TableS1 Latitude and longitude of sampling/detection points

Type	Quantity	Number	Longitude	Latitude
Rapid test	17	RT1	109.54336461	34.49771912
		RT2	109.54285239	34.49758321
		RT3	109.54289406	34.49767056
		RT4	109.54368997	34.49754865
		RT5	109.54382574	34.49772347
		RT6	109.54362273	34.49776609
		RT7	109.54426138	34.49707609
		RT8	109.54446974	34.49733611
		RT9	109.54423043	34.49742836
		RT10	109.54457191	34.49734518
		RT11	109.54464181	34.49738068
		RT12	109.54454639	34.49709660
		RT13	109.54411350	34.49708238
		RT14	109.54651845	34.49761120
		RT15	109.54673491	34.49714335
		RT16	109.54674563	34.49750455
		RT17	109.54678191	34.49769903
Deep test	2	DT1	109.544334	34.49737889
		DT2	109.5439575	34.49774806
Contrast	1	CON1	109.54933307	34.49863549

Table S2 Composition and detection limit of VOCs

Number	Name	CAS	MDL (μg/kg)	Number	Name	CAS	MDL (μg/kg)
1	Dichlorodifluoromethane	75-71-8	0.4	36	2-Hexanone	591-78-6	3.0
2	Chloromethane	74-87-3	1.0	37	Dibromochloromethane	124-48-1	1.1
3	Vinyl chloride	75-01-4	1.0	38	1,2-Dibromoethane	106-93-4	1.1
4	Bromomethane	74-83-9	1.1	39	Chlorobenzene-D5	3114-55-4	/
5	Chloroethane	75-00-3	0.8	40	Chlorobenzene	108-90-7	1.2
6	Chlorotrifluoromethane	75-69-4	1.1	41	1,1,1,2-tetrachloroethane	630-20-6	1.2
7	1,1-Dichloroethylene	75-35-4	1.0	42	Ethylbenzene	100-41-4	1.2
8	Acetone	57-64-1	1.3	43	1,1,2-trichloropropane	598-77-6	1.2
9	methyl iodide	74-88-4	1.1	44/45	M, p - xylene	108-38-3/106-42-3	1.2
10	Carbon disulfide	75-15-0	1.0	46	o-Xylene	95-47-6	1.2
11	Dichloromethane	75-09-2	1.5	47	Styrene	100-42-5	1.1
12	trans-1,2-Dichloroethylene	156-60-5	1.4	48	Bromoform	75-25-2	1.5
13	1,1-Dichloroethane	75-34-3	1.2	49	Isopropylbenzene	98-82-8	1.2
14	2.2-Dichloropropane	594-20-7	1.3	50	4-Bromofluorobenzene	460-00-4	/

Number	Name	CAS	MDL (μg/kg)	Number	Name	CAS	MDL (μg/kg)
15	cis-1,2-Dichloroethylene	156-59-2	1.3	51	Bromobenzene	108-86-1	1.3
16	2-Butanone	78-93-3	3.2	52	1,1,2,2-Tetrachloroethane	79-34-5	1.2
17	Bromochloromethane	75-95-3	1.4	53	1,2,3-Trichloropropane	96-18-4	1.2
18	Chloroform	66-67-3	1.1	54	n-propylbenzene	103-65-1	1.2
19	Dibromochloromethane	1868-53-7	/	55	2-Chlorotoluene	95-49-8	1.3
20	1,1,1-trichloroethane	71-55-6	1.3	56	1,3,5-trimethylbenzene	108-67-8	1.4
21	Carbon tetrachloride	56-23-5	1.3	57	4-Fluorotoluene	106-43-4	1.3
22	1,2-Dichloropropene	563-58-6	1.2	58	tert-Butylbenzene	98--06-6	1.2
23	Benzene	71-43-2	1.9	59	1,2,4-trimethylbenzene	95-63-6	1.3
24	1,2-Dichloroethane	107-06-2	1.3	60	sec-butylbenzene	135-98-8	1.1
25	Fluorobenzene	462-06-6	/	61	1,3-Dichlorobenzene	541-73-1	1.5
26	Trichloroethylene	79--01--6	1.2	62	4-Isopropyltoluene	99-87-6	1.3
27	1,2-Dichloropropane	78-87-5	1.1	63	1,2-Dichlorobenzene-D4	3855-82-1	/
28	Dibromomethane	75-95-3	1.2	64	1,4-Dichlorobenzene	106-46-7	1.5

Number	Name	CAS	MDL (μg/kg)	Number	Name	CAS	MDL (μg/kg)
29	Monobromodichloromethane	75-27-4	1.1	65	n-Butylbenzene	104-51-8	1.7
30	4-Methyl-2-pentanone	108-10-1	1.8	66	1,2-Dichlorobenzene	95-50-1	1.5
31	Toluene - D8	2037-26-5	/	67	1,2-dibromo-3-chloropropane	96-12-8	1.9
32	Toluene	108-88-3	1.3	68	1,2,4-trichlorobenzene	120-82-1	0.3
33	1,1,2-trichloroethane	79-00-5	1.2	69	Hexafluorobutadiene	87-68-3	1.6
34	Tetrachloroethylene	127-18-4	1.4	70	Naphthalene	91-20-3	0.4
35	1,3-Dichloropropane	142-28-9	1.1	71	1,2,3-trichlorobenzene	87-61-6	0.2

Table S3 Error analysis of the results(laboratory testing and rapid testing)

Type	Rapid testing (mg/kg)	Laboratory testing (mg/kg)	Relative Errors%
1,1,1,2-Tetrachloroethane	18.5	24.1	13.1
1,1,1-trichloroethane	ND	ND	/
1,1-Dichloroethane	ND	ND	/
1,2-Dichlorobenzene	ND	23	/
1,2-Dichloropropane	16	ND	/
1,2-Dichloroethane	0.93	ND	/
1,2-dibromoethane	ND	ND	/
Benzene	51	41	10.9
Styrene	25	24	2
Dichloromethane	ND	17	/
Dibromochloromethane	ND	ND	/
trans-1,2-Dichloroethylene	ND	104	/
o-xylene	66	70	2.9
Vinyl chloride	ND	ND	/
Carbon tetrachloride	ND	ND	/
Bromoform	ND	ND	/
Monobromodichloromethane	ND	ND	/

Table S4 Limit values of VOCs (From Soil environmental quality - risk control standards for soil contamination of development land (GB36600-2018))

Number	Name	P_i (mg/kg)	Number	Name	P_i (mg/kg)
1	1,1,1,2-Tetrachloroethane	2.6	15	Dibromochloromethane	9.3
2	1,1,2,2-Tetrachloroethane	1.6	16	trans-1,2-dichloroethylene	10
3	1,1,2-Trichloroethane	0.6	17	Toluene	1200
4	1,1-Dichloroethylene	12	18	m,p-Xylene	163
5	1,2,3-trichloropropane	0.05	19	o-xylene	222
6	1,2-Dichlorobenzene	560	20	Chlorobenzene	68
7	1,2-Dichloropropane	1	21	Chloroform	0.3
8	1,2-Dichloroethane	0.52	22	Naphthalene	25
9	1,2-dibromoethane	0.07	23	Trichloroethylene	0.7
10	1,4-Dichlorobenzene	5.6	24	cis-1,2-dichloroethylene	66
11	1.4-dichlorobenzene	5.6	25	Carbon tetrachloride	0.9
12	Benzene	1	26	Tetrachloroethylene	11
13	Styrene	1290	27	Monobromodichloromethane	0.29
14	Dichloromethane	94	28	Ethylbenzene	7.2

Table S5 Emission limits of VOCs in the factory

Indicator	Emission limits (mg/m^3)	Implication
NMHC	30	Concentration value at any of the monitoring points