Appendix 1. Calculation of Total volatile bases and Trimethylamine

$$\text{TVN (mg/100g)} = \frac{14\,(300 + W) \times (V_b - V_1) \times 0.1}{5} \times \frac{100}{M}$$

$$\text{TMA (mg/100g)} = \frac{14\,(300 + W) \times V_2 \times 0.01}{5} \times \frac{100}{M}$$
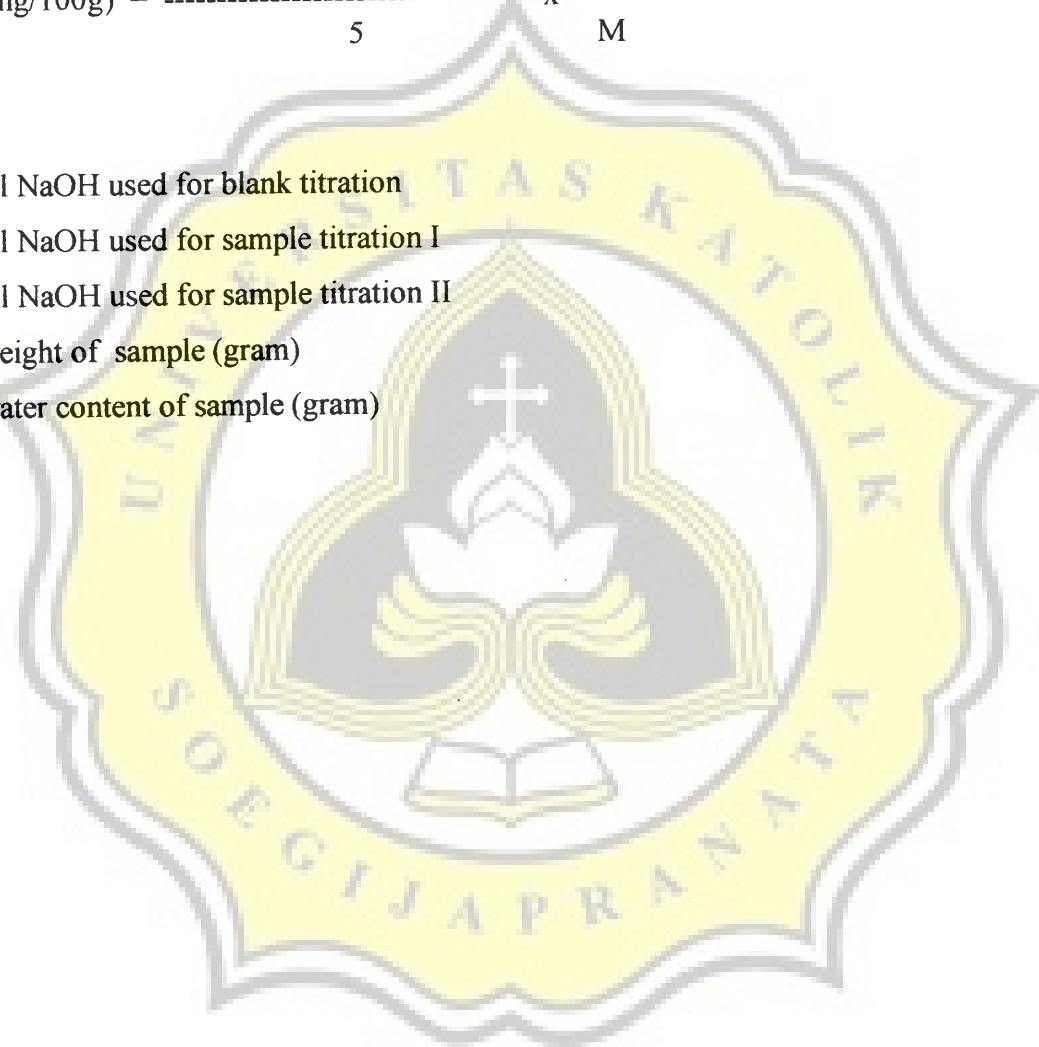
Where :

V_b = ml NaOH used for blank titration

V_1 = ml NaOH used for sample titration I

V_2 = ml NaOH used for sample titration II

M = weight of sample (gram)

W = water content of sample (gram)

Appendix 2. Score Sheet for Fresh Fish Sensory Evaluation

SCORE SHEET ORGANOLEPTIK IKAN SEGAR

Jenis Produk : ....

Nama : ....
Tanggal : ....

Cantumkan kode contoh pada kolom yang tersedia sebelum melakukan pengujian. Berilah tanda V pada nilai yang dipilih sesuai kode contoh yang diuji.

SPESIFIKASI	NILAI	Kode contoh						
I. KENAMPAKAN								
LENDIR PERMUKAAN BADAN :								
Lapisan lendir jernih, transparan, mengkilat, cerah belum ada perubahan warna.	9							
Lapisan lendir dipermukaan mulai keruh, agak putih susu, warna terangnya mulai suram.	7							
Lendir tebal, menggumpal, mulai berubah warna	5							
Lendir tebal, menggumpal, berwarna kuning	3							
Lendir berwarna kekuningan sampai coklat dan tebal, warna cerah hilang, pemutihan nyata, menjadi pengeringan kendir kena udara.	1							
DAGING :								
Sayatan daging sangat cemerlang, berwarna asli, tidak ada pemerahan sepanjang tulang belakang, perut utuh, ginjal merah terang, dinding perut dagingnya utuh.	9							
Sayatan daging cemerlang, berwarna asli, tidak ada pemerahan sepanjang tulang belakang, perut agak lembek, ginjal mulai merah pudar, dinding perut dagingnya utuh.	7							
Sayatan daging masih cemerlang, perut agak lembek, agak kemerahan pada tulang belakang, perut agak lembek.	6							
Sayatan daging mulai pudar, perut lembek, banyak pemerahan pada tulang belakang.	5							
Sayatan daging tidak cemerlang, perut lunak, pemerahan sepanjang tulang belakang, rusuk	4							

mulai lembek.								
Sayatan daging kusam, warna merah jelas sekali pada sepanjang tulang belakang, dinding perut lunak sekali	2							
Sayatan daging kusam sekali, warna merah jelas sepanjang tulang belakang, dinding perut membubar.	1							
II. BAU								
Segar, bau rumput laut, bau spesifik menurut jenis.	9							
Bau segar, bau rumput mulai hilang	8							
Tidak berbau netral	7							
Bau susu, belum ada bau asam, ada bau-bau ikan asin/bau cold storage	6							
Bau susu asam, bau susu kental	5							
Bau asam asetat, bau rumput atau bau sabun	4							
Bau amoniak mulai tercium	3							
Bau amoniak kuat, ada bau H2S	2							
Bau busuk, bau indol	1							
III. KONSISTENSI								
Padat, elastis bila ditekan dengan jari, sulit menyobek daging dari tulang belakang	9							
Agak padat, elastis bila ditekan dengan jari, sulit menyobek daging dari tulang belakang, kadang-kadang agak lunak sesuai dengan jenisnya	8							
Agak lunak, elastis bila ditekan dengan jari, sulit menyobek daging dari tulang belakang	7							
Agak lunak, kurang elastis bila ditekan dengan jari, agak mudah menyobek daging dari tulang belakang	6							
Agak lunak, belum ada bekas jari bila ditekan, mudah menyobek daging dari tulang belakang	5							
Lunak, bekas jari terlihat bila ditekan tetapi cepat hilang, mudah menyobek daging dari tulang belakang	4							
Lunak, bekas jari terlihat lama bila ditekan, mudah menyobek daging dari tulang belakang	3							
Lunak, bekas jari terlihat lama bila ditekan, mudah sekali menyobek daging dari tulang belakang	2							
Sangat lunak, bekas jari tidak mau hilang bila	1							

ditekan, mudah sekali menyobek daging dari tulang belakang							
TOTAL							

Appendix 3. Standar Nasional Indonesia (SNI) Ikan Segar (SNI 01-2729-1992)

Ikan segar adalah suatu produk olahan hasil perikanan dengan bahan baku ikan (pisces), yang telah mengalami perlakuan sebagai berikut : pencucian, penyiangan atau tanpa penyiangan, pendinginan dan pengemasan. Persyaratan yang harus dipenuhi adalah sebagai berikut :

Jenis Uji	Satuan	Persyaratan Mutu
a. Organoleptik :		
- Nilai min.		7
b. Cemaran Mikroba		
- ALT, maks	koloni/gram	5×10^5
- *Escherichia coli*	APM/gram	< 3
- *Vibrio cholerae*	per 25 gram	negatip

Keterangan :

ALT : Angka Lempeng Total

APM : Angka Paling Memungkinkan

Appendix 4. Statistical Analysis for TVB, TMA, pH and drip loss per day

TVB, TMA, pH vales and drip loss volume at day 2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
TVB	Between Groups	19.595	2	9.797	2.500	.162
	Within Groups	23.510	6	3.918		
	Total	43.105	8			
TMA	Between Groups	1.518	2	.759	1.266	.348
	Within Groups	3.597	6	.600		
	Total	5.115	8			
PH	Between Groups	6.289E-03	2	3.144E-03	1.747	.252
	Within Groups	1.080E-02	6	1.800E-03		
	Total	1.709E-02	8			
DLOSS	Between Groups	.109	2	5.444E-02	1.065	.402
	Within Groups	.307	6	5.111E-02		
	Total	.416	8			

TVB

Duncan[a]

TREATMEN	N	Subset for alpha = .05
		1
CO2 40%	3	6.640100
CO2 100%	3	6.994633
control	3	9.932367
Sig.		.097

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

TMA

Duncan[a]

TREATMEN	N	Subset for alpha = .05
		1
CO2 100%	3	2.448567
CO2 40%	3	3.143867
control	3	3.425800
Sig.		.186

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

PH

Duncan[a]

TREATMEN	N	Subset for alpha = .05
		1
CO2 40%	3	6.2833
control	3	6.3267
CO2 100%	3	6.3467
Sig.		.128

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

DLOSS

Duncan[a]

TREATMEN	N	Subset for alpha = .05
		1
control	3	.533
CO2 40%	3	.700
CO2 100%	3	.800
Sig.		.212

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

TVB, TMA, pH vales and drip loss volume at day 2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
TVB	Between Groups	34.972	2	17.486	4.547	.063
	Within Groups	23.075	6	3.846		
	Total	58.047	8			
TMA	Between Groups	1.616	2	.808	2.302	.181
	Within Groups	2.105	6	.351		
	Total	3.721	8			
PH	Between Groups	4.289E-03	2	2.144E-03	1.569	.283
	Within Groups	8.200E-03	6	1.367E-03		
	Total	1.249E-02	8			
DLOSS	Between Groups	.487	2	.243	.978	.429
	Within Groups	1.493	6	.249		
	Total	1.980	8			

TVB

Duncan[a]

		Subset for alpha = .05	
TREATMEN	N	1	2
"CO2 100%	3	7.987433	
"CO2 40%	3	10.810033	10.810033
control	3		12.791500
Sig.		.128	.262

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

TMA

Duncan[a]

		Subset for alpha = .05
TREATMEN	N	1
"CO2 100%	3	3.472733
"CO2 40%	3	3.834800
control	3	4.496067
Sig.		.087

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

PH

Duncan[a]

TREATMEN	N	Subset for alpha = .05
		1
"CO2 100%	3	6.3933
"CO2 40%	3	6.4233
control	3	6.4467
Sig.		.139

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

DLOSS

Duncan[a]

TREATMEN	N	Subset for alpha = .05
		1
"CO2 40%	3	1.367
"CO2 100%	3	1.700
control	3	1.933
Sig.		.227

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

TVB, TMA, pH vales and drip loss volume at day 2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
TVB	Between Groups	154.559	2	77.280	35.988	.000
	Within Groups	12.884	6	2.147		
	Total	167.443	8			
TMA	Between Groups	48.351	2	24.176	31.586	.001
	Within Groups	4.592	6	.765		
	Total	52.944	8			
PH	Between Groups	2.169E-02	2	1.084E-02	15.742	.004
	Within Groups	4.133E-03	6	6.889E-04		
	Total	2.582E-02	8			
DLOSS	Between Groups	.362	2	.181	.853	.472
	Within Groups	1.273	6	.212		
	Total	1.636	8			

TVB

Duncan[a]

TREATMAN	N	Subset for alpha = .05		
		1	2	3
"CO2 100%"	3	12.199200		
"CO2 40%"	3		16.343867	
control	3			22.296233
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

TMA

Duncan[a]

TREATMAN	N	Subset for alpha = .05	
		1	2
"CO2 100%"	3	5.928267	
"CO2 40%"	3	6.608300	
control	3		11.149767
Sig.		.378	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

PH

Duncan[a]

TREATMAN	N	Subset for alpha = .05		
		1	2	3
"CO2 100%"	3	6.4967		
"CO2 40%"	3		6.5500	
control	3			6.6167
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

DLOSS

Duncan[a]

| TREATMAN | N | Subset for alpha = .05 |
		1
"CO2 40%"	3	1.800
"CO2 100%"	3	2.167
control	3	2.267
Sig.		.275

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

TVB, TMA, pH vales and drip loss volume at day 10

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
TVB	Between Groups	334.346	2	167.173	92.439	.000
	Within Groups	10.851	6	1.808		
	Total	345.197	8			
TMA	Between Groups	250.050	2	125.025	90.879	.000
	Within Groups	8.254	6	1.376		
	Total	258.305	8			
PH	Between Groups	.375	2	.188	111.861	.000
	Within Groups	1.007E-02	6	1.678E-03		
	Total	.385	8			
DLOSS	Between Groups	1.627	2	.813	10.765	.010
	Within Groups	.453	6	7.556E-02		
	Total	2.080	8			

TVB

Duncan[a]

| TREATMEN | N | Subset for alpha = .05 | |
		1	2
"CO2 100%"	3	15.701767	
"CO2 40%"	3	17.388267	
control	3		29.391800
Sig.		.175	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

TMA

Duncan[a]

TREATMEN	N	Subset for alpha = .05	
		1	2
"CO2 100%"	3	6.978000	
"CO2 40%"	3	7.300033	
control	3		18.317000
Sig.		.748	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

PH

Duncan[a]

TREATMEN	N	Subset for alpha = .05		
		1	2	3
"CO2 100%"	3	6.3500		
"CO2 40%"	3		6.5867	
control	3			6.8500
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

DLOSS

Duncan[a]

TREATMEN	N	Subset for alpha = .05	
		1	2
"CO2 40%"	3	1.933	
"CO2 100%"	3		2.800
control	3		2.867
Sig.		1.000	.776

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Appendix 5. Statistical Analysis for TVB, TMA, pH and drip loss in treatment

Control

TVB

Duncan[a]

DAY	N	Subset for alpha = .05	
		1	2
day 0	3	7.001300	
day 2	3	9.932367	
day 4	3	12.791500	
day 7	3		22.296233
day 10	3		25.992467
Sig.		.071	.207

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

TMA

Duncan[a]

DAY	N	Subset for alpha = .05			
		1	2	3	4
day 0	3	2.448367			
day 2	3	3.425800	3.425800		
day 4	3		4.496067		
day 7	3			11.149767	
day 10	3				17.145033
Sig.		.202	.166	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

PH

Duncan[a]

DAY	N	Subset for alpha = .05			
		1	2	3	4
day 0	3	6.2600			
day 2	3	6.3267			
day 4	3		6.4467		
day 7	3			6.6167	
day 10	3				6.8500
Sig.		.066	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

ANOVA

DLOSS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.813	3	2.938	15.809	.001
Within Groups	1.487	8	.186		
Total	10.300	11			

DLOSS

Duncan[a]

DAY	N	Subset for alpha = .05		
		1	2	3
day 2	3	.533		
day 4	3		1.933	
day 7	3		2.267	2.267
day 10	3			2.867
Sig.		1.000	.371	.127

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Batch 1 (40% CO_2, 10% O_2, 50% N_2)

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
TVB	Between Groups	307.123	4	76.781	35.867	.000
	Within Groups	21.407	10	2.141		
	Total	328.530	14			
TMA	Between Groups	55.909	4	13.977	21.644	.000
	Within Groups	6.458	10	.646		
	Total	62.367	14			
PH	Between Groups	.267	4	6.672E-02	34.752	.000
	Within Groups	1.920E-02	10	1.920E-03		
	Total	.286	14			

TVB

Duncan[a]

		Subset for alpha = .05		
DAY	N	1	2	3
day 2	3	6.640100		
day 0	3	7.001300		
day 4	3		10.810033	
day 7	3			16.343867
day 10	3			17.388267
Sig.		.769	1.000	.402

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

TMA

Duncan[a]

		Subset for alpha = .05	
DAY	N	1	2
day 0	3	2.448367	
day 2	3	3.143867	
day 4	3	3.834800	
day 7	3		6.608300
day 10	3		7.300033
Sig.		.071	.317

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

PH

Duncan[a]

DAY	N	Subset for alpha = .05		
		1	2	3
day 0	3	6.2600		
day 2	3	6.2833		
day 4	3		6.4233	
day 7	3			6.5500
day 10	3			6.5867
Sig.		.529	1.000	.330

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

ANOVA

DLOSS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.777	3	.926	7.307	.011
Within Groups	1.013	8	.127		
Total	3.790	11			

DLOSS

Duncan[a]

DAY	N	Subset for alpha = .05	
		1	2
day 2	3	.700	
day 4	3	1.367	1.367
day 7	3		1.800
day 10	3		1.933
Sig.		.051	.098

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Batch 2 (100% CO_2)

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
TVB	Between Groups	178.256	4	44.564	62.901	.000
	Within Groups	7.085	10	.708		
	Total	185.341	14			
TMA	Between Groups	52.061	4	13.015	12.722	.001
	Within Groups	10.230	10	1.023		
	Total	62.291	14			
PH	Between Groups	8.889E-02	4	2.222E-02	20.203	.000
	Within Groups	1.100E-02	10	1.100E-03		
	Total	9.989E-02	14			

TVB

Duncan[a]

		Subset for alpha = .05		
DAY	N	1	2	3
day 2	3	6.994633		
day 0	3	7.001300		
day 4	3	7.987433		
day 7	3		12.199200	
day 10	3			15.701767
Sig.		.198	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

TMA

Duncan[a]

		Subset for alpha = .05	
DAY	N	1	2
day 0	3	2.448367	
day 2	3	2.448567	
day 4	3	3.472733	
day 7	3		5.928267
day 10	3		6.978000
Sig.		.264	.232

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

PH

Duncan^a

DAY	N	Subset for alpha = .05		
		1	2	3
day 0	3	6.2600		
day 2	3		6.3467	
day 10	3		6.3500	
day 4	3		6.3933	
day 7	3			6.4967
Sig.		1.000	.131	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

ANOVA

DLOSS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.380	3	2.127	16.571	.001
Within Groups	1.027	8	.128		
Total	7.407	11			

DLOSS

Duncan^a

DAY	N	Subset for alpha = .05		
		1	2	3
day 2	3	.800		
day 4	3		1.700	
day 7	3		2.167	2.167
day 10	3			2.800
Sig.		1.000	.149	.062

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Appendix 6. Raw Data for Total Volatile Base (TVB) and Trimethylamine (TMA)

Treatmant	Time (days)	Replication	TVB (mg/100g)	TMA (mg/100gr)
Control	0	1	7.3953	2.1129
		2	6.2722	3.1361
		3	7.3364	2.0961
	2	1	10.185	4.074
		2	8.3559	3.1335
		3	11.2562	3.0699
	4	1	16.564	5.1763
		2	10.4702	4.1881
		3	11.3403	4.1238
	7	1	19.8829	11.5112
		2	22.8898	10.4044
		3	24.116	11.5337
	10	1	27.4672	15.8465
		2	29.2692	16.7252
		3	31.439	18.8634
Batch 1 (40% CO_2, 50% N_2, 10% O_2)	0	1	7.3953	2.1129
		2	6.2722	3.1361
		3	7.3364	2.0961
	2	1	8.3996	3.1498
		2	8.3915	4.1957
		3	3.1292	2.0861
	4	1	10.4357	4.1743
		2	11.4986	4.1813
		3	10.4958	3.1488
	7	1	15.7309	6.2924
		2	16.7164	7.3134
		3	16.5843	6.2191
	10	1	16.6471	7.2831
		2	17.6914	8.3254
		3	17.8263	6.2916
Batch 2 (100% CO_2)	0	1	7.3953	2.1129
		2	6.2722	3.1361
		3	7.3364	2.0961
	2	1	7.3297	2.0942
		2	7.3517	3.1507
		3	6.3025	2.1008
	4	1	8.3144	4.1572
		2	8.3113	3.1167
		3	7.3366	3.1443
	7	1	11.542	7.3449
		2	13.5709	5.2196
		3	11.4847	6.2544
	10	1	16.7118	8.3559
		2	15.734	7.3426
		3	14.6595	5.2355

Appendix 7. Raw Data for pH

Treatment	Time (days)	Replication	pH
Control	0	1	6.31
		2	6.22
		3	6.25
	2	1	6.38
		2	6.27
		3	6.33
	4	1	6.47
		2	6.41
		3	6.46
	7	1	6.65
		2	6.61
		3	6.59
	10	1	6.83
		2	6.84
		3	6.88
Batch 1 (40% CO_2, 50% N_2, 10% O_2)	0	1	6.31
		2	6.22
		3	6.25
	2	1	6.27
		2	6.33
		3	6.25
	4	1	6.43
		2	6.38
		3	6.46
	7	1	6.53
		2	6.57
		3	6.54
	10	1	6.52
		2	6.63
		3	6.61
Batch 2 (100% CO_2)	0	1	6.31
		2	6.22
		3	6.25
	2	1	6.37
		2	6.35
		3	6.32
	4	1	6.43
		2	6.46
		3	6.41
	7	1	6.42
		2	6.4
		3	6.46
	10	1	6.32
		2	6.38
		3	6.35

Appendix 8. Raw Data for Drip Loss

Treatment	Time (days)	Replication	Drip loss
Control	2	1	0.4
		2	0.4
		3	0.8
	4	1	1.9
		2	1.3
		3	2.6
	7	1	2.1
		2	2.7
		3	2
	10	1	2.5
		2	2.9
		3	3.2
Batch 1 (40% CO_2, 50% N_2, 10% O_2)	2	1	0.5
		2	0.8
		3	0.8
	4	1	1.2
		2	1.3
		3	1.6
	7	1	1.5
		2	1.4
		3	2.5
	10	1	1.7
		2	2.2
		3	1.9
Batch 2 (100% CO_2)	2	1	0.7
		2	0.6
		3	1.1
	4	1	1.1
		2	2.1
		3	1.9
	7	1	2.2
		2	2.5
		3	1.8
	10	1	2.6
		2	3
		3	2.8

Appendix 9. Raw Data for Total Plate Count (TPC)

Treatment	Time (days)	Replication	TPC (cfu/gr)	Log TPC
Control	0	1	7400	3.869232
		2	10400	4.017033
	2	1	35000	4.544068
		2	16700	4.222716
	4	1	20200	4.305351
		2	99000	4.995635
	7	1	284000	5.453318
		2	430000	5.633468
	10	1	1230000	6.089905
		2	480000	5.681241
Batch 1 (40% CO_2, 50% N_2, 10% O_2)	0	1	7400	3.869232
		2	10400	4.017033
	2	1	26400	4.421604
		2	12700	4.103804
	4	1	54000	4.732394
		2	21000	4.322219
	7	1	242000	5.383815
		2	141000	5.149219
	10	1	284000	5.453318
		2	241000	5.382017
Batch 2 (100% CO_2)	0	1	7400	3.869232
		2	10400	4.017033
	2	1	24400	4.38739
		2	11100	4.045323
	4	1	69000	4.838849
		2	23400	4.369216
	7	1	210000	5.322219
		2	109000	5.037426
	10	1	287000	5.457882
		2	141000	5.149219

Appendix 10. Raw Data for Sensory Evaluation

Treatment	Time (days)	Replication	Score	Total Score
Fresh fish	0	1	9	53.5
		2	9	
		3	9	
		4	8.75	
		5	9	
		6	8.75	
Control	2	1	8	48.75
		2	8	
		3	7.5	
		4	8.75	
		5	7.75	
		6	8.75	
	4	1	6.5	45.25
		2	7.75	
		3	7.75	
		4	7.25	
		5	8	
		6	8	
	7	1	7.25	41.5
		2	7.25	
		3	6.5	
		4	6.75	
		5	6.5	
		6	7.25	
	10	1	6.5	41.75
		2	6.75	
		3	7.75	
		4	6.75	
		5	7.25	
		6	6.75	
Batch 1 ($40\% \ CO_2$, $50\% \ N_2$, $10\% \ O_2$)	2	1	8.25	52
		2	8.25	
		3	8.75	
		4	9	
		5	8.75	
		6	9	
	4	1	7	47
		2	7.5	
		3	7.75	
		4	7.75	
		5	8.5	
		6	8.5	
	7	1	7.25	45
		2	7.75	
		3	7.5	

		4	8.25	
		5	6.75	
		6	7.5	
		1	6.5	43
		2	7.5	
	10	3	8.25	
		4	7.25	
		5	6.75	
		6	6.75	
		1	7.75	50
		2	8.75	
	2	3	8.75	
		4	8.25	
		5	8.25	
		6	8.25	
		1	7.5	46.5
		2	8	
	4	3	6.75	
		4	7.25	
Batch 2 (100% CO₂)		5	8.5	
		6	8.5	
		1	6.75	44
		2	7.25	
	7	3	6.75	
		4	8.25	
		5	7.5	
		6	7.5	
		1	7.75	44
		2	7.5	
	10	3	8	
		4	7	
		5	7	
		6	6.75	

Appendix 11. Raw Data for Gas Measurement

Treatment	Time (days)	Oxygen	Carbon dioxide
		20.227	0.033
		20.236	0.035
		20.245	0.033
		20.245	0.033
	0	20.245	0.033
		20.254	0.034
		20.254	0.035
		20.263	0.036
		20.272	0.035
		20.263	0.035
		20.281	0.033
		20.281	0.036
		20.281	0.036
		20.299	0.033
	2	20.29	0.036
		20.299	0.035
		20.299	0.037
		20.299	0.033
		20.299	0.036
		20.308	0.033
		20.308	0.037
		20.309	0.033
		20.308	0.036
		20.308	0.035
Control	4	20.31	0.036
		20.344	0.033
		20.308	0.037
		20.308	0.036
		20.308	0.035
		20.308	0.036
		20.571	0.036
		20.571	0.035
		20.589	0.036
		20.589	0.035
	7	20.598	0.036
		20.598	0.036
		20.607	0.035
		20.616	0.037
		20.607	0.033
		20.616	0.036
		20.598	0.033
		20.598	0.036
		20.598	0.033
	10	20.607	0.036
		20.607	0.035
		20.616	0.036

		20.616	0.037
		20.616	0.035
		20.616	0.036
		20.616	0.033
		14.064	0.33
		14.064	0.326
		14.064	0.32
		14.073	0.32
	0	14.073	0.331
		14.064	0.361
		14.073	0.372
		14.082	0.377
		14.082	0.386
		14.091	0.392
		14.101	0.33
		14.101	0.326
		14.11	0.32
		14.11	0.32
	2	14.128	0.321
		14.128	0.32
		14.137	0.316
		14.137	0.32
		14.146	0.316
		14.146	0.32
		14.282	0.316
		14.273	0.315
		14.264	0.311
		14.255	0.315
Batch 1	4	14.255	0.311
(40% CO_2, 50% N_2, 10% O_2)		14.255	0.315
		14.255	0.315
		14.264	0.311
		14.273	0.315
		14.282	0.311
		17.426	0.246
		17.426	0.246
		17.417	0.246
		17.417	0.246
	7	17.417	0.245
		17.417	0.241
		17.417	0.245
		17.426	0.241
		17.426	0.248
		17.426	0.246
		17.481	0.241
		17.481	0.241
		17.481	0.245
		17.481	0.236

	10	17.49	0.241
		17.49	0.241
		17.49	0.241
		17.49	0.238
		17.499	0.238
		17.499	0.24
		6.534	0.42
		6.534	0.42
		6.534	0.422
		6.534	0.421
	0	6.543	0.421
		6.533	0.421
		6.535	0.416
		6.533	0.42
		6.533	0.417
		6.531	0.416
		7.576	0.395
		7.54	0.396
		7.531	0.392
		7.522	0.396
	2	7.54	0.396
		7.54	0.385
		7.558	0.392
		7.576	0.401
		7.594	0.397
		7.612	0.386
		7.73	0.358
		7.703	0.358
		7.712	0.358
		7.739	0.355
Batch 2	4	7.739	0.357
(100% CO_2)		7.757	0.356
		7.866	0.356
		7.784	0.356
		7.793	0.358
		7.802	0.358
		10.904	0.35
		10.904	0.352
		10.921	0.348
		10.912	0.35
	7	10.912	0.352
		10.912	0.348
		10.903	0.353
		10.912	0.352
		10.908	0.352
		10.908	0.352
		13.624	0.311
		13.624	0.315

	13.624	0.315
	13.627	0.311
10	13.635	0.31
	13.627	0.312
	13.627	0.31
	13.628	0.311
	13.627	0.315
	13.626	0.306