

Table S1 The species and relative content of VOCs during storage

Domestic fishmeal																	
CAS	Compound CID	Relative content (µg/kg)															
		0d	2d	4d	6d	8d	10d	12d	14d	16d	18d	20d	22d	24d	26d	28d	30d
91-20-3	931	15.28±4.82	27.05±0.26	9.99±1.84	12.39±4.48	11.88±4.10	9.81±1.04	13.74±2.31	13.74±1.65	15.67±5.04	13.54±1.16	13.50±2.39	12.90±3.79	16.18±3.24	9.36±0.49	11.88±5.37	39.11±22.43
18433-98-2	519564	4.00±1.35	2.00±0.40	3.61±0.74	2.63±0.77	2.40±0.39	2.80±0.64	2.10±0	2.56±0.28	2.91±0.66	2.38±0.05	3.14±0.26	1.73±0	5.06±0	2.67±0	2.87±0	4.02±0.85
91-53-2	3293	1.18±0.13		1.13±0.10	1.42±0.22	2.49±0.49	1.74±0.71	1.89±0.05	1.33±0.50	1.85±0.49	1.38±0.04	1.75±0.05	2.61±0	1.24±0.16	0.94±0.14	1.55±0.28	2.10±0
123-32-0	31252	3.00±0		0.88±0				2.04±0			1.38±0.6	1.83±0					1.33±0
1008-88-4	13886	1.60±0.90	3.13±0.11	2.18±0.39	2.38±0.52	3.02±0.30	3.02±0.62	3.26±0.63	2.90±0.44	3.42±0.43	3.58±0.14	3.04±0.82	4.59±1.73	5.03±0.72	3.27±0.11	3.69±1.28	8.55±3.92
55044-09-2	583842	4.19±1.27												5.19±0			
90-12-0	7002	3.16±1.47	1.91±0.25	1.65±0	2.26±0.86	2.68±1.17	1.77±0.23	3.96±0.62	3.62±1.15	3.78±0.80	2.84±0.29	3.41±0.04	2.38±0.71	4.63±1.72	2.34±0.29	3.27±1.51	8.44±2.91
13360-	25916	9.88±0					1.28±	4.56±0	2.35±0.	2.68±0		0.73±0	3.18±	2.52±0			

65-1				0	.39	87			0				
95-20-5	7224	1.58±0.04						2.51±0.09	2.35±0	1.42±0			5.14±0
13067-27-1	83101	2.31±0		2.18±0.65						2.50±0	2.42±0		
1746-11-8	101130	2.32±0											
1558-17-4	15257	1.92±0		2.97±0	1.29±0								2.14±0
2349-70-4	3083760	1.18±0											
4466-24-4	20534	1.30±0		1.19±0		1.91±0		1.96±0	1.90±0	0.85±0			
1072-83-9	14079		0.90±0					0.95±0		1.19±0			
2941-72-2	76254		1.08±0					1.51±0					
10003												8.05	
80-56-7	68109		3.41±0		1.66±0	6.22±0.63				1.93±0	0.97±0	±1.27	
91-57-6	7055		1.06±0								1.21±0		
10001													
17-04-4	590619		1.00±0				1.06±0						

3208-16-0	18554				1.63±0	1.02±0	1.33±0	0.93±0		0.98±0	2.16±1.34	1.1±0		8.01±0		1.41±0	16.68±0
3777-69-3	19602				0.69±0				0.75±0		0.62±0						
59958-20-2	181250					3.01±0.65											
16498-4-44-5	188454					1.26±0.29	0.80±0.05										
1008-89-5	13887					2.51±0											
28712-62-1	120028								3.79±0								
1122-58-3	14284									1.25±0							
695-34-1	1533									1.02±0							
56599-50-9	543312																7.94±0
104-46-1	637563											1.35±0.10					
73285-35-5				5.67±0													15.12±0
629-78-7	12398	64.40±10.57	96.17±5.53	49.7±2.45	64.16±15.42	69.56±17.72	65.75±4.39	63.42±3.29	61.35±9.57	80.09±26.47	52.3±1.27	74.86±10.10	86.33±50.40	69.98±7.2	55.70±0.31	66.86±16.6	108.60±21.16

10001											23.6				21.2		
92-63-3	530429	22.88±2.78	16.15±1.68	21.69±5.11	21.93±4.54	23.92±0	20.82±0.48	23.41±0	24.13±7.42	18.43±0.95	5±3.37	41.53±0	19.12±0		6±5.12	26.87±0	
629-62-9	12391	5.99±0.26	4.72±0.16	4.36±0.14	6.75±2.65	6.50±1.66	5.53±0.71	6.37±0	5.14±0.88	6.78±2.63	3.75±0.17	6.79±1.01	7.61±4.70	6.22±0.59	4.27±0	5.92±1.48	6.43±0.56
593-45-3	11635	3.90±0.54	6.41±0.17	2.95±0.57	4.63±0.64		5.16±0	4.11±0	4.54±0.90	5.60±1.61	4.96±0.83	5.94±1.31	5.95±3.40	4.42±0.38	3.63±0.17	3.82±0	7.92±0.86
544-76-3	11006	4.08±0															
629-99-2	12406	4.24±0		5.17±0.86	7.69±0		7.53±0.39		6.90±0.84			8.70±1.91	11.22±6.22	7.73±0	7.54±0.61	7.86±1.86	10.78±0
629-94-7	12403	6.06±0			6.12±0	8.64±1.96	4.75±0	5.79±0			10.53±0					6.63±0	
10001											3.15						
92-65-0	543423	4.15±0									±0			1.89±0			
14905-56-7	85785	1.86±0			4.00±2.63	6.63±0		7.94±0	4.50±0	8.38±0							
55282-12-7	292285	0.84±0	1.83±0.11	1.01±0		0.99±0	0.78±0	0.71±0		0.89±0					1.11±0	1.69±0.55	
55000-52-7	41282		29.76±0.79			22.14±0		17.19±0				12.25±0	23.25±0	17.33±0		35.72±0	
629-	12401		8.74±0			9.37±0		6.35±0		8.18±2	7.18			8.34±0			17.84±

92-5		.59				.22		.23	±0					0
7390-81-0	23872	2.38±0				2.43±0		1.76±0	5.24±0	0.94±0			4.24±0	17.79±0
16489-32-0	565628	11.45±0	5.81±2.01	5.88±0		6.15±0	9.89±0	4.12±0.06	6.43±0.68	5.18±1.53	4.57±0	7.75±2.71	5.00±2.23	5.39±0
15780-34-4	162512		3.79±0					1.41±0	1.63±0				2.05±0	
55044-09-2	583842		3.99±0				4.51±0	2.71±0		2.13±0.61				
10001														
90-92-9	601922			9.39±0	5.67±0									
10002						10.48±0				16.99±0				
23-00-7	535067													
53818-14-7	143098					1.88±0						4.6±0	1.96±0	
294-62-2	9268					0.72±0				0.85±0				0.95±0
21328-57-4	524413					0.75±0								
16883-48-0	6429398					0.91±0								
54833-23-7	41208						5.33±0							

55668-09-2	544746							1.18±0										
112-95-8	8222								0.97±0				3.06±0					
1000156-14-5	572863												1.01±0	1.13±0		1.08±0		
1921-70-6	15979															18.05±0		
1000360-41-5	91693084															4.26±0		
57366-09-3	549006																	3.36±0
2579-04-6	5364555	18.40±2.12	22.43±0.32	11.09±1.82	18.55±4.93	20.03±5.62	18.39±1.93	15.46±4.61	17.16±2.83	22.92±9.08	13.69±0.04	20.93±3.05	23.46±15.22	18.54±1.16	13.47±0.53	16.43±3.32	26.43±2.17	
1000131-11-8	5364560	15.32±4.68	23.59±1.49	15.17±0			21.76±0	20.04±0	16.83±0				27.11±14.59	19.38±0	15.37±0			
18435-45-5	29075	3.00±0		13.76±0	20.55±3.72	24.81±5.02	24.82±0	22.43±0	25.54±0	27.74±6.95	19.91±1.33	27.55±5.64	7.96±0	23.85±0.25	20.88±0	15.08±12.48	36.83±9.94	
33156-93-3	6440990	8.02±0	6.11±0.78	8.76±2.63	9.09±2.69	5.80±0	6.62±1.63	10.79±2.25	7.64±0.44	9.59±2.26	10.19±1.04	11.15±1.74	8.71±0	11.69±3.07	8.70±2.02	9.56±3.18	15.54±3.57	

[illegible]

93-1															
10001															
94-37-0	605926	2.17±0													
26456-76-8	5365055		1.23±0	1.10±0	1.65±0.32	1.40±0	1.37±0.28	1.89±0	1.60±0.34	1.74±0	1.69±0	1.60±0	1.01±0	1.27±0	
10001															
50-40-1	5367478		2.01±0			2.31±0									
56318-84-4	15607494			1.05±0					1.32±0						
56134-03-3	5352709				9.45±0								7.02±0	12.01±0	
3983-06-0	138092				0.73±0								1.33±0		
100-42-5	7501					1.05±0			0.93±0		1.45±0	0.90±0	1.00±0		
74752-97-9	5368955						0.94±0.19							1.15±0	
62185-56-2	545898							1.35±0							
54344-61-5	171338							5.94±0					7.30±0		
591-48-0	11573								1.07±0						
35387-	520731								1.39±0		2.02±0				



[illegible]

[illegible]

10001		1.49±0.			1.34	
55-88-8	556457	39			±0	1.57±0
5870-63-3	138916	0.60±0	1.64±0			0.68±0
7370-92-5	110977		3.04±0			
10003						
04-66-3	1845939		4.50±0	4.12±0		
66884-74-0	75953512		3.71±0			2.29±0
26942-62-1	539006			0.81±0		
22118-01-0	572612			1.95±0		
4884-24-6	21003				0.78±0	
77573-35-4	101288159				0.76±0	
502-69-2	10408				0.94±0	
12489						
9-17-8	573565					1.63±0
58879-40-6	337818					1.82±0

22476-61-5	214839														3.92±0		
30316-33-7	594912																3.59±0
57-10-3	985	37.87±18.52	46.42±7.93	38.32±10.48	32.42±0.34	49.40±4.22	57.05±4.07	43.86±8.07	47.12±3.93	43.91±4.51	63.16±9.58	50.11±16.54	72.45±18.12	69.63±16.07	60±18.69	48.84±16.46	111.98±65.84
373-49-9	445638	12.19±6.06	12.22±2.00	14.42±4.14	14.38±1.02	22.93±1.59	25.37±1.65	16.05±0	22.07±2.06	20.77±2.63	29.73±5.48	21.90±7.38	24.50±0	32.54±6.90	39.13±0	22.52±6.51	76.49±0
64-19-7	176	23.79±12.89	6.29±0	20.69±0	5.35±0	13.18±0	34.90±0	40.73±3.79	24.92±12.56	12.59±4.33	10.08±0	32.46±15.95	23.65±0	41.26±0		18.68±0	
107-92-6	264	0.63±0	2.61±1.24	3.77±0	0.94±0	2.45±0.92	1.89±0	2.19±0.48	2.06±0.57				4.13±0	1.72±0.17	2.13±1.10	0.86±0.16	
544-63-8	11005	29.73±15.50	26.05±7.57	25.39±8.73	24.86±4.05	40.10±5.23	42.59±2.90	35.54±4.72	35.09±3.42	35.44±4.94	49.05±7.34	39.28±12.55	52.03±16.70	47.97±16.69	39.19±16.32	39.59±13.44	77.64±36.34
34450-18-5	1449	2.60±0												1.64±0			
1002-84-2	13849	3.70±1.63	3.33±0	3.38±1.14	3.03±0.13	5.45±0.68	4.39±0.18	3.60±0.35	3.86±0.51	3.75±0.76	6.59±1.43	4.85±1.99	5.56±1.99	5.68±1.26	3.39±0.35	3.91±1.45	8.31±3.62
463-40-1	5280934	5.53±3.15		1.41±0.24	3.34±0	2.04±0.85	1.87±0.43	3.03±0.65	1.70±0.19	2.75±0.64	3.13±0.26	3.97±0.74	2.45±0	4.57±0.4	3.20±0	1.47±0	3.32±0

112-80-1	445639	1.16±0.60	2.45±0.96	3.00±1.30	1.70±0	2.86±1.26	3.44±1.95	1.33±0	5.43±0		5.19±0.56	3.54±1.65	6.91±0	4.50±2.15	5.29±0	2.33±0.92	1.87±0
79-09-4	1032	2.35±0		1.15±0.30	1.74±0		1.55±0	0.77±0	1.74±0.65		3.47±0	1.04±0		2.34±0	2.57±0		
10417-94-4	446284	0.00±0.00	3.53±0	0.96±0	2.00±0.12	1.25±0		1.75±0		0.89±0	1.83±0	2.42±0	3.00±2.07	2.45±0	1.22±0	2.47±0	2.48±0.71
4536-23-6	20653	0.92±0						0.77±0				2.56±0				0.89±0	
6217-54-5	445580	4.79±0	1.00±0	5.39±1.50	4.37±3.07	5.41±3.88	7.04±0.46	9.41±1.56	4.89±3.16	7.64±2.87	7.90±1.45	6.03±4.15	9.80±5.22	5.25±1.05	7.21±1.42	5.90±4.12	16.39±6.13
143-07-7	3893	0.85±0	3.23±0	2.76±0		3.94±1.47	4.98±0			2.62±0	4.34±0.58	4.73±0	4.38±1.07	3.58±0.97		5.76±0	4.84±0.77
109-52-4	7991	43.92±0					1.70±0	3.15±0				0.85±0				2.02±0	
503-74-2	10430	1.61±0			1.20±0			0.77±0	1.44±0		1.24±0	1.14±0	1.72±0	3.78±0	1.26±0	0.89±0	
103-82-2	999			1.85±0	1.76±0	3.67±1.02	5.10±0.63	4.15±1.88	6.18±0				3.37±0	4.10±1.54	7.27±2.37	2.06±0	3.55±0
603-79-2	11782			0.76±0										1.07±0			
57-11-4	5281			0.73±0		0.73±0					0.95±0.0	1.31±0					



64-0																	±0
16833-54-8	5312495																7.23
56554-89-3	5367669					1.58±0						0.65					±0
100-52-7	240	49.51±10.75	61.44±2.56	33.89±7.22	39.62±7.17	32.99±3.70	41.19±4.59	37.33±5.93	34.00±2.45	29.63±8.31	29.52±3.93	27.00±5.68	42.90±13.48	35.94±5.23	23.98±1.94	29.65±8.54	59.95±23.45
122-78-1	998	4.75±0.76	6.4±0.4	4.18±1.01	6.20±1.64	4.73±0.91	5.97±0.58		2.90±0.89	3.54±1.39	6.28±0	3.85±1.28	6.65±0	6.66±1.33	7.87±0	4.32±1.19	6.66±0.79
1000130-97-9	5363097	4.49±0	7.35±0.81	3.31±0	7.13±0												
57295-30-4	585182	5.45±0															
56829-23-3	5365665	16.10±4.45		11.57±3.29	10.82±2.18	8.91±1.22	9.68±0	11.71±3.33	10.64±1.17	7.33±0	12.06±2.66	10.88±1.42	13.55±3.17	15.32±3.00	15.32±0	12.22±0	
4411-89-6	6429333	1.50±0.38	1.29±0	1.16±0.34	1.59±0.39	1.03±0.02	1.52±0.28	1.91±0.27	1.89±0.34	0.70±0	0.91±0.01	0.84±0.11	0.80±0		2.31±0	0.98±0.24	1.74±0.31
53447-47-5	71587170	8.32±2.13		4.85±0	8.04±2.10	7.12±1.65	6.33±1.54	7.37±0		8.55±0		8.15±0	12.59±0				
629-80-1	984	3.59±0	8.67±2.1	3.01±0	8.78±0.57	6.56±0.33	6.28±2.70	4.47±0.29	5.71±0.92	5.69±0.31	9.66±2.38	5.98±3.24	5.65±2.02	4.50±0.07	2.27±0.37	8.19±4.23	18.07±9.17

124-19-6	31289		1.34±0.39	1.31±0									3.55±0				
111-71-7	8130	1.24±0						0.72±0					1.89±0				
5910-87-2	5283339	1.54±0				1.19±0							1.25±0	0.85±0			
4313-03-5	5283321		2.70±0.56	4.29±0.02					4.50±0	3.17±0.70	2.98±0.46				3.06±0.07	3.69±0.84	
931-96-4	565407		5.97±0	4.68±0	5.50±0	6.10±0			5.12±0		2.10±1.48	11.60±0	13.22±0	10.04±0	5.54±1.61	7.97±0	
23942-00-9	585875		6.48±0														
4748-78-1	20861		3.46±0	2.08±0	3.11±0.47	2.63±0.23	2.66±0.19	2.35±0	2.57±0.45	2.57±0.51		2.65±0.47	2.43±0	1.74±0.48	1.04±0	3.96±0.98	
41438-18-0	458185			4.24±0	2.35±0.99		1.82±0			3.56±0	2.98±1.19	4.28±0			4.26±0	2.96±0	
85896-31-7	522841				2.16±0		2.47±0			2.14±0					2.13±0		
30361-28-5	5283329				1.24±0.38	1.39±0		1.28±0		1.22±0			1.03±0			2.10±0	
557-48-2	643731				1.86±0							1.65±0					
2423-	5364492				1.15±0					3.18							



10-1																			±0
20235-19-2	854						1.23±0												
21834-92-4	5370602							2.19±0				2.46±0							
1000461-11-8												1.52±0		1.95±0				3.12±0	
56554-87-1	5367668												1.77±0				1.21±0		
1196-67-4	5372857													1.25±0					
63521-76-6	544162															2.82±0			
500-66-3	10377	4.68±1.78	6.78±0.12	5.10±0.52	8.11±2.08	5.26±1.18	7.76±0.54	6.20±0.24	8.37±0.40	9.60±3.38	6.06±0.30	8.09±0.66	7.71±3.65	10.52±0.56	7.86±1.23	9.08±1.88	13.65±1.34		
3391-86-4	18827	1.20±0		1.18±0	0.60±0						0.82±0								
5353-25-3	5364713	2.17±0.92	2.99±1.60	3.74±0	4.38±0.36	1.94±0.05	1.92±0.68	1.75±0	1.52±0.53	1.55±0.37	4.78±2.03	1.21±0	2.01±0	2.13±0		1.28±0	5.83±0		
1855-09-0	15825	2.83±0	3.78±0							1.33±0	1.71±0								
18240-10-3	86682	10.71±0		5.68±0			5.17±0	5.68±0					7.35±0	7.29±0					

22117-09-5	5367371	2.14±0		3.39±0		2.82±0	3.18±0	3.65±0	3.08±0	3.65±0	3.99±0	5.25±0
30385-19-4	545738	3.58±0.34		2.56±0	1.09±0		0.88±0					
1454-84-8	80281	4.22±0	4.21±0.22	2.23±0		3.02±0	3.25±0	2.92±0	2.58±0.01	1.26±0	2.53±0	5.02±0
24347-58-8	225936	3.73±0			2.57±0	2.42±0	0.93±0			1.39±0	4.95±0	0.88±0
766-00-7	69833	3.84±0		2.56±0								
468-68-8	3080551	2.17±0	1.06±0									
34492-42-7	5368564	2.01±0		1.66±0				1.75±0				
6728-31-0	5362814	1.34±0										
1075-04-3	15825		2.50±0		2.29±0	1.19±0			2.17±0			
1464-44-4	65080		1.89±0.49									
1000193-38-7	565579		3.90±1.42			4.67±0			9.09±0	2.63±0		8.45±0
17289-61-1	11579182			1.08±0								

96-07-1	95331	0.78±0					1.43±0			
698-87-3	94185	0.76±0								
10001							7.52			
96-32-3	565522	7.77±0	6.52±0		5.39±0.45	8.99±0	±1.60	8.99±0	4.28±0	7.44±0
90970-69-7	114544	1.20±0						1±0		
35727-45-8	101316861	0.91±0								
5181-75-9	291783	0.93±0	1.82±0.25		0.98±0	1.81±0		3.44±0	0.68±0	1.60±0
56045-33-1	556415	1.37±0								
11722-1-78-0	556791	1.77±0								
10001										
87-22-4	580092		0.80±0	1.41±0						
10001										
84-98-8	561943		2.54±0	3.21±0		4.70±0		2.41±0	3.33±0	5.87±0
11966-0-66-1	608998			1.98±0				1.71±0		
655-	95447			1.35±					1.20±0	1.16±0

48-1		0				
53404-49-2	62044	1.22±0				
1454-85-9	15076	4.99±0				
10001						
29-79-9	560124	0.74±0				
51937-00-9	6436736		7.20±0			
23261-20-3	15942827		1.31±0.29	0.98±0		
7212-44-4	5284507		1.22±0			
10001						
31-11-4	5364768		1.09±0	1.42±0		1.17±0
10579	537071		3.89±0	2.60±0		
17367-07-6	5367702			2.33±0		3.77±0
90676-25-8	138614			3.07±0		
7735-42-4	82184			3.19±0		
4621-	20739			1.31±0		

04-9																		
10001																		
30-07-6	345716											1.26±0						
10001																		
28-40-9	242517													1.73±0				
2490-48-4	17218													4.18±0			5.52±0	
77611-58-6	560936															2.45±0		
10001																		
31-10-9	5283296																5.91±0	
33425-30-8	87985					16.11±0				29.16±0								
10002											10.8							
22-86-6	9602988	5.19±1.02	19.49±4.99	5.13±2.68	12.21±8.06	8.64±4.93	5.34±1.52	2.09±0.52	6.55±3.75	9.90±1.67	9±6.80	12.24±3.55	11.27±4.04	8.17±1.32	1.27±0.16	7.79±4.55	53.68±37.18	
131-11-3	8554	1.55±0.48	1.42±0.27			0.85±0	1.55±0	2.12±0.41	0.72±0	0.80±0	1.08±0	1.10±0	2.25±0.54	2.29±0.41	2.21±0.49	3.52±2.00	7.30±2.82	
24691-16-5	229657	1.11±0			1.14±0	1.05±0	0.97±0	0.72±0	0.75±0						0.80±0			
2566-90-7	6421262	0.68±0									0.93±0							

112-23-2	8169	1.80±0.33		1.23±0	0.63±0			0.74±0		0.70±0.08	2.73±0		0.90±0	0.97±0			
2716-53-2	5364833	0.70±0			1.82±0	3.15±0		3.13±0.57	3.21±0.04			3.29±0	2.11±0		9.49±0		
76337-16-1	637195	1.65±0						2.33±0									
1499-53-2	226558	1.57±0								1.45±0					1.93±0		
80-27-3	62328	5.22±1.48															
10236-16-5	637195	2.18±0	4.17±0.71	2.38±0.91	3.28±0.1		3.14±0.15	2.72±0.19	2.60±0	3.06±0.74	4.43±1.72	3.22±0.85	4.28±1.63	3.59±0.8	3.82±1.57	3.45±1.67	7.28±3.47
628-97-7	12366	1.63±0	1.15±0	1.33±0	1.13±0.05	1.72±0	1.63±0.27	1.24±0	1.53±0.08	1.24±0	1.97±0.60	1.32±0.51	2.25±0.85	1.80±0.19	1.75±0.63	1.15±0.16	2.60±0.94
112-39-0	8181	0.78±0					0.78±0					0.71±0		0.72±0	0.74±0		
55724-48-6	101287780	1.09±0													1.81±0		
17092-92-1	6432173	0.92±0															
89-48-5	27867	4.42±0														2.58±0	
28474-	168814	0.84±0				1.23±0					1.32				0.85		

90-0								$\pm 0.3$		$\pm 0$
								6		
77508-64-6	101280823	$1.19 \pm 0$		$1.20 \pm 0$		$1.00 \pm 0$				$1.30 \pm 0$
10003										
36-36-7	14122946		$1.40 \pm 0$							
10001										
31-33-2	5363633		$2.15 \pm 0$					$1.11 \pm 0$		$3.52 \pm 0$
10605-09-1	54725318		$1.04 \pm 0$			$0.75 \pm 0$				
10003										
05-65-2	6422010		$2.67 \pm 0$	$2.85 \pm 0$	$4.38 \pm 0$				$10.83 \pm 0$	
10003										
30-54-1	5461492		$2.25 \pm 0$	$2.99 \pm 1.2$	$3.61 \pm 0$	$3.61 \pm 0.48$	$4.94 \pm 0$			$3.87 \pm 0$
10004										
66-87-1	165361954		$0.75 \pm 0$							
10001										
30-99-3	5363221		$0.82 \pm 0$							$1.12 \pm 0$
10001										
30-97-	5365029			$1.33 \pm 0$						

[illegible]



[illegible]

10001																		
31-36-3	5367730												1.96±0					
56687-67-3	534623													1.80±0.82				
84494-70-2	5353613													1.08±0				
10003																		
91-10-5	91695146													1.00±0				
10001																		
28-67-1	536834													7.84±0				
22522-34-5	5365040														0.82±0			
107-43-7	249															1.20±0		
62555-02-6	71385260	2.30±0																2.59±0
5637-97-8	3639916								1.80±0		1.37±0							
10001																		
30-04-4	541568				1.06±0									1.53±0				
128-37-0	31404	49.31±6.49	28.00±6.35	38.91±5.17	46.75±13.77	48.04±9.65	52.75±1.91	48.91±3.71	45.68±2.31	56.82±18.90	42.30±1.	54.45±4.59	73.50±36.7	62.68±9.13	51.99±8.	47.37±10.43	66.41±1.24	

								97	0	78	
2896-60-8	17927	1.24±0.47	0.96±0					1.09±0	0.93±0		
1126-61-0	70775		1.16±0	1.20±0	0.93±0.18	1.19±0	1.22±0	1.14±0	2.06±0		1.25±0
2416-94-6	17016		1.15±0								
3855-26-3	77462				4.02±0						1.65±0
3180-09-4	18515							0.74±0.09			
4025-37-0	97697							0.83±0			
1000152-81-2	6432249							2.63±0			
1000337-61-7	5306963							1.56±0			
104-63-2	4348							4.63±0			
108-45-2	7935						1.98±0				
134001-62-0	547067					0.97±0					

[illegible]

3																
10003																
03-08-5	6422106							1.86±0	1.84±0				1.03±0			
140-67-0	8815	1.09±0	1.08±0	0.73±0	1.60±0			1.42±0.21	1.24±0	0.82±0	0.72±0	1.37±0.4	1.89±0.23	1.01±0.09	1.43±0.47	1.76±0
538-86-3	10869							3.33±0						3.04±0		
104-46-1	637563															3.34±0
622-60-6	73955															2.45±0
54060-30-9	104682		6.18±1.32							4.67±0	7.29±1.01			8.50±0		16.65±0
10001																
50-17-9	546887									1.29±0						
74744-55-1	5367448											2.54±0	2.40±0			
16695-32-2	86051		3.67±2.56											3.56±0		
Imported fishmeal																
CAS	Compo und	Relative content (µg/kg)														
		0d	2d	4d	6d	8d	10d	12d	14d	16d	18d	20d	22d	24d	26d	28d 30d

CID																	
91-20-3	931	38.21±15.24	34.87±13.32	32.28±4.81	69.76±30.92	40.22±7.97	30.49±1.00	27.54±1.22	29.48±4.68	61.91±12.21	33.51±6.95	24.43±4.51	46.40±9.01	41.00±1.97	54.85±19.18	60.08±15.92	67.25±13.67
91-53-2	3293	419.28±141.14	371.40±166.29	252.53±25.70	496.32±125.00	450.30±121.49	308.02±11.87	268.49±0.82	269.23±21.23	400.79±44.81	322.04±12.047	146.32±2.87	274.95±8.178	187.25±8.83	334.30±11.530	275.02±58.02	353.73±16.17
1008-88-4	13886											3.10±0	5.11±2.13	4.82±0	9.99±4.06	11.32±0	9.67±4.36
91-57-6	7055	8.55±3.29		8.68±0		11.76±2.65	9.49±0.72	8.46±0.37	7.64±1.30	26.58±2.55	10.57±2.84	6.49±0.23	14.89±1.74	13.88±1.19	22.90±7.96	15.88±4.05	29.70±5.95
3208-16-0	18554		4.92±0	4.42±0	9.43±0		4.50±0	2.37±0		3.56±0	2.14±0		3.29±0		3.55±0		
5995																	
8-20-2	181250	4.99±0		5.27±0													
1648																	
9-90-0	86013	46.13±18.56	46.55±16.36	29.36±7.55	55.69±15.29	37.76±10.8	29.79±1.94	28.81±2.21	35.44±7.42	40.51±6.46	31.38±10.32	15.64±2.32	32.13±6.42	20.46±0.57	36.35±12.83	29.14±0.99	43.69±2.27
1810																	
8-56-0	614744	15.08±3.61	4.58±0	8.68±0		27.28±8.01	9.55±4.84	7.89±4.38	3.82±0	13.94±5.57	16.56±4.96	18.65±0					
9300																	
8-87-8	617681	16.92±6.60	7.40±0.83	6.82±3.20	20.52±8.16	18.10±0	8.39±0	8.36±2.94	8.55±3.25	24.23±17.51	9.57±1.07	29.37±2.49	30.83±6.97	44.73±4.32	48.21±11.69		39.45±15.36

147-47-7	8981	3.10±0	4.54±1.48	2.62±0	5.13±0	3.62±0											
65539-79-9	5374980	2.71±0	4.30±0.8	3.84±0	3.94±0	6.19±2.50	5.36±0.18	4.82±1.13	4.18±0							4.35±0	
70424-13-4	5370006		8.57±0	8.40±0.01	7.59±0	3.41±0	13.00±0	3.79±0	6.67±0		3.89±0	2.68±0		4.27±0	8.95±1.26	6.85±0	
23095-44-5	96943					20.70±0	4.30±0			4.71±0						27.39±0	27.98±0
84679-58-3	614550					13.76±0			4.02±0			3.16±0	4.41±0	6.79±2.71		5.91±0	
54964-85-1	281839					11.07±0											
46873-19-2	618028														11.85±0		
3606-26-6	615798	5.62±0														8.37±0	
132-64-9	568														6.29±0	10.64±0	
582-16-1	11396														6.21±0		

[illegible]



[illegible]

1921 -70-6	15979					58.94± 11.81			40.61± 5.93	38.27± 11.04	16.00±0	48.2 2±0	35.93±6. 08	56.8 4±19 .00	23.82±0	56.83± 0
1000 150- 98-9	617625	3.54±0	4.30±0	2.35±0	4.96±0	7.30±0	6.75±0 .56	6.51± 0.83	3.71±0		3.95±1.39	1.80 ±0				
2425 1-86- 3	520105					4.37±0										
1560 -96-9	15269						2.83±0									
1000 192- 21-5	536822 6															15.25 ±0
638- 36-8	12523															14.31 ±0
2579 -04-6	536455 5	5.08±0	6.89±0. 86	4.95±0 .50	8.17±1. 32	14.56± 3.95	10.00± 1.72	10.96 ±0.28	5.42±0	4.97±0	3.20±0	5.73 ±1.3 5	4.78±0			
1843 5-45- 5	29075				2.57±0			5.28±0								
3315 6-93- 3	644099 0	3.88±0	7.88±2. 77	4.76±0 .48	7.16±0	4.63±1. 21	4.79±0	3.88± 0.21	2.47±0							

[illegible]

6114																	
2-06-1	565944								6.12±0		14.02±0				8.52±0		
1139-30-6	1742210													3.63±0			
2626-6-08-0	5366021														2.61±0		
591-49-1	11574															4.02±0	
5409-55-2	76420	13.37±3.27	17.38±5.57	10.93±0.72	20.58±6.25	17.71±3.82	13.65±1.51	14.46±0.38	10.72±2.19	14.85±1.01	9.91±3.10	5.14±0	10.67±1.96	6.70±0.42	12.29±4.20	9.35±1.05	18.77±0.77
3828-4-27-4	5352876	5.74±1.04	9.05±4.10														
2076-69-70-3	543411																3.77±0
7757-3-35-4	101288159												9.56±0		29.91±0		
1000-349-85-9	3065113	276.73±152.22	197.24±75.85	154.33±34.09	380.61±190.41	201.72±25.25	157.22±12.70	142.12±8.21	138.74±15.26	282.27±121.41	164.17±42.18	55.96±14.98	155.78±30.45	126.23±5.01	213.20±78.31	344.70±196.38	232.14±33.82

[illegible]

[illegible]

[illegible]

2091	528274	118.28	52.92±	55.10±	112.73		37.21±		45.34±	70.43±		37.5	87.91±16	35.6	153.90±0		
-29-4	5	±0	19.33	1.68	±0		0		12.84	0	7.86±0	0±0	.67	3±0			
2025	111625						19.65±		4.78±	36.25±	14.31±	18.6		29.2			
7-75-4	21	8.12±0	4.33±0				2.89	7.59±0	0	0	0	5.28±0	1±2.53	30.44±6.28	5±3.44		
1000																	
192-71-8	495454	5.62±0	5.17±0	11.36±1.86	52.03±0		21.74±0	6.68±0		53.47±0							
1000	536589																
195-87-5	2			8.08±0													
506-12-7	10465				4.19±0												
506-32-1	444899						23.42±0										
1773																	
5-94-3	5312518									44.90±0							
100-52-7	240	32.60±8.93	39.43±13.75	28.41±6.10	55.00±27.86	22.44±4.71	19.11±0.80	16.55±1.07	11.74±1.42	24.19±7.48	12.96±2.17	6.73±0.35	15.65±2.93	18.36±3.28	10.92±0	14.83±0.16	16.25±2.45
122-78-1	998				4.89±1.40										5.31±1.98		3.98±0
5682	536566																
9-23-3	5	4.77±0	11.60±4.67	10.07±0	12.35±0	7.52±1.30	8.63±0	5.98±0.62	3.46±0		4.14±0.38						



[illegible]

[illegible]

[illegible]



2716	536483							15.86				6.40					
-53-2	3							±0			13.51±0	±0			56.51±0		
7633														72.2			
7-16-	637195	20.16±				58.13±	17.99±				4.45±0	17.7	18.17±0	3±24	34.85±0	37.74±	
1		0				46.60	0					1±0		.18		0	
1023																	
6-16-	637195	24.66±	19.91±	12.59±	30.31±	44.00±	13.78±	37.53	19.57±	37.48±	49.10±22.	31.0	38.94±0				
5		0	11.33	7.74	8.79	0	3.55	±0	5.19	12.21	47	1±0					
628-																	
97-7	12366	22.34±	13.77±	9.23±4	24.88±		15.17±	29.26	41.99±								
		9.61	5.21	.13	5.40		3.50	±13.5	0								
								2									
5572																	
4-48-	101287																
6	780										42.93±0		8.56±0				
2847																	
4-90-	168814											7.93			19.38±0		
0												±0					
7750																	
8-64-	101280																
6	823			3.03±0													
1000																	
131-	536363				10.04±		19.04±					7.83				111.7	
33-2	3				0		0			8.49±0		±0				4±0	
1000																	
330-	546149											3.52					
54-1	2											±0					

[illegible]

[illegible]

[illegible]



[illegible]

1000	530677												
337-	3			4.18±0									
58-3													
140-	8794											4.09±	
29-4												0	
5406													
0-30-	104682	7.78±2.	10.32±	8.29±0	5.07±0	4.09±0	6.17±	4.20±1.	6.84±0	9.55±0	1.37		
9		96	4.40				0	03			±0		

---

Table S2 The results of the significant correlation coefficient  
between freshness indexes and VOCs  
(Domestic fishmeal)

Domestic fishmeal					
CAS	Compounds CID	Correlation coefficient and significance			
		AV	pH value	VBN	Mold counts
128-37-0	31404	0.660**	0.477	0.392	0.427
91-53-2	3293	0.292	0.524*	-0.139	-0.165
500-66-3	10377	0.552*	0.342	0.594*	0.714**
1008-88-4	13886	0.651**	0.417	0.624**	0.653**
90-12-0	7002	0.401	0.529*	0.477	0.542*
95-20-5	7224	0.559	0.804	0.691	0.941*
13067-27-1	83101	0.990*	-0.231	0.736	0.445
4466-24-4	20534	0.006	0.277	-0.887*	-0.044
57-10-3	985	0.680**	0.680**	0.596*	0.623**
373-49-9	445638	0.568*	0.568*	0.639**	0.708**
544-63-8	11005	0.697**	0.697**	0.499*	0.580*
1002-84-2	13849	0.558*	0.558*	0.310	0.370
6217-54-5	445580	0.681**	0.681**	0.364	0.410
57-11-4	5281	0.709	0.709	-0.854	0.986*
5409-55-2	76420	0.558*	0.426	0.577*	0.509
10396-80-2	146102	0.643**	0.438	0.350	0.418
2437-62-9	270491	0.721**	0.559*	0.316	0.339
52978-85-5	579763	0.483	0.364	0.502*	0.499*
93-55-0	7148	0.600	0.368	0.958**	0.855
1000155-88-8	556457	-0.868	1.000**	-0.270	0.459
122-78-1	998	0.580*	-0.129	0.505	0.387
56829-23-3	5365665	0.239	-0.630*	0.641*	0.452
124-19-6	31289	0.689	-0.996	0.992	1.000**
931-96-4	565407	0.397	-0.262	0.647*	0.504
85896-31-7	522841	0.957*	0.609	-0.576	-0.319
30361-28-5	5283329	0.556	0.940**	0.515	0.437
131-11-3	8554	0.617*	0.469	0.736**	0.689**
2716-53-2	5364833	0.630	0.843**	0.559	0.616
1499-53-2	226558	0.721	0.980	1.000*	0.936
10236-16-5	637195	0.685**	0.293	0.553*	0.523*
628-97-7	12366	0.542*	0.291	0.436	0.375
5487-50-3	554151	0.927*	0.484	0.571	0.622
18240-10-3	86682	-0.152	-0.812*	0.397	-0.044
22117-09-5	5367371	0.942**	0.451	0.699*	0.776*
655-48-1	95447	-0.270	-0.253	-0.999*	-0.987

593-45-3	11635	0.532*	0.301	0.079	0.079
629-99-2	12406	0.761**	0.427	0.324	0.395
55282-12-7	292285	-0.126	-0.798**	0.539	0.388
629-92-5	12401	0.559	0.579	0.771*	0.679
7390-81-0	23872	0.783*	0.558	0.758*	0.704
18435-45-5	29075	0.121	0.598*	0.027	0.308
33156-93-3	6440990	0.607*	0.532*	0.464	0.556*
1000150-40-3	5367478	0.620*	0.221	0.359	0.377
56134-03-3	5352709	0.998*	0.999*	0.176	0.053
631-61-8	517165	0.736	0.208	0.882*	0.925**
75-50-3	1146	-0.079	-0.022	0.831*	-0.647
296245-21-1	581431	0.459	0.144	0.635*	0.719**
1000303-08-5	6422106	-0.623	0.433	-0.999*	-0.995

Imported fishmeal

CAS	Compounds CID	Correlation coefficient and significance			
		AV	pH value	VBN	Mold counts
91-20-3	931	0.073	0.594*	0.573*	0.376
93008-87-8	617681	0.349	0.897**	0.753**	0.688**
91-57-6	7055	0.379	0.655*	0.580*	0.624*
65539-79-9	5374980	0.713*	0.191	-0.240	0.187
500-66-3	10377	0.200	0.815**	0.905**	0.339
3208-16-0	18554	-0.673*	-0.036	0.122	-0.497
84679-58-3	614550	0.303	-0.022	0.023	-0.813*
151-10-0	9025	0.757	0.780	0.758	0.865*
1008-88-4	13886	0.653	0.955**	0.958**	0.585
52823-95-7	301207	0.894	0.921	-0.982	0.998*
57-10-3	985	0.201	0.819**	0.730**	0.488
544-63-8	11005	0.373	0.857**	0.808**	0.517*
112-80-1	445639	-0.068	0.632*	0.583*	0.309
1002-84-2	13849	0.294	0.533*	0.494	0.222
373-49-9	445638	0.214	0.832*	0.830*	0.568
100-52-7	240	-0.761**	-0.348	-0.086	-0.639**
638-66-4	12533	0.277	0.871**	0.808**	0.487
2566-90-7	6421262	0.244	0.900**	0.582*	0.536*
1000131-33-2	5363633	0.626	0.993**	0.969**	0.580
2716-53-2	5364833	0.180	0.953*	0.985*	0.405
1000222-86-6	9602988	0.344	0.547*	0.508	0.526
82304-66-3	545303	0.378	0.922**	0.888**	0.683*
29204-24-8	76099200	0.278	0.832*	0.826*	0.716
629-78-7	12398	0.663**	0.616*	0.374	0.486
1000190-92-9	601922	0.447	0.385	-0.511	0.756*
55000-52-7	41282	0.298	-0.483	-0.820*	-0.507
7390-81-0	23872	0.406	0.740**	0.678*	0.521
56554-77-9	557439	0.333	0.932**	0.820**	0.333

137235-42-8	595401	-0.997*	-0.368	0.868	-0.542
18435-45-5	29075	0.959	0.808	-1.000*	0.691
54060-30-9	104682	-0.620	-0.731*	0.419	-0.364

---

Note:\*\*extremely significant difference,  $P<0.01$ ; \* significant difference,  $0.01<P<0.05$ .