

Supporting information

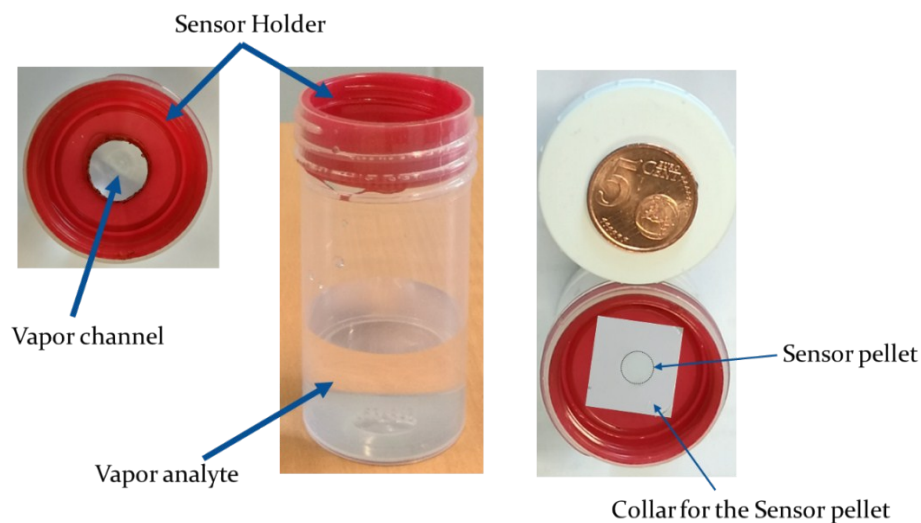


Fig. S1 (a) top and (b) side view of sensor holder. (c) The inside plate of dimensions 20x20 mm with the sensor pellet of 7mm diameter in the center.

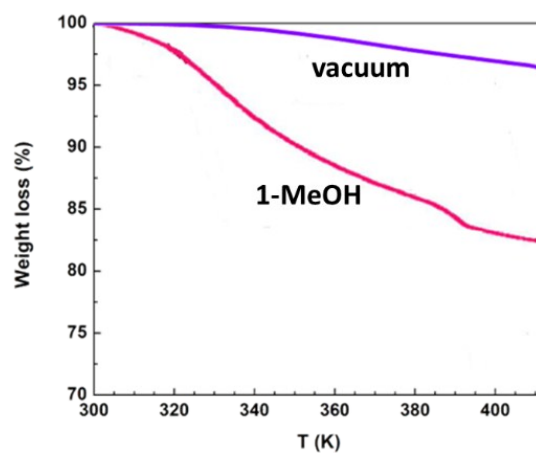


Fig. S2 TGA profile of **1-MeOH**, vacuum dried **1-off-MeOH**.

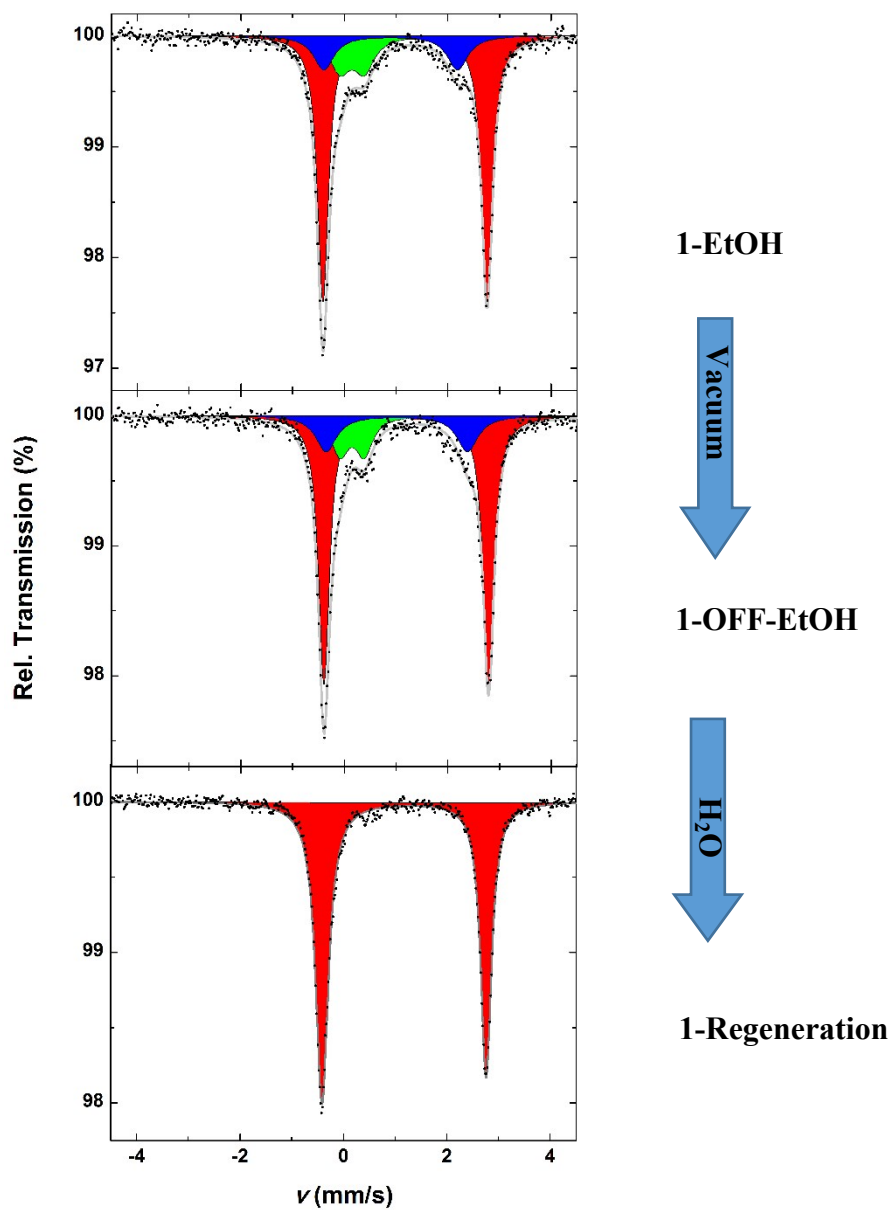


Fig. S3 Spin-state tracking by ^{57}Fe Mossbauer spectroscopy at 298 K of (a) **1-EtOH**, (b) **1-off-EtOH**, which shows memory effect in EtOH detection.

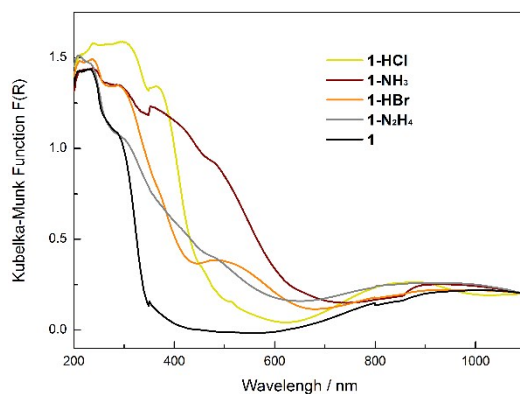


Fig. S4 Diffuse-reflectance spectroscopy of **1** and four TICs guests diffusion on **1** at 298 K.

Table S1 Overview of ^{57}Fe Mössbauer parameters for sensing alcohols

Sensor	Spin state	Mössbauer parameters			
		$\delta(\text{mm/s})$	$\Delta E_Q(\text{mm/s})$	$\Gamma/2$	% of species
1	HS	1.17(2)	3.18(3)	0.20(1)	100
1-MeOH	HS	1.17(1)	3.17(1)	0.12(1)	30(3)
	HS1	1.14(2)	2.56(5)	0.27(4)	33(8)
	HS2	0.83(3)	2.40(5)	0.22(4)	18(6)
	LS	0.37(1)	0.20(2)	0.17(2)	19(1)
1-off-MeOH	HS	1.19 (1)	3.18(2)	0.12(1)	31(4)
	HS1	1.15(3)	2.59(6)	0.26(5)	36(11)
	HS2	0.84(6)	2.42(10)	0.23(7)	15(8)
	LS	0.36(2)	0.21(4)	0.18(3)	18(2)
1-EtOH	HS	1.17(1)	3.17(1)	0.13(1)	68(2)
	HS2	0.90(1)	2.88(8)	0.24(4)	16(3)
	LS	0.15(3)	0.47(4)	0.24(4)	16(2)
1-off-EtOH	HS	1.19(1)	3.18(1)	0.13(1)	68(3)
	HS2	1.00(1)	2.73(8)	0.25(5)	17(4)
	LS	0.14(4)	0.48(7)	0.20(4)	15(2)
1-Regeneration	HS	1.18(1)	3.18(1)	0.13(1)	100

Table S2 Overview of ^{57}Fe Mössbauer parameters for **1-HCl**, **1-HBr**, **1-NH₃** and **1-N₂H₄**.

Sensor	Spin state	Mössbauer parameters			
		$\delta(\text{mm/s})$	$\Delta E_Q(\text{mm/s})$	$\Gamma/2$	% of species
1	HS	1.17(2)	3.18(3)	0.20(1)	100
1-HCl	HS	1.06(1)	3.26(1)	0.20(1)	100
1-HBr	HS	1.16(1)	3.14(1)	0.20(2)	100
1-NH₃	HS	1.17(1)	3.13(3)	0.25(2)	65(6)
	LS	0.36(3)	0.65(5)	0.30(6)	35(5)
1-NH₃ (78K)	HS	1.16(1)	3.38(1)	0.19(1)	67(1)
	LS	0.36(1)	0.67(2)	0.23(1)	33(1)
1-N₂H₄	HS	1.14(1)	3.16(2)	0.16(2)	48(9)
	HS-2	1.03(2)	2.61(8)	0.29(4)	52(11)

^a δ : isomer shift (r.t., vs. $\alpha\text{-Fe}$); ΔE_Q : quadrupole splitting, $\Gamma/2$: half width at half maximum

Table S3 database of digital colour vectors for four TICs, MeOH and humidity tests.

	RGB			HSV		
	Red	Green	Blue	Hue	Saturation	Value
Humidity 1	150	4	78	191	199	195
Humidity 2	147	5	81	196	207	201
Humidity 3	140	4	80	194	203	197
HCl-10 min-1	44	47	71	184	159	96
HCl-10 min-2	44	47	71	182	159	96
HCl-10 min-3	46	59	70	178	154	73
NH ₃ -10 min-1	28	47	49	126	95	67
NH ₃ -10 min-2	30	53	50	128	94	60
NH ₃ -10 min-3	30	55	47	121	88	54
HBr-1h-1	24	88	81	206	100	26
HBr-1h-2	22	88	77	196	86	24
HBr-1h-3	25	87	85	217	115	29
N ₂ H ₄ -1h-1	66	6	68	173	174	164
N ₂ H ₄ -1h-2	67	5	71	180	181	172
N ₂ H ₄ -1h-3	60	6	69	175	175	164
MeOH-7h-1	321	25	46	117	88	107
MeOH-7h-2	334	32	47	121	82	99
MeOH-7h-3	337	37	51	131	82	101

Table S4 Database of digital colour vectors of response time vs. guest vapors of four TICs and MeOH under vapor diffusion

Samples	Time	Red	Green	Blue	Hue	Saturation	Value
HCl	0	127	4	74	181	189	182
	1 min	57	17	72	184	182	152
	2 min	56	20	72	182	180	147
	5 min	52	26	66	169	163	124
NH ₃	0	84	3	72	182	184	179
	1 min	37	19	69	177	164	143
	2 min	32	36	60	154	128	98
	5 min	28	47	49	126	95	67
	10 min	30	53	50	128	94	60
HBr	0	144	5	78	190	199	189
	20 min	44	36	69	177	160	113
	60 min	22	88	77	196	86	24
	310 min	14	70	55	141	66	43
N ₂ H ₄	0	142	4	78	191	199	194
	20 min	38	12	62	157	150	138
	40 min	35	17	72	184	171	153

	75 min	33	14	78	198	186	171
	330 min	55	7	69	177	176	165
MeOH	0	210	4	56	138	141	144
	10 min	220	6	43	103	105	109
	50 min	347	8	45	115	106	108
	90 min	348	13	45	115	100	103
	120 min	346	18	45	114	93	98
	140 min	347	20	46	117	94	99
	175 min	344	23	47	119	92	99
	200 min	346	24	49	124	94	101