.2	1.1	
				700	1	100	23.8	1.1	0.9	0.6	29.1	0.1	**0.7**	-6.9	3.1	0.0
				700	2	100	23.8	1.1	0.9	0.6	29.4	0.1	**0.7**	-7.2	3.0	
				750	1	100	26.0	4.3	3.5	0.7	29.1	0.1	**0.8**	-7.4	3.1	0.0
				750	2	100	25.6	4.4	3.6	0.6	28.9	0.1	**0.8**	-7.7	3.0	
				800	1	100	33.6	16.4	15.3	0.2	26.2	0.1	**0.2**	-8.1	0.7	0.0
				800	2	100	34.3	17.5	16.4	0.2	25.7	0.1	**0.3**	-8.1	0.9	
				850	1	100	41.0	25.8	26.6	0.1	22.7	0.0	**0.2**	-8.5	0.5	0.1
				850	2	100	48.0	36.3	36.3	0.1	19.4	0.0	**0.1**	-7.7	0.2	

B10	Zr	Pd	Hf	400	1	-0.2	-1.0	0.1	0.0	0.0	0.3	0.0	**0.0**	-1.3	0.0	0.0
				400	2	0.5	-0.7	0.1	0.0	0.0	0.4	0.0	**0.0**	-1.1	0.0	
				450	1	4.7	-0.4	0.3	0.0	0.0	1.8	0.0	**0.0**	-2.2	0.0	0.0
				450	2	4.8	0.1	0.3	0.0	0.0	1.6	0.0	**0.0**	-1.6	0.0	
				500	1	100	31.6	17.5	8.3	0.0	29.9	0.0	**0.0**	-6.5	0.0	0.0
				500	2	100	30.3	14.4	7.5	0.0	29.0	0.0	**0.0**	-6.2	0.0	
				550	1	100	28.5	9.8	7.5	0.0	26.2	0.0	**0.0**	-5.2	0.0	0.0
				550	2	100	25.1	4.4	5.9	0.0	24.5	0.0	**0.0**	-5.3	0.0	
				600	1	100	24.1	5.9	7.0	0.0	24.9	0.0	**0.0**	-7.8	0.2	0.0
				600	2	100	26.1	6.3	7.4	0.0	24.7	0.0	**0.0**	-6.1	0.1	
				650	1	100	29.1	10.1	9.8	0.2	24.5	0.0	**0.2**	-5.4	0.7	0.0
				650	2	100	29.5	10.7	10.3	0.2	24.9	0.0	**0.2**	-5.8	0.5	
				700	1	100	37.5	22.1	20.3	0.2	22.9	0.0	**0.3**	-5.9	0.7	0.0
				700	2	100	37.8	22.3	20.7	0.2	22.9	0.0	**0.3**	-6.1	0.7	
				750	1	100	47.9	35.7	32.9	0.2	20.3	0.0	**0.2**	-5.6	0.5	0.0
				750	2	100	47.8	35.6	32.9	0.2	20.4	0.0	**0.2**	-5.7	0.5	
				800	1	100	53.6	42.8	41.4	0.1	17.3	0.0	**0.1**	-5.2	0.2	0.0
				800	2	100	51.8	40.8	39.5	0.1	18.2	0.0	**0.1**	-6.1	0.2	
				850	1	100	52.3	40.6	42.1	0.1	16.4	0.0	**0.2**	-6.4	0.3	0.0
				850	2	100	51.9	40.2	41.3	0.1	16.2	0.0	**0.2**	-5.7	0.3	
B11	Ni	Zn	Y	400	1	0.4	0.3	0.1	3.4	0.0	0.3	0.0	**0.0**	-3.4	0.0	0.0
				400	2	0.9	0.3	0.1	0.0	0.0	0.3	0.0	**0.0**	0.0	0.0	
				450	1	5.7	1.3	0.4	0.0	0.0	1.6	0.0	**0.0**	-0.3	0.0	0.0

				450	2	5.5	1.0	0.4	0.0	0.0	1.7	0.0	**0.0**	-0.7	0.0										
				500	1	100	32.1	2.8	2.0	6.2	24.4	3.2	**9.4**	-3.7	29.2	0.1									
				500	2	100	31.8	2.6	2.0	6.3	24.9	3.2	**9.5**	-4.6	29.9										
				550	1	100	31.2	2.5	2.1	6.0	24.7	2.8	**8.9**	-4.4	28.4	0.0									
				550	2	100	31.3	2.6	2.2	6.1	25.0	2.8	**8.9**	-4.8	28.4										
				600	1	100	31.0	2.4	2.1	5.9	24.5	2.8	**8.7**	-4.3	28.0	0.0									
				600	2	100	31.1	2.6	2.2	6.0	24.8	2.7	**8.7**	-4.6	28.0										
				650	1	100	31.5	2.7	2.2	5.9	24.4	3.0	**9.0**	-4.0	28.4	0.0									
				650	2	100	31.7	2.9	2.4	6.0	24.7	3.0	**9.0**	-4.4	28.4										
				700	1	100	32.9	3.4	2.7	6.3	24.0	3.7	**10.0**	-3.8	30.4	0.0									
				700	2	100	33.0	3.6	2.9	6.4	24.4	3.6	**10.0**	-4.3	30.2										
				750	1	100	34.3	4.6	3.8	6.3	24.0	4.4	**10.7**	-4.2	31.2	0.1									
				750	2	100	34.2	5.0	4.2	6.3	24.0	4.1	**10.5**	-4.4	30.5										
				800	1	100	34.5	7.2	6.5	5.1	24.2	3.8	**9.0**	-5.1	26.0	0.2									
				800	2	100	34.7	7.4	6.7	5.1	23.9	3.4	**8.6**	-4.5	24.7										
				850	1	100	35.5	12.4	12.8	2.0	22.1	2.6	**4.7**	-4.1	13.1	0.4									
				850	2	100	35.7	13.7	14.4	1.8	21.8	2.0	**3.8**	-4.2	10.7										
B12	Ni	Y	Hf	400	1	-1.2	-2.1	0.0	0.0	0.0	0.3	0.0	**0.0**	-2.4	0.0	0.0									
				400	2	-0.3	-0.7	0.0	0.0	0.0	0.3	0.0	**0.0**	-1.0	0.0										
				450	1	4.0	1.1	0.3	0.0	0.0	1.4	0.0	**0.0**	-0.3	0.0	0.0									
				450	2	3.8	1.3	0.3	0.0	0.0	1.4	0.0	**0.0**	-0.1	0.0										
				500	1	99.9	31.5	1.2	0.9	5.6	26.2	4.1	**9.6**	-5.3	30.7	0.0									
				500	2	99.9	31.5	1.2	1.0	5.7	26.7	3.9	**9.6**	-5.8	30.5										

				550	1	100	31.5	1.1	1.0	5.6	26.7	3.6	**9.2**	-5.4	29.1	0.0
				550	2	100	31.5	1.2	1.0	5.6	26.6	3.6	**9.2**	-5.3	29.3	
				600	1	100	30.6	1.0	1.0	5.2	26.7	2.7	**8.0**	-5.0	26.0	0.2
				600	2	100	30.9	1.1	1.0	5.4	26.7	2.9	**8.3**	-5.1	26.9	
				650	1	100	29.7	0.9	0.8	4.8	27.0	2.2	**7.0**	-5.1	23.5	0.3
				650	2	100	30.2	0.9	0.8	5.1	27.2	2.5	**7.6**	-5.5	25.1	
				700	1	100	29.9	0.6	0.6	5.0	26.9	2.4	**7.5**	-5.0	24.9	0.2
				700	2	100	30.1	0.6	0.6	5.2	27.3	2.6	**7.8**	-5.6	25.9	
				750	1	100	32.7	1.3	1.2	5.7	26.0	5.0	**10.7**	-5.2	32.6	0.1
				750	2	100	32.7	1.7	1.5	5.8	26.4	4.7	**10.4**	-5.6	31.9	
				800	1	100	35.4	5.7	4.4	4.7	26.0	6.2	**10.9**	-5.8	30.7	0.8
				800	2	100	35.4	7.6	6.2	4.6	25.8	4.7	**9.3**	-5.8	26.1	
				850	1	100	37.5	14.6	14.6	2.4	24.3	1.8	**4.2**	-5.6	11.2	0.2
				850	2	100	38.0	15.9	15.9	2.3	23.6	1.4	**3.7**	-5.2	9.8	
B13	Ni	Y	Zr	400	1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	**0.0**	-0.2	0.0	0.0
				400	2	0.8	0.4	0.0	0.0	0.0	0.3	0.0	**0.0**	0.2	0.0	
				450	1	4.4	1.4	0.2	0.0	0.0	1.2	0.0	**0.0**	0.1	0.0	0.0
				450	2	4.6	1.2	0.2	0.0	0.0	1.3	0.0	**0.0**	-0.1	0.0	
				500	1	100	33.0	4.8	3.6	6.3	24.6	2.4	**8.8**	-4.0	26.6	0.9
				500	2	100	33.3	3.2	2.7	6.4	24.6	4.1	**10.6**	-4.5	31.8	
				550	1	100	33.4	2.8	2.4	6.4	24.3	4.5	**10.9**	-4.2	32.6	0.2
				550	2	100	33.1	3.1	2.5	6.4	24.9	4.1	**10.5**	-4.8	31.7	
				600	1	100	33.0	3.0	2.4	6.3	24.7	4.1	**10.5**	-4.6	31.8	0.1

				600	2	100	32.9	3.2	2.6	6.4	25.0	3.8	**10.2**	-4.9	31.0	
				650	1	100	32.9	3.2	2.5	6.4	24.8	3.9	**10.3**	-4.7	31.3	0.2
				650	2	100	32.9	3.6	2.8	6.4	24.9	3.5	**9.9**	-4.8	30.0	
				700	1	100	32.9	4.1	3.2	6.5	25.2	3.9	**10.4**	-5.9	31.6	0.3
				700	2	100	33.6	4.5	3.6	6.5	25.0	3.4	**9.8**	-4.8	29.2	
				750	1	100	34.2	5.1	4.2	6.2	24.8	3.6	**9.7**	-4.6	28.5	0.2
				750	2	100	33.8	5.5	4.7	6.2	24.9	3.1	**9.2**	-5.0	27.3	
				800	1	100	33.9	6.7	6.0	4.9	24.9	2.7	**7.6**	-4.5	22.4	0.1
				800	2	100	33.8	6.9	6.2	5.0	24.9	2.5	**7.5**	-4.8	22.2	
				850	1	100	35.9	13.9	14.8	1.6	22.2	1.9	**3.5**	-4.6	9.8	0.5
				850	2	100	36.7	16.0	17.2	1.4	21.7	1.2	**2.6**	-4.7	7.0	
B14	Ni	Zn	Hf	400	1	0.0	0.3	0.1	0.0	0.0	0.3	0.0	**0.0**	0.0	0.0	0.0
				400	2	0.4	-0.6	0.1	0.0	0.0	0.3	0.0	**0.0**	-0.9	0.0	
				450	1	5.2	0.9	0.4	0.0	0.0	1.5	0.0	**0.0**	-0.6	0.0	0.0
				450	2	5.5	1.1	0.4	0.0	0.0	1.5	0.0	**0.0**	-0.4	0.0	
				500	1	100	32.6	2.0	1.7	6.5	24.0	4.8	**11.2**	-4.3	34.5	0.4
				500	2	100	32.3	2.5	2.1	6.4	24.6	4.0	**10.4**	-4.8	32.2	
				550	1	100	32.6	2.8	2.4	6.3	24.0	3.8	**10.1**	-4.0	31.0	0.3
				550	2	100	32.3	3.2	2.8	6.3	24.4	3.2	**9.5**	-4.4	29.3	
				600	1	100	32.6	2.9	2.6	6.3	23.8	3.7	**10.0**	-3.7	30.5	0.1
				600	2	100	32.4	3.1	2.7	6.3	24.3	3.4	**9.7**	-4.3	29.9	
				650	1	100	33.2	3.0	2.6	6.3	23.8	4.0	**10.3**	-3.5	30.9	0.1
				650	2	100	33.0	3.1	2.7	6.4	24.0	3.7	**10.2**	-3.8	30.7	

				700	1	100	33.9	3.3	3.0	6.5	23.5	4.0	**10.4**	-3.1	30.8	0.1
				700	2	100	33.6	3.4	3.3	6.6	23.5	3.6	**10.2**	-3.3	30.3	
				750	1	100	34.0	4.4	4.2	6.2	23.5	3.5	**9.7**	-3.4	28.6	0.1
				750	2	100	33.8	4.7	4.4	6.3	23.6	3.2	**9.5**	-3.7	28.1	
				800	1	100	33.9	5.5	5.2	5.1	23.8	3.6	**8.6**	-3.6	25.4	0.1
				800	2	100	33.6	5.6	5.4	5.1	24.0	3.4	**8.5**	-4.3	25.2	
				850	1	100	34.2	12.5	13.6	1.4	20.7	2.3	**3.8**	-3.9	11.0	0.6
				850	2	100	36.0	15.1	16.7	1.2	20.7	1.4	**2.6**	-3.9	7.1	
B15	Ni	Zn	Zr	400	1	-2.2	-3.6	0.1	0.0	0.0	0.3	0.0	**0.0**	-3.9	0.0	0.0
				400	2	-1.0	-1.7	0.1	0.0	0.0	0.3	0.0	**0.0**	-2.0	0.0	
				450	1	3.4	-0.2	0.3	0.0	0.0	1.4	0.0	**0.0**	-1.6	0.0	0.0
				450	2	3.4	-0.1	0.3	0.0	0.0	1.5	0.0	**0.0**	-1.6	0.0	
				500	1	99.4	29.5	2.3	0.4	5.1	27.1	3.7	**8.8**	-6.8	29.7	0.4
				500	2	99.2	29.6	2.4	0.4	4.8	28.1	3.1	**7.9**	-6.9	26.8	
				550	1	99.9	30.5	2.3	0.6	4.9	28.0	3.6	**8.5**	-6.7	28.0	0.0
				550	2	99.9	30.3	2.4	0.6	5.0	28.4	3.5	**8.5**	-7.2	28.0	
				600	1	100	31.2	2.2	0.8	5.3	27.8	4.1	**9.4**	-6.8	30.2	0.1
				600	2	100	31.2	2.2	0.8	5.4	27.9	4.2	**9.6**	-7.2	30.9	
				650	1	100	32.5	2.2	1.1	6.0	27.5	4.9	**10.9**	-6.9	33.4	0.2
				650	2	100	32.9	2.2	1.1	6.2	27.0	5.1	**11.3**	-6.6	34.4	
				700	1	100	34.9	2.2	1.7	7.0	26.4	6.5	**13.5**	-6.7	38.8	0.1
				700	2	100	34.8	2.3	2.6	7.2	25.9	6.4	**13.7**	-7.3	39.2	
				750	1	100	34.9	3.3	3.3	7.0	25.5	5.8	**12.8**	-6.7	36.6	0.2

				750	2	100	34.3	3.5	3.6	7.1	26.2	5.3	**12.4**	-7.9	36.2	
				800	1	100	33.9	6.8	7.2	4.3	25.5	4.4	**8.7**	-7.4	25.5	0.1
				800	2	100	33.7	6.9	7.2	4.4	25.8	4.0	**8.5**	-7.7	25.1	
				850	1	100	39.1	18.8	20.4	1.2	22.2	2.5	**3.7**	-7.2	9.5	0.4
				850	2	100	39.5	20.0	22.1	1.2	21.8	1.9	**3.0**	-7.4	7.6	
B16	Ni	Zr	Hf	400	1	-1.6	-3.0	0.0	0.0	0.0	0.2	0.0	**0.0**	-3.3	0.0	0.0
				400	2	-1.3	-1.8	0.0	0.0	0.0	0.2	0.0	**0.0**	-2.1	0.0	
				450	1	2.2	-0.9	0.2	0.0	0.0	1.1	0.0	**0.0**	-2.0	0.0	0.0
				450	2	2.0	-1.3	0.2	0.0	0.0	1.1	0.0	**0.0**	-2.4	0.0	
				500	1	100	31.2	6.9	5.2	6.5	25.6	1.2	**7.7**	-7.2	24.5	0.4
				500	2	100	31.5	5.3	4.3	6.3	25.2	2.2	**8.5**	-6.4	27.0	
				550	1	100	31.6	4.0	3.3	6.3	24.7	3.6	**9.9**	-6.3	31.3	0.4
				550	2	100	31.4	4.5	3.7	6.2	25.4	2.9	**9.1**	-6.7	28.9	
				600	1	100	31.4	4.1	3.3	6.2	24.9	3.3	**9.5**	-6.3	30.2	0.3
				600	2	100	31.1	4.6	3.7	6.2	25.5	2.7	**8.9**	-6.9	28.5	
				650	1	100	31.5	4.3	3.4	6.0	25.1	3.0	**9.0**	-6.0	28.6	0.3
				650	2	100	31.3	4.7	3.7	5.9	25.6	2.4	**8.3**	-6.4	26.6	
				700	1	100	31.3	5.0	4.0	5.8	25.2	2.3	**8.1**	-6.1	26.0	0.0
				700	2	100	31.4	5.3	4.3	6.0	25.4	2.2	**8.2**	-6.5	26.1	
				750	1	100	32.8	7.0	5.7	5.7	25.0	2.6	**8.3**	-6.2	25.4	0.1
				750	2	100	31.9	7.5	6.2	5.9	25.6	2.2	**8.2**	-8.1	25.6	
				800	1	100	33.8	10.3	9.1	4.5	24.9	2.4	**6.9**	-7.1	20.5	0.2
				800	2	100	34.0	10.7	9.6	4.5	24.6	2.1	**6.5**	-6.7	19.3	

				850	1	100	35.6	14.4	14.7	2.3	22.9	2.3	**4.6**	-6.6	13.1	0.2
				850	2	100	35.5	15.3	15.7	2.2	22.7	2.0	**4.2**	-7.1	11.9	
B17	Zn	Y	Hf	400	1	-2.6	-2.7	0.2	0.1	0.0	0.3	0.0	**0.0**	-3.1	0.0	0.0
				400	2	-0.6	-1.3	0.2	0.1	0.0	0.3	0.0	**0.0**	-1.6	0.0	
				450	1	4.6	-0.1	1.1	0.5	0.0	1.9	0.0	**0.0**	-2.5	0.0	0.0
				450	2	4.5	-0.1	1.0	0.5	0.0	1.9	0.0	**0.0**	-2.5	0.0	
				500	1	97.8	33.7	6.1	5.1	5.5	23.2	5.6	**11.0**	-5.6	32.7	0.1
				500	2	97.1	34.0	6.0	5.2	5.5	23.2	5.8	**11.3**	-5.7	33.1	
				550	1	97.1	33.4	6.5	5.4	5.4	23.9	5.5	**11.0**	-6.9	32.8	0.0
				550	2	96.9	33.3	6.4	5.4	5.4	23.9	5.6	**11.0**	-7.1	33.1	
				600	1	96.6	33.3	7.2	5.8	5.1	24.0	4.8	**10.0**	-6.4	30.0	0.4
				600	2	96.4	32.8	6.9	5.7	5.4	24.2	5.3	**10.7**	-7.8	32.6	
				650	1	95.9	33.5	7.1	5.8	5.3	23.4	5.1	**10.3**	-6.1	30.8	0.3
				650	2	95.8	34.0	6.7	5.7	5.5	23.1	5.4	**10.9**	-5.7	32.1	
				700	1	97.0	35.4	5.6	5.3	5.8	22.8	7.1	**12.9**	-5.5	36.3	0.2
				700	2	96.9	35.1	5.5	5.3	6.0	22.7	7.3	**13.3**	-6.1	37.8	
				750	1	97.9	35.4	5.6	5.3	5.6	22.7	8.0	**13.7**	-6.3	38.7	0.1
				750	2	97.8	35.7	5.4	5.1	5.7	22.6	8.1	**13.9**	-5.9	38.8	
				800	1	99.2	35.3	5.8	5.8	4.6	23.0	8.1	**12.7**	-6.1	35.9	0.2
				800	2	99.3	35.4	5.6	6.7	4.8	23.2	8.3	**13.1**	-7.6	37.1	
				850	1	100	34.3	8.7	9.4	2.1	23.1	6.6	**8.7**	-6.9	25.4	0.1
				850	2	100	34.3	8.8	9.3	2.2	22.9	6.8	**8.9**	-6.9	26.0	
B18	Zn	Y	Zr	400	1	0.2	0.1	0.4	0.1	0.0	0.2	0.0	**0.0**	-0.3	0.0	0.0

				400	2	0.5	0.1	0.4	0.1	0.0	0.5	0.0	**0.0**	-0.5	0.0	
				450	1	77.3	26.2	9.8	5.6	2.3	19.8	1.4	**3.8**	-3.0	14.4	0.8
				450	2	77.8	26.7	8.1	5.5	2.9	18.7	2.4	**5.3**	-2.8	19.9	
				500	1	88.7	30.9	7.7	6.0	3.9	20.3	3.6	**7.4**	-2.8	24.1	0.1
				500	2	87.5	30.5	7.3	5.9	3.9	19.8	3.7	**7.7**	-2.9	25.2	
				550	1	91.8	32.9	6.5	5.9	4.8	19.6	4.8	**9.6**	-2.2	29.1	0.2
				550	2	91.6	32.8	6.2	5.9	4.9	19.5	5.0	**9.9**	-2.5	30.1	
				600	1	93.9	34.3	5.4	5.7	5.4	19.5	5.9	**11.3**	-2.1	32.9	0.2
				600	2	94.1	34.4	5.3	5.6	5.5	19.6	6.2	**11.7**	-2.5	34.0	
				650	1	93.6	34.3	5.0	5.5	5.1	19.1	6.4	**11.5**	-1.8	33.6	0.3
				650	2	93.9	34.5	4.8	5.4	5.4	19.1	6.7	**12.1**	-2.1	35.1	
				700	1	96.8	36.0	4.2	5.0	5.6	19.3	7.9	**13.5**	-1.7	37.4	0.1
				700	2	96.8	36.0	4.1	4.9	5.7	19.4	7.9	**13.6**	-2.0	37.9	
				750	1	98.4	36.6	4.3	4.8	5.2	19.8	8.6	**13.9**	-1.9	37.8	0.1
				750	2	98.5	36.8	4.2	4.7	5.3	19.9	8.7	**14.0**	-1.7	38.0	
				800	1	99.8	37.1	5.0	5.2	4.5	20.0	8.7	**13.2**	-1.3	35.5	0.1
				800	2	99.8	37.1	4.9	5.2	4.6	20.3	8.8	**13.4**	-1.8	36.2	
				850	1	100	36.4	9.9	10.4	1.8	19.6	6.4	**8.2**	-1.7	22.4	0.0
				850	2	100	36.4	10.3	10.7	1.8	19.8	6.4	**8.2**	-2.2	22.5	
B19	Y	Zr	Hf	400	1	0.6	1.6	0.2	0.1	0.0	0.3	0.0	**0.0**	1.2	0.0	0.0
				400	2	0.4	0.8	0.2	0.1	0.0	0.4	0.0	**0.0**	0.3	0.0	
				450	1	63.8	21.6	7.9	6.2	1.4	14.3	0.6	**2.1**	-1.0	9.5	2.7
				450	2	74.5	26.7	4.3	5.8	3.5	14.9	3.9	**7.4**	-1.5	27.7	

				500	1	79.8	28.9	4.4	6.4	3.8	15.7	4.6	**8.4**	-1.4	28.9	0.0
				500	2	79.2	28.7	4.4	6.6	3.8	15.6	4.6	**8.5**	-2.0	29.5	
				550	1	82.8	30.3	4.4	6.5	4.1	16.4	5.3	**9.4**	-2.1	31.1	0.0
				550	2	82.7	30.1	4.4	6.3	4.1	16.2	5.2	**9.3**	-1.7	31.0	
				600	1	85.3	31.5	4.2	7.3	4.3	16.6	5.9	**10.2**	-2.6	32.3	0.0
				600	2	85.3	31.4	4.2	5.9	4.4	16.8	5.9	**10.2**	-1.6	32.7	
				650	1	88.4	32.6	4.0	8.0	4.5	17.4	6.5	**10.9**	-3.7	33.5	0.1
				650	2	88.6	32.7	3.9	6.0	4.6	17.7	6.6	**11.2**	-2.2	34.2	
				700	1	94.0	34.9	3.8	8.1	4.7	18.7	7.4	**12.1**	-4.0	34.7	0.1
				700	2	94.4	34.8	3.7	5.2	4.7	18.8	7.5	**12.2**	-1.4	35.1	
				750	1	98.2	36.3	3.8	7.9	4.5	19.1	7.9	**12.4**	-3.0	34.2	0.2
				750	2	98.4	36.1	3.8	4.9	4.7	19.4	8.1	**12.8**	-0.9	35.3	
				800	1	99.8	36.6	4.2	8.0	4.2	19.9	8.3	**12.5**	-3.9	34.3	0.1
				800	2	99.8	36.6	4.2	5.2	4.2	19.7	8.1	**12.3**	-0.7	33.7	
				850	1	100	36.3	7.6	12.3	2.2	19.4	6.6	**8.9**	-4.3	24.5	0.1
				850	2	100	36.3	8.1	9.4	2.1	19.7	6.6	**8.7**	-1.5	23.9	
B20	Zn	Zr	Hf	400	1	0.9	0.4	0.1	0.1	0.0	0.2	0.0	**0.0**	0.1	0.0	0.0
				400	2	1.1	0.2	0.1	0.1	0.0	0.3	0.0	**0.0**	-0.2	0.0	
				450	1	7.1	1.5	0.6	0.4	0.0	1.8	0.0	**0.0**	-0.7	0.0	0.0
				450	2	7.1	1.8	0.6	0.4	0.0	1.7	0.0	**0.0**	-0.3	0.0	
				500	1	95.1	34.4	4.4	6.1	5.1	18.8	6.1	**11.3**	-1.8	32.8	0.2
				500	2	94.7	34.2	4.2	5.9	5.3	19.3	6.4	**11.7**	-2.7	34.2	
				550	1	95.6	35.0	3.7	5.5	5.5	19.3	7.0	**12.5**	-2.2	35.7	0.1

550	2	95.5	34.9	3.7	5.4	5.6	19.8	7.2	**12.8**	-3.1	36.6	
600	1	96.1	35.3	3.6	4.8	5.6	19.4	7.4	**12.9**	-1.8	36.7	0.0
600	2	95.8	35.3	3.6	5.1	5.6	19.4	7.3	**13.0**	-2.3	36.8	
650	1	96.4	35.8	3.4	4.7	5.7	19.3	7.5	**13.2**	-1.4	37.0	0.2
650	2	96.1	35.6	3.3	4.7	5.9	19.5	7.7	**13.5**	-2.2	38.1	
700	1	97.3	36.3	3.3	4.2	5.8	19.7	7.9	**13.7**	-1.3	37.8	0.2
700	2	97.3	36.4	3.3	4.5	6.0	20.0	8.1	**14.0**	-2.2	38.6	
750	1	98.8	36.8	3.5	4.2	5.7	20.4	8.4	**14.1**	-1.9	38.4	0.1
750	2	98.9	36.8	3.5	4.5	5.8	20.4	8.5	**14.3**	-2.4	38.8	
800	1	99.7	36.9	4.2	4.5	5.2	21.1	8.6	**13.8**	-2.4	37.3	0.1
800	2	99.7	36.7	4.3	4.8	5.3	21.0	8.7	**13.9**	-3.0	38.0	
850	1	100	35.9	7.8	8.0	2.9	21.1	6.9	**9.8**	-2.9	27.2	0.0
850	2	100	36.0	7.8	8.5	2.9	21.2	6.9	**9.8**	-3.5	27.3	

Table S10 Results of selected multicomponent La_2O_3 catalyst predicted with SVR regression on HTS dataset and LCM at CH_4/O_2 = 3.5

Cat	M1	M2	M3	Temp /°C	Sampling	O_2 Conv. /%	CH_4 Conv. /%	H_2 yield /%	CO yield /%	C_2H_6 yield /%	CO_2 yield /%	C_2H_4 yield /%	C_2 yield /%	C missing /%	C_2 sel /%	σ
A2	Y	Eu	Hf	400	1	1.3	0.3	0.3	0.1	0.0	0.4	0.0	**0.0**	-0.2	0.0	0.0
				400	2	1.5	0.0	0.2	0.1	0.0	0.4	0.0	**0.0**	-0.6	0.0	
				450	1	69.8	12.1	5.5	4.2	1.0	8.9	0.2	**1.3**	-2.3	10.4	0.6
				450	2	9.3	1.6	1.0	0.7	0.0	1.4	0.0	**0.0**	-0.5	0.6	
				500	1	86.7	16.2	6.6	5.6	2.0	10.9	0.7	**2.7**	-3.0	16.6	0.1
				500	2	84.5	16.2	6.4	5.6	2.1	10.6	0.7	**2.8**	-2.9	17.4	
				550	1	96.9	21.6	4.9	4.4	4.9	11.3	3.5	**8.4**	-2.5	38.8	0.4
				550	2	97.3	21.9	4.6	4.2	5.3	11.3	3.8	**9.1**	-2.7	41.6	
				600	1	99.2	23.3	4.0	3.4	5.8	11.2	5.0	**10.8**	-2.1	46.1	0.0
				600	2	99.1	23.2	4.0	3.5	5.8	11.3	5.0	**10.8**	-2.4	46.7	
				650	1	99.8	23.9	3.6	3.1	6.0	11.2	6.0	**12.0**	-2.3	50.0	0.0
				650	2	99.7	23.9	3.6	3.7	6.0	11.2	6.0	**12.0**	-3.0	50.1	
				700	1	100	24.5	3.4	2.8	5.9	10.9	6.6	**12.5**	-1.6	51.0	0.1
				700	2	99.9	24.4	3.4	2.9	5.9	10.7	6.5	**12.3**	-1.5	50.5	
				750	1	100	25.0	3.3	2.7	5.8	10.8	7.2	**13.1**	-1.5	52.3	0.1
				750	2	100	24.8	3.3	4.1	5.9	10.7	7.3	**13.2**	-3.1	53.0	
				800	1	100	25.1	3.7	3.4	5.2	10.3	7.8	**13.0**	-1.6	51.8	0.0
				800	2	100	25.0	3.7	4.2	5.2	10.4	7.8	**13.0**	-2.7	52.1	
				850	1	100	24.1	5.3	4.4	3.3	10.6	7.5	**10.8**	-1.6	44.7	0.1

				850	2	100	23.8	5.2	5.3	3.3	10.1	7.4	**10.7**	-2.3	44.7	
A3	Ca	Y	Hf	400	1	1.4	0.4	0.2	0.1	0.0	0.4	0.0	**0.0**	-0.1	0.0	0.0
				400	2	1.8	0.3	0.2	0.0	0.0	0.4	0.0	**0.0**	-0.2	0.0	
				450	1	94.1	17.1	6.4	5.1	2.7	10.9	0.7	**3.5**	-2.4	20.3	0.1
				450	2	88.9	18.2	6.0	5.2	2.7	10.7	0.9	**3.6**	-1.3	20.0	
				500	1	93.3	19.7	5.8	5.1	3.6	11.0	1.9	**5.5**	-1.9	27.9	0.5
				500	2	93.0	20.2	5.3	4.9	4.0	10.9	2.4	**6.4**	-2.0	31.7	
				550	1	94.9	21.2	5.2	4.7	4.6	11.0	3.0	**7.5**	-1.9	35.4	0.3
				550	2	94.9	21.5	5.0	4.8	4.8	11.0	3.3	**8.1**	-2.4	37.6	
				600	1	96.0	22.9	4.5	4.5	5.5	10.9	4.3	**9.8**	-2.3	42.7	0.1
				600	2	95.9	22.7	4.5	3.8	5.6	10.9	4.3	**9.9**	-1.9	43.8	
				650	1	95.9	23.2	4.0	5.2	5.8	10.6	5.3	**11.2**	-3.7	48.2	0.2
				650	2	95.0	23.8	4.0	3.9	5.7	10.4	5.1	**10.8**	-1.3	45.4	
				700	1	96.1	24.8	3.5	5.4	6.0	10.3	6.2	**12.2**	-3.1	49.3	0.1
				700	2	95.9	24.6	3.4	3.8	6.2	10.4	6.3	**12.5**	-2.1	50.9	
				750	1	98.8	26.1	3.2	3.8	6.3	10.5	7.4	**13.7**	-2.0	52.7	0.2
				750	2	98.9	25.7	3.2	3.6	6.6	10.6	7.7	**14.2**	-2.8	55.4	
				800	1	100	26.3	3.6	4.8	5.8	10.3	8.3	**14.0**	-2.8	53.2	0.1
				800	2	100	25.9	3.6	3.1	5.8	10.4	8.3	**14.2**	-1.8	54.7	
				850	1	100	24.7	5.7	8.7	3.3	10.6	7.5	**10.8**	-5.4	43.8	0.1
				850	2	100	24.8	5.7	5.7	3.4	10.7	7.6	**11.0**	-2.5	44.3	
A4	Ca	Y	Eu	400	1	4.1	-2.0	0.2	0.1	0.0	0.2	0.0	**0.0**	-2.3	0.0	0.0
				400	2	4.2	-1.4	0.2	0.1	0.0	0.4	0.0	**0.0**	-1.8	0.0	

				450	1	11.4	0.5	0.8	0.4	0.0	1.5	0.0	**0.0**	-1.4	0.0	0.0
				450	2	10.2	0.2	0.7	0.3	0.0	1.4	0.0	**0.0**	-1.5	0.0	
				500	1	74.8	13.0	6.1	3.5	1.4	11.2	0.4	**1.9**	-3.6	14.4	0.3
				500	2	62.9	10.6	5.6	3.1	1.0	9.8	0.3	**1.2**	-3.5	11.7	
				550	1	84.5	15.7	6.6	3.9	2.2	12.6	0.8	**3.0**	-3.8	19.0	0.1
				550	2	82.6	15.1	6.5	3.8	2.1	12.5	0.8	**2.8**	-4.0	18.7	
				600	1	92.5	18.8	6.0	3.7	3.7	13.1	2.0	**5.7**	-3.7	30.2	0.0
				600	2	92.0	18.5	6.0	3.7	3.7	13.1	2.0	**5.7**	-3.9	30.6	
				650	1	97.4	22.3	4.5	3.2	5.8	12.6	4.6	**10.4**	-3.9	46.4	0.1
				650	2	97.3	22.4	4.4	3.1	5.9	12.6	4.7	**10.6**	-3.9	47.5	
				700	1	99.2	24.1	3.8	4.6	6.7	12.2	6.3	**12.9**	-5.6	53.5	0.1
				700	2	99.2	24.2	3.8	3.2	6.7	12.2	6.4	**13.1**	-4.3	54.2	
				750	1	99.8	25.4	3.6	5.3	6.9	12.0	7.6	**14.6**	-6.4	57.3	0.1
				750	2	99.8	25.5	3.5	3.2	7.0	11.9	7.7	**14.8**	-4.4	58.0	
				800	1	100	26.1	3.9	6.3	6.3	12.3	8.8	**15.1**	-7.5	57.7	0.0
				800	2	100	25.9	3.9	2.8	6.3	11.9	8.8	**15.2**	-4.0	58.6	
				850	1	100	25.7	5.3	7.6	4.2	11.5	9.4	**13.6**	-7.0	52.9	0.0
				850	2	100	25.6	5.2	4.7	4.3	11.6	9.4	**13.7**	-4.3	53.5	
A6	Ca	Y	La	400	1	2.1	-1.8	0.3	0.1	0.0	0.0	0.0	**0.0**	-1.9	0.0	0.0
				400	2	1.8	-1.3	0.2	0.0	0.0	0.3	0.0	**0.0**	-1.6	0.0	
				450	1	9.5	1.9	0.8	0.4	0.0	1.3	0.0	**0.0**	0.2	0.0	0.0
				450	2	7.7	1.7	0.7	0.3	0.0	1.1	0.0	**0.0**	0.2	0.0	
				500	1	15.3	3.4	1.5	1.1	0.0	2.2	0.0	**0.0**	0.1	0.0	0.0

				500	2	14.4	2.9	1.5	1.1	0.0	2.0	0.0	**0.0**	-0.2	0.0	
				550	1	94.6	20.6	5.5	3.9	3.8	12.9	3.1	**7.0**	-3.2	33.9	0.1
				550	2	93.5	20.4	5.4	3.8	3.9	12.8	3.2	**7.1**	-3.3	34.7	
				600	1	97.4	22.8	4.5	3.2	5.1	12.6	4.8	**9.9**	-2.9	43.4	0.3
				600	2	97.5	23.0	4.3	3.2	5.4	12.5	5.1	**10.5**	-3.2	45.7	
				650	1	98.5	24.5	3.7	2.5	5.9	12.3	6.4	**12.3**	-2.6	50.5	0.1
				650	2	98.5	24.4	3.6	2.9	6.0	12.2	6.5	**12.5**	-3.2	51.2	
				700	1	99.1	25.1	3.3	2.2	6.3	12.2	7.4	**13.7**	-2.9	54.4	0.1
				700	2	99.1	25.3	3.3	2.7	6.4	12.1	7.4	**13.8**	-3.3	54.7	
				750	1	99.7	25.9	3.3	2.1	6.5	12.0	8.1	**14.6**	-2.9	56.4	0.1
				750	2	99.7	26.0	3.2	2.6	6.6	12.0	8.2	**14.8**	-3.4	57.0	
				800	1	100	26.6	3.7	2.6	5.9	12.3	8.7	**14.6**	-3.0	55.1	0.1
				800	2	100	26.4	3.7	3.6	6.0	12.0	8.8	**14.8**	-3.9	55.9	
				850	1	100	26.2	5.0	3.7	4.1	11.5	9.1	**13.2**	-2.1	50.3	0.1
				850	2	100	25.9	4.9	3.6	4.2	11.6	9.2	**13.4**	-2.7	51.6	
A10	Ca	Y	Ba	400	1	0.9	0.7	0.2	0.1	0.0	0.3	0.0	**0.0**	0.3	0.0	0.0
				400	2	0.9	0.1	0.2	0.1	0.0	0.3	0.0	**0.0**	-0.3	0.0	
				450	1	9.9	1.6	0.8	0.4	0.0	1.6	0.0	**0.0**	-0.4	0.0	0.0
				450	2	9.1	1.3	0.8	0.4	0.0	1.5	0.0	**0.0**	-0.6	0.0	
				500	1	96.5	20.9	4.4	3.5	4.6	10.9	2.8	**7.4**	-0.9	35.4	0.4
				500	2	95.0	21.2	4.1	3.3	5.0	10.9	3.3	**8.3**	-1.3	38.9	
				550	1	97.5	22.8	3.8	2.9	5.7	11.2	4.2	**9.9**	-1.2	43.4	0.2
				550	2	97.4	22.8	3.7	2.9	5.9	11.2	4.4	**10.2**	-1.5	45.0	

				600	1	98.4	23.9	3.5	2.5	6.3	11.2	5.1	**11.4**	-1.2	47.6	0.1
				600	2	98.4	23.9	3.5	2.5	6.4	11.2	5.1	**11.5**	-1.3	48.2	
				650	1	99.1	24.8	3.2	2.1	6.7	11.1	5.9	**12.7**	-1.1	51.0	0.0
				650	2	99.0	24.8	3.2	2.1	6.8	11.1	5.9	**12.7**	-1.2	51.3	
				700	1	99.4	25.6	3.0	1.9	6.9	11.0	6.7	**13.6**	-0.9	53.1	0.1
				700	2	99.3	25.4	3.0	1.9	7.0	11.0	6.8	**13.7**	-1.3	54.0	
				750	1	99.8	26.4	2.9	1.9	6.7	10.8	7.5	**14.2**	-0.5	53.9	0.1
				750	2	99.8	26.3	2.9	1.8	6.8	10.8	7.7	**14.5**	-0.8	55.1	
				800	1	100	26.1	3.4	2.1	5.8	10.8	8.3	**14.0**	-0.9	53.8	0.1
				800	2	100	26.0	3.4	3.2	5.8	10.8	8.3	**14.2**	-2.2	54.4	
				850	1	100	24.4	5.3	4.2	3.2	10.8	7.5	**10.7**	-1.2	43.7	0.1
				850	2	100	24.3	5.2	4.7	3.3	10.9	7.6	**10.9**	-2.3	44.8	
A11	Mg	Nd	Hf	400	1	2.1	-1.5	0.2	0.1	0.0	0.4	0.0	**0.0**	-2.0	0.0	0.0
				400	2	2.2	-0.9	0.2	0.0	0.0	0.4	0.0	**0.0**	-1.3	0.0	
				450	1	12.7	1.4	1.1	0.5	0.0	2.1	0.0	**0.0**	-1.2	0.0	0.0
				450	2	11.4	1.5	1.0	0.5	0.0	1.9	0.0	**0.0**	-0.9	0.0	
				500	1	72.6	13.4	6.9	4.7	0.7	10.4	0.1	**0.8**	-2.5	5.8	0.3
				500	2	45.1	7.8	4.8	3.3	0.1	6.7	0.0	**0.1**	-2.3	1.0	
				550	1	76.3	14.9	7.7	5.9	0.9	10.6	0.1	**1.0**	-2.6	7.0	0.1
				550	2	71.8	14.2	7.5	5.8	0.7	10.1	0.1	**0.8**	-2.5	5.6	
				600	1	80.1	16.3	7.8	6.3	1.7	10.9	0.5	**2.1**	-3.0	13.1	0.0
				600	2	79.1	16.1	7.8	6.3	1.6	11.0	0.4	**2.1**	-3.3	12.9	
				650	1	84.2	18.3	7.2	5.9	2.8	11.0	1.4	**4.2**	-2.9	22.9	0.0

				650	2	83.7	18.2	7.2	6.0	2.8	11.0	1.4	**4.1**	-3.0	22.8	
				700	1	90.3	21.5	5.3	4.5	4.3	11.0	4.2	**8.5**	-2.5	39.6	0.2
				700	2	90.4	21.5	5.2	4.4	4.5	11.1	4.4	**8.8**	-2.8	41.0	
				750	1	96.0	24.2	4.2	3.8	5.1	11.2	6.7	**11.9**	-2.7	49.1	0.4
				750	2	97.3	24.7	4.0	3.6	5.2	11.7	7.4	**12.6**	-3.2	51.0	
				800	1	99.3	25.5	3.9	3.7	5.0	11.1	8.2	**13.2**	-2.5	52.0	0.0
				800	2	99.8	25.7	4.3	4.0	4.6	11.6	8.7	**13.3**	-3.1	51.5	
				850	1	100	25.3	4.9	4.1	3.8	11.4	8.4	**12.1**	-2.3	48.0	0.2
				850	2	100	25.3	4.9	4.0	3.9	11.7	8.6	**12.5**	-3.0	49.5	
A13	Ca	Eu	Hf	400	1	0.9	-0.1	0.2	0.1	0.0	0.4	0.0	**0.0**	-0.6	0.0	0.0
				400	2	1.2	-0.6	0.2	0.1	0.0	0.4	0.0	**0.0**	-1.1	0.0	
				450	1	11.5	1.4	1.0	0.5	0.0	1.7	0.0	**0.0**	-0.8	0.0	0.0
				450	2	10.4	1.3	0.9	0.5	0.0	1.7	0.0	**0.0**	-0.9	0.0	
				500	1	84.5	15.1	6.4	4.8	1.6	11.0	0.4	**2.0**	-2.7	13.2	0.4
				500	2	75.4	13.2	6.2	4.6	1.1	10.1	0.2	**1.3**	-2.8	9.7	
				550	1	91.3	17.6	6.7	5.5	2.8	11.4	0.9	**3.6**	-3.0	20.6	0.1
				550	2	89.9	17.1	6.7	5.6	2.6	11.1	0.8	**3.3**	-2.9	19.5	
				600	1	96.4	21.6	4.7	4.4	5.1	10.7	3.6	**8.7**	-2.2	40.1	0.3
				600	2	96.4	21.8	4.4	4.3	5.4	10.7	4.0	**9.3**	-2.5	42.8	
				650	1	98.6	24.0	3.4	3.3	6.2	10.3	6.0	**12.2**	-1.8	50.7	0.0
				650	2	98.5	24.1	3.3	3.3	6.2	10.2	5.9	**12.2**	-1.6	50.6	
				700	1	99.7	25.1	3.0	2.8	6.4	10.3	7.1	**13.5**	-1.5	53.7	0.2
				700	2	99.6	25.2	3.0	2.8	6.2	9.9	6.9	**13.1**	-0.6	51.8	

				750	1	100	25.7	3.0	2.6	6.1	10.1	7.6	**13.7**	-0.8	53.4	0.0
				750	2	100	25.5	2.9	2.4	6.1	10.1	7.7	**13.8**	-0.8	54.3	
				800	1	100	25.6	3.5	3.1	5.1	9.5	7.7	**12.9**	0.1	50.3	0.2
				800	2	100	25.5	3.5	3.0	5.3	9.7	7.9	**13.2**	-0.4	51.9	
				850	1	100	24.3	5.3	4.5	3.1	9.9	7.4	**10.5**	-0.6	43.2	0.1
				850	2	100	23.7	5.1	4.2	3.2	9.8	7.5	**10.7**	-1.0	45.2	
A15	Ca	Y	Nd	400	1	3.3	-3.7	0.3	0.1	0.0	0.5	0.0	**0.0**	-4.3	0.0	0.0
				400	2	3.6	-2.8	0.3	1.0	0.0	0.5	0.0	**0.0**	-4.3	0.0	
				450	1	83.7	12.0	6.7	4.4	1.5	11.5	0.3	**1.7**	-5.7	14.5	0.9
				450	2	7.4	-1.2	0.6	0.4	0.0	0.9	0.0	**0.0**	-2.5	0.0	
				500	1	86.6	14.0	7.6	5.1	1.2	12.5	0.2	**1.4**	-5.0	10.2	0.4
				500	2	71.9	11.5	6.8	4.7	0.6	10.6	0.1	**0.7**	-4.5	5.8	
				550	1	91.5	15.6	8.2	5.7	1.5	13.3	0.3	**1.8**	-5.1	11.6	0.1
				550	2	89.5	15.1	8.3	5.8	1.3	13.2	0.3	**1.6**	-5.4	10.4	
				600	1	94.2	17.0	8.1	5.7	2.3	13.6	0.7	**3.1**	-5.3	18.0	0.0
				600	2	93.8	16.7	8.1	5.7	2.3	13.6	0.7	**3.0**	-5.7	17.9	
				650	1	94.9	18.1	7.4	5.2	3.3	13.2	1.7	**4.9**	-5.3	27.2	0.0
				650	2	94.7	18.0	7.4	5.3	3.3	13.3	1.7	**4.9**	-5.5	27.3	
				700	1	95.9	20.1	6.1	4.3	4.3	12.7	3.8	**8.0**	-4.9	40.0	0.3
				700	2	95.8	20.3	5.8	4.1	4.5	12.7	4.2	**8.7**	-5.2	42.8	
				750	1	98.4	23.5	4.3	3.1	5.5	12.3	7.2	**12.6**	-4.5	53.7	0.3
				750	2	98.5	23.6	4.3	3.4	5.7	12.3	7.4	**13.1**	-5.2	55.6	
				800	1	100	25.6	4.1	3.5	5.6	12.6	8.9	**14.6**	-5.1	56.9	0.1

				800	2	100	25.4	4.1	3.0	5.7	11.8	9.1	**14.8**	-4.1	58.4	
				850	1	100	24.8	5.3	0.8	3.9	11.5	9.4	**13.3**	-0.7	53.6	0.0
				850	2	100	25.2	5.3	3.9	3.9	11.5	9.4	**13.3**	-3.5	52.9	
A16	Sr	Nd	Hf	400	1	1.4	0.8	0.3	0.1	0.0	0.3	0.0	**0.0**	0.4	0.0	0.0
				400	2	1.4	0.2	0.2	0.1	0.0	0.4	0.0	**0.0**	-0.3	0.0	
				450	1	12.3	2.1	1.1	0.7	0.0	2.0	0.0	**0.0**	-0.6	0.0	0.0
				450	2	11.1	1.9	1.0	0.6	0.0	1.8	0.0	**0.0**	-0.6	0.0	
				500	1	76.1	14.0	6.6	5.0	0.9	10.0	0.1	**1.0**	-2.1	7.4	0.3
				500	2	59.2	10.8	5.7	4.4	0.3	8.0	0.0	**0.4**	-2.0	3.6	
				550	1	81.2	15.8	7.3	6.1	1.3	10.5	0.3	**1.6**	-2.4	10.0	0.1
				550	2	78.6	15.1	7.3	6.1	1.2	10.2	0.2	**1.4**	-2.7	9.5	
				600	1	85.1	17.4	7.3	6.1	2.2	10.8	0.7	**2.9**	-2.4	16.5	0.0
				600	2	84.5	17.2	7.2	6.2	2.1	10.7	0.7	**2.8**	-2.5	16.4	
				650	1	88.0	19.1	6.4	5.5	3.3	10.7	1.8	**5.1**	-2.3	27.0	0.1
				650	2	88.0	19.2	6.4	5.4	3.5	10.8	1.9	**5.4**	-2.4	27.9	
				700	1	95.5	23.9	4.0	3.5	5.8	10.7	5.8	**11.6**	-1.8	48.4	0.1
				700	2	95.3	23.8	3.9	3.3	5.9	10.7	5.9	**11.8**	-2.0	49.5	
				750	1	98.3	25.3	3.5	3.1	5.8	10.8	7.5	**13.4**	-1.9	52.7	0.1
				750	2	98.4	25.2	3.4	3.4	6.0	10.8	7.6	**13.6**	-2.6	53.9	
				800	1	99.9	26.0	3.6	3.4	5.2	10.7	8.5	**13.7**	-1.7	52.5	0.0
				800	2	100	25.8	3.6	2.9	5.3	10.7	8.5	**13.8**	-1.5	53.3	
				850	1	100	25.4	4.8	4.0	3.5	10.8	8.6	**12.1**	-1.4	47.7	0.0
				850	2	100	25.4	4.7	4.5	3.5	10.8	8.7	**12.2**	-2.1	48.1	

A19	Mg	Eu	Hf	400	1	0.2	-0.4	0.2	0.0	0.0	0.5	0.0	**0.0**	-0.9	0.0	0.0
				400	2	0.6	-0.7	0.2	0.1	0.0	0.5	0.0	**0.0**	-1.3	0.0	
				450	1	92.0	16.6	5.8	4.8	2.7	11.4	0.6	**3.4**	-2.9	20.1	0.1
				450	2	85.2	15.5	5.7	4.9	2.5	10.9	0.6	**3.1**	-3.3	19.8	
				500	1	90.5	17.0	6.4	5.5	2.7	11.6	0.6	**3.3**	-3.4	19.5	0.3
				500	2	91.0	17.2	6.3	5.4	3.1	11.6	0.9	**3.9**	-3.7	22.9	
				550	1	95.0	18.9	6.2	5.4	3.8	11.8	1.4	**5.2**	-3.5	27.4	0.0
				550	2	94.6	19.0	6.2	5.4	3.8	11.7	1.4	**5.2**	-3.3	27.5	
				600	1	97.6	20.9	5.6	4.9	4.9	11.8	2.6	**7.5**	-3.3	35.6	0.1
				600	2	97.6	20.8	5.5	4.8	5.0	12.0	2.7	**7.7**	-3.7	37.2	
				650	1	99.7	22.8	4.6	3.9	5.8	11.7	4.5	**10.3**	-3.1	45.1	0.1
				650	2	99.6	22.8	4.6	3.9	5.8	11.7	4.6	**10.4**	-3.2	45.6	
				700	1	100	24.0	4.1	5.1	6.0	11.4	5.9	**11.9**	-4.4	49.6	0.1
				700	2	100	23.7	4.1	3.3	6.2	11.4	6.0	**12.1**	-3.2	51.3	
				750	1	100	24.8	3.9	3.9	6.1	11.3	7.2	**13.3**	-3.7	53.7	0.0
				750	2	100	24.4	3.9	3.1	6.1	11.1	7.2	**13.3**	-3.1	54.5	
				800	1	100	24.9	4.3	3.5	5.3	11.0	8.2	**13.5**	-3.0	54.2	0.1
				800	2	100	24.7	4.3	3.6	5.4	10.8	8.3	**13.7**	-3.4	55.4	
				850	1	100	24.1	5.7	4.6	3.3	10.8	8.3	**11.6**	-2.9	48.3	0.1
				850	2	100	23.9	5.7	4.8	3.4	10.8	8.4	**11.8**	-3.5	49.3	
A18	Ca	Ni	Y	400	1	2.4	0.8	0.1	0.0	0.0	0.3	0.0	**0.0**	0.5	0.0	0.0
				400	2	2.7	0.8	0.1	0.0	0.0	0.3	0.0	**0.0**	0.5	0.0	
				450	1	9.7	1.5	0.5	0.0	0.0	1.4	0.0	**0.0**	0.2	0.0	0.0

450	2	8.3	1.0	0.5	0.0	0.0	1.4	0.0	**0.0**	-0.4	0.0	
500	1	88.3	13.5	3.3	0.2	1.3	13.5	0.4	**1.7**	-1.9	12.6	0.3
500	2	85.4	12.4	3.2	0.1	1.0	13.4	0.2	**1.2**	-2.3	9.4	
550	1	98.7	15.4	2.8	0.1	2.1	14.7	0.7	**2.8**	-2.2	17.9	0.1
550	2	98.4	15.2	2.8	0.1	2.0	14.8	0.6	**2.6**	-2.2	17.1	
600	1	100	18.7	7.0	3.3	2.8	14.6	0.1	**2.9**	-2.1	15.3	0.0
600	2	100	19.2	8.0	4.0	2.7	14.7	0.0	**2.8**	-2.3	14.6	
650	1	100	25.4	16.1	11.5	3.0	13.0	0.0	**3.0**	-2.1	11.6	0.0
650	2	100	25.8	16.7	12.1	2.9	13.0	0.0	**2.9**	-2.3	11.4	
700	1	100	30.6	23.1	19.5	2.9	10.5	0.0	**2.9**	-2.2	9.4	0.0
700	2	100	30.9	23.3	19.8	2.9	10.5	0.0	**2.9**	-2.3	9.4	
750	1	100	35.7	29.8	27.7	2.4	7.6	0.1	**2.5**	-2.1	7.0	0.0
750	2	100	35.5	29.4	27.3	2.5	7.7	0.1	**2.6**	-2.1	7.2	
800	1	100	48.4	47.0	47.6	1.0	1.5	0.1	**1.0**	-1.7	2.1	0.0
800	2	100	48.7	47.6	48.0	0.9	1.2	0.1	**1.0**	-1.4	2.0	
850	1	100	50.0	49.5	49.9	0.6	0.4	0.2	**0.7**	-1.1	1.4	0.0
850	2	100	48.8	48.0	48.6	0.6	0.8	0.2	**0.8**	-1.4	1.6	

Table S11 Results of selected multicomponent La_2O_3 catalyst predicted with SVR regression on HTS dataset and LCM at CH_4/O_2 = 5.0

Cat	M1	M2	M3	Temp /°C	Sampling	O_2 Conv. /%	CH_4 Conv. /%	H_2 yield /%	CO yield /%	C_2H_6 yield /%	CO_2 yield /%	C_2H_4 yield /%	C_2 yield /%	C missing /%	C_2 sel /%	σ
A2	Y	Eu	Hf	400	1	3.3	0.4	0.3	0.1	0.0	0.4	0.0	**0.0**	-0.2	0.0	0.0
				400	2	3.5	0.0	0.3	0.1	0.0	0.5	0.0	**0.0**	-0.6	0.0	
				450	1	21.2	2.3	1.2	0.8	0.0	2.1	0.0	**0.0**	-0.6	0.0	0.0
				450	2	18.6	0.7	1.1	0.7	0.0	2.0	0.0	**0.0**	-2.0	0.0	
				500	1	79.2	8.7	4.9	3.8	0.3	6.9	0.0	**0.4**	-2.3	4.2	0.1
				500	2	67.8	7.1	4.3	3.5	0.1	6.0	0.0	**0.1**	-2.5	1.8	
				550	1	91.3	11.5	5.8	4.9	1.0	7.8	0.1	**1.2**	-2.4	10.1	0.1
				550	2	89.1	11.0	5.9	5.1	0.8	7.7	0.1	**0.9**	-2.7	8.5	
				600	1	95.9	13.3	5.7	4.7	2.3	8.3	0.5	**2.8**	-2.5	21.2	0.0
				600	2	95.4	13.0	5.8	4.7	2.2	8.3	0.5	**2.7**	-2.8	21.0	
				650	1	98.7	15.3	4.9	3.7	3.7	8.3	1.9	**5.6**	-2.2	36.4	0.0
				650	2	98.5	15.1	4.9	3.8	3.7	8.3	1.9	**5.6**	-2.6	37.0	
				700	1	100	17.5	3.7	2.5	4.8	7.9	4.1	**8.9**	-1.9	51.0	0.1
				700	2	100	16.5	3.7	2.6	4.9	8.0	4.2	**9.2**	-3.3	55.6	
				750	1	100	18.2	3.1	2.1	5.2	7.6	5.9	**11.0**	-2.5	60.5	0.0
				750	2	100	19.0	3.0	2.3	5.2	7.5	5.9	**11.0**	-1.9	58.1	
				800	1	100	19.5	2.9	2.6	4.7	6.8	6.9	**11.6**	-1.5	59.3	0.1
				800	2	100	19.2	2.9	3.3	4.8	6.9	6.9	**11.7**	-2.7	61.1	
				850	1	100	18.8	3.8	2.6	3.4	7.1	7.4	**10.8**	-1.7	57.4	0.0

				850	2	100	18.8	3.8	3.4	3.5	7.2	7.4	**10.9**	-2.6	57.8	
A3	Ca	Y	Hf	400	1	3.7	2.3	0.1	0.1	0.0	0.4	0.0	**0.0**	1.8	0.0	0.0
				400	2	4.1	2.4	0.1	0.1	0.0	0.4	0.0	**0.0**	1.9	0.0	
				450	1	95.2	9.0	3.8	3.1	1.2	7.3	0.1	**1.3**	-2.7	14.8	0.5
				450	2	80.9	10.5	1.9	2.7	0.4	6.3	0.0	**0.4**	1.1	3.7	
				500	1	95.7	13.0	4.2	3.8	0.9	7.8	0.1	**1.0**	0.4	7.5	0.1
				500	2	93.0	12.9	3.9	3.9	0.7	7.7	0.1	**0.8**	0.6	5.8	
				550	1	97.4	14.1	4.1	4.1	1.2	8.0	0.1	**1.4**	0.7	9.7	0.0
				550	2	96.9	13.9	4.3	4.2	1.2	8.0	0.1	**1.3**	0.4	9.7	
				600	1	97.5	14.8	4.1	3.8	1.9	8.0	0.4	**2.2**	0.7	15.0	0.0
				600	2	97.1	14.8	4.1	3.9	1.9	8.1	0.4	**2.2**	0.7	14.9	
				650	1	96.9	15.6	3.8	3.4	2.5	8.0	0.9	**3.4**	0.8	21.9	0.0
				650	2	96.5	15.8	3.9	3.4	2.5	8.0	0.9	**3.4**	1.0	21.5	
				700	1	95.6	17.9	3.6	3.0	3.2	7.7	1.9	**5.0**	2.1	28.2	0.0
				700	2	94.0	17.7	3.7	3.2	3.2	7.5	1.8	**5.0**	2.0	28.4	
				750	1	95.6	21.5	2.5	2.2	4.8	7.0	4.8	**9.6**	2.8	44.5	0.4
				750	2	96.3	20.8	2.4	2.1	5.3	6.8	5.1	**10.4**	1.5	49.9	
				800	1	99.7	22.4	2.5	2.2	5.2	6.3	6.5	**11.8**	2.1	52.6	0.1
				800	2	99.7	22.4	2.5	2.1	5.3	6.4	6.6	**11.9**	2.0	53.2	
				850	1	100	22.2	3.5	2.5	4.0	6.6	7.1	**11.1**	2.0	50.0	0.0
				850	2	100	22.1	3.4	2.5	4.1	6.6	7.1	**11.2**	1.9	50.4	
A4	Ca	Y	Eu	400	1	3.6	-1.4	0.2	0.0	0.0	0.4	0.0	**0.0**	-1.8	0.0	0.0
				400	2	3.6	-1.4	0.2	0.0	0.0	0.4	0.0	**0.0**	-1.8	0.0	

				450	1	14.8	0.4	0.9	0.4	0.0	1.7	0.0	**0.0**	-1.8	0.0	0.0
				450	2	14.8	0.4	0.9	0.4	0.0	1.7	0.0	**0.0**	-1.8	0.0	
				500	1	35.6	2.9	2.4	1.5	0.0	4.0	0.0	**0.0**	-2.5	0.4	0.0
				500	2	35.6	2.9	2.4	1.5	0.0	4.0	0.0	**0.0**	-2.5	0.4	
				550	1	93.7	11.3	6.0	3.4	1.3	10.1	0.2	**1.5**	-3.8	13.2	0.0
				550	2	93.7	11.3	6.0	3.4	1.3	10.1	0.2	**1.5**	-3.8	13.2	
				600	1	98.7	13.3	5.5	3.2	2.9	10.2	0.8	**3.7**	-3.8	27.9	0.0
				600	2	98.7	13.3	5.5	3.2	2.9	10.2	0.8	**3.7**	-3.8	27.9	
				650	1	99.8	15.3	4.7	2.7	4.3	9.7	2.1	**6.5**	-3.6	42.4	0.0
				650	2	99.8	15.3	4.7	2.7	4.3	9.7	2.1	**6.5**	-3.6	42.4	
				700	1	100	17.5	3.9	2.2	5.4	8.9	3.8	**9.3**	-2.9	53.0	0.0
				700	2	100	17.5	3.9	2.2	5.4	8.9	3.8	**9.3**	-2.9	53.0	
				750	1	100	19.6	3.1	2.4	6.4	8.3	6.1	**12.4**	-3.4	63.4	0.0
				750	2	100	19.6	3.1	2.4	6.4	8.3	6.1	**12.4**	-3.4	63.4	
				800	1	100	21.3	3.1	1.8	6.5	7.5	7.6	**14.1**	-2.1	66.1	0.0
				800	2	100	21.3	3.1	1.8	6.5	7.5	7.6	**14.1**	-2.1	66.1	
				850	1	100	21.3	4.1	3.6	4.6	7.4	8.5	**13.1**	-2.9	61.5	0.0
				850	2	100	21.3	4.1	3.6	4.6	7.4	8.5	**13.1**	-2.9	61.5	
A6	Ca	Y	La	400	1	6.7	2.0	0.3	0.1	0.0	0.3	0.0	**0.0**	1.6	0.0	0.0
				400	2	6.6	1.9	0.2	0.1	0.0	0.4	0.0	**0.0**	1.5	0.0	
				450	1	15.7	2.2	0.8	0.4	0.0	1.4	0.0	**0.0**	0.5	0.0	0.0
				450	2	13.7	2.2	0.7	0.4	0.0	1.2	0.0	**0.0**	0.7	0.0	
				500	1	40.7	5.8	2.5	1.6	0.0	3.8	0.0	**0.0**	0.4	0.4	0.0

				500	2	34.5	5.1	2.1	1.4	0.0	3.1	0.0	**0.0**	0.6	0.3	
				550	1	85.6	11.7	5.2	3.4	0.9	8.2	0.1	**1.0**	-0.9	8.9	0.2
				550	2	80.8	10.7	5.1	3.3	0.6	7.8	0.1	**0.7**	-1.2	6.8	
				600	1	93.3	13.4	5.2	3.4	2.1	8.6	0.5	**2.7**	-1.3	19.8	0.0
				600	2	92.7	13.3	5.2	3.4	2.1	8.6	0.5	**2.6**	-1.4	19.4	
				650	1	95.8	15.4	4.7	3.1	3.5	8.3	1.4	**4.9**	-1.0	32.0	0.0
				650	2	95.8	15.2	4.7	3.1	3.5	8.3	1.4	**4.9**	-1.2	32.2	
				700	1	97.9	17.6	3.8	2.4	4.8	7.9	3.4	**8.3**	-0.9	46.9	0.1
				700	2	97.8	17.7	3.8	2.4	4.9	7.8	3.5	**8.4**	-0.9	47.3	
				750	1	99.6	20.6	3.0	1.7	5.9	7.2	6.0	**11.9**	-0.3	57.8	0.1
				750	2	99.6	20.5	3.0	1.7	6.0	7.2	6.1	**12.1**	-0.5	59.0	
				800	1	100	21.3	3.5	2.0	5.3	6.8	7.4	**12.7**	-0.2	59.5	0.1
				800	2	100	21.5	3.5	2.0	5.4	6.9	7.6	**13.0**	-0.3	60.2	
				850	1	100	20.8	4.7	3.1	3.2	6.7	7.8	**11.0**	0.0	53.1	0.1
				850	2	100	20.8	4.6	3.0	3.2	6.7	7.9	**11.2**	-0.2	53.8	
A10	Ca	Y	Ba	400	1	2.2	0.2	0.2	0.1	0.0	0.3	0.0	**0.0**	-0.1	0.0	0.0
				400	2	2.2	-0.9	0.2	0.1	0.0	0.3	0.0	**0.0**	-1.3	0.0	
				450	1	13.7	0.6	0.8	0.4	0.0	1.4	0.0	**0.0**	-1.2	0.0	0.0
				450	2	12.2	0.3	0.7	0.3	0.0	1.3	0.0	**0.0**	-1.3	0.0	
				500	1	89.7	10.2	4.9	3.3	1.4	8.0	0.2	**1.7**	-2.7	16.3	0.3
				500	2	80.5	8.7	4.8	3.2	1.0	7.5	0.1	**1.1**	-3.2	13.1	
				550	1	95.3	12.0	5.1	3.5	2.4	8.7	0.5	**2.9**	-3.1	24.5	0.1
				550	2	94.2	11.6	5.2	3.5	2.3	8.7	0.5	**2.8**	-3.4	24.0	

				600	1	97.4	14.6	4.2	2.8	4.3	8.3	2.0	**6.2**	-2.8	42.8	0.3
				600	2	97.4	14.7	4.0	2.7	4.6	8.3	2.2	**6.8**	-3.1	46.1	
				650	1	98.4	17.3	3.0	1.8	6.0	7.6	4.1	**10.1**	-2.2	58.4	0.0
				650	2	98.2	17.2	3.0	2.1	6.0	7.6	4.1	**10.1**	-2.6	58.7	
				700	1	99.1	18.6	2.4	3.0	6.8	7.3	5.6	**12.4**	-4.1	66.6	0.1
				700	2	99.1	18.9	2.4	1.9	6.7	7.1	5.5	**12.2**	-2.3	64.5	
				750	1	99.8	20.2	2.1	3.3	7.0	7.0	6.3	**13.3**	-3.4	66.0	0.2
				750	2	100	20.2	2.1	2.3	7.2	6.9	6.5	**13.7**	-2.7	67.6	
				800	1	100	20.0	2.3	1.3	6.6	6.8	7.1	**13.8**	-1.9	68.9	0.0
				800	2	100	19.8	2.3	2.2	6.7	6.8	7.2	**13.9**	-3.1	70.3	
				850	1	100	18.8	3.2	3.5	4.5	6.8	7.1	**11.7**	-3.2	62.2	0.1
				850	2	100	16.0	3.0	3.2	4.6	5.7	6.8	**11.4**	-4.4	71.3	
A11	Mg	Nd	Hf	400	1	5.7	-0.3	0.3	0.1	0.0	0.2	0.0	**0.0**	-0.6	0.0	0.0
				400	2	5.7	0.8	0.3	0.1	0.0	0.4	0.0	**0.0**	0.3	0.0	
				450	1	20.7	3.6	1.1	0.6	0.0	2.0	0.0	**0.0**	1.0	0.0	0.0
				450	2	17.3	2.9	0.9	0.5	0.0	1.7	0.0	**0.0**	0.7	0.0	
				500	1	82.6	11.3	5.4	3.8	0.8	7.8	0.1	**0.9**	-1.1	7.6	0.2
				500	2	72.7	9.7	5.0	3.6	0.3	7.0	0.0	**0.4**	-1.2	3.8	
				550	1	85.0	12.5	5.9	4.7	1.1	7.7	0.2	**1.3**	-1.1	10.1	0.1
				550	2	81.7	11.9	5.9	4.7	0.9	7.5	0.1	**1.0**	-1.4	8.3	
				600	1	85.6	13.1	6.0	4.9	1.8	7.7	0.4	**2.2**	-1.6	16.5	0.1
				600	2	84.8	13.0	6.0	4.9	1.7	7.6	0.4	**2.0**	-1.5	15.6	
				650	1	88.4	14.8	5.6	4.5	2.8	7.7	1.1	**3.9**	-1.3	26.4	0.0

				650	2	88.0	14.6	5.6	4.6	2.8	7.7	1.1	**3.9**	-1.5	26.7	
				700	1	92.3	17.2	4.7	3.5	4.1	7.7	3.0	**7.2**	-1.2	41.7	0.2
				700	2	92.3	17.3	4.5	3.5	4.3	7.7	3.3	**7.7**	-1.5	44.3	
				750	1	96.8	20.4	3.6	2.6	5.4	7.8	5.9	**11.3**	-1.4	55.5	0.1
				750	2	97.1	20.4	3.4	3.0	5.3	7.3	5.8	**11.2**	-1.1	54.7	
				800	1	99.4	22.0	3.4	2.8	5.5	6.8	7.5	**13.0**	-0.6	59.0	0.2
				800	2	99.5	21.9	3.3	3.3	5.7	7.1	7.6	**13.3**	-1.9	60.9	
				850	1	100	22.2	4.4	2.9	4.1	7.2	8.5	**12.6**	-0.5	56.7	0.0
				850	2	100	22.5	4.3	4.0	4.1	7.2	8.5	**12.6**	-1.4	56.0	
A13	Ca	Eu	Hf	400	1	3.1	0.4	0.2	0.1	0.0	0.4	0.0	**0.0**	-0.1	0.0	0.0
				400	2	3.3	0.0	0.2	0.1	0.0	0.5	0.0	**0.0**	-0.5	0.0	
				450	1	14.4	1.4	0.7	0.4	0.0	1.6	0.0	**0.0**	-0.6	0.0	0.0
				450	2	14.3	1.7	0.7	0.4	0.0	1.5	0.0	**0.0**	-0.3	0.0	
				500	1	80.6	9.8	4.4	3.2	1.1	7.4	0.1	**1.2**	-2.0	11.8	0.3
				500	2	72.4	8.1	4.2	3.0	0.6	6.8	0.0	**0.6**	-2.3	8.0	
				550	1	89.1	12.2	4.7	3.9	2.4	7.6	0.4	**2.8**	-2.0	22.7	0.0
				550	2	88.0	12.0	4.7	3.8	2.3	7.6	0.4	**2.7**	-2.1	22.5	
				600	1	93.4	14.6	4.1	3.4	4.2	7.4	1.3	**5.5**	-1.9	38.1	0.1
				600	2	93.4	14.6	4.0	3.4	4.3	7.5	1.3	**5.7**	-1.9	38.7	
				650	1	96.9	16.7	3.3	2.9	5.3	7.1	2.7	**8.0**	-1.3	48.1	0.1
				650	2	97.5	16.8	3.3	2.9	5.5	7.2	2.8	**8.2**	-1.6	49.1	
				700	1	99.2	18.5	2.5	2.3	5.9	6.8	4.5	**10.5**	-1.0	56.6	0.1
				700	2	99.2	18.6	2.5	2.3	6.0	6.8	4.6	**10.6**	-1.1	56.9	

				750	1	100	19.5	2.2	1.9	6.1	6.8	6.1	**12.2**	-1.4	62.6	0.0
				750	2	100	19.7	2.2	2.0	6.2	6.7	6.1	**12.3**	-1.2	62.2	
				800	1	100	20.2	2.3	2.1	5.6	6.2	7.1	**12.7**	-0.8	62.7	0.0
				800	2	100	20.1	2.3	2.1	5.6	6.2	7.1	**12.7**	-0.9	63.0	
				850	1	100	19.1	3.1	2.6	3.8	6.4	7.4	**11.3**	-1.1	58.9	0.0
				850	2	100	19.3	3.1	2.5	3.8	6.4	7.4	**11.3**	-0.9	58.3	
A15	Ca	Y	Nd	400	1	3.8	-1.7	0.3	0.1	0.0	0.1	0.0	**0.0**	-1.9	0.0	0.0
				400	2	3.1	-1.3	0.2	0.1	0.0	0.4	0.0	**0.0**	-1.7	0.0	
				450	1	9.7	0.1	0.6	0.4	0.0	1.1	0.0	**0.0**	-1.4	0.0	0.0
				450	2	9.4	0.3	0.6	0.4	0.0	1.1	0.0	**0.0**	-1.1	0.0	
				500	1	76.5	9.7	5.4	3.6	0.8	8.0	0.1	**0.9**	-2.8	9.4	0.3
				500	2	60.7	7.4	4.6	3.1	0.2	6.5	0.0	**0.3**	-2.4	3.6	
				550	1	85.0	12.0	6.0	4.3	1.5	8.5	0.3	**1.8**	-2.7	15.3	0.1
				550	2	82.3	11.5	6.0	4.3	1.3	8.4	0.2	**1.6**	-2.8	13.7	
				600	1	89.0	13.9	5.9	4.3	2.6	8.6	0.8	**3.4**	-2.4	24.2	0.1
				600	2	88.4	13.4	5.9	4.4	2.5	8.6	0.8	**3.3**	-2.8	24.2	
				650	1	91.9	16.2	4.5	3.3	4.3	8.2	2.8	**7.1**	-2.4	43.8	0.1
				650	2	91.8	16.3	4.4	3.2	4.4	8.1	3.0	**7.4**	-2.4	45.3	
				700	1	95.3	18.8	3.2	2.2	5.7	7.8	5.3	**11.0**	-2.4	58.9	0.2
				700	2	95.3	19.1	3.1	2.2	5.9	7.8	5.5	**11.4**	-2.3	59.5	
				750	1	98.8	20.7	2.8	1.9	6.3	8.0	6.7	**13.0**	-2.3	62.9	0.1
				750	2	98.9	20.8	2.7	1.9	6.4	7.9	6.8	**13.2**	-2.2	63.3	
				800	1	100	21.4	3.1	2.1	6.1	7.7	7.5	**13.5**	-2.0	63.3	0.1

				800	2	100	21.3	3.0	2.1	6.1	7.7	7.5	**13.7**	-2.2	64.1	
				850	1	100	21.1	4.1	2.9	4.4	7.7	7.9	**12.4**	-1.8	58.4	0.1
				850	2	100	20.9	4.1	2.9	4.5	7.8	8.1	**12.5**	-2.3	59.9	
A16	Sr	Nd	Hf	400	1	2.6	0.2	0.3	0.1	0.0	0.1	0.0	**0.0**	0.0	0.0	0.0
				400	2	2.8	0.1	0.2	0.1	0.0	0.3	0.0	**0.0**	-0.2	0.0	
				450	1	13.5	1.1	0.8	0.5	0.0	1.3	0.0	**0.0**	-0.6	0.0	0.0
				450	2	12.1	0.9	0.7	0.5	0.0	1.2	0.0	**0.0**	-0.8	0.0	
				500	1	58.5	6.4	3.8	2.8	0.2	5.3	0.0	**0.3**	-2.0	4.1	0.1
				500	2	45.2	4.6	3.0	2.3	0.1	4.1	0.0	**0.1**	-2.0	1.5	
				550	1	71.0	8.7	4.8	4.1	0.7	6.0	0.1	**0.7**	-2.1	8.4	0.1
				550	2	66.9	7.9	4.7	4.0	0.5	5.7	0.0	**0.6**	-2.4	7.2	
				600	1	76.6	10.0	5.2	4.5	1.4	6.3	0.2	**1.6**	-2.4	16.2	0.0
				600	2	75.7	9.9	5.2	4.5	1.3	6.2	0.2	**1.5**	-2.4	15.7	
				650	1	81.1	11.9	5.0	4.3	2.5	6.4	0.8	**3.2**	-2.0	27.1	0.0
				650	2	80.4	11.5	5.0	4.4	2.4	6.3	0.7	**3.2**	-2.3	27.4	
				700	1	86.0	14.2	4.3	3.6	3.8	6.4	2.3	**6.1**	-1.9	42.9	0.1
				700	2	85.9	14.2	4.2	3.7	3.9	6.4	2.3	**6.2**	-2.1	43.9	
				750	1	94.7	18.2	3.1	3.0	5.4	6.7	5.4	**10.8**	-2.3	59.4	0.1
				750	2	95.2	18.2	3.0	2.6	5.5	6.6	5.5	**11.1**	-2.0	60.8	
				800	1	99.7	19.8	3.1	2.6	5.2	6.4	7.2	**12.4**	-1.7	62.7	0.0
				800	2	99.7	19.3	3.0	2.5	5.3	6.5	7.2	**12.5**	-2.2	64.6	
				850	1	100	19.0	4.2	3.7	3.4	6.6	7.1	**10.6**	-1.8	55.7	0.2
				850	2	100	18.4	4.1	3.3	3.6	6.7	7.3	**10.9**	-2.5	59.1	

A19	Mg	Eu	Hf	400	1	3.0	-2.8	0.2	0.1	0.0	0.5	0.0	**0.0**	-3.4	0.0	0.0
				400	2	3.5	-1.7	0.2	0.1	0.0	0.4	0.0	**0.0**	-2.2	0.0	
				450	1	62.7	6.3	3.1	1.9	0.2	5.9	0.0	**0.2**	-1.7	3.0	0.1
				450	2	19.7	0.9	0.8	0.4	0.0	2.1	0.0	**0.0**	-1.6	0.0	
				500	1	87.4	9.5	5.3	3.6	0.7	8.5	0.1	**0.8**	-3.4	8.4	0.2
				500	2	80.8	8.8	4.9	3.5	0.3	8.0	0.0	**0.3**	-3.0	3.7	
				550	1	93.3	11.7	6.1	4.5	1.1	9.0	0.1	**1.3**	-3.1	10.8	0.1
				550	2	91.8	11.7	6.2	4.7	0.9	9.1	0.1	**1.0**	-3.1	8.8	
				600	1	96.7	13.7	6.2	4.5	2.2	9.3	0.5	**2.7**	-2.8	19.8	0.0
				600	2	96.3	13.4	6.3	4.6	2.2	9.5	0.5	**2.7**	-3.4	19.8	
				650	1	98.7	15.5	5.5	3.7	3.6	9.5	1.7	**5.3**	-3.0	34.2	0.0
				650	2	98.7	15.7	5.5	3.8	3.6	9.5	1.7	**5.3**	-2.9	33.7	
				700	1	99.8	17.4	4.6	3.0	4.4	9.2	3.6	**8.0**	-2.7	45.9	0.0
				700	2	99.7	17.3	4.6	3.0	4.5	9.2	3.6	**8.1**	-3.1	46.8	
				750	1	100	18.7	4.2	2.6	4.5	8.8	5.4	**9.9**	-2.7	53.0	0.1
				750	2	100	18.8	4.1	2.6	4.5	8.8	5.5	**10.0**	-2.7	53.3	
				800	1	99.8	21.4	3.7	3.1	5.4	8.3	7.6	**13.1**	-3.0	61.0	0.1
				800	2	99.8	21.2	3.6	3.0	5.6	7.4	7.7	**13.3**	-2.4	62.6	
				850	1	100	21.0	4.8	3.4	3.9	7.6	8.4	**12.2**	-2.2	58.1	0.1
				850	2	100	20.9	4.7	3.4	3.9	7.7	8.4	**12.3**	-2.5	59.1	

Table S12 Results of multicomponent La_2O_3 catalyst predicted with RFR on HTS and literature dataset at CH_4/O_2 = 2.0

Cat	M1	M2	M3	Temp /°C	Sampling	O_2 Conv. /%	CH_4 Conv. /%	H_2 yield /%	CO yield /%	C_2H_6 yield /%	CO_2 yield /%	C_2H_4 yield /%	C_2 yield /%	C missing /%	C_2 sel /%	σ
C1	Ga	Tb	Hf	400	1	0.3	0.9	0.2	0.1	0.0	0.3	0.0	**0.0**	0.5	0.0	0.0
				400	2	0.4	0.8	0.2	0.1	0.0	0.4	0.0	**0.0**	0.3	0.0	
				450	1	94.1	32.0	4.8	4.9	4.0	19.4	3.8	**7.8**	-0.1	24.3	0.1
				450	2	95.0	31.7	5.2	5.1	3.9	20.3	3.7	**7.5**	-1.2	23.8	
				500	1	98.4	33.7	5.3	6.3	4.3	21.0	4.4	**8.7**	-2.2	25.8	0.0
				500	2	98.2	33.7	5.3	5.1	4.3	20.8	4.4	**8.7**	-0.9	25.9	
				550	1	98.1	34.1	5.1	4.9	4.5	20.6	4.9	**9.4**	-0.9	27.7	0.2
				550	2	97.9	34.2	5.0	4.8	4.7	20.9	5.1	**9.8**	-1.3	28.6	
				600	1	97.5	33.8	5.2	6.7	4.7	21.1	5.2	**9.9**	-3.9	29.4	0.1
				600	2	97.3	33.8	4.9	4.6	4.9	20.7	5.4	**10.2**	-1.6	30.2	
				650	1	97.4	35.4	4.7	5.4	4.8	20.2	5.9	**10.6**	-0.9	30.0	0.2
				650	2	97.3	35.1	4.6	4.2	5.0	20.4	6.1	**11.1**	-0.5	31.5	
				700	1	98.4	36.6	4.2	5.1	4.9	20.1	7.0	**11.9**	-0.6	32.6	0.0
				700	2	98.4	36.0	4.1	3.9	5.0	19.8	7.0	**12.0**	0.3	33.3	
				750	1	99.3	37.1	4.0	5.9	4.7	19.7	7.7	**12.4**	-0.9	33.4	0.1
				750	2	99.3	36.7	4.0	3.9	4.9	19.8	7.8	**12.7**	0.3	34.6	
				800	1	99.9	37.4	4.7	7.1	4.1	19.9	7.9	**12.0**	-1.7	32.2	0.0
				800	2	99.9	37.0	4.6	4.5	4.2	19.8	8.0	**12.1**	0.6	32.8	
				850	1	100	36.8	9.9	9.9	1.7	19.2	6.1	**7.8**	-0.2	21.2	0.0

				850	2	100	36.9	10.1	10.3	1.6	19.3	6.1	**7.8**	-0.4	21.0	
C2	Zn	Ga	Hf	400	1	1.5	2.0	0.4	0.2	0.0	0.6	0.0	**0.0**	1.2	0.0	0.0
				400	2	1.6	1.6	0.4	0.2	0.0	0.7	0.0	**0.0**	0.7	0.0	
				450	1	82.8	28.2	8.9	4.8	2.5	20.7	1.5	**4.0**	-1.2	14.2	0.1
				450	2	76.9	26.1	8.3	4.6	2.3	19.0	1.5	**3.8**	-1.2	14.5	
				500	1	85.9	29.1	10.7	5.7	2.2	21.7	0.9	**3.1**	-1.4	10.6	0.0
				500	2	84.4	28.5	10.3	5.7	2.2	21.5	1.0	**3.2**	-1.8	11.1	
				550	1	91.5	31.4	9.7	6.2	3.1	21.9	1.6	**4.7**	-1.3	15.0	0.1
				550	2	90.9	31.4	9.3	6.2	3.1	21.6	1.7	**4.8**	-1.2	15.3	
				600	1	93.5	32.9	7.9	6.1	3.9	20.8	2.9	**6.8**	-0.7	20.6	0.2
				600	2	93.1	32.2	8.4	6.3	3.7	21.2	2.6	**6.3**	-1.7	19.6	
				650	1	94.8	33.9	6.8	5.7	4.2	20.6	4.3	**8.5**	-0.9	25.1	0.0
				650	2	94.6	33.8	6.8	5.8	4.2	20.5	4.3	**8.5**	-1.0	25.2	
				700	1	96.1	35.1	5.6	5.2	4.4	20.3	6.1	**10.5**	-0.8	29.8	0.0
				700	2	96.0	35.1	5.6	5.2	4.4	20.1	6.1	**10.6**	-0.7	30.1	
				750	1	97.9	36.6	4.8	4.6	4.5	20.0	7.7	**12.1**	-0.2	33.2	0.2
				750	2	97.9	36.5	4.7	4.6	4.6	20.4	7.9	**12.5**	-1.0	34.3	
				800	1	99.7	37.4	4.6	4.5	4.2	20.2	8.6	**12.8**	-0.1	34.3	0.1
				800	2	99.7	37.3	4.5	4.5	4.4	20.6	8.7	**13.1**	-0.8	35.0	
				850	1	100	36.7	6.5	6.5	2.7	20.2	8.0	**10.7**	-0.6	29.1	0.1
				850	2	100	36.7	6.8	6.7	2.7	20.3	7.9	**10.6**	-1.0	28.8	
C3	Ga	Eu	Hf	400	1	4.0	2.3	0.3	0.2	0.0	0.6	0.0	**0.0**	1.5	0.0	0.0
				400	2	4.4	2.3	0.3	0.1	0.0	0.6	0.0	**0.0**	1.5	0.0	

				450	1	97.3	32.1	6.5	5.4	3.6	22.0	2.9	**6.6**	-1.9	20.5	0.5
				450	2	97.7	32.7	6.1	5.4	3.9	22.1	3.6	**7.5**	-2.3	22.9	
				500	1	98.5	33.9	6.8	5.6	4.0	22.8	3.4	**7.4**	-1.8	21.7	0.3
				500	2	98.4	34.0	6.4	5.4	4.2	22.5	3.8	**8.0**	-1.9	23.5	
				550	1	99.2	34.2	7.9	5.8	3.9	23.3	2.8	**6.8**	-1.7	19.8	0.3
				550	2	99.1	34.2	7.5	5.7	4.1	23.6	3.2	**7.3**	-2.4	21.4	
				600	1	99.6	35.2	7.5	5.5	4.3	23.5	3.6	**7.9**	-1.6	22.4	0.1
				600	2	99.5	35.2	7.4	5.5	4.4	23.3	3.7	**8.1**	-1.7	23.0	
				650	1	99.9	36.3	6.4	4.9	4.7	22.8	5.1	**9.8**	-1.2	27.0	0.1
				650	2	99.8	36.0	6.3	4.9	4.8	22.9	5.3	**10.1**	-1.8	27.9	
				700	1	99.9	36.9	5.4	4.4	5.0	22.3	6.8	**11.8**	-1.5	31.9	0.1
				700	2	99.9	37.0	5.3	4.3	5.0	22.1	6.9	**11.9**	-1.4	32.2	
				750	1	100	37.6	4.9	4.2	4.9	22.0	8.1	**13.0**	-1.6	34.5	0.0
				750	2	99.9	37.4	4.8	4.1	4.9	21.7	8.1	**13.0**	-1.5	34.7	
				800	1	100	37.3	5.2	4.7	4.2	21.5	8.6	**12.9**	-1.7	34.5	0.1
				800	2	100	37.6	5.0	4.5	4.3	21.4	8.7	**13.0**	-1.3	34.6	
				850	1	100	37.2	8.4	8.4	2.3	21.2	7.4	**9.7**	-2.1	26.1	0.1
				850	2	100	37.2	8.7	8.7	2.2	21.0	7.3	**9.4**	-1.9	25.3	
C4	Ga	Y	Eu	400	1	1.7	-0.2	0.3	0.1	0.0	0.6	0.0	**0.0**	-0.9	0.0	0.0
				400	2	2.6	1.3	0.3	0.1	0.0	0.6	0.0	**0.0**	0.6	0.0	
				450	1	94.0	30.9	7.6	4.4	3.3	25.6	2.1	**5.4**	-4.5	17.4	0.0
				450	2	91.0	30.3	7.4	4.5	3.3	25.3	2.2	**5.5**	-5.0	18.0	
				500	1	94.2	31.8	8.0	4.7	3.5	26.2	2.1	**5.6**	-4.7	17.5	0.1

				500	2	93.3	31.6	7.8	4.7	3.5	25.6	2.2	**5.7**	-4.4	18.2	
				550	1	96.4	33.0	7.6	4.6	4.0	26.6	2.7	**6.7**	-4.9	20.4	0.1
				550	2	96.1	32.9	7.4	4.5	4.0	26.5	2.9	**6.9**	-5.0	21.0	
				600	1	98.0	34.4	6.5	4.2	4.7	26.3	4.0	**8.7**	-4.8	25.2	0.0
				600	2	97.8	34.2	6.5	4.2	4.7	26.3	3.9	**8.6**	-4.9	25.1	
				650	1	98.9	35.5	5.6	4.0	5.2	25.6	5.3	**10.5**	-4.5	29.4	0.0
				650	2	98.9	35.4	5.6	3.9	5.2	26.1	5.3	**10.5**	-5.1	29.8	
				700	1	99.6	36.5	4.8	3.7	5.4	25.3	6.9	**12.3**	-4.8	33.7	0.1
				700	2	99.6	36.4	4.8	3.7	5.5	25.1	7.0	**12.4**	-4.9	34.2	
				750	1	99.9	36.9	4.4	3.7	5.3	24.8	8.3	**13.6**	-5.1	36.7	0.1
				750	2	99.9	37.0	4.4	3.7	5.3	24.9	8.4	**13.7**	-5.2	37.0	
				800	1	100	37.4	5.7	4.9	4.3	24.6	8.6	**12.9**	-5.1	34.6	0.1
				800	2	100	37.4	5.6	4.9	4.4	24.4	8.7	**13.1**	-5.0	35.1	
				850	1	100	38.1	10.5	10.1	2.0	24.1	7.2	**9.1**	-5.3	24.0	0.1
				850	2	100	37.9	10.6	10.1	1.9	23.4	7.1	**9.0**	-4.6	23.8	
C5	Zn	Ga	Y	400	1	2.5	1.4	0.4	0.0	0.0	0.6	0.0	**0.0**	0.8	0.0	0.0
				400	2	2.6	1.1	0.3	0.1	0.0	0.7	0.0	**0.0**	0.3	0.0	
				450	1	92.4	30.8	6.6	4.1	3.7	22.5	3.0	**6.7**	-2.5	21.8	0.3
				450	2	91.1	30.7	6.3	4.1	3.9	22.5	3.3	**7.2**	-3.1	23.5	
				500	1	95.4	32.5	6.1	4.2	4.4	22.9	4.0	**8.4**	-2.9	25.8	0.2
				500	2	95.0	32.4	5.8	4.2	4.5	23.2	4.2	**8.8**	-3.7	27.1	
				550	1	96.9	33.8	5.4	4.1	5.0	23.1	4.9	**9.9**	-3.3	29.2	0.1
				550	2	96.7	33.6	5.2	4.1	5.1	23.0	5.0	**10.1**	-3.5	30.0	

				600	1	97.4	34.3	4.9	4.0	5.3	22.7	5.5	**10.9**	-3.3	31.7	0.1
				600	2	97.2	34.3	4.8	4.0	5.4	22.7	5.7	**11.2**	-3.6	32.6	
				650	1	97.7	35.0	4.6	3.9	5.6	22.4	6.3	**11.9**	-3.2	34.1	0.1
				650	2	97.6	35.0	4.5	3.8	5.6	22.4	6.4	**12.0**	-3.3	34.3	
				700	1	98.6	35.7	4.5	3.8	5.6	22.4	7.2	**12.9**	-3.4	36.1	0.1
				700	2	98.5	35.8	4.4	3.8	5.7	22.6	7.4	**13.0**	-3.5	36.4	
				750	1	99.4	36.6	4.5	3.9	5.5	22.4	8.3	**13.7**	-3.4	37.5	0.1
				750	2	99.4	36.8	4.4	3.8	5.6	22.2	8.4	**14.0**	-3.2	37.9	
				800	1	100	37.1	5.2	4.6	4.6	22.3	8.7	**13.3**	-3.2	36.0	0.1
				800	2	100	37.0	5.1	4.5	4.8	22.7	8.9	**13.6**	-3.9	36.8	
				850	1	100	37.1	10.8	10.8	1.6	21.6	6.7	**8.3**	-3.6	22.4	0.0
				850	2	100	37.2	11.1	11.1	1.6	21.4	6.7	**8.3**	-3.6	22.3	
C6	Zn	Ga	Eu	400	1	1.2	0.9	0.3	0.1	0.0	0.6	0.0	**0.0**	0.2	0.0	0.0
				400	2	2.1	1.4	0.3	0.1	0.0	0.6	0.0	**0.0**	0.7	0.0	
				450	1	95.7	33.0	5.6	3.6	4.2	22.4	4.1	**8.3**	-1.3	25.2	0.5
				450	2	96.3	33.0	5.2	3.7	4.6	22.6	4.7	**9.3**	-2.6	28.2	
				500	1	98.2	34.4	5.0	3.6	4.8	22.4	5.2	**10.0**	-1.6	29.0	0.1
				500	2	97.8	34.1	5.0	3.7	4.8	22.5	5.3	**10.1**	-2.2	29.6	
				550	1	98.6	34.8	5.1	3.7	4.8	22.7	5.3	**10.1**	-1.7	28.9	0.0
				550	2	98.3	34.6	5.1	3.7	4.8	22.6	5.3	**10.1**	-1.9	29.3	
				600	1	98.8	35.2	5.2	3.8	4.8	22.6	5.3	**10.1**	-1.2	28.7	0.1
				600	2	98.5	35.1	5.1	3.7	4.9	22.6	5.4	**10.3**	-1.4	29.3	
				650	1	98.9	36.0	5.1	3.8	5.0	21.9	5.7	**10.7**	-0.5	29.8	0.1

				650	2	98.7	35.7	5.0	3.8	5.1	22.2	5.8	**11.0**	-1.3	30.7	
				700	1	99.2	36.5	4.7	3.9	5.3	21.7	6.7	**12.0**	-1.2	33.0	0.4
				700	2	99.7	36.9	4.8	4.3	5.1	21.5	7.7	**12.8**	-1.7	34.7	
				750	1	99.6	37.1	4.6	4.2	5.2	21.6	7.8	**13.0**	-1.7	35.0	0.5
				750	2	99.8	37.5	5.5	5.3	4.1	21.3	7.8	**11.9**	-1.0	31.8	
				800	1	99.8	37.3	5.5	5.2	4.3	21.5	8.1	**12.4**	-1.7	33.1	0.0
				800	2	99.8	37.3	5.5	5.2	4.3	21.5	8.1	**12.4**	-1.7	33.1	
				850	1	100	37.5	10.5	10.8	1.6	21.0	6.5	**8.1**	-2.4	21.7	0.0
				850	2	100	37.5	10.8	10.9	1.6	20.9	6.6	**8.2**	-2.5	21.9	
C7	Ga	Cs	Hf	400	1	1.4	0.0	0.1	0.1	0.0	0.2	0.0	**0.0**	-0.3	0.0	0.0
				400	2	1.7	0.8	0.1	0.1	0.0	0.2	0.0	**0.0**	0.5	0.0	
				450	1	5.6	2.8	0.7	0.4	0.0	1.2	0.0	**0.0**	1.2	0.0	0.0
				450	2	5.3	2.5	0.7	0.4	0.0	1.1	0.0	**0.0**	1.0	0.0	
				500	1	89.1	31.6	5.5	5.7	4.3	20.8	3.6	**8.0**	-2.8	25.2	0.9
				500	2	90.8	32.8	4.5	5.3	5.2	21.0	4.6	**9.8**	-3.3	29.9	
				550	1	90.0	32.7	6.1	5.7	4.6	21.7	3.9	**8.5**	-3.2	26.1	0.0
				550	2	89.9	32.7	6.1	5.7	4.6	21.6	4.0	**8.6**	-3.1	26.2	
				600	1	92.3	33.8	6.5	5.7	4.7	22.4	4.3	**9.0**	-3.3	26.5	0.0
				600	2	92.2	33.5	6.6	5.8	4.7	23.0	4.2	**8.9**	-4.1	26.6	
				650	1	94.5	34.8	6.3	5.4	5.0	23.2	5.1	**10.1**	-3.9	29.0	0.0
				650	2	94.5	34.5	6.4	5.5	5.0	23.4	5.1	**10.0**	-4.4	29.1	
				700	1	96.4	36.0	5.8	5.0	5.2	23.8	6.5	**11.6**	-4.4	32.3	0.0
				700	2	96.3	35.7	5.9	5.0	5.2	23.3	6.4	**11.6**	-4.2	32.5	

				750	1	98.3	37.0	5.4	4.7	5.0	23.6	8.1	**13.1**	-4.4	35.4	0.1
				750	2	98.3	37.0	5.4	4.7	5.0	23.6	8.2	**13.2**	-4.5	35.8	
				800	1	99.7	38.0	5.8	5.2	4.4	24.2	9.2	**13.6**	-4.9	35.7	0.2
				800	2	99.7	38.0	5.7	5.1	4.6	24.2	9.4	**14.0**	-5.3	36.7	
				850	1	100	38.4	11.5	11.3	1.9	23.5	7.2	**9.1**	-5.4	23.7	0.0
				850	2	100	38.5	11.9	11.7	1.8	23.2	7.2	**9.0**	-5.4	23.4	
C8	Ga	Yb	Hf	400	1	2.2	1.1	0.3	0.5	0.0	0.6	0.0	**0.0**	0.0	0.0	0.0
				400	2	2.2	1.1	0.3	0.5	0.0	0.6	0.0	**0.0**	0.0	0.0	
				450	1	89.0	29.6	6.0	5.6	3.5	19.9	2.8	**6.3**	-2.2	21.3	0.0
				450	2	89.0	29.6	6.0	5.6	3.5	19.9	2.8	**6.3**	-2.2	21.3	
				500	1	93.7	32.5	5.2	5.5	4.3	19.6	4.1	**8.5**	-1.0	26.0	0.0
				500	2	93.7	32.5	5.2	5.5	4.3	19.6	4.1	**8.5**	-1.0	26.0	
				550	1	96.5	34.2	4.5	5.1	4.8	19.5	5.2	**10.0**	-0.4	29.2	0.0
				550	2	96.5	34.2	4.5	5.1	4.8	19.5	5.2	**10.0**	-0.4	29.2	
				600	1	97.2	35.4	3.9	4.5	5.3	19.1	6.2	**11.5**	0.4	32.4	0.0
				600	2	97.2	35.4	3.9	4.5	5.3	19.1	6.2	**11.5**	0.4	32.4	
				650	1	97.6	36.1	3.4	3.9	5.6	19.1	7.0	**12.5**	0.6	34.8	0.0
				650	2	97.6	36.1	3.4	3.9	5.6	19.1	7.0	**12.5**	0.6	34.8	
				700	1	98.5	36.5	3.2	3.6	5.8	19.9	7.7	**13.4**	-0.5	36.8	0.0
				700	2	98.5	36.5	3.2	3.6	5.8	19.9	7.7	**13.4**	-0.5	36.8	
				750	1	99.5	36.7	3.3	3.6	5.7	20.7	8.2	**13.9**	-1.6	37.9	0.0
				750	2	99.5	36.7	3.3	3.6	5.7	20.7	8.2	**13.9**	-1.6	37.9	
				800	1	100	36.6	4.1	4.3	4.8	21.1	8.3	**13.2**	-2.0	36.0	0.0

				800	2	100	36.6	4.1	4.3	4.8	21.1	8.3	**13.2**	-2.0	36.0	
				850	1	100	36.3	9.7	10.1	1.8	20.6	6.3	**8.1**	-2.4	22.3	0.0
				850	2	100	36.3	9.7	10.1	1.8	20.6	6.3	**8.1**	-2.4	22.3	
C9	Ga	Sr	Eu	400	1	2.1	1.4	0.3	0.1	0.0	0.5	0.0	**0.0**	0.8	0.0	0.0
				400	2	2.2	1.0	0.3	0.1	0.0	0.5	0.0	**0.0**	0.3	0.0	
				450	1	96.0	30.9	5.9	4.2	3.9	22.3	3.2	**7.1**	-2.7	23.0	0.3
				450	2	96.1	32.4	5.6	4.2	4.0	22.3	3.6	**7.6**	-1.7	23.4	
				500	1	98.1	32.9	5.9	4.2	4.3	23.0	4.0	**8.3**	-2.6	25.1	0.2
				500	2	97.8	33.0	5.7	4.2	4.4	23.0	4.2	**8.7**	-2.8	26.2	
				550	1	98.8	33.0	6.6	4.3	4.1	23.4	3.4	**7.5**	-2.1	22.7	0.4
				550	2	98.7	33.3	6.3	4.2	4.3	23.7	3.9	**8.2**	-2.8	24.7	
				600	1	99.3	33.2	6.9	4.3	4.1	23.8	3.3	**7.4**	-2.3	22.1	0.2
				600	2	99.2	33.3	6.8	4.3	4.2	24.1	3.6	**7.8**	-2.9	23.5	
				650	1	99.8	34.5	6.4	4.2	4.5	23.2	4.4	**8.8**	-1.7	25.6	0.1
				650	2	99.9	34.4	6.3	4.1	4.5	23.5	4.5	**9.0**	-2.2	26.1	
				700	1	100	35.3	5.9	4.1	4.9	23.0	6.0	**10.9**	-2.7	30.8	0.0
				700	2	100	35.7	5.8	4.0	4.9	22.7	6.0	**10.9**	-1.9	30.5	
				750	1	100	36.2	5.7	4.2	4.8	21.9	7.5	**12.4**	-2.3	34.3	0.1
				750	2	100	37.2	5.5	4.1	4.9	21.8	7.6	**12.5**	-1.3	33.7	
				800	1	100	36.2	7.0	5.9	3.6	21.6	7.3	**10.9**	-2.3	30.2	0.1
				800	2	100	36.9	6.8	5.7	3.7	21.8	7.5	**11.2**	-1.8	30.3	
				850	1	100	37.8	11.5	11.4	1.6	20.9	6.4	**8.0**	-2.5	21.1	0.1
				850	2	100	37.6	11.7	11.5	1.6	20.9	6.5	**8.1**	-2.9	21.6	

C10	Ga	Sr	Y	400	1	0.3	-0.2	0.3	0.1	0.0	0.6	0.0	**0.0**	-0.9	0.0	0.0
				400	2	0.9	-0.1	0.3	0.1	0.0	0.6	0.0	**0.0**	-0.8	0.0	
				450	1	96.2	31.3	5.3	4.4	4.2	23.1	3.9	**8.1**	-4.3	25.9	0.1
				450	2	95.2	31.0	5.4	4.5	4.3	23.4	4.1	**8.3**	-5.3	27.0	
				500	1	97.5	32.5	5.3	4.4	4.7	23.5	4.8	**9.4**	-4.8	29.0	0.1
				500	2	97.2	32.5	5.2	4.4	4.8	23.3	4.9	**9.7**	-4.9	29.9	
				550	1	98.3	33.5	4.8	4.0	5.2	23.5	5.7	**10.9**	-4.9	32.6	0.1
				550	2	98.1	33.5	4.8	4.0	5.3	23.5	5.8	**11.1**	-5.1	33.2	
				600	1	98.5	34.2	4.5	3.6	5.6	23.5	6.5	**12.0**	-5.0	35.2	0.0
				600	2	98.5	34.2	4.5	3.6	5.6	23.1	6.5	**12.0**	-4.6	35.1	
				650	1	98.9	34.8	4.3	3.4	5.7	22.9	7.0	**12.6**	-4.2	36.3	0.1
				650	2	98.8	34.6	4.3	3.4	5.7	22.8	7.1	**12.8**	-4.4	37.0	
				700	1	99.3	35.6	4.3	3.4	5.7	22.6	7.6	**13.4**	-3.8	37.6	0.1
				700	2	99.3	35.6	4.2	3.4	5.9	22.5	7.8	**13.6**	-3.9	38.3	
				750	1	99.7	36.1	4.4	3.6	5.6	22.5	8.4	**14.0**	-4.0	38.9	0.1
				750	2	99.7	36.4	4.3	3.6	5.7	22.4	8.5	**14.2**	-3.8	38.9	
				800	1	100	36.3	5.3	4.7	4.7	22.1	8.5	**13.2**	-3.6	36.3	0.2
				800	2	100	36.6	5.2	4.6	4.9	22.6	8.7	**13.6**	-4.2	37.2	
				850	1	100	36.1	9.9	9.8	2.0	21.5	6.8	**8.7**	-3.9	24.1	0.1
				850	2	100	36.1	10.0	9.9	2.0	21.7	6.9	**8.9**	-4.2	24.5	
C11	Ga	Sr	Hf	400	1	0.4	-2.2	0.3	0.1	0.0	0.6	0.0	**0.0**	-2.9	0.0	0.0
				400	2	1.3	-0.6	0.3	0.1	0.0	0.6	0.0	**0.0**	-1.3	0.0	
				450	1	93.6	27.4	10.7	6.4	2.1	25.9	0.7	**2.9**	-7.7	10.6	0.6

				450	2	86.2	26.9	10.6	6.0	1.4	24.9	0.4	**1.8**	-5.8	6.5	
				500	1	93.9	29.4	11.6	6.3	1.1	26.9	0.2	**1.3**	-5.1	4.6	0.3
				500	2	89.7	28.1	11.7	6.3	0.7	26.2	0.1	**0.8**	-5.2	3.0	
				550	1	97.2	31.2	11.6	6.7	1.6	27.3	0.4	**2.0**	-4.7	6.4	0.1
				550	2	96.8	30.9	11.7	6.8	1.4	28.0	0.4	**1.8**	-5.8	5.9	
				600	1	97.7	31.9	10.8	6.8	2.3	27.1	1.1	**3.4**	-5.4	10.7	0.0
				600	2	97.6	31.9	10.9	6.8	2.3	26.9	1.1	**3.3**	-5.2	10.4	
				650	1	97.7	32.6	9.9	6.6	2.8	26.3	2.1	**4.9**	-5.2	15.1	0.0
				650	2	97.6	32.6	10.0	6.7	2.8	26.8	2.2	**5.0**	-5.9	15.3	
				700	1	98.1	33.8	8.7	6.4	2.8	25.4	3.6	**6.4**	-4.4	19.0	0.1
				700	2	98.0	33.1	8.9	6.6	2.9	26.0	3.7	**6.6**	-6.2	20.1	
				750	1	98.7	33.3	8.4	6.9	2.2	25.4	4.8	**6.9**	-6.0	20.8	0.1
				750	2	98.5	33.2	8.5	7.1	2.2	25.4	4.9	**7.2**	-6.4	21.5	
				800	1	99.8	36.1	12.5	11.3	1.0	24.6	5.5	**6.5**	-6.3	18.1	0.2
				800	2	99.7	36.2	12.4	11.4	1.1	24.3	5.7	**6.8**	-6.4	18.9	
				850	1	100	37.7	11.2	11.9	2.0	23.0	7.7	**9.7**	-6.8	25.6	0.1
				850	2	100	37.5	11.1	11.5	2.1	23.2	7.8	**9.9**	-7.1	26.3	
C12	Ga	Eu	Tb	400	1	0.5	0.6	0.2	0.0	0.0	0.3	0.0	**0.0**	0.2	0.0	0.0
				400	2	1.2	0.8	0.2	0.1	0.0	0.3	0.0	**0.0**	0.3	0.0	
				450	1	94.5	30.7	5.1	3.7	4.1	22.7	3.3	**7.4**	-3.1	24.1	0.6
				450	2	95.9	32.2	4.5	3.7	4.5	22.7	4.1	**8.6**	-2.8	26.7	
				500	1	97.7	32.3	5.7	3.9	4.2	24.0	3.4	**7.7**	-3.2	23.7	0.1
				500	2	97.6	32.4	5.6	3.9	4.3	23.9	3.6	**7.9**	-3.4	24.5	

550	1	98.9	33.2	5.9	3.8	4.6	23.9	3.7	**8.2**	-2.8	24.7	0.0
550	2	98.8	33.1	5.9	3.8	4.5	24.3	3.6	**8.2**	-3.1	24.7	
600	1	99.5	33.5	5.9	3.7	4.7	24.3	3.9	**8.6**	-3.1	25.7	0.0
600	2	99.4	33.6	5.8	3.7	4.7	24.2	4.0	**8.7**	-3.0	25.8	
650	1	99.8	34.5	5.5	3.7	4.9	23.8	4.8	**9.7**	-2.7	28.2	0.1
650	2	99.7	34.5	5.4	3.6	5.0	23.8	4.9	**9.9**	-2.8	28.6	
700	1	99.9	35.6	5.0	3.6	5.1	23.0	6.1	**11.2**	-2.2	31.5	0.1
700	2	99.9	35.6	5.0	3.6	5.2	23.2	6.2	**11.3**	-2.5	31.9	
750	1	100	36.6	4.8	3.7	5.0	22.2	7.5	**12.5**	-1.7	34.2	0.1
750	2	100	36.6	4.7	3.7	5.0	22.2	7.6	**12.7**	-2.0	34.7	
800	1	100	37.0	5.3	4.5	4.2	21.6	8.2	**12.4**	-1.5	33.5	0.1
800	2	100	37.1	5.2	4.4	4.3	22.1	8.4	**12.7**	-2.1	34.2	
850	1	100	37.0	9.6	9.4	1.9	21.3	6.8	**8.6**	-2.2	23.3	0.0
850	2	100	37.0	9.9	9.6	1.8	21.1	6.8	**8.7**	-2.4	23.4	

Table S13 Results of multicomponent La_2O_3 catalyst predicted with SVR on HTS and literature dataset at CH_4/O_2 = 2.0

Cat	M1	M2	M3	Temp /°C	Sampling	O_2 Conv. /%	CH_4 Conv. /%	H_2 yield /%	CO yield /%	C_2H_6 yield /%	CO_2 yield /%	C_2H_4 yield /%	C_2 yield /%	C missing /%	C_2 sel /%	σ
D1	Sr	Ce	Yb	400	1	1.2	0.8	0.2	0.1	0.0	0.3	0.0	**0.0**	0.3	0.0	0.0
				400	2	1.8	2.1	0.2	0.1	0.0	0.3	0.0	**0.0**	1.6	0.0	
				450	1	8.5	4.9	1.2	0.6	0.0	2.0	0.0	**0.0**	2.3	0.0	0.0
				450	2	7.4	4.1	1.2	0.6	0.0	1.9	0.0	**0.0**	1.6	0.0	
				500	1	94.0	34.2	5.0	3.8	4.1	21.1	4.6	**8.7**	0.5	25.6	0.2
				500	2	93.4	34.1	4.9	3.8	4.3	21.6	4.8	**9.1**	-0.4	26.8	
				550	1	97.4	35.0	5.2	3.3	4.3	22.7	5.0	**9.2**	-0.2	26.4	0.2
				550	2	97.1	35.3	5.1	3.3	4.4	23.1	5.2	**9.6**	-0.6	27.1	
				600	1	99.0	35.9	5.2	2.9	4.4	23.8	5.2	**9.6**	-0.4	26.7	0.1
				600	2	98.8	35.9	5.1	3.0	4.4	23.5	5.3	**9.7**	-0.2	26.9	
				650	1	99.5	36.7	5.0	2.8	4.5	23.6	5.7	**10.3**	-0.1	28.0	0.3
				650	2	99.3	36.5	4.9	2.9	4.8	24.2	6.1	**10.9**	-1.5	29.9	
				700	1	99.7	37.4	4.5	3.0	4.9	23.4	6.8	**11.6**	-0.6	31.1	0.5
				700	2	99.7	37.8	4.3	2.9	5.4	23.3	7.3	**12.7**	-1.2	33.5	
				750	1	99.9	38.6	4.3	3.2	5.2	23.0	8.1	**13.4**	-1.0	34.6	0.2
				750	2	99.9	38.5	4.3	3.3	5.4	23.0	8.4	**13.8**	-1.5	35.8	
				800	1	100	39.7	4.7	4.0	4.8	22.7	9.2	**14.1**	-1.2	35.5	0.2
				800	2	100	39.4	4.7	4.1	5.0	23.0	9.5	**14.5**	-2.1	36.7	
				850	1	100	39.1	7.4	6.9	3.0	21.9	8.9	**11.9**	-1.6	30.5	0.1

				850	2	100	39.0	7.6	7.2	2.9	21.6	8.8	**11.7**	-1.5	30.0	
D2	Li	Mg	Nd	400	1	-1.2	-1.5	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.6	0.0	0.0
				400	2	-0.5	-0.5	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.6	0.0	
				450	1	-0.1	0.0	0.1	0.1	0.0	0.1	0.0	**0.0**	-0.3	0.0	0.0
				450	2	-0.2	-0.1	0.1	0.1	0.0	0.1	0.0	**0.0**	-0.3	0.0	
				500	1	1.7	1.0	0.4	0.4	0.0	0.4	0.0	**0.0**	0.1	0.0	0.0
				500	2	1.2	0.4	0.4	0.4	0.0	0.3	0.0	**0.0**	-0.3	0.0	
				550	1	3.7	1.7	0.9	0.9	0.0	0.8	0.0	**0.0**	0.0	0.0	0.0
				550	2	3.1	1.4	0.8	0.8	0.0	0.7	0.0	**0.0**	-0.1	0.0	
				600	1	6.5	2.8	1.6	1.2	0.1	1.7	0.0	**0.1**	-0.2	3.4	0.0
				600	2	6.2	2.8	1.5	1.1	0.1	1.5	0.0	**0.1**	0.0	3.0	
				650	1	22.6	9.0	3.9	3.0	1.1	5.6	0.3	**1.4**	-1.0	15.4	6.6
				650	2	84.6	32.8	3.2	3.8	6.4	19.4	8.2	**14.6**	-5.1	44.6	
				700	1	92.5	35.5	3.6	4.4	6.1	21.3	8.8	**14.9**	-5.1	41.9	0.0
				700	2	92.6	35.3	3.7	4.5	6.1	21.6	8.8	**14.9**	-5.7	42.1	
				750	1	97.3	37.3	4.1	4.3	6.0	23.1	10.0	**15.9**	-6.0	42.7	0.0
				750	2	97.6	37.2	4.1	4.4	6.0	23.1	10.0	**15.9**	-6.2	42.8	
				800	1	99.4	38.6	4.8	4.2	5.3	23.7	11.0	**16.3**	-5.6	42.3	0.0
				800	2	99.5	38.3	4.8	4.5	5.3	23.7	10.9	**16.3**	-6.1	42.5	
				850	1	100	38.1	9.0	10.0	2.7	22.5	8.6	**11.4**	-5.8	29.9	0.0
				850	2	100	38.2	8.8	10.0	2.8	22.6	8.7	**11.4**	-5.8	29.9	
D3	Na	Si	Mn	400	1	-0.1	1.0	0.0	0.0	0.0	0.0	0.0	**0.0**	1.0	0.0	0.0
				400	2	-0.6	0.3	0.0	0.0	0.0	0.0	0.0	**0.0**	0.3	0.0	

				450	1	-0.4	-0.1	0.0	0.0	0.0	0.1	0.0	**0.0**	-0.1	0.0	0.0
				450	2	0.0	0.2	0.0	0.0	0.0	0.1	0.0	**0.0**	0.1	0.0	
				500	1	0.4	0.0	0.1	0.0	0.0	0.2	0.0	**0.0**	-0.2	0.0	0.0
				500	2	0.9	0.2	0.1	0.0	0.0	0.3	0.0	**0.0**	-0.1	0.0	
				550	1	4.9	1.3	0.6	0.1	0.0	1.3	0.0	**0.0**	-0.1	0.0	0.0
				550	2	4.6	1.0	0.6	0.1	0.0	1.4	0.0	**0.0**	-0.5	0.0	
				600	1	98.2	35.1	1.3	0.6	6.8	22.6	7.6	**14.4**	-2.5	41.1	0.2
				600	2	98.2	34.7	1.4	0.6	7.0	23.0	7.8	**14.8**	-3.7	42.7	
				650	1	98.6	35.1	1.8	0.8	6.5	22.8	7.3	**13.8**	-2.3	39.4	0.0
				650	2	98.4	34.9	1.9	0.8	6.5	23.1	7.3	**13.8**	-2.9	39.7	
				700	1	100	35.4	1.6	0.7	6.5	23.4	7.7	**14.3**	-3.0	40.3	0.1
				700	2	100	35.4	1.7	0.8	6.6	23.6	7.8	**14.4**	-3.3	40.6	
				750	1	100	34.8	2.1	1.3	5.8	23.3	7.6	**13.4**	-3.1	38.3	0.1
				750	2	100	34.7	2.2	1.3	5.7	23.6	7.5	**13.2**	-3.5	38.1	
				800	1	100	36.4	11.7	10.1	1.3	23.2	6.3	**7.6**	-4.4	20.8	0.0
				800	2	100	36.4	11.8	10.2	1.3	23.1	6.3	**7.6**	-4.5	21.0	
				850	1	100	39.3	14.7	14.3	0.6	21.7	6.0	**6.7**	-3.4	16.9	0.1
				850	2	100	38.7	14.8	14.3	0.7	21.7	6.1	**6.8**	-4.1	17.6	
D4	Na	Mn	W	400	1	-2.6	-1.3	0.0	0.0	0.0	0.0	0.0	**0.0**	-1.3	0.0	0.0
				400	2	0.4	1.1	0.0	0.0	0.0	0.0	0.0	**0.0**	1.1	0.0	
				450	1	0.6	1.3	0.0	0.0	0.0	0.1	0.0	**0.0**	1.2	0.0	0.0
				450	2	0.9	0.8	0.0	0.0	0.0	0.1	0.0	**0.0**	0.8	0.0	
				500	1	1.9	1.4	0.1	0.0	0.0	0.2	0.0	**0.0**	1.2	0.0	0.0

				500	2	1.9	1.4	0.1	0.0	0.0	0.2	0.0	**0.0**	1.1	0.0	
				550	1	5.7	2.5	0.5	0.1	0.0	1.1	0.0	**0.0**	1.3	0.0	0.0
				550	2	5.6	2.3	0.5	0.1	0.0	1.1	0.0	**0.0**	1.0	0.0	
				600	1	97.5	37.2	1.2	0.7	7.2	21.3	8.6	**15.8**	-0.6	42.5	0.1
				600	2	97.2	37.0	1.4	0.9	7.2	21.0	8.4	**15.6**	-0.5	42.1	
				650	1	98.7	37.3	1.5	0.8	7.0	21.7	8.5	**15.5**	-0.7	41.6	0.1
				650	2	98.3	37.3	1.6	0.9	7.0	21.7	8.4	**15.4**	-0.7	41.3	
				700	1	99.5	37.8	1.6	0.8	6.9	21.8	8.4	**15.3**	-0.1	40.6	0.1
				700	2	99.4	37.0	1.7	0.8	7.0	22.2	8.5	**15.5**	-1.5	41.8	
				750	1	100	37.4	1.9	1.1	6.7	22.1	8.3	**14.9**	-0.7	39.9	0.0
				750	2	100	37.6	1.9	1.1	6.7	22.0	8.2	**14.9**	-0.5	39.8	
				800	1	100	37.3	2.7	2.0	5.5	22.1	8.1	**13.6**	-0.4	36.4	0.1
				800	2	100	37.2	2.7	2.0	5.6	22.1	8.2	**13.8**	-0.7	37.2	
				850	1	100	37.6	9.3	9.6	1.6	20.6	6.8	**8.4**	-1.0	22.3	0.0
				850	2	100	38.4	9.7	10.7	1.6	22.5	6.7	**8.3**	-3.1	21.7	
D5	Sr	Nd	Yb	400	1	-0.5	0.0	0.2	0.1	0.0	0.3	0.0	**0.0**	-0.5	0.0	0.0
				400	2	-0.4	0.1	0.2	0.1	0.0	0.4	0.0	**0.0**	-0.4	0.0	
				450	1	6.8	2.2	1.1	0.6	0.0	2.1	0.0	**0.0**	-0.5	0.0	0.0
				450	2	6.6	2.1	1.1	0.6	0.0	2.1	0.0	**0.0**	-0.6	0.0	
				500	1	98.4	35.4	4.4	4.2	6.2	22.5	6.3	**12.5**	-3.8	35.4	0.5
				500	2	98.6	35.8	4.1	4.1	6.5	22.3	7.0	**13.5**	-4.0	37.6	
				550	1	98.8	35.6	4.6	4.1	6.3	22.8	6.5	**12.7**	-4.1	35.8	0.1
				550	2	98.7	35.5	4.6	4.1	6.3	23.0	6.6	**12.9**	-4.5	36.5	

				600	1	98.8	34.9	5.4	4.3	5.8	23.4	5.8	**11.6**	-4.4	33.3	0.1
				600	2	98.6	35.0	5.3	4.3	5.9	23.2	5.9	**11.8**	-4.3	33.6	
				650	1	98.7	34.5	5.7	4.5	5.3	23.5	5.6	**10.9**	-4.4	31.7	0.1
				650	2	98.6	34.5	5.7	4.5	5.4	23.5	5.7	**11.1**	-4.5	32.2	
				700	1	99.0	35.2	5.4	4.4	5.3	23.1	6.8	**12.0**	-4.3	34.2	0.1
				700	2	99.0	35.3	5.3	4.3	5.4	23.4	6.9	**12.3**	-4.7	34.9	
				750	1	99.5	36.5	5.0	4.2	5.3	22.9	8.5	**13.9**	-4.4	37.9	0.2
				750	2	99.5	36.7	4.9	4.1	5.5	22.9	8.7	**14.2**	-4.5	38.6	
				800	1	100	37.2	5.5	4.8	4.6	22.9	9.4	**14.0**	-4.6	37.8	0.2
				800	2	100	37.2	5.4	4.8	4.7	23.2	9.6	**14.4**	-5.2	38.6	
				850	1	100	36.8	10.6	10.6	1.7	21.9	7.4	**9.1**	-4.7	24.6	0.0
				850	2	100	36.8	10.6	10.6	1.7	21.8	7.4	**9.1**	-4.7	24.7	
D6*	Mg	Sr	Nd	400	1	0.6	0.7	0.2	0.0	0.0	0.4	0.0	**0.0**	0.3	0.0	0.0
(A17)				400	2	1.4	1.2	0.2	0.0	0.0	0.4	0.0	**0.0**	0.8	0.0	
				450	1	6.8	3.0	0.9	0.4	0.0	1.9	0.0	**0.0**	0.7	0.0	0.0
				450	2	6.7	2.5	0.9	0.4	0.0	1.9	0.0	**0.0**	0.3	0.0	
				500	1	82.9	28.4	5.6	4.4	3.3	19.5	3.7	**7.0**	-2.5	24.6	0.2
				500	2	76.3	26.9	4.9	4.1	3.5	17.9	3.9	**7.4**	-2.5	27.4	
				550	1	91.5	31.2	6.7	4.8	3.3	22.3	3.8	**7.1**	-2.9	22.6	0.1
				550	2	90.5	30.7	6.8	4.8	3.2	22.5	3.7	**6.9**	-3.4	22.4	
				600	1	95.0	32.5	7.1	4.7	3.6	23.6	3.8	**7.4**	-3.2	22.6	0.1
				600	2	94.6	31.9	7.1	4.8	3.6	23.8	3.9	**7.5**	-4.2	23.5	
				650	1	96.8	34.0	6.5	4.6	4.1	23.4	4.8	**9.0**	-3.0	26.3	0.2

				650	2	96.6	33.0	6.5	4.6	4.3	23.7	5.0	**9.3**	-4.6	28.1	
				700	1	98.0	35.6	5.7	4.3	4.6	23.1	6.8	**11.3**	-3.1	31.8	0.1
				700	2	97.8	35.6	5.6	4.4	4.7	23.0	6.9	**11.5**	-3.3	32.4	
				750	1	98.5	36.9	5.4	4.4	4.6	22.6	8.5	**13.1**	-3.3	35.5	0.2
				750	2	98.5	37.0	5.3	4.4	4.7	22.5	8.7	**13.5**	-3.4	36.5	
				800	1	99.8	38.6	5.7	5.0	4.4	22.9	9.8	**14.2**	-3.6	36.9	0.3
				800	2	99.9	38.2	5.5	4.9	4.7	23.1	10.2	**14.9**	-4.8	39.1	
				850	1	100	37.3	8.6	8.3	2.3	22.2	8.4	**10.6**	-3.9	28.5	0.1
				850	2	100	37.2	8.5	8.3	2.3	22.2	8.5	**10.8**	-3.9	28.9	
D7	Mg	Ba	La	400	1	0.1	0.5	0.2	0.8	0.0	0.3	0.0	**0.0**	-0.6	0.0	0.0
				400	2	0.3	0.0	0.2	0.1	0.0	0.3	0.0	**0.0**	-0.5	0.0	
				450	1	6.6	2.4	1.0	0.4	0.0	2.0	0.0	**0.0**	0.0	0.0	0.0
				450	2	6.6	2.1	1.0	0.4	0.0	2.0	0.0	**0.0**	-0.3	0.0	
				500	1	99.1	37.0	3.2	3.2	7.0	21.4	7.9	**14.9**	-2.6	40.4	0.2
				500	2	99.2	37.2	3.1	3.1	7.1	21.8	8.3	**15.4**	-3.0	41.3	
				550	1	99.4	37.4	3.4	3.2	7.0	21.8	8.2	**15.2**	-2.7	40.5	0.0
				550	2	99.4	37.4	3.3	3.2	7.0	21.5	8.2	**15.2**	-2.6	40.7	
				600	1	99.5	37.2	3.8	3.4	6.8	21.8	7.8	**14.6**	-2.6	39.2	0.0
				600	2	99.4	37.3	3.7	3.4	6.7	21.4	7.8	**14.6**	-2.0	39.1	
				650	1	99.3	37.1	4.2	3.5	6.4	22.0	7.6	**14.0**	-2.5	37.7	0.1
				650	2	99.2	37.0	4.2	3.5	6.5	22.2	7.7	**14.2**	-2.8	38.3	
				700	1	99.2	37.5	4.3	3.5	6.2	21.9	8.0	**14.2**	-2.1	37.8	0.1
				700	2	99.1	37.3	4.3	3.5	6.3	21.8	8.1	**14.4**	-2.4	38.7	

				750	1	99.5	38.3	4.1	3.4	6.1	21.5	9.2	**15.3**	-1.9	39.9	0.1
				750	2	99.5	38.3	4.1	3.4	6.2	21.8	9.3	**15.6**	-2.4	40.6	
				800	1	100	38.7	4.6	3.9	5.4	21.6	9.8	**15.2**	-2.0	39.3	0.1
				800	2	100	38.6	4.6	3.8	5.5	21.7	9.9	**15.4**	-2.3	39.9	
				850	1	100	37.2	10.0	9.7	2.0	21.1	7.0	**9.0**	-2.6	24.2	0.0
				850	2	100	37.2	10.1	9.9	2.0	21.2	7.0	**9.0**	-2.9	24.2	
D8	Ca	Sr	Yb	400	1	-1.9	-3.1	0.2	0.1	0.0	0.3	0.0	**0.0**	-3.5	0.0	0.0
				400	2	-1.5	-2.2	0.2	0.1	0.0	0.3	0.0	**0.0**	-2.5	0.0	
				450	1	3.6	0.0	0.9	0.4	0.0	1.7	0.0	**0.0**	-2.1	0.0	0.0
				450	2	3.2	0.1	0.8	0.4	0.0	1.6	0.0	**0.0**	-1.9	0.0	
				500	1	97.6	34.4	5.3	4.5	5.5	23.5	5.9	**11.4**	-5.0	33.2	0.2
				500	2	96.6	34.5	5.2	4.5	5.6	23.7	6.1	**11.7**	-5.4	34.0	
				550	1	98.0	35.0	5.9	4.4	5.3	24.9	5.8	**11.1**	-5.4	31.7	0.2
				550	2	97.9	35.1	5.7	4.4	5.5	25.0	6.0	**11.5**	-5.8	32.7	
				600	1	98.6	34.9	6.6	4.4	5.1	25.5	5.2	**10.4**	-5.4	29.7	0.4
				600	2	98.6	35.1	6.3	4.4	5.4	25.8	5.7	**11.1**	-6.1	31.5	
				650	1	98.9	35.3	6.7	4.5	5.2	25.9	5.7	**10.9**	-6.1	31.0	0.4
				650	2	99.0	35.6	6.3	4.4	5.5	25.6	6.4	**11.8**	-6.2	33.2	
				700	1	99.1	36.7	6.0	4.4	5.4	25.0	7.4	**12.8**	-5.6	34.9	0.3
				700	2	99.0	36.7	5.6	4.3	5.6	24.3	7.8	**13.4**	-5.3	36.5	
				750	1	99.0	37.4	5.9	4.9	5.2	24.4	8.9	**14.1**	-5.9	37.7	0.3
				750	2	98.9	37.4	5.7	4.9	5.5	24.2	9.3	**14.8**	-6.4	39.4	
				800	1	99.7	37.5	7.3	6.7	4.0	24.3	9.2	**13.1**	-6.7	35.1	0.4

				800	2	99.7	37.7	7.0	6.3	4.3	24.4	9.6	**13.9**	-6.9	36.8	
				850	1	100	38.2	12.3	12.0	1.8	23.2	8.0	**9.8**	-6.7	25.6	0.1
				850	2	100	38.0	12.6	12.3	1.8	23.5	7.9	**9.7**	-7.5	25.5	
D9	Sr	Ba	Yb	400	1	-1.1	0.1	0.1	0.0	0.0	0.3	0.0	**0.0**	-0.2	0.0	0.0
				400	2	-0.5	0.2	0.1	0.4	0.0	0.3	0.0	**0.0**	-0.5	0.0	
				450	1	3.8	1.3	0.7	0.4	0.0	1.5	0.0	**0.0**	-0.6	0.0	0.0
				450	2	4.0	1.2	0.7	0.4	0.0	1.5	0.0	**0.0**	-0.6	0.0	
				500	1	95.6	34.3	4.2	4.0	6.0	22.1	6.8	**12.7**	-4.5	37.1	0.1
				500	2	95.0	34.2	4.2	4.0	6.0	22.4	6.9	**12.9**	-5.2	37.8	
				550	1	97.2	35.4	4.3	3.9	6.1	22.6	7.2	**13.3**	-4.4	37.7	0.1
				550	2	97.0	35.4	4.3	3.9	6.2	22.8	7.3	**13.5**	-4.9	38.1	
				600	1	97.7	36.2	4.2	3.7	6.3	22.9	7.6	**13.9**	-4.4	38.5	0.0
				600	2	97.4	36.0	4.2	3.8	6.3	22.8	7.6	**13.9**	-4.4	38.6	
				650	1	97.8	36.9	3.9	3.5	6.5	22.7	8.3	**14.8**	-4.1	40.0	0.1
				650	2	97.5	36.6	3.9	3.5	6.6	22.4	8.3	**14.9**	-4.3	40.7	
				700	1	98.4	37.1	3.7	3.3	6.7	22.5	9.2	**15.8**	-4.6	42.7	0.1
				700	2	98.3	37.3	3.6	3.3	6.7	22.5	9.3	**16.0**	-4.5	42.9	
				750	1	99.4	37.9	3.6	3.2	6.8	22.8	10.2	**17.0**	-5.2	45.0	0.0
				750	2	99.3	38.4	3.5	3.2	6.8	22.3	10.2	**17.0**	-4.2	44.3	
				800	1	100	38.3	4.0	3.6	5.9	22.3	10.5	**16.4**	-4.0	42.8	0.1
				800	2	100	38.2	4.0	3.6	5.9	22.2	10.6	**16.5**	-4.2	43.3	
				850	1	100	36.9	7.1	6.9	3.2	22.3	8.8	**12.0**	-4.3	32.5	0.0
				850	2	100	36.9	7.2	7.0	3.2	22.1	8.9	**12.0**	-4.3	32.6	

D10	Mg	Sr	Yb	400	1	-0.1	0.1	0.2	0.0	0.0	0.3	0.0	**0.0**	-0.3	0.0	0.0
				400	2	1.1	1.0	0.2	0.0	0.0	0.3	0.0	**0.0**	0.6	0.0	
				450	1	98.4	34.8	4.3	3.9	5.0	18.9	5.5	**10.4**	1.5	29.9	0.9
				450	2	97.9	35.8	3.7	3.8	5.6	19.6	6.5	**12.1**	0.2	33.9	
				500	1	98.2	36.3	3.9	3.7	5.7	19.9	6.6	**12.2**	0.4	33.7	0.0
				500	2	97.7	35.9	3.9	3.8	5.6	20.0	6.6	**12.1**	0.0	33.8	
				550	1	97.4	35.6	4.3	3.9	5.2	19.9	6.2	**11.4**	0.5	32.0	0.1
				550	2	96.4	35.0	4.3	3.9	5.2	20.1	6.1	**11.2**	-0.2	32.1	
				600	1	96.9	35.5	4.3	3.8	5.1	20.1	6.2	**11.3**	0.3	31.9	0.0
				600	2	96.3	35.3	4.3	3.8	5.1	19.8	6.1	**11.3**	0.4	31.9	
				650	1	97.8	36.4	3.9	3.6	5.4	19.7	6.9	**12.3**	0.8	33.8	0.1
				650	2	97.6	36.3	3.9	3.6	5.5	19.5	6.9	**12.4**	0.9	34.2	
				700	1	98.8	37.3	3.6	3.4	5.7	19.6	7.8	**13.5**	0.9	36.2	0.1
				700	2	98.7	37.3	3.5	3.4	5.8	19.8	8.0	**13.8**	0.3	36.9	
				750	1	99.6	38.1	3.7	3.5	5.5	19.6	8.4	**13.9**	1.1	36.5	0.1
				750	2	99.6	38.1	3.7	3.5	5.7	19.7	8.5	**14.1**	0.7	37.1	
				800	1	100	37.6	5.3	5.2	4.4	20.0	8.0	**12.4**	0.0	32.8	0.0
				800	2	100	37.6	5.3	5.2	4.4	19.6	8.1	**12.5**	0.2	33.1	
				850	1	100	38.1	12.1	12.8	1.2	18.7	6.2	**7.4**	-0.8	19.4	0.0
				850	2	100	38.0	12.1	12.8	1.3	18.8	6.2	**7.5**	-1.1	19.7	
D11	Ga	Sr	Yb	400	1	-1.8	-1.9	0.3	0.2	0.0	0.6	0.0	**0.0**	-2.6	0.0	0.0
				400	2	-1.0	-1.3	0.3	0.1	0.0	0.6	0.0	**0.0**	-2.1	0.0	
				450	1	99.7	34.5	3.0	3.4	7.1	23.1	7.4	**14.5**	-6.6	42.0	0.2

				450	2	99.6	34.8	3.0	3.6	7.2	23.3	7.7	**14.9**	-6.9	42.7	
				500	1	99.7	35.2	3.2	3.4	7.3	23.6	8.0	**15.2**	-7.0	43.3	0.1
				500	2	99.7	35.3	3.1	3.4	7.3	23.7	8.1	**15.4**	-7.3	43.7	
				550	1	99.7	35.1	3.6	3.3	7.2	24.3	7.9	**15.1**	-7.7	43.1	0.1
				550	2	99.7	35.3	3.5	3.3	7.3	24.2	8.1	**15.3**	-7.6	43.5	
				600	1	99.8	35.1	4.2	3.3	7.0	24.9	7.6	**14.6**	-7.7	41.6	0.2
				600	2	99.8	35.1	4.1	3.3	7.1	24.6	7.8	**14.9**	-7.7	42.5	
				650	1	99.9	35.1	4.6	3.3	6.8	24.8	7.7	**14.5**	-7.5	41.4	0.1
				650	2	99.9	35.2	4.5	3.3	6.9	24.9	7.8	**14.7**	-7.8	41.8	
				700	1	99.9	35.4	4.7	3.4	6.5	24.8	8.3	**14.8**	-7.6	41.9	0.1
				700	2	99.9	35.5	4.6	3.4	6.6	25.0	8.4	**15.0**	-7.9	42.2	
				750	1	100	35.8	4.8	3.6	6.1	24.9	9.3	**15.4**	-8.0	43.0	0.0
				750	2	100	35.8	4.7	3.6	6.1	24.6	9.3	**15.4**	-7.7	43.1	
				800	1	100	35.6	5.9	4.9	4.8	24.6	9.1	**13.9**	-7.8	39.2	0.1
				800	2	100	35.7	5.7	4.8	4.9	24.2	9.2	**14.1**	-7.4	39.6	
				850	1	100	36.2	12.0	11.8	1.7	23.5	7.0	**8.8**	-7.8	24.2	0.0
				850	2	100	36.1	12.2	12.0	1.7	23.2	7.1	**8.8**	-7.9	24.3	
D12	Mg	Sr	Ba	400	1	0.6	0.0	0.2	0.1	0.0	0.4	0.0	**0.0**	-0.5	0.0	0.0
				400	2	0.7	0.5	0.2	0.0	0.0	0.4	0.0	**0.0**	0.0	0.0	
				450	1	5.6	1.8	1.1	0.5	0.0	2.1	0.0	**0.0**	-0.7	0.0	0.0
				450	2	6.2	2.7	1.0	0.5	0.0	1.9	0.0	**0.0**	0.3	0.0	
				500	1	90.8	32.7	4.5	4.3	4.7	20.7	5.3	**10.0**	-2.3	30.7	0.3
				500	2	88.3	32.4	4.2	4.1	5.0	20.7	5.6	**10.6**	-3.0	32.7	

550	1	94.5	34.1	5.3	4.4	4.4	22.1	5.2	**9.7**	-2.0	28.4	0.2
550	2	94.3	34.1	5.2	4.3	4.6	22.1	5.4	**10.0**	-2.3	29.2	
600	1	96.9	34.7	6.3	4.4	4.2	23.2	4.6	**8.8**	-1.8	25.5	0.2
600	2	96.9	34.7	6.1	4.3	4.3	23.2	4.9	**9.2**	-2.1	26.6	
650	1	98.0	35.0	6.9	4.6	4.2	23.9	4.5	**8.8**	-2.2	25.1	0.2
650	2	98.1	35.3	6.6	4.5	4.4	23.4	4.9	**9.3**	-1.9	26.3	
700	1	98.8	36.8	6.0	4.2	4.6	23.0	6.5	**11.2**	-1.7	30.4	0.4
700	2	98.8	36.9	5.7	4.1	4.9	23.5	7.1	**12.0**	-2.6	32.5	
750	1	99.3	38.5	5.1	3.8	5.0	22.4	9.1	**14.1**	-1.9	36.5	0.1
750	2	99.3	38.6	5.0	3.8	5.1	22.3	9.2	**14.3**	-1.8	37.2	
800	1	99.9	39.3	5.5	4.5	4.6	22.6	10.1	**14.7**	-2.4	37.3	0.1
800	2	99.9	39.4	5.4	4.4	4.7	22.5	10.2	**14.9**	-2.3	37.8	
850	1	100	38.3	9.6	8.9	2.3	21.9	7.9	**10.2**	-2.6	26.6	0.1
850	2	100	38.5	9.8	9.1	2.3	22.6	8.1	**10.4**	-3.6	27.1	

Table S14 Results of multicomponent La_2O_3 catalyst predicted with the Bayesian-1 inference on HTS and literature dataset at CH_4/O_2 = 2.0

Cat	M1	M2	M3	Temp /°C	Sampling	O_2 Conv. /%	CH_4 Conv. /%	H_2 yield /%	CO yield /%	C_2H_6 yield /%	CO_2 yield /%	C_2H_4 yield /%	C_2 yield /%	C missing /%	C_2 sel /%	σ
E1	Li	Ga	Yb	400	1	0.7	2.0	0.0	0.0	0.0	0.0	0.0	**0.0**	2.0	0.0	0.0
				400	2	1.1	1.8	0.0	0.0	0.0	0.1	0.0	**0.0**	1.7	0.0	
				450	1	2.2	2.1	0.2	0.2	0.0	0.2	0.0	**0.0**	1.6	0.0	0.0
				450	2	2.4	2.1	0.2	0.1	0.0	0.2	0.0	**0.0**	1.7	0.0	
				500	1	5.2	3.1	0.7	0.6	0.0	0.9	0.0	**0.0**	1.7	0.0	0.0
				500	2	4.9	3.0	0.6	0.5	0.0	0.7	0.0	**0.0**	1.7	0.0	
				550	1	9.9	4.7	1.5	1.4	0.0	1.7	0.0	**0.0**	1.6	0.4	0.0
				550	2	7.7	3.7	1.2	1.2	0.0	1.3	0.0	**0.0**	1.3	0.4	
				600	1	10.5	5.0	1.8	1.3	0.1	2.1	0.0	**0.1**	1.4	2.8	0.0
				600	2	9.2	4.3	1.6	1.2	0.1	1.8	0.0	**0.1**	1.1	2.9	
				650	1	88.9	34.6	2.8	3.3	6.1	18.5	7.7	**13.8**	-0.9	39.7	0.1
				650	2	90.8	35.4	2.9	3.6	6.1	18.7	7.8	**13.9**	-0.9	39.3	
				700	1	97.3	37.8	3.1	3.6	5.8	20.3	8.7	**14.4**	-0.6	38.2	0.0
				700	2	97.3	37.8	3.2	3.7	5.8	20.4	8.7	**14.5**	-0.8	38.3	
				750	1	99.2	38.0	3.3	3.5	5.2	21.0	8.9	**14.1**	-0.5	37.0	0.0
				750	2	99.2	37.9	3.3	3.5	5.2	21.1	9.0	**14.2**	-0.9	37.4	
				800	1	99.8	37.5	5.5	5.0	3.7	21.5	7.9	**11.5**	-0.6	30.7	0.1
				800	2	99.8	37.5	5.5	5.0	3.7	21.6	7.9	**11.7**	-0.7	31.1	
				850	1	100	37.8	8.1	8.4	2.0	20.7	7.0	**9.0**	-0.3	23.8	0.1

				850	2	100	40.0	7.4	8.1	2.0	19.6	6.8	**8.8**	3.5	22.1	
E2	Li	Yb	W	400	1	-2.6	-2.4	0.0	0.0	0.0	0.1	0.0	**0.0**	-2.5	0.0	0.0
				400	2	-2.5	-1.9	0.0	0.0	0.0	0.0	0.0	**0.0**	-2.0	0.0	
				450	1	-1.3	-0.8	0.1	0.1	0.0	0.2	0.0	**0.0**	-1.1	0.0	0.0
				450	2	-1.3	-0.8	0.1	0.1	0.0	0.2	0.0	**0.0**	-1.1	0.0	
				500	1	1.0	-0.1	0.4	0.4	0.0	0.7	0.0	**0.0**	-1.3	0.0	0.0
				500	2	0.8	0.0	0.4	0.4	0.0	0.7	0.0	**0.0**	-1.0	0.0	
				550	1	6.0	1.8	0.7	1.0	0.0	1.6	0.0	**0.0**	-0.8	1.2	0.0
				550	2	4.5	1.1	0.6	0.9	0.0	1.4	0.0	**0.0**	-1.2	1.7	
				600	1	8.9	2.5	0.9	1.2	0.1	2.3	0.0	**0.2**	-1.2	6.4	0.0
				600	2	6.8	1.6	0.7	1.0	0.1	2.0	0.0	**0.1**	-1.5	7.8	
				650	1	19.2	6.7	1.5	2.0	1.5	4.6	0.3	**1.8**	-1.8	27.5	0.1
				650	2	19.7	6.6	1.6	2.2	1.4	4.8	0.3	**1.7**	-2.0	25.3	
				700	1	92.0	36.2	3.7	4.3	6.6	21.1	9.4	**16.0**	-5.2	44.2	0.0
				700	2	93.3	36.4	3.7	4.5	6.5	21.4	9.5	**16.0**	-5.5	44.1	
				750	1	98.4	37.7	3.8	4.7	5.8	22.4	10.3	**16.1**	-5.6	42.8	0.0
				750	2	98.5	37.6	3.8	4.8	5.9	22.3	10.4	**16.2**	-5.7	43.1	
				800	1	99.7	37.6	4.4	5.0	4.9	23.1	10.7	**15.6**	-6.2	41.5	0.0
				800	2	99.7	37.5	4.4	5.0	4.9	23.3	10.7	**15.6**	-6.5	41.8	
				850	1	100	37.3	9.8	10.2	2.3	23.1	8.4	**10.7**	-6.7	28.6	0.1
				850	2	100	37.2	9.9	11.1	2.2	22.7	8.3	**10.5**	-7.2	28.2	
E3	Li	Na	Yb	400	1	-0.7	0.7	0.0	3.7	0.0	0.0	0.0	**0.0**	-3.0	0.0	0.0
				400	2	-0.5	0.1	0.0	0.0	0.0	0.0	0.0	**0.0**	0.1	0.0	

				450	1	-0.3	0.1	0.0	0.0	0.0	0.0	0.0	**0.0**	0.1	0.0	0.0
				450	2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	**0.0**	0.3	0.0	
				500	1	0.4	0.2	0.1	0.0	0.0	0.0	0.0	**0.0**	0.2	0.0	0.0
				500	2	0.9	0.6	0.1	0.0	0.0	0.0	0.0	**0.0**	0.6	0.0	
				550	1	1.6	0.7	0.3	0.1	0.0	0.2	0.0	**0.0**	0.4	1.8	0.0
				550	2	1.4	0.5	0.2	0.1	0.0	0.2	0.0	**0.0**	0.1	2.4	
				600	1	4.3	1.4	0.6	0.4	0.1	0.9	0.0	**0.1**	-0.1	6.1	0.0
				600	2	4.6	1.6	0.6	0.5	0.1	1.0	0.0	**0.1**	0.1	4.9	
				650	1	14.8	5.4	1.4	1.1	0.9	3.4	0.1	**1.1**	-0.2	20.2	0.0
				650	2	14.9	5.4	1.4	1.2	0.9	3.4	0.1	**1.0**	-0.1	18.7	
				700	1	98.8	38.2	2.5	2.4	6.0	20.8	10.2	**16.3**	-1.3	42.6	0.1
				700	2	98.9	38.2	2.9	2.9	6.1	20.7	10.0	**16.1**	-1.5	42.1	
				750	1	99.6	38.4	3.5	3.4	5.6	21.3	9.8	**15.4**	-1.7	40.2	0.0
				750	2	99.5	38.2	3.5	3.6	5.7	20.9	9.8	**15.5**	-1.8	40.6	
				800	1	99.9	38.3	4.3	4.4	4.8	20.9	9.7	**14.5**	-1.6	37.9	0.0
				800	2	99.9	38.1	4.4	4.7	4.8	20.5	9.7	**14.5**	-1.6	38.1	
				850	1	100	37.6	11.7	13.4	1.3	19.5	6.8	**8.1**	-3.4	21.6	0.1
				850	2	100	37.5	11.3	13.2	1.4	18.7	6.9	**8.3**	-2.6	22.0	
E4	Li	Ga	W	400	1	-1.7	-2.4	0.0	0.0	0.0	0.0	0.0	**0.0**	-2.5	0.0	0.0
				400	2	-0.5	-0.9	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.9	0.0	
				450	1	-0.1	-0.5	0.1	0.1	0.0	0.2	0.0	**0.0**	-0.8	0.0	0.0
				450	2	0.3	0.0	0.1	0.1	0.0	0.1	0.0	**0.0**	-0.2	0.0	
				500	1	1.3	0.3	0.4	0.3	0.0	0.4	0.0	**0.0**	-0.4	0.0	0.0

				500	2	1.2	0.5	0.3	0.3	0.0	0.4	0.0	**0.0**	-0.1	0.0		
				550	1	3.6	1.8	0.9	0.7	0.0	0.8	0.0	**0.0**	0.3	0.7	0.0	
				550	2	3.0	1.3	0.7	0.6	0.0	0.7	0.0	**0.0**	0.1	0.8		
				600	1	5.4	2.4	1.4	0.9	0.1	1.4	0.0	**0.1**	0.0	4.4	0.0	
				600	2	4.7	1.8	1.3	0.8	0.1	1.3	0.0	**0.1**	-0.4	5.3		
				650	1	12.6	5.4	2.7	1.8	1.1	3.3	0.3	**1.4**	-1.1	25.6	0.1	
				650	2	13.9	6.1	2.8	2.0	1.0	3.5	0.2	**1.2**	-0.6	19.9		
				700	1	94.6	35.3	2.6	4.1	5.8	21.3	8.7	**14.5**	-4.7	41.1	0.1	
				700	2	94.9	35.5	2.6	4.4	5.8	21.3	8.8	**14.6**	-4.9	41.2		
				750	1	98.0	36.5	3.0	3.8	5.4	22.6	9.2	**14.5**	-4.5	39.8	0.0	
				750	2	98.3	36.5	3.0	4.0	5.4	22.7	9.2	**14.6**	-4.8	40.0		
				800	1	99.6	36.6	3.5	4.6	4.6	22.8	9.2	**13.8**	-4.6	37.7	0.0	
				800	2	99.7	36.7	3.6	4.7	4.6	22.6	9.3	**13.9**	-4.5	37.8		
				850	1	99.9	37.5	8.6	10.3	2.4	21.9	7.9	**10.3**	-5.0	27.4	0.1	
				850	2	99.9	37.6	8.9	10.7	2.3	21.6	7.8	**10.1**	-4.8	26.9		
E5	Li	Ba	Yb	400	1	0.4	0.9	0.0	0.0	0.0	0.0	0.0	**0.0**	0.9	0.0	0.0	
				400	2	1.2	1.2	0.0	0.0	0.0	0.0	0.0	**0.0**	1.2	0.0		
				450	1	1.6	1.5	0.1	0.0	0.0	0.1	0.0	**0.0**	1.3	0.0	0.0	
				450	2	1.3	0.8	0.1	0.1	0.0	0.1	0.0	**0.0**	0.6	0.0		
				500	1	2.7	1.7	0.3	0.2	0.0	0.3	0.0	**0.0**	1.2	0.0	0.0	
				500	2	2.1	1.2	0.2	0.2	0.0	0.2	0.0	**0.0**	0.8	0.0		
				550	1	3.8	2.0	0.6	0.4	0.0	0.6	0.0	**0.0**	1.0	0.6	0.0	
				550	2	3.2	1.7	0.5	0.3	0.0	0.5	0.0	**0.0**	0.9	0.9		

				600	1	6.3	3.0	1.2	0.7	0.2	1.2	0.0	**0.2**	0.9	5.9	0.0
				600	2	6.0	2.6	1.1	0.7	0.1	1.2	0.0	**0.2**	0.6	6.0	
				650	1	17.8	8.1	2.6	1.7	1.4	3.8	0.4	**1.8**	0.8	22.4	0.1
				650	2	17.7	7.7	2.7	1.8	1.2	3.9	0.3	**1.6**	0.4	20.3	
				700	1	96.3	37.2	2.6	2.8	5.9	19.8	9.3	**15.2**	-0.7	40.9	0.2
				700	2	96.6	37.3	2.6	3.0	6.1	20.1	9.5	**15.6**	-1.4	41.8	
				750	1	98.4	37.7	2.9	3.1	5.6	20.7	9.6	**15.2**	-1.1	40.2	0.1
				750	2	98.4	37.6	2.9	3.1	5.7	20.6	9.8	**15.4**	-1.6	41.0	
				800	1	99.5	37.5	3.4	3.6	4.7	20.7	9.6	**14.3**	-1.0	38.2	0.1
				800	2	99.6	37.6	3.4	3.7	4.8	21.0	9.7	**14.5**	-1.6	38.6	
				850	1	99.9	37.6	6.9	7.7	2.6	20.0	8.6	**11.1**	-1.3	29.6	0.0
				850	2	99.9	37.5	7.2	8.1	2.5	20.3	8.5	**11.0**	-1.9	29.4	
E6	Li	Na	Ga	400	1	-1.0	0.0	0.0	4.7	0.0	0.0	0.0	**0.0**	-4.7	0.0	0.0
				400	2	-0.5	-0.7	0.0	0.7	0.0	0.0	0.0	**0.0**	-1.4	0.0	
				450	1	-0.2	-0.3	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.3	0.0	0.0
				450	2	0.0	-0.3	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.3	0.0	
				500	1	0.3	-0.1	0.2	0.0	0.0	0.0	0.0	**0.0**	-0.1	0.0	0.0
				500	2	0.4	-0.2	0.1	0.0	0.0	0.0	0.0	**0.0**	-0.3	0.0	
				550	1	1.3	-0.1	0.3	0.1	0.0	0.2	0.0	**0.0**	-0.3	0.0	0.0
				550	2	1.0	-0.2	0.2	0.1	0.0	0.2	0.0	**0.0**	-0.5	0.0	
				600	1	3.4	0.8	0.6	0.4	0.1	0.8	0.0	**0.1**	-0.4	9.1	0.0
				600	2	3.3	0.6	0.6	0.4	0.1	0.8	0.0	**0.1**	-0.7	11.9	
				650	1	11.4	4.1	1.5	0.9	0.8	2.8	0.1	**0.9**	-0.5	21.2	0.0

				650	2	11.1	3.5	1.5	1.0	0.7	2.8	0.1	**0.8**	-1.1	23.0	
				700	1	99.4	38.2	2.5	2.2	6.8	21.2	10.2	**17.0**	-2.1	44.4	0.2
				700	2	98.6	38.0	2.7	2.3	6.7	20.9	9.8	**16.6**	-1.9	43.7	
				750	1	99.5	37.7	3.3	2.9	6.0	21.6	9.8	**15.8**	-2.6	41.8	0.0
				750	2	99.4	37.5	3.4	3.0	6.0	21.6	9.8	**15.8**	-2.9	42.0	
				800	1	99.8	36.6	5.3	4.9	4.4	21.6	9.1	**13.6**	-3.4	37.1	0.0
				800	2	99.8	37.1	5.3	5.0	4.4	21.3	9.1	**13.5**	-2.7	36.5	
				850	1	100	37.8	12.6	13.0	1.2	20.5	6.7	**7.9**	-3.6	20.9	0.0
				850	2	100	37.7	12.5	13.0	1.2	20.6	6.8	**8.0**	-3.9	21.1	
E7	Ga	Yb	W	400	1	0.5	-2.3	0.3	0.1	0.0	0.6	0.0	**0.0**	-3.0	0.0	0.0
				400	2	1.4	-0.9	0.3	0.1	0.0	0.6	0.0	**0.0**	-1.6	0.0	
				450	1	98.6	32.9	5.6	4.3	5.0	24.9	4.4	**9.4**	-5.7	28.4	0.2
				450	2	98.2	33.2	5.5	4.3	5.2	25.1	4.7	**9.8**	-6.0	29.6	
				500	1	98.5	33.6	6.2	4.4	4.9	25.9	4.1	**9.0**	-5.7	26.9	0.3
				500	2	98.6	33.7	5.9	4.3	5.1	26.0	4.5	**9.6**	-6.2	28.6	
				550	1	98.9	33.7	6.5	4.3	4.9	26.5	4.1	**8.9**	-6.0	26.5	0.2
				550	2	98.9	33.9	6.3	4.2	5.0	26.2	4.4	**9.4**	-6.0	27.8	
				600	1	99.2	34.1	6.1	4.1	5.1	26.5	4.8	**9.9**	-6.3	29.0	0.1
				600	2	99.2	34.3	6.0	4.1	5.1	26.2	5.0	**10.1**	-6.1	29.5	
				650	1	99.6	34.9	5.3	3.8	5.2	26.1	6.1	**11.3**	-6.3	32.5	0.2
				650	2	99.5	34.5	5.3	3.7	5.4	26.2	6.3	**11.7**	-7.1	33.9	
				700	1	99.8	35.5	4.5	3.4	5.3	25.9	7.4	**12.7**	-6.5	35.9	0.1
				700	2	99.8	35.4	4.5	3.4	5.4	25.6	7.5	**12.9**	-6.5	36.6	

750	1	100	35.9	4.4	3.5	5.2	25.5	8.1	**13.3**	-6.4	37.0	0.1
750	2	100	35.9	4.4	3.5	5.3	25.2	8.2	**13.5**	-6.4	37.7	
800	1	100	36.5	5.8	5.2	4.2	24.9	8.1	**12.2**	-5.9	33.6	0.2
800	2	100	36.3	5.7	5.1	4.4	25.3	8.3	**12.6**	-6.8	34.9	
850	1	100	37.3	11.6	11.4	1.7	23.9	6.8	**8.5**	-6.4	22.8	0.0
850	2	100	37.4	11.8	11.6	1.7	23.6	6.9	**8.5**	-6.4	22.9	

Table S15 Results of multicomponent La_2O_3 catalyst predicted with the Bayesian-2 inference on HTS and literature dataset at CH_4/O_2 = 2.0

Cat	M1	M2	M3	Temp /°C	Sampling	O_2 Conv. /%	CH_4 Conv. /%	H_2 yield /%	CO yield /%	C_2H_6 yield /%	CO_2 yield /%	C_2H_4 yield /%	C_2 yield /%	C missing /%	C_2 sel /%	σ
F1*	Ga	Sr	Yb	400	1	-1.8	-1.9	0.3	0.2	0.0	0.6	0.0	**0.0**	-2.6	0.0	0.0
(D11)				400	2	-1.0	-1.3	0.3	0.1	0.0	0.6	0.0	**0.0**	-2.1	0.0	
				450	1	99.7	34.5	3.0	3.4	7.1	23.1	7.4	**14.5**	-6.6	42.0	0.2
				450	2	99.6	34.8	3.0	3.6	7.2	23.3	7.7	**14.9**	-6.9	42.7	
				500	1	99.7	35.2	3.2	3.4	7.3	23.6	8.0	**15.2**	-7.0	43.3	0.1
				500	2	99.7	35.3	3.1	3.4	7.3	23.7	8.1	**15.4**	-7.3	43.7	
				550	1	99.7	35.1	3.6	3.3	7.2	24.3	7.9	**15.1**	-7.7	43.1	0.1
				550	2	99.7	35.3	3.5	3.3	7.3	24.2	8.1	**15.3**	-7.6	43.5	
				600	1	99.8	35.1	4.2	3.3	7.0	24.9	7.6	**14.6**	-7.7	41.6	0.2
				600	2	99.8	35.1	4.1	3.3	7.1	24.6	7.8	**14.9**	-7.7	42.5	
				650	1	99.9	35.1	4.6	3.3	6.8	24.8	7.7	**14.5**	-7.5	41.4	0.1
				650	2	99.9	35.2	4.5	3.3	6.9	24.9	7.8	**14.7**	-7.8	41.8	
				700	1	99.9	35.4	4.7	3.4	6.5	24.8	8.3	**14.8**	-7.6	41.9	0.1
				700	2	99.9	35.5	4.6	3.4	6.6	25.0	8.4	**15.0**	-7.9	42.2	
				750	1	100	35.8	4.8	3.6	6.1	24.9	9.3	**15.4**	-8.0	43.0	0.0
				750	2	100	35.8	4.7	3.6	6.1	24.6	9.3	**15.4**	-7.7	43.1	
				800	1	100	35.6	5.9	4.9	4.8	24.6	9.1	**13.9**	-7.8	39.2	0.1
				800	2	100	35.7	5.7	4.8	4.9	24.2	9.2	**14.1**	-7.4	39.6	
				850	1	100	36.2	12.0	11.8	1.7	23.5	7.0	**8.8**	-7.8	24.2	0.0

				850	2	100	36.1	12.2	12.0	1.7	23.2	7.1	**8.8**	-7.9	24.3	
F2*	Li	Ga	Yb	400	1	0.7	2.0	0.0	0.0	0.0	0.0	0.0	**0.0**	2.0	0.0	0.0
(E1)				400	2	1.1	1.8	0.0	0.0	0.0	0.1	0.0	**0.0**	1.7	0.0	
				450	1	2.2	2.1	0.2	0.2	0.0	0.2	0.0	**0.0**	1.6	0.0	0.0
				450	2	2.4	2.1	0.2	0.1	0.0	0.2	0.0	**0.0**	1.7	0.0	
				500	1	5.2	3.1	0.7	0.6	0.0	0.9	0.0	**0.0**	1.7	0.0	0.0
				500	2	4.9	3.0	0.6	0.5	0.0	0.7	0.0	**0.0**	1.7	0.0	
				550	1	9.9	4.7	1.5	1.4	0.0	1.7	0.0	**0.0**	1.6	0.0	0.0
				550	2	7.7	3.7	1.2	1.2	0.0	1.3	0.0	**0.0**	1.3	0.0	
				600	1	10.5	5.0	1.8	1.3	0.1	2.1	0.0	**0.1**	1.4	2.8	0.0
				600	2	9.2	4.3	1.6	1.2	0.1	1.8	0.0	**0.1**	1.1	2,9	
				650	1	88.9	34.6	2.8	3.3	6.1	18.5	7.7	**13.8**	-0.9	39.7	0.1
				650	2	90.8	35.4	2.9	3.6	6.1	18.7	7.8	**13.9**	-0.9	39.3	
				700	1	97.3	37.8	3.1	3.6	5.8	20.3	8.7	**14.4**	-0.6	38.2	0.0
				700	2	97.3	37.8	3.2	3.7	5.8	20.4	8.7	**14.5**	-0.8	38.3	
				750	1	99.2	38.0	3.3	3.5	5.2	21.0	8.9	**14.1**	-0.5	37.0	0.0
				750	2	99.2	37.9	3.3	3.5	5.2	21.1	9.0	**14.2**	-0.9	37.4	
				800	1	99.8	37.5	5.5	5.0	3.7	21.5	7.9	**11.5**	-0.6	30.7	0.1
				800	2	99.8	37.5	5.5	5.0	3.7	21.6	7.9	**11.7**	-0.7	31.1	
				850	1	100	37.8	8.1	8.4	2.0	20.7	7.0	**9.0**	-0.3	23.8	0.1
				850	2	100	40.0	7.4	8.1	2.0	19.6	6.8	**8.8**	3.5	22.1	
F3	Ca	Ga	Yb	400	1	-1.4	-3.8	0.3	0.1	0.0	0.6	0.0	**0.0**	-4.5	0.0	0.0
				400	2	-0.6	-2.5	0.3	0.1	0.0	0.6	0.0	**0.0**	-3.2	0.0	

				450	1	99.2	32.8	5.3	4.2	5.4	25.4	5.2	**10.6**	-7.4	32.4	0.0
				450	2	98.4	33.1	5.3	4.3	5.4	25.5	5.3	**10.7**	-7.4	32.3	
				500	1	98.9	33.8	5.8	4.3	5.4	26.0	5.2	**10.6**	-7.1	31.4	0.1
				500	2	98.8	34.0	5.7	4.3	5.4	25.7	5.3	**10.8**	-6.7	31.6	
				550	1	99.1	33.9	6.6	4.3	5.1	26.6	4.6	**9.7**	-6.7	28.7	0.2
				550	2	99.0	34.1	6.4	4.3	5.2	26.2	4.9	**10.1**	-6.4	29.6	
				600	1	99.1	32.6	7.9	4.6	4.5	27.6	3.5	**8.1**	-7.6	24.7	0.4
				600	2	99.1	33.7	7.4	4.4	4.8	27.0	4.1	**8.9**	-6.7	26.5	
				650	1	99.2	33.7	7.6	4.7	4.6	27.0	4.2	**8.8**	-6.8	26.1	0.3
				650	2	99.3	33.9	7.4	4.6	4.8	27.2	4.6	**9.4**	-7.4	27.8	
				700	1	99.5	35.0	6.8	4.6	4.9	26.4	6.0	**10.8**	-6.9	31.0	0.1
				700	2	99.4	35.0	6.7	4.6	5.0	25.9	6.1	**11.1**	-6.5	31.6	
				750	1	99.6	36.1	6.3	4.6	4.5	25.2	7.9	**12.4**	-6.2	34.4	0.2
				750	2	99.6	36.1	6.2	4.6	4.7	25.7	8.2	**12.9**	-7.0	35.6	
				800	1	99.9	36.9	7.7	6.5	3.4	24.9	8.3	**11.7**	-6.2	31.8	0.4
				800	2	99.9	37.1	7.3	6.3	3.8	25.2	8.9	**12.6**	-7.0	34.0	
				850	1	100	38.2	11.4	10.9	2.1	24.2	8.1	**10.2**	-7.1	26.7	0.1
				850	2	100	37.9	11.6	11.1	2.1	23.9	8.2	**10.3**	-7.4	27.2	
F4	Ga	Eu	Yb	400	1	2.1	1.4	0.3	3.1	0.0	0.7	0.0	**0.0**	-2.3	0.0	0.0
				400	2	2.7	1.6	0.3	0.1	0.0	0.6	0.0	**0.0**	0.8	0.0	
				450	1	98.9	32.5	7.3	4.1	3.7	24.8	2.2	**5.8**	-2.2	17.9	0.2
				450	2	98.7	32.5	7.2	4.2	3.7	25.4	2.4	**6.1**	-3.2	18.9	
				500	1	99.1	32.5	7.5	4.2	3.9	25.8	2.5	**6.4**	-3.8	19.6	0.1

				500	2	99.0	32.5	7.3	4.1	3.8	25.4	2.7	**6.6**	-3.6	20.2	
				550	1	99.6	33.2	6.8	3.9	4.1	25.1	3.3	**7.4**	-3.2	22.3	0.1
				550	2	99.5	33.3	6.8	3.9	4.2	25.3	3.4	**7.6**	-3.5	22.8	
				600	1	99.9	34.3	5.9	3.6	4.5	24.6	4.6	**9.1**	-3.0	26.4	0.0
				600	2	99.9	34.3	5.9	3.6	4.5	24.5	4.6	**9.1**	-3.0	26.5	
				650	1	100.0	35.0	5.1	3.4	4.7	23.7	5.9	**10.6**	-2.7	30.2	N/A
				650	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**N/A**	N/A	N/A	
				700	1	100	35.9	4.5	3.3	4.7	22.8	7.1	**11.8**	-1.9	32.9	0.1
				700	2	100	36.1	4.6	3.3	4.8	23.0	7.3	**12.1**	-2.3	33.4	
				750	1	100	37.0	4.8	3.6	4.6	22.2	8.0	**12.6**	-1.5	34.1	0.3
				750	2	100	36.4	4.8	3.7	4.8	23.1	8.3	**13.1**	-3.5	36.0	
				800	1	100	36.9	7.7	6.7	2.9	22.6	6.7	**9.5**	-1.9	25.9	0.2
				800	2	100	36.8	7.4	6.5	3.0	22.3	6.9	**9.9**	-1.9	26.9	
				850	1	100	38.1	10.7	10.7	1.6	21.4	6.7	**8.3**	-2.3	21.7	0.1
				850	2	100	37.8	10.6	10.6	1.7	21.3	6.8	**8.5**	-2.5	22.4	
F5	Si	Ga	Yb	400	1	3.6	2.3	0.3	0.1	0.0	0.6	0.0	**0.0**	1.6	0.0	0.0
				400	2	4.1	2.5	0.3	0.1	0.0	0.6	0.0	**0.0**	1.8	0.0	
				450	1	99.2	35.4	4.3	3.8	5.2	22.1	5.0	**10.2**	-0.7	28.8	0.3
				450	2	99.2	35.6	4.2	3.8	5.4	22.2	5.4	**10.8**	-1.2	30.3	
				500	1	99.4	35.9	4.2	3.7	5.6	22.6	5.7	**11.2**	-1.6	31.3	0.1
				500	2	99.4	36.0	4.1	3.7	5.7	22.6	5.8	**11.5**	-1.9	31.9	
				550	1	99.5	36.1	4.2	3.6	5.6	22.4	6.0	**11.6**	-1.6	32.2	0.1
				550	2	99.5	36.1	4.1	3.6	5.7	22.7	6.1	**11.9**	-2.0	32.8	

				600	1	99.6	36.3	4.2	3.5	5.7	22.7	6.3	**12.0**	-2.0	33.2	0.0
				600	2	99.6	36.2	4.2	3.5	5.8	22.9	6.3	**12.1**	-2.3	33.4	
				650	1	99.7	36.6	4.3	3.5	5.6	22.5	6.6	**12.3**	-1.6	33.5	0.1
				650	2	99.7	36.6	4.2	3.5	5.7	22.8	6.7	**12.4**	-2.2	34.0	
				700	1	99.8	37.1	4.4	3.5	5.6	22.6	7.2	**12.8**	-1.8	34.4	0.1
				700	2	99.8	37.0	4.3	3.6	5.6	22.8	7.3	**12.9**	-2.3	34.8	
				750	1	100	37.7	4.7	3.8	5.2	22.5	7.8	**13.0**	-1.7	34.6	0.1
				750	2	100	37.5	4.6	3.8	5.3	22.7	8.0	**13.3**	-2.2	35.3	
				800	1	100	37.6	5.6	4.9	4.2	22.3	8.0	**12.2**	-1.7	32.5	0.0
				800	2	100	37.6	5.6	4.9	4.3	22.4	8.0	**12.3**	-2.0	32.7	
				850	1	100	38.5	12.0	12.0	1.3	21.3	6.3	**7.6**	-2.4	19.8	0.0
				850	2	100	38.5	12.1	12.1	1.4	21.4	6.4	**7.7**	-2.8	20.1	
F6	Ga	Ce	Yb	400	1	-0.9	-3.3	0.2	3.2	0.0	0.4	0.0	**0.0**	-6.9	0.0	0.0
				400	2	0.1	-2.2	0.2	0.1	0.0	0.4	0.0	**0.0**	-2.7	0.0	
				450	1	92.3	29.0	6.7	5.2	3.9	23.8	2.9	**6.9**	-6.9	23.8	0.3
				450	2	89.4	28.5	5.9	5.1	4.1	22.6	3.3	**7.4**	-6.6	26.0	
				500	1	89.4	28.5	7.2	5.5	3.5	23.0	2.5	**6.0**	-6.0	21.0	0.4
				500	2	89.7	28.8	6.7	5.4	3.9	22.8	3.0	**6.8**	-6.2	23.7	
				550	1	92.7	29.8	7.0	5.4	4.0	23.9	2.9	**6.9**	-6.3	23.0	0.3
				550	2	92.9	30.2	6.6	5.3	4.2	23.8	3.3	**7.4**	-6.2	24.6	
				600	1	95.9	31.9	5.6	4.7	4.7	23.8	4.5	**9.2**	-5.8	28.8	0.1
				600	2	95.9	32.1	5.5	4.7	4.8	23.6	4.6	**9.4**	-5.6	29.4	
				650	1	97.8	33.9	4.5	3.9	5.2	23.7	6.2	**11.4**	-5.1	33.6	0.1

				650	2	97.7	33.8	4.5	4.0	5.4	24.2	6.3	**11.7**	-6.1	34.5	
				700	1	99.3	35.0	3.7	3.5	5.5	24.2	7.5	**13.0**	-5.6	37.0	0.1
				700	2	99.2	35.0	3.8	3.5	5.4	23.6	7.4	**12.8**	-4.9	36.6	
				750	1	99.9	35.5	3.3	3.3	5.4	23.4	8.0	**13.3**	-4.4	37.5	0.2
				750	2	99.9	35.4	3.3	3.3	5.5	23.7	8.2	**13.7**	-5.3	38.6	
				800	1	100	35.9	3.4	3.4	5.0	23.4	8.5	**13.5**	-4.4	37.6	0.1
				800	2	100	36.0	3.4	3.5	4.9	22.9	8.3	**13.2**	-3.7	36.8	
				850	1	100	36.0	8.0	8.3	2.3	22.4	6.9	**9.2**	-4.0	25.7	0.1
				850	2	100	36.5	8.9	9.3	2.1	22.6	7.0	**9.1**	-4.5	24.8	
F7	Ga	Ba	Yb	400	1	-0.1	0.3	0.3	0.1	0.0	0.6	0.0	**0.0**	-0.4	0.0	0.0
				400	2	-0.1	0.7	0.3	0.1	0.0	0.6	0.0	**0.0**	0.0	0.0	
				450	1	95.1	30.9	6.0	4.6	3.7	22.0	3.1	**6.9**	-2.6	22.3	0.1
				450	2	94.3	30.3	6.0	4.6	3.8	22.3	3.4	**7.1**	-3.7	23.5	
				500	1	97.7	32.9	5.7	4.4	4.3	22.6	4.2	**8.5**	-2.6	25.8	0.1
				500	2	97.5	32.7	5.6	4.4	4.3	22.6	4.4	**8.8**	-3.0	26.8	
				550	1	98.4	33.8	5.3	4.0	4.7	22.5	5.1	**9.8**	-2.5	29.0	0.1
				550	2	98.4	33.9	5.2	4.0	4.8	22.7	5.3	**10.1**	-2.8	29.8	
				600	1	98.8	35.0	4.7	3.6	5.2	22.4	6.1	**11.3**	-2.3	32.2	0.1
				600	2	98.7	34.9	4.7	3.6	5.3	22.7	6.2	**11.5**	-3.0	33.1	
				650	1	99.1	36.0	4.1	3.1	5.5	21.7	7.4	**12.9**	-1.8	35.8	0.1
				650	2	99.0	36.0	4.1	3.2	5.6	21.8	7.4	**13.0**	-2.0	36.2	
				700	1	99.5	36.8	3.8	2.9	5.6	21.5	8.1	**13.7**	-1.3	37.3	0.1
				700	2	99.4	36.5	3.8	2.9	5.6	21.3	8.2	**13.9**	-1.5	37.9	

750	1	99.9	36.9	3.7	2.9	5.5	21.6	8.7	**14.2**	-1.8	38.6	0.1
750	2	99.9	37.4	3.6	2.8	5.6	21.5	8.7	**14.4**	-1.2	38.4	
800	1	100	37.4	3.9	3.3	5.1	21.7	9.0	**14.1**	-1.7	37.8	0.2
800	2	100	37.1	3.8	3.2	5.3	21.8	9.2	**14.5**	-2.4	39.0	
850	1	100	36.4	9.7	9.4	1.9	20.9	6.7	**8.6**	-2.5	23.6	0.0
850	2	100	36.4	10.0	9.7	1.8	21.0	6.8	**8.6**	-3.0	23.7	

Note that “*” is the duplicating multicomponent with previous tables. N/A is not available owing to microGC error.

Table S16 Results of selected multicomponent La_2O_3 catalyst predicted with the RF, SVR, and Bayesian-1 and Bayesian-2 inference on HTS and literature dataset at $CH_4/O_2 = 3.5$

Cat	M1	M2	M3	Temp /°C	Sampling	O_2 Conv. /%	CH_4 Conv. /%	H_2 yield /%	CO yield /%	C_2H_6 yield /%	CO_2 yield /%	C_2H_4 yield /%	C_2 yield /%	C missing /%	C_2 sel /%	σ
C2	Zn	Ga	Eu	400	1	2.3	0.7	0.3	0.1	0.0	0.5	0.0	**0.0**	0.0	0.0	0.0
				400	2	2.2	0.3	0.3	0.1	0.0	0.5	0.0	**0.0**	-0.3	0.0	
				450	1	91.4	17.7	7.2	3.0	1.9	13.1	0.5	**2.4**	-0.8	13.7	0.0
				450	2	89.0	16.1	7.4	3.1	1.8	13.3	0.5	**2.4**	-2.6	14.6	
				500	1	98.1	18.8	7.3	3.5	2.7	13.9	0.9	**3.6**	-2.2	19.2	0.0
				500	2	97.7	18.8	7.3	3.5	2.7	13.8	0.9	**3.6**	-2.1	19.3	
				550	1	99.3	19.9	6.7	3.5	3.3	13.3	1.4	**4.7**	-1.6	23.6	0.0
				550	2	99.1	19.8	6.6	3.5	3.3	13.4	1.4	**4.8**	-1.9	24.0	
				600	1	99.7	20.7	5.8	3.3	4.0	12.8	2.1	**6.2**	-1.5	29.8	0.0
				600	2	99.7	20.8	5.7	3.3	4.0	12.9	2.2	**6.2**	-1.7	30.0	
				650	1	100	22.7	4.7	2.9	4.8	12.2	3.5	**8.3**	-0.7	36.5	0.0
				650	2	100	22.3	4.6	2.9	4.8	12.2	3.5	**8.3**	-1.1	37.3	
				700	1	100	23.5	3.7	2.4	5.5	11.5	5.0	**10.5**	-1.0	44.8	0.0
				700	2	100	24.0	3.7	2.4	5.5	11.4	5.0	**10.6**	-0.4	44.1	
				750	1	100	25.0	3.2	2.3	5.7	10.9	6.1	**11.8**	0.0	47.2	0.1
				750	2	100	24.8	3.2	2.6	5.8	10.8	6.2	**11.9**	-0.5	48.1	
				800	1	100	25.0	3.4	2.5	5.2	10.6	6.8	**12.0**	-0.1	47.9	0.0
				800	2	100	24.8	3.3	2.2	5.2	10.3	6.7	**12.0**	0.3	48.2	

				850	1	100	23.8	4.6	3.5	3.4	10.2	6.7	**10.1**	0.1	42.2	0.1
				850	2	100	23.8	4.6	4.8	3.4	10.3	6.9	**10.3**	-1.6	43.2	
D10	Mg	Sr	Yb	400	1	4.2	-1.5	0.3	0.1	0.0	0.0	0.0	**0.0**	-1.6	0.0	0.0
				400	2	3.8	-1.1	0.2	0.1	0.0	0.1	0.0	**0.0**	-1.3	0.0	
				450	1	9.3	0.2	0.7	0.4	0.0	1.1	0.0	**0.0**	-1.3	0.0	0.0
				450	2	8.7	1.0	0.6	0.3	0.0	1.0	0.0	**0.0**	-0.3	0.0	
				500	1	50.0	8.6	4.2	2.8	0.2	6.8	0.0	**0.2**	-1.2	2.0	0.1
				500	2	18.8	3.2	1.4	1.0	0.0	2.3	0.0	**0.0**	-0.1	0.0	
				550	1	76.6	14.8	6.7	4.1	1.0	11.3	0.2	**1.3**	-2.0	8.7	0.1
				550	2	72.8	13.8	6.5	4.0	0.9	10.9	0.2	**1.1**	-2.2	7.9	
				600	1	86.0	17.3	6.4	4.2	2.4	12.1	1.0	**3.4**	-2.3	19.4	0.1
				600	2	85.4	17.0	6.4	4.1	2.3	11.8	0.9	**3.2**	-2.2	19.1	
				650	1	91.5	20.5	5.0	3.4	4.0	11.5	3.3	**7.3**	-1.7	35.8	0.0
				650	2	91.4	20.3	5.0	3.4	4.0	11.6	3.3	**7.3**	-2.0	36.1	
				700	1	95.3	22.5	3.8	2.7	4.9	11.3	5.5	**10.4**	-1.9	46.1	0.2
				700	2	95.3	22.5	3.8	2.6	5.1	11.4	5.7	**10.8**	-2.3	47.9	
				750	1	98.1	24.0	3.2	2.4	5.2	10.8	6.8	**12.1**	-1.4	50.4	0.4
				750	2	98.1	24.1	3.1	2.4	5.6	11.3	7.3	**12.9**	-2.5	53.6	
				800	1	99.8	25.0	3.3	2.5	5.5	11.5	8.2	**13.7**	-2.7	54.9	0.1
				800	2	99.7	24.9	3.2	2.4	5.6	11.4	8.3	**13.9**	-2.8	55.6	
				850	1	100	24.7	4.2	3.2	4.1	11.3	8.4	**12.5**	-2.4	50.6	0.1
				850	2	100	24.6	4.2	3.1	4.1	11.3	8.5	**12.6**	-2.5	51.3	
D11	Ga	Sr	Yb	400	1	1.6	0.1	0.3	0.1	0.0	0.3	0.0	**0.0**	-0.3	0.0	0.0

(F1)				400	2	1.5	-0.4	0.3	0.1	0.0	0.4	0.0	**0.0**	-0.9	0.0	
				450	1	10.0	0.8	0.9	0.4	0.0	1.7	0.0	**0.0**	-1.3	0.0	0.0
				450	2	9.0	0.7	0.9	0.4	0.0	1.5	0.0	**0.0**	-1.3	0.0	
				500	1	82.2	11.7	6.3	3.8	1.3	11.6	0.3	**1.6**	-5.2	13.3	0.2
				500	2	77.8	12.8	6.0	3.5	1.0	10.8	0.2	**1.2**	-2.7	9.2	
				550	1	90.1	16.0	6.4	4.0	2.1	12.0	0.6	**2.7**	-2.7	16.8	0.1
				550	2	89.0	15.8	6.4	3.9	2.0	11.8	0.6	**2.5**	-2.4	15.9	
				600	1	93.8	18.0	5.9	3.9	3.1	12.0	1.3	**4.4**	-2.3	24.6	0.0
				600	2	93.6	17.8	5.9	3.8	3.1	12.1	1.3	**4.4**	-2.5	24.9	
				650	1	96.1	19.6	5.1	3.4	4.1	11.8	2.6	**6.7**	-2.3	34.3	0.0
				650	2	96.1	19.5	5.1	3.4	4.2	11.9	2.7	**6.8**	-2.6	34.9	
				700	1	98.3	22.3	4.0	2.6	5.1	11.2	4.7	**9.8**	-1.2	43.8	0.2
				700	2	98.3	22.3	3.9	2.7	5.3	11.5	4.9	**10.2**	-2.1	45.8	
				750	1	99.5	23.7	3.4	2.4	5.7	11.1	6.5	**12.1**	-2.0	51.2	0.1
				750	2	99.5	23.8	3.4	2.4	5.8	11.2	6.6	**12.4**	-2.2	52.2	
				800	1	100	24.4	3.8	3.1	5.3	11.1	7.4	**12.6**	-2.4	51.8	0.1
				800	2	100	24.5	3.8	2.4	5.4	11.1	7.5	**12.9**	-1.9	52.5	
				850	1	100	23.7	5.3	4.2	3.3	10.7	7.2	**10.6**	-1.7	44.5	0.0
				850	2	100	23.7	5.3	3.9	3.3	10.6	7.2	**10.6**	-1.4	44.6	
E7	Ga	Yb	W	400	1	6.3	0.3	0.3	0.1	0.0	0.5	0.0	**0.0**	-0.3	0.0	0.0
				400	2	6.4	1.1	0.3	0.1	0.0	0.5	0.0	**0.0**	0.4	0.0	
				450	1	79.6	14.6	6.3	3.0	1.0	11.9	0.2	**1.1**	-1.4	7.7	0.1
				450	2	71.5	13.1	6.0	2.8	0.7	11.1	0.1	**0.8**	-1.6	6.4	

				500	1	87.5	16.2	7.1	3.5	0.9	13.5	0.1	**1.1**	-1.9	6.6	0.1
				500	2	85.2	15.6	7.1	3.5	0.8	13.2	0.1	**1.0**	-2.1	6.2	
				550	1	94.6	18.0	7.4	4.0	1.7	14.1	0.3	**2.0**	-2.0	10.9	0.1
				550	2	93.9	18.0	7.5	4.0	1.5	13.6	0.3	**1.8**	-1.5	9.9	
				600	1	96.7	20.0	6.8	4.0	2.8	13.9	1.0	**3.8**	-1.7	19.1	0.0
				600	2	96.5	19.9	6.9	4.1	2.8	14.1	0.9	**3.8**	-2.1	19.0	
				650	1	97.4	21.4	6.0	3.7	3.7	13.4	2.1	**5.8**	-1.5	27.3	0.0
				650	2	97.3	21.3	6.0	3.8	3.8	13.5	2.1	**5.8**	-1.8	27.4	
				700	1	98.3	23.0	5.0	3.3	4.3	12.8	3.8	**8.1**	-1.2	35.4	0.1
				700	2	98.3	22.6	5.0	3.3	4.4	12.9	3.9	**8.3**	-1.8	36.5	
				750	1	99.4	24.0	4.1	2.7	4.6	12.0	5.8	**10.4**	-1.2	43.3	0.1
				750	2	99.4	24.1	4.0	2.7	4.7	12.2	6.0	**10.7**	-1.4	44.3	
				800	1	100	25.3	4.0	2.9	4.4	12.1	6.9	**11.3**	-1.0	44.8	0.2
				800	2	100	25.2	4.0	2.7	4.6	12.1	7.1	**11.7**	-1.2	46.2	
				850	1	100	25.1	5.1	4.0	3.2	11.7	7.1	**10.3**	-0.9	41.1	0.0
				850	2	100	25.2	5.0	3.7	3.2	11.6	7.2	**10.4**	-0.5	41.2	
F3	Ca	Ga	Yb	400	1	2.0	0.0	0.3	0.4	0.0	0.4	0.0	**0.0**	-0.7	0.0	0.0
				400	2	1.3	-1.7	0.3	0.6	0.0	0.5	0.0	**0.0**	-2.7	0.0	
				450	1	11.1	1.2	1.0	0.4	0.0	1.8	0.0	**0.0**	-1.1	0.0	0.0
				450	2	9.5	1.0	0.9	0.4	0.0	1.6	0.0	**0.0**	-1.0	0.0	
				500	1	78.8	13.1	6.4	3.8	0.7	11.7	0.1	**0.8**	-3.1	5.8	0.0
				500	2	71.1	11.7	5.9	3.6	0.7	10.5	0.1	**0.8**	-3.2	6.6	
				550	1	93.1	16.6	6.7	4.1	2.0	13.0	0.5	**2.5**	-2.9	14.9	0.1

				550	2	91.9	16.2	6.7	4.1	1.9	13.2	0.4	**2.3**	-3.3	14.3	
				600	1	96.3	18.6	6.0	3.8	3.3	13.0	1.4	**4.7**	-3.0	25.3	0.1
				600	2	96.0	18.3	6.0	3.8	3.2	13.0	1.3	**4.6**	-3.1	25.0	
				650	1	97.5	20.1	5.2	3.4	4.1	12.4	2.7	**6.9**	-2.6	34.2	0.0
				650	2	97.4	20.0	5.2	3.5	4.1	12.6	2.7	**6.8**	-2.9	34.2	
				700	1	98.5	22.4	4.1	3.0	4.8	11.7	5.1	**9.9**	-2.2	44.2	0.1
				700	2	98.5	22.4	4.0	3.0	4.9	11.7	5.2	**10.2**	-2.4	45.3	
				750	1	99.4	23.9	3.4	4.6	5.2	11.2	6.9	**12.0**	-3.9	50.3	0.1
				750	2	99.4	24.1	3.4	3.1	5.3	11.1	6.9	**12.2**	-2.2	50.5	
				800	1	100	24.2	4.1	3.4	4.4	11.3	7.4	**11.8**	-2.3	48.8	0.2
				800	2	100	24.3	4.0	3.6	4.6	11.3	7.7	**12.2**	-2.9	50.3	
				850	1	100	23.2	6.4	6.3	2.2	11.0	6.7	**8.9**	-3.0	38.5	0.1
				850	2	100	21.7	6.2	5.2	2.3	10.8	6.9	**9.2**	-3.4	42.4	
F5	Si	Ga	Yb	400	1	5.0	1.0	0.2	0.1	0.0	0.3	0.0	**0.0**	0.6	0.0	0.0
				400	2	4.4	1.6	0.2	0.0	0.0	0.5	0.0	**0.0**	1.2	0.0	
				450	1	89.6	15.9	1.1	0.0	1.5	10.6	0.3	**1.8**	3.5	11.3	0.2
				450	2	87.7	15.2	0.7	0.0	1.2	10.4	0.2	**1.5**	3.3	9.6	
				500	1	94.6	18.1	1.7	0.0	2.2	11.2	0.6	**2.8**	4.2	15.4	0.0
				500	2	94.1	17.9	1.5	0.0	2.2	11.2	0.5	**2.7**	4.0	15.1	
				550	1	97.3	19.8	2.1	0.0	3.1	11.6	1.1	**4.2**	4.0	21.2	0.0
				550	2	97.0	19.9	2.2	0.0	3.1	11.5	1.1	**4.2**	4.1	21.2	
				600	1	99.2	21.7	2.3	0.0	4.0	11.7	1.8	**5.8**	4.2	26.7	0.1
				600	2	99.1	21.8	2.3	0.0	4.0	11.8	1.9	**5.9**	4.0	27.2	

650	1	99.6	23.9	2.3	0.0	5.0	11.6	3.6	**8.6**	3.8	35.8	0.0
650	2	99.6	23.9	2.3	0.0	5.0	11.6	3.6	**8.6**	3.7	36.0	
700	1	99.7	25.5	2.2	0.0	5.5	11.4	5.0	**10.5**	3.7	41.0	0.1
700	2	99.7	25.5	2.1	0.0	5.5	11.5	5.1	**10.6**	3.3	41.7	
750	1	99.8	26.6	2.2	0.0	5.4	11.3	6.3	**11.7**	3.6	44.1	0.0
750	2	99.8	26.5	2.3	0.0	5.4	11.2	6.3	**11.7**	3.6	44.2	
800	1	99.9	26.6	2.9	0.0	4.9	11.4	7.1	**12.0**	3.3	45.0	0.0
800	2	99.9	26.7	2.9	0.0	4.9	11.2	7.1	**12.0**	3.4	45.0	
850	1	100	26.7	4.4	0.0	3.5	11.2	7.5	**11.0**	4.5	41.2	0.1
850	2	100	26.3	4.4	0.0	3.6	11.4	7.7	**11.2**	3.7	42.7	

Table S17 Results of selected multicomponent La_2O_3 catalyst predicted with the RF, SVR, and Bayesian-1 and Bayesian-2 inference on HTS and literature dataset at $CH_4/O_2 = 5.0$

Cat	M1	M2	M3	Temp /°C	Sampling	O_2 Conv. /%	CH_4 Conv. /%	H_2 yield /%	CO yield /%	C_2H_6 yield /%	CO_2 yield /%	C_2H_4 yield /%	C_2 yield /%	C missing /%	C_2 sel /%	σ
C2	Zn	Ga	Eu	400	1	6.0	1.2	0.3	0.1	0.0	0.5	0.0	**0.0**	0.6	0.8	0.0
				400	2	6.1	0.6	0.3	0.4	0.0	0.5	0.0	**0.0**	-0.4	0.0	
				450	1	85.8	11.9	5.6	2.0	1.0	9.1	0.1	**1.1**	-0.3	9.4	0.3
				450	2	75.2	9.2	5.4	1.8	0.6	8.5	0.0	**0.6**	-1.7	6.5	
				500	1	93.4	12.5	6.2	2.6	1.6	9.7	0.2	**1.8**	-1.6	14.6	0.1
				500	2	91.9	12.2	6.3	2.6	1.4	9.5	0.2	**1.6**	-1.6	12.9	
				550	1	96.7	13.5	5.7	2.9	2.6	9.3	0.5	**3.1**	-1.8	23.0	0.1
				550	2	96.3	13.3	5.8	2.9	2.5	9.3	0.5	**3.0**	-1.9	22.3	
				600	1	98.2	15.0	4.8	2.8	3.5	8.6	1.2	**4.7**	-1.1	31.4	0.1
				600	2	97.9	14.7	4.8	2.8	3.5	8.6	1.1	**4.6**	-1.3	31.3	
				650	1	98.9	16.1	3.9	2.4	4.3	7.9	2.2	**6.5**	-0.7	40.1	0.0
				650	2	98.8	15.9	3.9	2.4	4.3	8.0	2.2	**6.5**	-1.1	41.1	
				700	1	99.4	17.5	3.1	2.0	5.0	7.4	3.6	**8.6**	-0.6	49.5	0.0
				700	2	99.3	17.8	3.1	2.0	5.0	7.3	3.7	**8.7**	-0.2	48.8	
				750	1	99.8	19.4	2.7	1.8	5.0	6.5	4.6	**9.6**	1.5	49.3	0.4
				750	2	100	19.1	2.7	1.8	5.5	6.9	4.9	**10.4**	0.1	54.4	
				800	1	100	19.4	3.1	2.0	4.8	6.7	5.7	**10.4**	0.2	53.8	0.1
				800	2	100	19.4	3.1	2.0	4.9	6.7	5.8	**10.6**	0.1	54.8	

				850	1	100	18.4	4.3	3.2	2.8	6.6	5.6	**8.5**	0.1	46.1	0.2
				850	2	100	18.2	4.2	3.1	3.0	6.7	5.8	**8.8**	-0.5	48.6	
D10	Mg	Sr	Yb	400	1	4.4	-0.6	0.2	0.0	0.0	0.1	0.0	**0.0**	-0.8	0.0	0.0
				400	2	4.3	-0.2	0.2	0.0	0.0	0.3	0.0	**0.0**	-0.5	0.0	
				450	1	13.9	1.3	0.8	0.3	0.0	1.3	0.0	**0.0**	-0.3	0.0	0.0
				450	2	12.4	1.4	0.7	0.3	0.0	1.2	0.0	**0.0**	0.0	0.0	
				500	1	65.9	8.3	4.3	2.6	0.3	7.0	0.0	**0.3**	-1.6	3.9	0.1
				500	2	41.2	5.0	2.3	1.5	0.0	4.2	0.0	**0.0**	-0.7	0.6	
				550	1	80.8	10.9	5.5	3.5	0.8	8.4	0.1	**0.9**	-1.9	8.2	0.2
				550	2	74.5	9.9	5.3	3.3	0.5	7.8	0.1	**0.5**	-1.8	5.6	
				600	1	87.9	12.6	5.8	3.8	1.6	8.9	0.3	**2.0**	-2.1	15.8	0.1
				600	2	86.6	12.4	5.8	3.8	1.5	8.8	0.3	**1.8**	-2.0	14.8	
				650	1	92.8	14.9	5.3	3.6	3.0	8.8	1.1	**4.1**	-1.5	27.4	0.0
				650	2	92.5	14.9	5.3	3.6	3.0	8.9	1.1	**4.1**	-1.6	27.4	
				700	1	96.0	17.0	4.5	3.2	4.3	8.6	2.8	**7.1**	-1.9	41.8	0.0
				700	2	95.9	16.9	4.5	3.1	4.2	8.5	2.8	**7.0**	-1.8	41.7	
				750	1	98.5	20.3	3.5	2.8	5.4	8.2	5.4	**10.7**	-1.5	53.0	0.1
				750	2	98.4	20.5	3.4	2.6	5.5	8.0	5.5	**11.0**	-1.0	53.6	
				800	1	100	22.3	3.4	2.3	5.7	7.9	7.2	**12.9**	-0.8	57.9	0.2
				800	2	100	22.1	3.4	2.1	5.8	7.6	7.4	**13.2**	-0.9	59.9	
				850	1	100	22.2	4.4	3.3	4.1	7.4	8.0	**12.1**	-0.5	54.3	0.2
				850	2	100	22.2	4.4	3.8	3.9	7.1	7.7	**11.6**	-0.2	52.2	
D11	Ga	Sr	Yb	400	1	5.6	3.1	0.3	0.5	0.0	0.4	0.0	**0.0**	2.2	0.0	0.0

(F1)				400	2	6.1	2.9	0.2	1.1	0.0	0.5	0.0	**0.0**	1.4	0.0	
				450	1	19.9	3.9	0.8	0.5	0.0	1.8	0.0	**0.0**	1.6	0.2	0.0
				450	2	15.7	3.9	0.6	0.3	0.0	1.4	0.0	**0.0**	2.2	0.0	
				500	1	86.1	12.8	4.6	2.9	1.1	7.9	0.2	**1.3**	0.7	10.3	0.1
				500	2	82.8	12.1	4.6	2.8	0.9	7.7	0.1	**1.1**	0.5	9.0	
				550	1	92.2	14.4	4.7	3.2	2.1	8.0	0.5	**2.6**	0.6	17.9	0.1
				550	2	91.4	14.2	4.8	3.1	2.0	7.9	0.4	**2.4**	0.7	17.0	
				600	1	94.7	16.0	4.3	2.9	3.1	7.7	1.2	**4.3**	1.0	27.0	0.0
				600	2	94.5	15.9	4.3	2.9	3.2	7.8	1.2	**4.3**	0.8	27.2	
				650	1	96.8	18.2	3.3	2.2	4.5	7.4	2.8	**7.3**	1.3	40.0	0.1
				650	2	96.8	18.4	3.3	2.2	4.6	7.5	2.9	**7.5**	1.3	40.6	
				700	1	98.6	20.0	2.5	0.6	5.3	7.0	4.4	**9.7**	2.8	48.5	0.0
				700	2	98.5	20.0	2.5	1.6	5.3	6.9	4.5	**9.8**	1.7	48.9	
				750	1	99.7	20.8	2.2	1.4	5.7	6.8	5.3	**11.0**	1.6	52.8	0.1
				750	2	99.7	21.2	2.2	1.4	5.8	6.8	5.4	**11.1**	1.9	52.6	
				800	1	100	21.1	2.4	1.5	5.1	6.4	5.6	**10.7**	2.5	50.6	0.1
				800	2	100	21.3	2.4	1.5	5.0	6.1	5.4	**10.4**	3.4	48.8	
				850	1	100	20.4	3.1	0.9	3.7	6.5	6.1	**9.8**	3.2	48.2	0.4
				850	2	100	20.7	3.0	2.0	3.4	5.9	5.7	**9.1**	3.7	44.1	
E7	Ga	Yb	W	400	1	5.5	-0.6	0.2	0.1	0.0	0.4	0.0	**0.0**	-1.1	0.0	0.0
				400	2	5.7	0.2	0.2	0.1	0.0	0.4	0.0	**0.0**	-0.3	0.0	
				450	1	70.1	9.6	4.4	2.2	0.7	7.6	0.1	**0.7**	-0.9	7.7	0.3
				450	2	46.2	5.6	2.9	1.4	0.1	5.3	0.0	**0.1**	-1.2	2.1	

				500	1	85.4	11.7	5.4	3.1	1.1	9.1	0.1	**1.3**	-1.7	11.0	0.1
				500	2	83.1	11.4	5.3	3.0	1.0	9.0	0.1	**1.1**	-1.7	10.0	
				550	1	91.9	13.1	5.8	3.5	1.5	9.6	0.2	**1.7**	-1.7	13.2	0.0
				550	2	91.1	12.9	5.8	3.5	1.5	9.5	0.2	**1.7**	-1.9	13.1	
				600	1	95.4	14.9	5.6	3.7	2.8	9.3	0.7	**3.6**	-1.7	24.1	0.1
				600	2	95.0	14.5	5.6	3.7	2.8	9.3	0.7	**3.5**	-2.1	24.0	
				650	1	96.6	16.6	5.0	3.4	4.1	8.9	2.0	**6.1**	-1.8	36.7	0.0
				650	2	96.4	16.6	5.0	3.4	4.1	8.9	2.0	**6.0**	-1.7	36.2	
				700	1	97.8	18.8	4.4	2.8	4.7	8.4	4.0	**8.7**	-1.1	46.4	0.0
				700	2	97.7	18.7	4.4	2.8	4.8	8.4	4.0	**8.8**	-1.3	46.8	
				750	1	99.4	20.2	4.1	2.5	4.6	8.0	5.9	**10.5**	-0.7	51.9	0.0
				750	2	99.4	20.4	4.1	2.5	4.6	7.8	5.9	**10.5**	-0.4	51.3	
				800	1	100	20.7	5.1	0.7	3.4	8.0	6.7	**10.1**	1.9	48.9	0.2
				800	2	100	20.7	5.0	3.2	3.6	8.0	6.9	**10.5**	-0.9	50.4	
				850	1	100	20.4	7.1	5.5	1.5	7.6	6.7	**8.2**	-0.8	40.2	0.1
				850	2	100	20.3	7.1	5.4	1.6	7.6	6.8	**8.3**	-1.1	41.1	
F3	Ca	Ga	Yb	400	1	6.0	1.5	0.3	0.7	0.0	0.5	0.0	**0.0**	0.3	0.0	0.0
				400	2	5.2	0.9	0.2	0.6	0.0	0.5	0.0	**0.0**	-0.2	0.0	
				450	1	13.9	1.6	0.7	0.4	0.0	1.3	0.0	**0.0**	-0.1	0.0	0.0
				450	2	14.1	2.1	0.7	0.3	0.0	1.3	0.0	**0.0**	0.5	0.0	
				500	1	86.2	10.7	4.8	2.9	1.0	8.1	0.1	**1.2**	-1.4	11.1	0.1
				500	2	82.7	10.0	4.7	2.8	0.9	7.9	0.1	**1.0**	-1.7	9.8	
				550	1	94.0	12.8	5.0	3.2	1.9	8.5	0.3	**2.3**	-1.1	17.5	0.1

				550	2	93.1	12.3	5.0	3.2	1.8	8.4	0.3	**2.1**	-1.5	17.3	
				600	1	96.2	14.0	4.7	3.1	3.0	8.2	0.8	**3.8**	-1.2	27.3	0.1
				600	2	95.9	13.8	4.7	3.2	2.9	8.2	0.8	**3.7**	-1.3	26.9	
				650	1	97.2	15.7	4.2	2.8	3.9	7.8	1.7	**5.6**	-0.6	35.8	0.0
				650	2	97.0	15.3	4.3	2.9	3.9	7.9	1.7	**5.7**	-1.2	37.0	
				700	1	98.3	17.7	3.6	2.3	4.8	7.5	3.5	**8.3**	-0.5	47.2	0.1
				700	2	98.2	17.6	3.6	2.3	4.9	7.5	3.6	**8.5**	-0.7	48.3	
				750	1	99.7	19.6	3.1	0.5	5.3	7.1	5.5	**10.8**	1.1	55.1	0.1
				750	2	99.7	19.6	3.0	1.9	5.4	7.1	5.6	**11.0**	-0.4	56.0	
				800	1	100	19.7	3.7	2.4	4.4	7.2	6.5	**10.9**	-0.8	55.5	0.0
				800	2	100	19.9	3.6	2.3	4.5	6.9	6.5	**11.0**	-0.3	55.2	
				850	1	100	18.6	5.4	4.0	2.2	6.7	6.2	**8.4**	-0.6	45.2	0.1
				850	2	100	19.1	5.2	3.9	2.3	6.7	6.2	**8.5**	0.0	44.5	
F5	Si	Ga	Yb	400	1	2.3	0.2	0.3	0.1	0.0	0.4	0.0	**0.0**	-0.3	0.0	0.0
				400	2	2.4	0.0	0.3	0.0	0.0	0.5	0.0	**0.0**	-0.6	0.0	
				450	1	13.2	1.2	0.8	0.4	0.0	1.6	0.0	**0.0**	-0.8	0.0	0.0
				450	2	12.9	0.9	0.8	0.4	0.0	1.5	0.0	**0.0**	-1.0	0.0	
				500	1	81.4	9.7	4.7	3.1	0.7	8.0	0.1	**0.8**	-2.2	8.0	0.2
				500	2	72.5	8.5	4.4	2.9	0.4	7.3	0.0	**0.4**	-2.1	4.6	
				550	1	94.4	12.7	4.9	3.6	2.4	8.7	0.5	**2.9**	-2.5	23.2	0.1
				550	2	93.7	12.6	5.0	3.6	2.3	8.7	0.5	**2.8**	-2.5	21.9	
				600	1	97.2	14.9	4.4	3.1	3.9	8.4	1.4	**5.4**	-2.1	36.1	0.0
				600	2	97.1	14.7	4.4	3.2	3.9	8.5	1.4	**5.4**	-2.4	36.6	

650	1	98.5	17.0	3.6	2.3	5.2	8.1	3.2	**8.4**	-1.9	49.7	0.1
650	2	98.5	17.0	3.5	2.3	5.3	8.0	3.3	**8.6**	-1.9	50.6	
700	1	99.2	18.6	2.9	1.7	5.8	7.6	5.0	**10.8**	-1.5	58.1	0.0
700	2	99.2	18.6	2.9	2.2	5.8	7.5	5.1	**10.8**	-1.9	58.3	
750	1	99.8	19.2	2.7	2.0	5.5	7.2	5.8	**11.3**	-1.4	59.2	0.2
750	2	99.8	19.3	2.7	2.4	5.8	7.4	6.1	**11.8**	-2.3	61.2	
800	1	100	19.3	3.2	1.8	5.0	7.5	6.6	**11.6**	-1.6	60.1	0.1
800	2	100	19.2	3.2	2.0	5.1	7.4	6.6	**11.7**	-2.0	61.2	
850	1	100	18.4	4.6	3.9	3.0	7.3	6.3	**9.3**	-2.1	50.4	0.1
850	2	100	18.2	4.5	3.7	3.0	7.3	6.4	**9.5**	-2.3	51.9	

Table S18 Reproducibility tests (in parts) at $CH_4/O_2 = 2.0$

No.	Cat	Temp /°C	Sampling	O_2 Conv. /%	CH_4 Conv. /%	H_2 yield /%	CO yield /%	C_2H_6 yield /%	CO_2 yield /%	C_2H_4 yield /%	C_2 yield /%	C missing /%	C_2 sel. /%	σ	|Diff in C_2 yield|
Std1	Blank	400	1	1.6	1.3	0.0	0.0	0.0	0.0	0.0	**0.0**	1.3	0.0	0.0	0.0
		400	2	1.3	0.8	0.0	0.0	0.0	0.0	0.0	**0.0**	0.8	0.0		0.0
		450	1	0.2	-0.2	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.2	0.0	0.0	0.0
		450	2	0.1	-0.4	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.4	0.0		0.0
		500	1	0.3	-0.2	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.2	0.0	0.0	0.0
		500	2	0.3	-0.4	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.4	0.0		0.0
		550	1	0.2	-0.1	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.1	0.0	0.0	0.0
		550	2	0.0	-0.4	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.4	0.0		0.0
		600	1	0.1	-0.2	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.3	0.0	0.0	0.1
		600	2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	-0.1	0.0		0.1
		650	1	0.3	-0.3	0.0	0.0	0.1	0.0	0.0	**0.1**	-0.3	-	0.0	0.3
		650	2	0.4	-0.2	0.0	0.0	0.1	0.0	0.0	**0.1**	-0.3	-		0.3
		700	1	3.3	1.5	0.2	0.7	0.6	0.0	0.1	**0.7**	0.1	-	0.1	0.7
		700	2	3.6	1.5	0.2	0.9	0.8	0.0	0.1	**0.9**	-0.3	-		0.5
		750	1	19.9	9.8	1.2	5.4	2.4	0.3	2.1	**4.5**	-0.3	-	0.0	0.3
		750	2	20.9	10.4	1.3	5.5	2.4	0.3	2.2	**4.6**	0.0	-		0.2
		800	1	66.7	28.4	4.6	18.6	2.4	2.4	6.6	**9.0**	-1.6	31.7	0.0	0.7
		800	2	66.8	28.5	4.6	18.7	2.4	2.4	6.6	**9.0**	-1.6	31.6		0.6
		850	1	92.3	38.0	8.8	27.3	1.3	4.5	7.1	**8.4**	-2.2	22.2	0.0	0.9

		850	2	92.3	37.9	8.8	27.4	1.3	4.5	7.1	**8.4**	-2.4	22.2		1.0
Std2	$NaMnW/SiO_2$	400	1	1.4	1.2	0.0	0.0	0.0	0.0	0.0	**0.0**	1.2	0.0	0.0	0.0
		400	2	1.3	0.5	0.0	0.0	0.0	0.0	0.0	**0.0**	0.5	0.0		0.0
		450	1	1.8	0.9	0.0	0.0	0.0	0.1	0.0	**0.0**	0.8	0.0	0.0	0.0
		450	2	1.6	0.4	0.0	0.0	0.0	0.1	0.0	**0.0**	0.3	0.0		0.0
		500	1	1.7	0.4	0.0	0.0	0.0	0.1	0.0	**0.0**	0.3	0.0	0.0	0.0
		500	2	1.6	0.4	0.0	0.0	0.0	0.1	0.0	**0.0**	0.3	0.0		0.0
		550	1	1.6	0.4	0.0	0.0	0.0	0.1	0.0	**0.0**	0.4	0.0	0.0	0.0
		550	2	2.0	0.7	0.0	0.0	0.0	0.1	0.0	**0.0**	0.7	0.0		0.0
		600	1	2.0	0.6	0.0	0.0	0.0	0.1	0.0	**0.0**	0.5	0.0	0.0	0.0
		600	2	2.3	0.6	0.0	0.0	0.0	0.1	0.0	**0.0**	0.5	0.0		0.0
		650	1	3.3	1.1	0.0	0.0	0.1	0.3	0.0	**0.1**	0.7	-	0.0	0.0
		650	2	3.7	1.3	0.0	0.0	0.1	0.3	0.0	**0.1**	0.9	-		0.0
		700	1	8.7	2.9	0.0	0.4	0.8	1.3	0.1	**0.9**	0.3	-	0.0	0.2
		700	2	8.5	2.9	0.0	0.4	0.8	1.3	0.1	**0.9**	0.2	-		0.1
		750	1	29.7	13.3	0.1	1.9	4.7	4.3	3.3	**8.0**	-1.0	60.2	0.0	0.7
		750	2	30.3	14.0	0.2	2.1	4.8	4.2	3.3	**8.1**	-0.4	57.7		0.6
		800	1	99.3	45.0	0.4	9.8	6.0	11.4	16.4	**22.4**	1.4	49.7	0.2	2.2
		800	2	99.3	44.9	0.5	9.8	6.1	11.5	16.6	**22.8**	0.8	50.7		2.0
		850	1	100	38.9	1.3	20.2	3.0	6.5	9.3	**12.4**	-0.2	31.8	0.1	0.4
		850	2	100	39.1	1.2	20.1	3.1	6.5	9.4	**12.5**	0.0	32.0		0.3
Std3	$none/La_2O_3$	400	1	0.8	-0.4	0.1	0.1	0.0	0.2	0.0	**0.0**	-0.6	0.0	0.0	0.0
		400	2	2.0	1.2	0.1	0.1	0.0	0.2	0.0	**0.0**	0.9	0.0		0.0

		450	1	5.0	2.6	0.6	0.5	0.0	0.9	0.0	**0.0**	1.2	0.0	0.0	0.0
		450	2	5.0	2.4	0.6	0.5	0.0	0.9	0.0	**0.0**	1.0	0.0		0.0
		500	1	85.6	32.0	4.1	5.0	5.2	18.6	5.7	**10.9**	-2.5	34.0	0.1	0.2
		500	2	83.2	31.7	3.8	4.9	5.3	18.4	5.8	**11.1**	-2.7	35.0		0.2
		550	1	89.1	33.7	4.2	5.0	5.2	20.3	6.0	**11.2**	-2.8	33.3	0.2	1.1
		550	2	88.9	33.7	4.2	4.9	5.3	20.7	6.2	**11.5**	-3.5	34.2		0.9
		600	1	93.1	35.3	4.5	4.7	5.3	21.6	6.5	**11.8**	-2.9	33.5	0.1	1.0
		600	2	93.0	35.4	4.5	4.7	5.4	21.6	6.7	**12.1**	-3.0	34.1		1.1
		650	1	95.5	36.8	4.6	4.4	5.5	22.2	7.1	**12.7**	-2.5	34.4	0.3	0.8
		650	2	95.4	36.9	4.4	4.4	5.8	22.9	7.5	**13.3**	-3.7	36.1		0.5
		700	1	96.2	37.7	4.5	4.4	5.7	22.8	7.9	**13.7**	-3.1	36.2	0.2	0.3
		700	2	96.7	37.6	4.4	4.5	5.9	22.4	8.1	**14.0**	-3.3	37.3		0.3
		750	1	98.0	38.6	4.5	4.5	5.7	22.5	9.1	**14.8**	-3.2	38.3	0.3	0.0
		750	2	98.1	38.6	4.5	4.5	5.9	23.2	9.4	**15.3**	-4.4	39.7		0.3
		800	1	99.6	39.5	4.8	5.0	5.3	23.8	10.5	**15.8**	-5.1	39.9	0.0	0.6
		800	2	99.7	39.5	4.8	5.0	5.3	23.3	10.6	**15.8**	-4.7	40.2		0.4
		850	1	100	39.0	8.7	9.3	2.8	22.6	8.5	**11.3**	-4.2	29.1	0.2	0.9
		850	2	100	39.0	9.2	9.9	2.7	22.4	8.3	**11.0**	-4.3	28.2		0.6
Std3	none/La_2O_3	400	1	0.5	0.6	0.2	0.0	0.0	0.2	0.0	**0.0**	0.4	0.0	0.0	0.0
		400	2	0.8	0.2	0.1	0.1	0.0	0.2	0.0	**0.0**	-0.1	0.0		0.0
		450	1	4.6	1.3	0.6	0.4	0.0	1.0	0.0	**0.0**	-0.1	0.0	0.0	0.0
		450	2	4.5	1.3	0.6	0.4	0.0	1.0	0.0	**0.0**	-0.1	0.0		0.0
		500	1	90.8	32.8	4.3	4.6	4.9	19.3	5.8	**10.7**	-1.8	32.6	0.1	0.4

		500	2	89.1	32.4	4.1	4.6	5.1	19.1	5.8	**10.9**	-2.3	33.7		0.3
		550	1	90.9	32.7	4.4	4.7	5.0	19.6	5.7	**10.8**	-2.4	32.9	0.0	1.6
		550	2	90.1	32.5	4.3	4.7	5.1	19.4	5.8	**10.8**	-2.5	33.4		1.6
		600	1	92.1	33.2	4.8	4.8	4.9	20.0	5.3	**10.3**	-1.9	31.0	0.2	2.5
		600	2	91.6	32.9	4.7	4.8	5.1	20.1	5.5	**10.6**	-2.6	32.2		2.6
		650	1	93.2	33.7	4.8	4.7	5.2	20.3	5.7	**10.9**	-2.2	32.4	0.0	2.6
		650	2	93.0	33.5	4.9	4.7	5.2	20.4	5.7	**11.0**	-2.5	32.7		2.9
		700	1	95.9	35.1	4.5	4.4	5.3	20.5	6.9	**12.1**	-1.9	34.5	0.1	1.2
		700	2	95.7	35.0	4.4	4.4	5.3	20.5	7.0	**12.3**	-2.2	35.2		1.4
		750	1	98.3	36.8	4.2	4.2	5.2	20.9	8.2	**13.4**	-1.8	36.6	0.1	1.3
		750	2	98.4	36.6	4.1	4.2	5.3	20.9	8.3	**13.6**	-2.1	37.2		1.4
		800	1	99.8	37.1	4.4	4.6	4.8	20.9	9.1	**13.8**	-2.2	37.2	0.0	1.3
		800	2	99.8	37.1	4.4	4.6	4.8	21.1	9.1	**13.9**	-2.5	37.4		1.6
		850	1	100	36.7	8.2	8.9	2.4	20.5	7.5	**9.9**	-2.5	26.9	0.0	2.3
		850	2	100	36.6	8.5	9.2	2.3	20.4	7.5	**9.8**	-2.8	26.8		1.8
A3	$CaYHf/La_2O_3$	400	1	2.7	2.3	0.2	0.1	0.0	0.6	0.0	**0.0**	1.6	0.0	0.0	0.0
		400	2	2.9	2.1	0.2	0.1	0.0	0.6	0.0	**0.0**	1.4	0.0		0.0
		450	1	98.2	35.0	2.8	4.8	5.6	19.7	6.2	**11.8**	-1.2	33.6	0.6	2.4
		450	2	97.7	35.8	2.3	4.5	6.1	20.3	6.9	**13.0**	-1.9	36.2		2.9
		500	1	98.3	36.3	2.0	4.0	6.3	20.3	7.1	**13.3**	-1.3	36.7	0.1	3.0
		500	2	98.3	36.3	1.9	4.0	6.4	20.5	7.2	**13.6**	-1.8	37.4		2.9
		550	1	98.4	36.1	1.8	3.6	6.4	20.7	7.0	**13.4**	-1.6	37.1	0.2	3.0
		550	2	98.3	36.3	1.8	3.6	6.5	20.7	7.2	**13.7**	-1.8	37.8		3.0

		600	1	98.0	35.8	1.8	3.3	6.4	20.7	6.7	**13.1**	-1.3	36.6	0.1	2.6
		600	2	97.8	35.8	1.9	3.3	6.4	21.1	7.0	**13.3**	-1.9	37.3		2.5
		650	1	97.5	35.0	1.7	2.9	6.1	21.2	6.4	**12.6**	-1.8	36.0	0.0	1.7
		650	2	97.3	34.9	1.7	3.0	6.1	21.4	6.4	**12.6**	-2.0	36.0		1.2
		700	1	97.4	34.8	1.4	2.4	6.0	21.3	6.6	**12.6**	-1.5	36.2	0.1	0.4
		700	2	97.2	34.2	1.4	2.4	6.1	21.3	6.7	**12.8**	-2.4	37.5		0.1
		750	1	98.3	33.6	0.9	1.7	5.8	22.1	5.8	**11.6**	-1.7	34.5	0.1	1.8
		750	2	98.3	33.6	0.9	1.7	6.0	22.3	5.7	**11.7**	-2.2	34.8		2.3
		800	1	99.8	39.0	4.0	4.1	5.0	21.9	10.0	**15.0**	-1.9	38.3	0.2	0.7
		800	2	99.9	39.0	4.1	4.0	5.1	21.9	10.3	**15.4**	-2.3	39.5		0.6
		850	1	100	38.0	7.5	7.6	2.6	21.5	8.9	**11.6**	-2.6	30.4	0.1	0.4
		850	2	100	38.0	7.9	8.0	2.6	21.7	8.8	**11.3**	-3.0	29.8		0.6
A10	$CaYBa/La_2O_3$	400	1	-1.4	-0.7	0.2	0.1	0.0	0.4	0.0	**0.0**	-1.1	0.0	0.0	0.0
		400	2	-1.6	-1.0	0.2	0.1	0.0	0.4	0.0	**0.0**	-1.5	0.0		0.0
		450	1	99.3	35.4	3.6	3.2	6.3	20.5	7.3	**13.6**	-1.9	38.5	0.5	0.7
		450	2	99.2	36.3	3.3	3.0	6.7	21.2	7.9	**14.6**	-2.5	40.2		1.0
		500	1	99.3	36.3	3.5	3.6	6.7	21.3	8.0	**14.6**	-3.2	40.3	0.2	1.9
		500	2	99.3	36.6	3.5	3.4	6.8	21.8	8.1	**15.0**	-3.7	41.0		2.7
		550	1	99.2	36.3	3.8	6.8	6.5	21.4	7.7	**14.2**	-6.1	39.1	0.0	2.2
		550	2	99.0	36.1	3.9	3.2	6.5	21.8	7.7	**14.2**	-3.1	39.4		2.4
		600	1	99.0	36.7	3.9	6.5	6.4	21.4	7.8	**14.2**	-5.5	38.8	0.0	2.0
		600	2	98.9	36.5	3.9	4.0	6.4	21.7	7.8	**14.3**	-3.4	39.1		1.9
		650	1	99.1	37.4	3.5	4.9	6.6	21.2	8.5	**15.0**	-3.8	40.2	0.3	1.5

		650	2	98.9	36.6	3.5	3.4	6.9	21.5	8.7	**15.6**	-3.9	42.6		1.6
		700	1	99.2	37.9	3.2	4.5	6.9	21.1	9.1	**16.0**	-3.7	42.2	0.2	0.7
		700	2	99.1	37.7	3.1	3.3	7.0	21.3	9.3	**16.4**	-3.2	43.4		0.6
		750	1	99.7	38.1	3.1	6.8	6.8	21.1	9.8	**16.6**	-6.5	43.6	0.1	0.2
		750	2	99.8	38.2	3.1	3.5	6.9	21.2	9.9	**16.8**	-3.3	44.0		0.2
		800	1	100	37.7	3.8	4.8	5.8	21.2	10.1	**15.9**	-4.1	42.1	0.1	0.4
		800	2	100	37.8	3.8	4.0	5.8	21.0	10.1	**16.0**	-3.2	42.3		0.2
		850	1	100	36.3	9.9	10.9	2.0	20.7	7.2	**9.3**	-4.5	25.5	0.1	0.4
		850	2	100	36.3	10.0	10.8	2.0	20.8	7.3	**9.4**	-4.7	25.8		0.3
A13	CaEuHf/La_2O_3	400	1	-0.1	0.7	0.2	0.1	0.0	0.5	0.0	**0.0**	0.1	0.0	0.0	0.0
		400	2	0.4	0.7	0.2	0.1	0.0	0.5	0.0	**0.0**	0.1	0.0		0.0
		450	1	99.2	35.9	3.6	5.1	5.7	19.0	7.0	**12.7**	-0.8	35.4	0.3	0.5
		450	2	99.0	36.5	3.4	4.9	6.0	19.8	7.4	**13.4**	-1.6	36.7		0.2
		500	1	99.5	37.0	3.4	4.6	6.0	20.1	7.7	**13.8**	-1.4	37.2	0.1	0.1
		500	2	99.4	37.0	3.4	4.6	6.1	20.1	7.8	**13.9**	-1.6	37.5		0.1
		550	1	99.8	37.2	3.4	4.4	6.0	20.0	8.0	**13.9**	-1.0	37.4	0.1	0.3
		550	2	99.8	37.1	3.4	4.4	6.1	20.4	8.1	**14.2**	-1.8	38.1		0.1
		600	1	99.9	37.4	3.4	4.1	6.0	20.2	8.2	**14.1**	-1.1	37.8	0.2	0.1
		600	2	99.9	36.9	3.5	4.2	6.1	20.4	8.3	**14.4**	-2.2	39.2		0.2
		650	1	99.9	37.4	3.5	4.0	6.1	20.4	8.5	**14.7**	-1.6	39.2	0.0	0.4
		650	2	99.8	37.7	3.4	4.0	6.2	20.2	8.5	**14.6**	-1.1	38.7		0.4
		700	1	99.9	38.1	3.4	3.8	6.1	20.2	8.8	**14.9**	-0.9	39.2	0.1	0.5
		700	2	99.8	38.0	3.4	3.8	6.2	20.5	8.9	**15.1**	-1.4	39.8		0.7

		750	1	100	38.2	3.5	3.8	6.0	20.3	9.1	**15.1**	-0.9	39.4	0.2	0.5
		750	2	99.9	38.2	3.5	3.8	6.1	20.7	9.3	**15.4**	-1.7	40.4		0.7
		800	1	100	38.1	4.2	4.2	5.2	20.8	9.4	**14.6**	-1.5	38.4	0.1	0.0
		800	2	100	38.0	4.2	4.2	5.2	20.7	9.5	**14.8**	-1.7	38.9		0.1
		850	1	100	37.1	9.1	9.4	2.2	20.0	7.3	**9.5**	-1.9	25.6	0.0	0.9
		850	2	100	37.1	9.3	9.7	2.1	20.2	7.3	**9.4**	-2.2	25.3		0.9
A15	CaYNd/La_2O_3	400	1	1.7	2.2	0.3	0.1	0.0	0.5	0.0	**0.0**	1.5	0.0	0.0	0.0
		400	2	1.5	1.8	0.3	0.1	0.0	0.6	0.0	**0.0**	1.1	0.0		0.0
		450	1	99.5	47.5	4.0	3.9	4.5	20.7	5.9	**10.4**	12.4	21.9	0.2	1.3
		450	2	99.3	49.9	3.7	3.7	4.6	21.6	6.3	**10.9**	13.7	21.8		0.7
		500	1	99.3	38.1	4.4	3.9	5.7	21.0	7.1	**12.8**	0.4	33.5	0.0	3.2
		500	2	99.1	37.8	4.3	4.0	5.6	20.9	7.1	**12.7**	0.3	33.5		2.8
		550	1	98.6	37.7	4.6	4.0	5.4	20.8	6.7	**12.2**	0.7	32.3	0.0	2.7
		550	2	98.0	37.1	4.7	4.3	5.6	21.2	6.7	**12.2**	-0.6	33.0		2.3
		600	1	97.6	37.8	4.7	4.1	5.5	20.5	6.6	**12.1**	1.1	32.0	0.1	1.9
		600	2	97.2	37.4	4.7	4.2	5.7	20.9	6.6	**12.4**	-0.1	33.1		1.7
		650	1	97.5	37.8	4.5	4.0	5.8	20.5	7.0	**12.8**	0.4	34.0	0.1	1.3
		650	2	97.2	37.8	4.3	4.7	5.9	20.5	7.2	**13.1**	-0.5	34.7		1.4
		700	1	97.9	38.5	4.1	3.8	5.9	20.4	7.8	**13.7**	0.6	35.7	0.2	1.0
		700	2	97.8	38.5	4.0	4.7	6.1	20.4	8.0	**14.1**	-0.8	36.7		1.1
		750	1	99.2	39.2	4.1	3.8	5.9	20.7	8.9	**14.8**	-0.1	37.7	0.1	1.2
		750	2	99.3	39.0	4.0	3.7	6.0	20.4	8.9	**14.9**	-0.1	38.2		1.1
		800	1	99.9	39.3	4.5	4.2	5.1	21.0	9.5	**14.6**	-0.6	37.2	0.0	1.3

		800	2	100	39.2	4.5	4.4	5.1	20.5	9.5	**14.6**	-0.3	37.3		1.1
		850	1	100	38.4	7.6	7.5	2.7	20.0	8.3	**11.0**	-0.1	28.7	0.1	2.2
		850	2	100	38.3	7.8	8.2	2.6	20.2	8.2	**10.9**	-1.0	28.4		2.0
A16	$SrNdHf/La_2O_3$	400	1	2.1	1.0	0.2	0.1	0.0	0.5	0.0	**0.0**	0.4	0.0	0.0	0.0
		400	2	1.8	0.1	0.2	0.1	0.0	0.5	0.0	**0.0**	-0.4	0.0		0.0
		450	1	96.1	32.4	5.9	6.1	4.7	20.4	5.3	**10.0**	-4.1	30.9	0.9	4.1
		450	2	95.9	34.4	4.9	5.4	5.3	21.5	6.5	**11.8**	-4.3	34.3		2.1
		500	1	96.3	34.1	4.9	5.1	5.4	21.5	6.9	**12.2**	-4.7	35.9	0.1	2.2
		500	2	95.4	33.7	5.0	5.2	5.3	21.8	6.7	**12.0**	-5.3	35.7		1.8
		550	1	94.6	34.7	5.0	5.1	5.0	21.3	6.5	**11.5**	-3.2	33.1	0.1	0.4
		550	2	93.6	34.0	5.1	5.2	5.0	21.2	6.4	**11.3**	-3.7	33.3		0.6
		600	1	93.6	34.8	4.6	4.7	5.3	20.8	7.0	**12.3**	-3.0	35.2	0.1	0.2
		600	2	92.8	34.4	4.6	4.7	5.4	20.9	7.0	**12.4**	-3.6	35.9		0.3
		650	1	94.3	35.4	4.0	4.3	5.8	21.3	7.9	**13.7**	-4.0	38.7	0.1	1.3
		650	2	94.0	35.1	3.9	4.3	5.9	20.9	7.9	**13.9**	-3.9	39.4		0.8
		700	1	96.8	36.3	3.7	4.0	6.2	21.6	8.8	**14.9**	-4.3	41.1	0.2	1.5
		700	2	96.9	36.1	3.6	4.0	6.3	21.5	8.9	**15.3**	-4.7	42.3		1.9
		750	1	98.9	37.2	3.8	3.9	6.2	22.3	9.7	**15.9**	-4.9	42.7	0.2	2.0
		750	2	99.1	37.2	3.7	3.9	6.4	22.4	9.8	**16.2**	-5.3	43.5		1.8
		800	1	99.9	37.2	4.3	4.4	5.5	22.5	10.1	**15.7**	-5.3	42.1	0.1	1.8
		800	2	99.9	37.2	4.2	4.3	5.5	22.1	10.0	**15.5**	-4.8	41.8		1.8
		850	1	100	36.1	8.1	8.4	2.7	21.8	8.0	**10.7**	-4.8	29.6	0.0	1.3
		850	2	100	36.0	8.2	8.5	2.7	21.9	8.0	**10.7**	-5.1	29.8		1.4

A18	$CaNiY/La_2O_3$	400	1	0.4	0.9	0.1	0.0	0.0	0.4	0.0	**0.0**	0.6	0.0	0.0	0.0
		400	2	0.5	0.4	0.1	0.0	0.0	0.4	0.0	**0.0**	0.0	0.0		0.0
		450	1	100	31.9	6.7	3.7	5.9	23.3	0.1	**6.0**	-1.1	18.7	0.1	0.1
		450	2	100	32.3	7.3	4.1	6.1	24.8	0.1	**6.2**	-2.8	19.1		0.1
		500	1	100	33.4	9.4	4.9	5.9	25.3	0.0	**5.9**	-2.7	17.5	0.1	0.1
		500	2	100	33.6	10.2	5.2	5.7	25.5	0.0	**5.7**	-2.9	17.0		0.1
		550	1	100	35.7	15.0	8.5	4.5	25.7	0.0	**4.5**	-3.0	17.0	0.1	0.1
		550	2	100	36.1	16.0	9.0	4.4	26.2	0.0	**4.4**	-3.5	12.7		0.2
		600	1	100	39.5	21.8	14.4	3.2	25.0	0.0	**3.2**	-3.2	12.1	0.0	0.4
		600	2	100	39.5	22.1	14.7	3.2	25.5	0.0	**3.2**	-3.9	8.2		0.4
		650	1	100	44.0	28.7	22.0	2.4	23.0	0.0	**2.4**	-3.3	8.2	0.0	0.4
		650	2	100	44.1	28.8	22.1	2.4	22.8	0.0	**2.4**	-3.2	5.4		0.4
		700	1	100	48.4	34.2	29.1	2.0	20.4	0.0	**2.0**	-3.1	5.4	0.0	0.3
		700	2	100	48.1	33.7	28.6	2.1	20.3	0.0	**2.1**	-2.9	4.2		0.4
		750	1	100	50.2	36.4	33.2	2.0	18.5	0.1	**2.1**	-3.6	4.3	0.1	0.2
		750	2	100	49.6	35.0	31.9	2.2	19.3	0.1	**2.3**	-3.8	4.1		0.1
		800	1	100	49.1	34.2	32.8	1.6	18.1	0.3	**1.9**	-3.7	4.6	0.1	0.0
		800	2	100	47.4	31.8	30.5	1.8	18.3	0.3	**2.1**	-3.5	3.9		0.0
		850	1	100	60.9	0.0	51.7	0.3	11.9	0.1	**0.4**	-3.1	4.4	0.0	0.1
		850	2	100	60.5	0.0	51.5	0.3	12.2	0.1	**0.4**	-3.6	0.7		0.1
A19	$MgEuHf/La_2O_3$	400	1	-1.3	-0.2	0.2	0.1	0.0	0.5	0.0	**0.0**	-0.8	0.0	0.0	0.0
		400	2	-1.2	-0.3	0.2	0.1	0.0	0.5	0.0	**0.0**	-0.9	0.0		0.0
		450	1	98.6	38.6	6.3	5.5	3.7	21.3	4.1	**7.8**	4.0	20.3	1.0	2.4

		450	2	98.5	33.7	5.8	5.4	4.6	21.7	5.3	**9.8**	-3.3	29.3		1.5
		500	1	99.3	34.8	5.8	5.2	4.6	21.8	5.4	**10.0**	-2.2	28.7	0.0	2.0
		500	2	98.9	34.8	5.8	5.3	4.6	22.2	5.4	**10.0**	-2.7	28.9		2.1
		550	1	99.4	35.6	5.7	5.0	4.7	22.2	5.7	**10.5**	-2.1	29.5	0.1	1.3
		550	2	99.1	35.2	5.6	5.1	4.8	22.2	5.8	**10.6**	-2.7	30.0		1.4
		600	1	99.5	35.6	5.2	4.7	5.2	22.2	6.5	**11.7**	-3.0	32.9	0.1	0.3
		600	2	99.2	35.3	5.1	4.7	5.3	22.1	6.6	**11.9**	-3.4	33.6		0.2
		650	1	99.6	37.1	4.6	4.4	5.5	21.5	7.3	**12.7**	-1.5	34.3	0.2	0.7
		650	2	99.5	36.5	4.5	4.4	5.7	21.8	7.5	**13.2**	-2.8	36.0		0.8
		700	1	99.8	37.1	4.4	4.3	5.8	21.6	8.0	**13.8**	-2.6	37.3	0.1	0.6
		700	2	99.8	37.0	4.3	4.3	5.9	21.6	8.1	**14.1**	-2.9	37.9		0.5
		750	1	99.9	37.6	4.5	4.5	5.7	21.2	8.6	**14.3**	-2.4	38.1	0.2	0.3
		750	2	99.9	37.1	4.4	5.4	5.8	21.4	8.8	**14.6**	-4.3	39.4		0.5
		800	1	100	37.8	5.1	5.0	5.0	21.3	9.3	**14.3**	-2.8	37.7	0.1	0.5
		800	2	100	37.6	5.1	5.1	5.1	21.3	9.4	**14.5**	-3.3	38.6		0.8
		850	1	100	36.8	10.6	11.1	1.8	20.4	6.7	**8.5**	-3.3	23.1	0.0	1.2
		850	2	100	36.8	11.1	11.8	1.7	20.6	6.7	**8.4**	-3.9	22.8		1.2
B19	$YZrHf/La_2O_3$	400	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**N/A**	N/A	N/A	N/A	N/A
		400	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**N/A**	N/A	N/A	N/A	N/A
		450	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**N/A**	N/A	N/A	N/A	N/A
		450	2	83.8	29.8	4.3	6.1	4.5	17.7	5.5	**10.0**	-3.9	33.5		2.6
		500	1	87.9	31.9	4.2	6.0	4.8	17.6	6.1	**10.9**	-2.6	34.1	0.0	2.5
		500	2	87.8	31.9	4.1	5.9	4.9	17.7	6.1	**10.9**	-2.7	34.4		2.5

		550	1	91.1	33.7	3.8	5.6	5.4	17.9	6.8	**12.3**	-2.1	36.4	0.1	2.8
		550	2	91.1	33.6	3.8	5.6	5.5	18.1	6.9	**12.4**	-2.4	36.8		3.0
		600	1	93.8	35.2	3.5	4.8	5.8	18.5	7.5	**13.3**	-1.5	37.9	0.1	3.2
		600	2	93.8	34.9	3.5	5.2	5.9	18.4	7.6	**13.5**	-2.1	38.6		3.2
		650	1	96.3	35.9	3.4	4.5	5.9	19.1	7.9	**13.8**	-1.4	38.3	0.1	2.8
		650	2	96.3	35.9	3.4	4.8	5.9	19.0	7.9	**13.9**	-1.8	38.7		2.7
		700	1	98.1	36.1	3.6	5.9	5.8	20.1	8.4	**14.2**	-4.1	39.3	0.0	2.1
		700	2	98.2	36.4	3.5	4.7	5.9	20.2	8.4	**14.3**	-2.7	39.1		2.0
		750	1	99.3	36.5	3.9	4.7	5.5	20.7	8.6	**14.1**	-3.0	38.7	0.1	1.7
		750	2	99.4	36.8	3.8	4.6	5.6	20.7	8.7	**14.3**	-2.8	38.8		1.5
		800	1	99.9	36.9	4.5	4.9	4.8	20.2	8.8	**13.6**	-1.8	36.7	0.1	1.0
		800	2	99.9	36.9	4.5	5.0	4.9	20.6	8.9	**13.7**	-2.4	37.2		1.4
		850	1	100	36.3	8.8	9.2	2.3	20.3	7.0	**9.2**	-2.5	25.4	0.1	0.3
		850	2	100	36.3	9.2	9.9	2.2	20.3	6.9	**9.0**	-2.9	24.9		0.4
C1	$GaTbHf/La_2O_3$	400	1	0.9	1.0	0.2	4.2	0.0	0.3	0.0	**0.0**	-3.6	0.0	0.0	0.0
		400	2	1.1	1.0	0.2	0.1	0.0	0.3	0.0	**0.0**	0.5	0.0		0.0
		450	1	98.3	34.5	3.7	4.5	5.7	21.0	5.7	**11.4**	-2.3	32.9	0.0	3.6
		450	2	98.4	34.1	4.0	4.6	5.5	21.9	5.8	**11.3**	-3.7	33.1		3.7
		500	1	98.7	34.7	4.3	4.6	5.4	22.4	5.8	**11.2**	-3.4	32.2	0.0	2.5
		500	2	98.5	34.8	4.3	4.6	5.4	22.3	5.9	**11.3**	-3.4	32.5		2.6
		550	1	97.9	34.3	5.0	4.7	5.1	22.6	5.2	**10.3**	-3.4	30.0	0.1	0.8
		550	2	97.8	34.3	4.8	4.7	5.2	22.6	5.3	**10.5**	-3.6	30.7		0.7
		600	1	97.0	33.3	6.0	5.1	4.5	23.0	3.7	**8.2**	-3.0	24.7	0.3	1.7

		600	2	96.8	33.2	5.8	5.0	4.7	23.2	4.1	**8.9**	-3.8	26.7		1.3
		650	1	97.1	33.1	5.6	4.9	4.8	22.8	4.3	**9.1**	-3.7	27.5	0.1	1.5
		650	2	97.0	33.5	5.5	4.8	4.9	22.8	4.4	**9.3**	-3.3	27.7		1.8
		700	1	98.2	35.3	4.6	4.2	5.3	22.6	6.3	**11.5**	-3.0	32.6	0.1	0.4
		700	2	98.2	35.3	4.5	4.2	5.3	22.6	6.3	**11.7**	-3.1	33.0		0.3
		750	1	99.3	36.7	4.0	3.8	5.2	22.4	8.2	**13.4**	-2.9	36.5	0.0	1.0
		750	2	99.3	36.7	4.0	3.8	5.3	22.3	8.2	**13.5**	-2.9	36.7		0.8
		800	1	99.8	37.5	4.4	4.2	4.6	22.2	9.1	**13.7**	-2.6	36.7	0.0	1.7
		800	2	99.8	37.4	4.3	4.1	4.7	21.8	9.1	**13.8**	-2.4	36.9		1.7
		850	1	100	36.8	6.8	6.6	2.8	21.8	8.2	**10.9**	-2.6	29.7	0.1	3.1
		850	2	100	36.6	7.0	6.8	2.7	21.6	8.1	**10.8**	-2.6	29.6		3.1
D1	$SrCeYb/La_2O_3$	400	1	0.3	-1.3	0.3	0.1	0.0	0.3	0.0	**0.0**	-1.7	0.0	0.0	0.0
		400	2	0.8	-0.4	0.2	0.1	0.0	0.4	0.0	**0.0**	-0.8	0.0		0.0
		450	1	7.3	2.5	1.2	0.6	0.0	2.1	0.0	**0.0**	-0.2	0.0	0.0	0.0
		450	2	7.0	2.5	1.1	0.6	0.0	2.0	0.0	**0.0**	-0.1	0.0		0.0
		500	1	88.0	30.7	5.2	4.2	4.4	20.7	4.4	**8.7**	-2.9	28.4	0.2	0.0
		500	2	87.0	30.7	5.0	4.1	4.6	21.1	4.7	**9.2**	-3.8	30.0		0.1
		550	1	91.9	31.8	6.0	4.0	3.9	23.2	4.0	**8.0**	-3.4	25.1	0.5	1.3
		550	2	92.8	32.5	5.7	3.9	4.4	23.0	4.6	**9.0**	-3.4	27.5		0.6
		600	1	95.4	32.9	6.2	3.8	3.9	23.9	4.0	**7.8**	-2.7	23.9	0.3	1.7
		600	2	95.6	33.3	6.0	3.7	4.2	23.7	4.4	**8.5**	-2.6	25.6		1.1
		650	1	97.7	34.7	5.6	3.5	4.2	23.7	4.6	**8.8**	-1.3	25.3	0.5	1.5
		650	2	97.7	35.1	5.3	3.5	4.5	23.2	5.2	**9.8**	-1.3	27.8		1.2

		700	1	98.7	36.2	5.1	3.6	4.6	23.1	5.8	**10.5**	-0.9	28.9	0.2	1.2
		700	2	98.7	36.3	5.0	3.6	4.8	22.6	6.1	**10.9**	-0.7	30.0		1.8
		750	1	99.5	37.7	4.9	3.8	4.6	22.4	7.1	**11.7**	-0.3	31.1	0.2	1.6
		750	2	99.5	37.8	4.9	3.8	4.8	22.3	7.3	**12.1**	-0.4	32.0		1.7
		800	1	99.9	38.8	6.1	5.5	3.9	22.2	7.7	**11.5**	-0.4	29.7	0.2	2.6
		800	2	99.9	38.8	6.0	5.4	4.0	21.9	7.9	**11.8**	-0.4	30.5		2.6
		850	1	99.9	46.5	9.7	10.2	1.6	18.1	6.0	**7.6**	10.5	16.3	0.2	4.3
		850	2	100	40.2	12.1	12.2	1.4	20.2	6.5	**8.0**	-0.2	19.9		3.7
D8	$MgSrYb/La_2O_3$	400	1	1.5	2.0	0.2	4.4	0.0	0.4	0.0	**0.0**	-2.8	0.0	0.0	0.0
		400	2	2.0	1.9	0.2	1.0	0.0	0.4	0.0	**0.0**	0.4	0.0		0.0
		450	1	98.7	36.1	4.0	3.8	5.9	21.1	6.6	**12.5**	-1.3	34.6	0.8	2.1
		450	2	98.5	37.2	3.5	3.7	6.5	21.9	7.6	**14.1**	-2.5	37.9		2.0
		500	1	98.9	37.6	3.5	3.6	6.6	21.9	7.8	**14.3**	-2.3	38.2	0.1	2.1
		500	2	98.5	37.2	3.5	3.7	6.5	21.9	7.6	**14.1**	-2.4	37.9		2.0
		550	1	98.5	37.1	3.8	3.6	6.2	22.0	7.2	**13.5**	-2.0	36.3	0.1	2.1
		550	2	98.2	36.7	3.8	3.7	6.2	21.9	7.1	**13.3**	-2.2	36.2		2.0
		600	1	98.4	36.9	4.0	3.6	6.0	22.1	6.9	**12.9**	-1.7	35.1	0.0	1.6
		600	2	98.0	36.6	3.9	3.6	6.0	22.0	6.9	**12.9**	-1.9	35.2		1.6
		650	1	98.4	37.2	3.8	3.5	6.1	21.8	7.2	**13.3**	-1.4	35.7	0.1	1.0
		650	2	98.1	37.0	3.8	3.5	6.1	21.6	7.2	**13.4**	-1.5	36.2		1.0
		700	1	98.8	38.2	3.7	3.5	6.3	21.6	8.0	**14.3**	-1.2	37.4	0.1	0.8
		700	2	98.7	38.1	3.7	3.5	6.4	21.3	8.2	**14.6**	-1.2	38.2		0.8
		750	1	99.5	39.2	4.2	3.8	6.0	21.5	9.2	**15.1**	-1.3	38.6	0.1	1.2

		750	2	99.5	39.2	4.1	3.8	6.2	21.6	9.3	**15.4**	-1.7	39.4		1.3
		800	1	100	39.2	5.4	4.9	4.7	22.0	9.4	**14.1**	-1.8	36.0	0.1	1.8
		800	2	100	39.2	5.4	4.8	4.8	21.7	9.5	**14.3**	-1.5	36.4		1.8
		850	1	100	38.2	10.2	10.2	1.8	20.8	6.9	**8.7**	-1.5	22.7	0.0	1.3
		850	2	100	38.2	10.3	10.4	1.8	20.8	6.9	**8.7**	-1.7	22.8		1.2
E7	GaYbW/La_2O_3	400	1	1.4	0.6	0.3	0.1	0.0	0.5	0.0	**0.0**	0.0	0.0	0.0	0.0
		400	2	2.1	1.5	0.3	0.1	0.0	0.6	0.0	**0.0**	0.8	0.0		0.0
		450	1	97.9	34.1	5.6	4.4	4.6	22.8	4.0	**8.5**	-1.7	25.1	0.0	0.8
		450	2	96.9	34.2	5.6	4.5	4.6	23.0	4.0	**8.6**	-1.9	25.1		1.3
		500	1	97.6	34.8	6.2	4.5	4.3	22.8	3.7	**8.0**	-0.6	23.1	0.3	1.0
		500	2	97.6	34.9	6.0	4.4	4.5	23.0	4.0	**8.5**	-1.0	24.4		1.1
		550	1	98.4	35.5	6.0	4.3	4.6	23.0	4.2	**8.8**	-0.5	24.7	0.3	0.2
		550	2	98.4	35.7	5.9	4.2	4.8	23.4	4.5	**9.3**	-1.2	26.1		0.1
		600	1	99.0	36.5	5.5	3.9	5.0	23.2	5.1	**10.1**	-0.8	27.8	0.2	0.2
		600	2	99.0	36.4	5.5	3.9	5.1	23.7	5.3	**10.4**	-1.6	28.7		0.3
		650	1	99.4	37.1	5.0	3.6	5.1	23.1	6.1	**11.2**	-0.8	30.2	0.1	0.1
		650	2	99.4	37.1	5.0	3.6	5.2	23.2	6.2	**11.4**	-1.1	30.8		0.3
		700	1	99.7	37.7	4.5	3.4	5.3	23.1	7.1	**12.4**	-1.1	32.8	0.1	0.4
		700	2	99.6	37.7	4.5	3.3	5.4	23.2	7.3	**12.6**	-1.4	33.5		0.3
		750	1	99.9	38.2	4.5	3.5	5.0	23.1	7.7	**12.7**	-1.1	33.1	0.1	0.6
		750	2	99.9	38.1	4.4	3.4	5.1	23.1	7.9	**13.0**	-1.4	34.0		0.6
		800	1	100	38.8	4.7	4.1	4.5	22.5	8.1	**12.6**	-0.4	32.4	0.2	0.3
		800	2	100	38.5	4.5	4.0	4.7	22.6	8.4	**13.0**	-1.2	33.8		0.4

		850	1	100	38.1	8.1	7.7	2.5	22.1	7.3	**9.8**	-1.5	25.7	0.1	1.3
		850	2	100	38.2	8.3	8.0	2.4	22.1	7.3	**9.7**	-1.6	25.4		1.2
F3	$CaGaYb/La_2O_3$	400	1	1.2	1.2	0.3	0.1	0.0	0.6	0.0	**0.0**	0.5	0.0	0.0	0.0
		400	2	1.7	1.3	0.3	0.1	0.0	0.6	0.0	**0.0**	0.6	0.0		0.0
		450	1	94.9	31.7	5.9	4.1	3.8	22.9	3.4	**7.2**	-2.4	22.7	0.0	3.4
		450	2	92.6	31.1	6.0	4.2	3.7	22.8	3.4	**7.1**	-2.9	22.8		3.6
		500	1	95.0	32.6	5.9	4.2	4.0	23.0	3.9	**7.9**	-2.5	24.4	0.1	2.7
		500	2	94.3	32.4	5.8	4.2	4.1	23.1	4.1	**8.1**	-3.1	25.2		2.6
		550	1	96.2	33.5	5.7	4.1	4.4	22.9	4.6	**9.0**	-2.5	26.9	0.1	0.7
		550	2	95.8	33.5	5.6	4.1	4.4	22.9	4.8	**9.2**	-2.8	27.6		0.9
		600	1	96.7	34.4	5.3	4.0	4.6	22.1	5.3	**9.9**	-1.6	28.8	0.1	1.8
		600	2	96.3	34.2	5.2	4.0	4.7	22.6	5.4	**10.1**	-2.5	29.6		1.2
		650	1	96.7	35.7	4.7	3.9	4.9	22.0	6.2	**11.1**	-1.2	31.1	0.2	2.3
		650	2	96.6	35.3	4.7	3.9	5.1	22.4	6.4	**11.4**	-2.5	32.4		2.0
		700	1	97.5	35.7	4.5	4.0	5.1	21.6	7.3	**12.3**	-2.2	34.5	0.2	1.5
		700	2	97.5	35.8	4.4	4.0	5.2	22.0	7.5	**12.7**	-2.9	35.5		1.6
		750	1	98.7	37.0	4.7	4.3	4.8	21.8	8.2	**13.1**	-2.2	35.3	0.2	0.7
		750	2	98.8	37.0	4.6	4.2	5.0	21.8	8.4	**13.4**	-2.4	36.2		0.5
		800	1	99.9	36.9	6.3	5.8	3.6	22.6	7.9	**11.5**	-3.0	31.1	0.2	0.3
		800	2	99.9	36.9	6.2	5.7	3.8	22.7	8.1	**11.9**	-3.4	32.2		0.7
		850	1	100	37.9	12.1	12.2	1.1	21.3	6.4	**7.6**	-3.2	20.1	0.0	2.6
		850	2	100	37.9	12.2	12.4	1.2	21.4	6.5	**7.6**	-3.6	20.2		2.7
F4	$GaEuYb/La_2O_3$	400	1	1.5	-0.8	0.3	0.2	0.0	0.5	0.0	**0.0**	-1.5	0.0	0.0	0.0

400	2	2.3	0.3	0.3	0.1	0.0	0.5	0.0	**0.0**	-0.3	0.0		0.0
450	1	96.8	33.1	4.7	4.3	4.9	22.6	4.8	**9.7**	-3.5	29.3	0.1	3.9
450	2	95.7	33.1	4.9	4.4	4.8	22.6	4.7	**9.5**	-3.3	28.8		3.4
500	1	96.9	34.2	5.4	4.3	4.8	23.3	4.6	**9.5**	-3.0	27.7	0.1	3.1
500	2	96.8	34.3	5.2	4.3	4.9	23.1	4.8	**9.7**	-2.8	28.2		3.1
550	1	96.6	32.9	7.6	4.7	3.7	24.3	2.5	**6.2**	-2.3	18.9	0.4	1.2
550	2	96.9	33.5	7.0	4.6	4.0	23.9	3.1	**7.0**	-2.0	21.0		0.5
600	1	98.2	34.4	7.1	4.5	4.1	24.4	3.2	**7.3**	-1.8	21.2	0.1	1.8
600	2	98.2	34.4	6.9	4.4	4.1	24.3	3.3	**7.4**	-1.8	21.6		1.7
650	1	99.4	36.1	6.1	4.2	4.6	23.5	4.7	**9.3**	-0.8	25.8	0.0	1.2
650	2	99.4	36.2	6.1	4.2	4.6	23.5	4.7	**9.4**	-0.8	25.9		0.0
700	1	99.9	37.6	5.3	3.9	5.0	23.2	6.5	**11.4**	-0.9	30.4	0.0	0.4
700	2	99.8	37.5	5.3	3.9	5.0	23.0	6.5	**11.4**	-0.7	30.5		0.6
750	1	100	38.5	5.0	3.9	4.7	21.8	7.6	**12.3**	0.6	31.9	0.1	0.3
750	2	100	38.5	5.0	3.9	4.7	22.0	7.7	**12.4**	0.2	32.2		0.7
800	1	100	39.0	5.6	4.6	4.1	22.0	8.4	**12.5**	-0.2	32.0	0.1	2.9
800	2	100	39.1	5.5	4.6	4.2	22.2	8.5	**12.7**	-0.4	32.4		2.8
850	1	100	39.4	10.0	9.6	2.0	21.6	7.0	**9.0**	-0.8	22.9	N/A	0.8
850	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**N/A**	N/A	N/A		N/A

N/A is not available owing to microGC error. The |Diff in C_2 yield| represents an absolute value of difference in C_2 yield between the present and reproducibility test data, and its maximum value is 4.1%. This difference in C_2 yield might be attributed to the differences in thermal conduction in a furnace and/or heterogeneity of gas flow in a catalyst bed. While, it is noted that the main subject in this paper: effective appearance of C_2 yield at 450^{o}C in CH_4/O_2 = 2.0 condition, is reproducible.