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Lampiran 3. Hasil analisis kandungan minyak atsiri ekstrak serai



PT. Darjeeling Sembrani Aroma

Wisma Monex Lt 9, Jl. Asia Afrika No. 133-137
Bandung, 40112
Tel. 022-4235600

GC Analysis

Product name: Citronella essential oil CAS No: 8000-29-1
Lot number: DA/0027C Botanical name: Cymbopogon winterianus
Mfg. Date: 15/02/2020 Production method: Steam distillation
Best before: 15/02/2022 Origin: Indonesia

Key constituents in this batch of essential oil %	Key constituents in this batch of essential oil %
Citronellal	39.72%
Geraniol	24.86%
Citronellol	11.58%
Caryophyllene	4.03%
Cadinene	3.73%
Limonene	3.55%
Geranyl acetate	3.27%
Linalyl anthranilate	1.21%
Cyclohexanementhol	1.18%

Lampiran 4. Hasil analisis kandungan minyak atsiri ekstrak mint



GC Analysis

Product name: Peppermint arvensis essential oil
CAS No: 68917-18-0
Lot number: DA/0076P
Mfg. Date: 15/12/2019
Best before: 15/06/2022

Botanical name: Mentha arvensis
Production method: Steam distillation
Origin: India

Key constituents in this batch of essential oil %	Key constituents in this batch of essential oil %
Menthol	44.20%
Menthone	27.14%
Neo Menthol	13.40%
cis-Carane	4.96%
Menthol acetate	3.15%
Limonene	2.63%
Caryophyllene	1.50%

Lampiran 5. Hasil pengujian insektisida alternatif interval 1 jam terhadap kematian nyamuk *Aedes Aegypty*

No Ulangan	N (ekor)	Waktu (Jam)	Jumlah Mortalitas <i>Ae. aegypty</i> (ekor)							
			K	L	M	N	O	P	Q	R
1	20	1	0	0	20	20	19	17	10	3
		2	0	0	0	0	20	20	15	0
		3	0	0	0	0	0	0	16	0
		4	0	0	0	0	0	0	18	0
		5	0	0	0	0	0	0	19	0
		6	0	0	0	0	0	0	0	0
		8	0	0	0	0	0	0	0	0
		2	20	1	0	0	20	20	18	18
2	0			0	0	0	20	20	14	0
3	0			0	0	0	0	0	17	0
4	0			0	0	0	0	0	18	0
5	0			0	0	0	0	0	0	0
6	0			0	0	0	0	0	0	0
8	0			0	0	0	0	0	0	0
3	20			1	0	0	20	20	19	18
		2	0	0	0	0	20	20	8	0
		3	0	0	0	0	0	0	14	0
		4	0	0	0	0	0	0	17	0
		5	0	0	0	0	0	0	19	0
		6	0	0	0	0	0	0	0	0
		8	0	0	0	0	0	0	0	0
		Jumlah			0	0	20	20	19	20
Persentase			0	0	100	100	97	100	100	0

Lampiran 6. Hasil pengamatan daya bunuh dan daya bius insektisida alternatif interval menit terhadap nyamuk *Ae. aegypti*

No Ulangan	N (ekor)	Waktu (Menit)	Jumlah Nyamuk yang terpapar efek samping limbah laundry		Mortalitas <i>Ae. aegypti</i> (ekor)					
			K	L	M	N	O	P	Q	R
1	20	0	20	18	18	3	6	0	1	0
		2	0	0	20	6	0	3	0	0
		5	12	15	0	15	7	0	0	3
		10	8	8	0	16	15	0	2	0
		15	3	0	0	19	18	10	0	0
		30	0	0	0	0	0	16	0	0
		40	0	0	0	0	19	0	0	0
		50	0	0	0	20	0	17	6	0
		60	0	0	0	0	0	0	10	0
		85	0	0	0	0	20	20	0	0
		120	0	0	0	0	0	0	15	0
		180	0	0	0	0	0	0	16	0
		240	0	0	0	0	0	0	18	0
		300	0	0	0	0	0	0	19	0
2	20	1	20	20	19	5	4	0	0	0
		2	0	13	20	7	0	2	0	0
		5	14	10	0	12	5	0	1	2
		10	10	7	0	18	13	8	0	0
		15	5	4	0	0	0	10	0	0
		30	0	0	0	0	17	15	5	0
		35	0	0	0	20	18	0	0	0
		40	0	0	0	0	0	16	0	0
		50	0	0	0	0	0	18	0	0
		60	0	0	0	0	0	0	9	0
85	0	0	0	0	20	0	0	0		

Lampiran 7. Hasil harga pokok produksi penjualan insektisida alternatif

Analisis *marketplace* produk anti nyamuk merk hit dan baygon adalah sebagai berikut :

Hasil analisis *marketplace* untuk produk Hit

No	Nama Toko	Merk Dagang	Total Penjualan	Volume (mL)	Harga
1	Godrejindonesia	Hit aerosol lily blossom	405	450	Rp25.900
2	Kaniaazka	Hit aerosol lily blossom	413	675	Rp26.900
3	Gilangr3p	Hit aerosol	222	675	Rp25.998
4	Podomurah	Hit aerosol	99	600	Rp24.910
5	ta.shop123	Hit aerosol	61	675	Rp24.800
6	edy_9unawan	Hit aerosol expert pink	42	675	Rp26.000
7	Sherlyuganda1	Hit aerosol	37	675	Rp25.500
8	Bintamgwidea	Hit aerosol blossom	29	675	Rp24.888
9	ikha_0196	Hit aerosol lily blossom orange	29	675	Rp25.000
10	Inalinaherlina42	Hit aerosol lily blossom orange	28	675	Rp26.950
11	azkabakulan15	Hit aerosol lily blossom orange	25	675	Rp24.826
12	berkahcollection19	Hit aerosol lily blossom orange	18	675	Rp25.999
13	nyctakids	Hit elektrik	365	22	Rp17.700
14	ceria123789	Hit aerosol all variant	72	600	Rp25.500
15	godrejindonesia	Hit elektrik	1000	33	Rp15.800
16	besbromart	Hit elektrik	85	33	Rp17.515
17	fauzannuralisha	Hit aerosol all variant	24	600	Rp25.900
18	reny_freva	Hit elektrik	27	33	Rp15.900
19	martvani	Hit aerosol lily blossom orange	27	200	Rp14.000
20	ssmart	Hit aerosol lily blossom orange	29	200	Rp11.500
Total			12037		Rp22.574

Hasil analisa *marketplace* produk baygon

No	Nama Toko	Merk Dagang	Total Penjualan	Volume	Harga
1	Sherlyuganda1	Baygon aerosol	553	675	Rp25.000
2	Kaniaazka	Baygon spray aerosol	309	675	Rp25.600
3	edytanto093	Baygon flower garden	7	675	Rp27.900
4	fakosmetik1991	Baygon spray aerosol	66	675	Rp24.800
5	belanja murah bekasi	Baygon spray cherry blossom	4	675	Rp32.500
6	gentonglaris	Baygon aerosol spray citrus fresh	61	600	Rp28.500
7	gilar0815	Baygon semprot flower garden	53	675	Rp27.900
8	scjohnson	Baygon aerosol tea blossom	48	600	Rp35.800
9	Yordan29store	Baygon aerosol tea blossom	40	675	Rp27.500
10	skymecca.123	Baygon aerosol	35	675	Rp26.900
11	rizkyfortuna8045	Baygon double flower garden	34	675	Rp28.800
12	inalinaherlina	baygon flower garden	100	600	Rp27.950
13	rialadira16	baygon aerosol	71	200	Rp16.800
14	podomurah	baygon aerosol silky lavender	38	450	Rp22.000
15	ud.sentosa	baygon flower garden	130	675	Rp25.500
16	sany140712	Baygon flower garden	611	675	Rp26.450
17	feniawani	Baygon flower garden	51	675	Rp25.000
18	jonawielda	baygon aerosol	100	675	Rp28.401
19	bitamgwidea	baygon aerosol flower garden	27	675	Rp26.800
20	idrshop	baygon aerosol	48	675	Rp32.000
Total			2386		Rp 27.105

Perhitungan

A. Perhitungan harga minyak atsiri / mL

Harga ekstrak serai = Rp. 35.000

Volume = 30 ml

Haga / ml = $\frac{\text{Rp.35.000}}{30 \text{ mL}}$

= Rp. 1.167 rupiah / mL

Jadi, harga/ML minyak atsri serai yakni sebesar Rp. 1.167 rupiah.

B. Perhitungan harga Kertas saring/lembar

Harga 25 lembar = Rp. 10.000

Harga / lembar = $\frac{\text{Rp.10.000}}{25 \text{ lembar}}$

= 400 rupiah / lembar

Jumlah kebutuhan kertas saring = 6 lembar

Harga kertas saring untuk 6 lembar= 6 x 400 rupiah

= Rp. `2.400 rupiah

Jadi, harga kertas saring /6 lembar yakni sebesar Rp. 2.400 rupiah

Tabel harga Produk insektisida alternatif

No.	Keterangan	Harga	Kebutuhan per bulan	Jumlah
A.	Biaya bahan baku			
1	Laundry	0	18	0
2	Ekstrak serai /ml	1.167	6	Rp7.000
B.	Biaya proses			
3	Kertas saring / lembar	400	6	Rp2.400
B.	Biaya bahan pengemasan			
4	Botol spray / buah	1.200	1	Rp1.200
Harga / 24 ml insektisida alternatif				Rp9.400

Tabel harga produk insektisida alternatif / mL

No.	Keterangan	Merk dagang	
		Insektisida alternatif	Baygon aerosol
1	Volume	24 mL	33 mL
2	Komposisi	Limbah laundri, 100%	0,1 Sipermetrin 99,8% Bahan tambahan
3	Harga	Rp9.400	Rp16.500
4	Harga / mL	Rp392	Rp479

Lampiran 8. Dokumentasi kegiatan

Rearing nyamuk Jentik nyamuk *Aedes aegyty*



Jentik nyamuk *Aedes aegyty*



Larva nyamuk *Aedes aegyty*



Kotak uji insektiisda alternatif



Proses kembangbiak nyamuk *Aedes aegyty*



Pemberian pakan terhadap perkembangan nyamuk



Larutan gula sebagai pakan nyamuk jantan *Aedes aegyty*

Pengambilan sampel limbah laundry



Jasa laundry yang langsung membuang limbahnya ke selokan terdekat



Pengambilan sampel limbah cair laundry

Treatment awal limbah laundry



Proses pengendapan limbah cair laundry selama 24 jam



Proses filtrasi limbah cair laundry menggunakan kertas saring



Limbah laundry sebelum filtrasi



Limbah laundry setelah filtrasi

Proses pembuatan Insektisida alternatif

Ekstrak serai



Proses pencampuran limbah laundri dan minyak atsiri

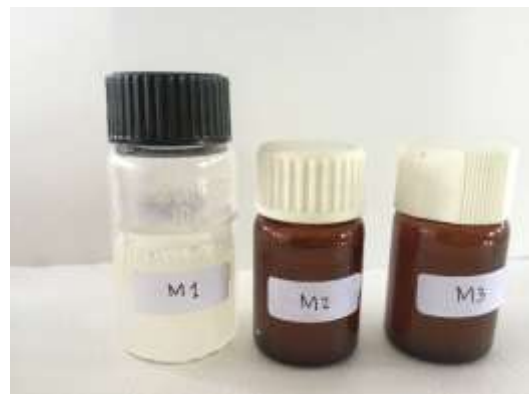
Ekstrak mint



Proses pengadukan menggunakan plate dan *magnetic stirre*



Insektisida alternatif Sampel L₁ dan sampel L₂



Insektisida alternatif sampel M₁, M₂, dan sampel M₃



Insektisida alternatif sampel N₁, N₂ sampel N₃



Produk Insektisida alternatif

**Hewan Uji (Nyamuk *Aedes aegypty*) untuk
setiap sampel percobaan**



Mortalitas Nyamuk *Aedes aegypty*



Lampiran 9. Analisis data One Way Anova

Limbah cair laundry dan ekstrak serai

Case Processing Summary

Limbah cair laundry dan ekstrak serai		Valid		Cases Missing		Total	
		N	Percent	N	Percent	N	Percent
Jumlah kematian nyamuk Aedes aegypty	Sampel N1	3	100,0%	0	0,0%	3	100,0%
	Sampel N2	3	100,0%	0	0,0%	3	100,0%
	Sampel N3	3	100,0%	0	0,0%	3	100,0%

Descriptives

Limbah cair laundry dan ekstrak serai			Statistic	Std. Error
Jumlah kematian nyamuk Aedes aegypty	Sampel N1	Mean	20,00	,577
		95% Confidence Interval for Mean	Lower Bound	20,00
		Upper Bound	20,00	
		5% Trimmed Mean	.	
		Median	20,00	
		Variance	1,000	
		Std. Deviation	1,000	
		Minimum	18	
		Maximum	20	
		Range	-	
		Interquartile Range	.	
		Skewness	,000	1,225
		Kurtosis	.	.
	Sampel N2	Sampel N2	Mean	20,00
95% Confidence Interval for Mean			Lower Bound	20,00
		Upper Bound	20,00	
		5% Trimmed Mean	.	
		Median	20,00	
		Variance	12,603	
		Std. Deviation	3,550	
		Minimum	13	
		Maximum	20	
		Range	-	
		Interquartile Range	.	
		Skewness	1,134	1,225
		Kurtosis	.	.
Sampel N3		Sampel N3	Mean	20,00
	95% Confidence Interval for Mean		Lower Bound	20,00
		Upper Bound	20,00	
		5% Trimmed Mean	.	

Median	20,00	
Variance	2,333	
Std. Deviation	1,528	
Minimum	21	
Maximum	24	
Range	-	
Interquartile Range	.	
Skewness	,935	1,225
Kurtosis	.	.

Tests of Normality

	Limbah cair laundri dan ekstrak serai	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	Df	Sig.
Jumlah kematian nyamuk Aedes aedgypty	Sampel N1	,175	3	.	1,000	3	1,000
	Sampel N2	,274	3	.	,944	3	,545
	Sampel N3	,253	3	.	,964	3	,637

a. Lilliefors Significance Correction

Descriptives

Jumlah kematian nyamuk Aedes aedgypty

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Sampel N1	3	19,00	1,000	,577	16,52	21,48	18	20
Sampel N2	3	15,97	3,550	2,050	7,15	24,79	13	20
Sampel N3	3	22,33	1,528	,882	18,54	26,13	21	24
Total	9	19,10	3,404	1,135	16,48	21,72	13	24

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Jumlah kematian nyamuk Aedes aedgypty	Based on Mean	3,047	2	6	,122
	Based on Median	,905	2	6	,453
	Based on Median and with adjusted df	,905	2	2,888	,495
	Based on trimmed mean	2,842	2	6	,135

ANOVA

Jumlah kematian nyamuk Aedes aegypti

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	60,847	2	30,423	5,727	,041
Within Groups	31,873	6	5,312		
Total	92,720	8			

Limbah cair laundry dan ekstrak mint

Case Processing Summary

	Limbah cair laundry dan ekstrak serai	Valid		Cases Missing		Total	
		N	Percent	N	Percent	N	Percent
Jumlah kematian nyamuk Aedes aegypti	Sampel N1	3	100,0%	0	0,0%	3	100,0%
	Sampel N2	3	100,0%	0	0,0%	3	100,0%
	Sampel N3	3	100,0%	0	0,0%	3	100,0%

Descriptives

		Limbah cair laundry dan ekstrak serai		Statistic	Std. Error
Jumlah kematian nyamuk Aedes aegypti	Sampel N1	Mean		20,00	,577
		95% Confidence Interval for Mean	Lower Bound	20,00	
			Upper Bound	20,00	
		5% Trimmed Mean		.	
		Median		20,00	
		Variance		1,000	
		Std. Deviation		1,000	
		Minimum		20	
		Maximum		20	
		Range		-	
		Interquartile Range		.	
		Skewness		,000	1,225
		Kurtosis		.	.
	Sampel N2	Mean		20,00	2,050
		95% Confidence Interval for Mean	Lower Bound	20,00	
		Upper Bound	20,00		
		5% Trimmed Mean		.	
		Median		20,00	
		Variance		12,603	
		Std. Deviation		3,550	
		Minimum		20	
		Maximum		20	

	Range		-	
	Interquartile Range		.	
	Skewness		1,134	1,225
	Kurtosis		.	.
Sampel N3	Mean		22,33	,882
	95% Confidence Interval for Mean	Lower Bound	20,00	
		Upper Bound	20,00	
	5% Trimmed Mean		.	
	Median		22,00	
	Variance		20,00	
	Std. Deviation		20,00	
	Minimum		20	
	Maximum		20	
	Range		-	
	Interquartile Range		.	
	Skewness		,935	1,225
	Kurtosis		.	.

Tests of Normality

	Limbah cair laundry dan ekstrak serai	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Jumlah kematian nyamuk Aedes aegypty	Sampel N1	,175	3	.	1,000	3	1,000
	Sampel N2	,274	3	.	,944	3	,545
	Sampel N3	,253	3	.	,964	3	,637

a. Lilliefors Significance Correction

Descriptives

Jumlah kematian nyamuk Aedes aegypty

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Sampel N1	3	19,00	1,000	,577	16,52	21,48	20	20
Sampel N2	3	15,97	3,550	2,050	7,15	24,79	20	20
Sampel N3	3	22,33	1,528	,882	18,54	26,13	20	20
Total	9	19,10	3,404	1,135	16,48	21,72	20	20

Test of Homogeneity of Variances

		Levene	df1	df2	Sig.
		Statistic			
Jumlah kematian nyamuk Aedes aegypti	Based on Mean	3,047	2	6	,122
	Based on Median	,905	2	6	,453
	Based on Median and with adjusted df	,905	2	2,888	,495
	Based on trimmed mean	2,842	2	6	,135

ANOVA

Jumlah kematian nyamuk Aedes aegypti

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	60,847	2	30,423	5,727	,041
Within Groups	31,873	6	5,312		
Total	92,720	8			

Multiple Comparisons

Dependent Variable: Jumlah kematian nyamuk Aedes aegypti

LSD

(I) Limbah cair laundry dan ekstrak serai	(J) Limbah cair laundry dan ekstrak serai	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Sampel N1	Sampel N2	3,033	1,882	,158	-1,57	7,64
	Sampel N3	-3,333	1,882	,127	-7,94	1,27
Sampel N2	Sampel N1	-3,033	1,882	,158	-7,64	1,57
	Sampel N3	-6,367*	1,882	,015	-10,97	-1,76
Sampel N3	Sampel N1	3,333	1,882	,127	-1,27	7,94
	Sampel N2	6,367*	1,882	,015	1,76	10,97

*. The mean difference is significant at the 0.05 level.

Lampiran 10. Analisis Probit Regresi LC₅₀ ekstrak serai dan ekstrak mint

a. Ekstrak serai

<i>Regression Statistics</i>	
Multiple R	0,97858
R Square	0,957619
Adjusted R Square	0,915238
Standard Error	0,189338
Observations	3

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept			-		-		-	
Log(ppm)	-6,872	1,648	2,138	0,278	24,468	17,419	24,468	17,419
	7,657	0,523	4,753	0,132	-4,157	9,127	-4,157	9,127

Perhitungan LC50 ekstrak serai

Diketahui :

$$\text{Intersectp (b)} = - 3,922$$

$$\text{Log (ppm) (a)} = 26,122$$

Penyelesaian :

Persamaan regresi :

$$Y = a + bX$$

$$5 = 26,122 + (-3,922) \cdot X$$

$$5 = 26,122 - 3,922 \cdot X$$

$$5 + 3,922 \cdot X = 26,122$$

$$8,922 X = 26,122$$

$$X = 2,927$$

$$\text{Antilog } 2,927 = 846,874 \text{ ppm}$$

$$= 8,46 \%$$

Perhitungan LC50 ekstrak mint

Diketahui :

$$\text{Intersectp (b)} = - 3,424$$

$$\text{Log (ppm) (a)} = 24,109$$

Penyelesaian :

Persamaan regresi :

$$Y = a + bX$$

$$5 = 24,109 + (-3,424) \cdot X$$

$$5 = 24,109 - 3,424 \cdot X$$

$$5 + 3,424 \cdot X = 24,109$$

$$7,114 X = 24,109$$

$$X = 3,388$$

$$\text{Antilog } 3,388 = 2448,79 \text{ ppm}$$

$$= 24,488 \%$$

Lampiran 11. Analisis probit (LT₅₀) ekstrak serai dan ekstrak mint
Analisis probit (LT₅₀) ekstrak serai

Confidence Limits

	Probability	95% Confidence Limits for Jam		95% Confidence Limits for log(Jam) ^a			
		Estimate	Lower Bound	Upper Bound	Estimate	Lower Bound	Upper Bound
PROBIT	,010	37,538	.	.	1,574	.	.
	,020	31,930	.	.	1,504	.	.
	,030	28,815	.	.	1,460	.	.
	,040	26,673	.	.	1,426	.	.
	,050	25,049	.	.	1,399	.	.
	,060	23,745	.	.	1,376	.	.
	,070	22,657	.	.	1,355	.	.
	,080	21,726	.	.	1,337	.	.
	,090	20,912	.	.	1,320	.	.
	,100	20,190	.	.	1,305	.	.
	,150	17,456	.	.	1,242	.	.
	,200	15,550	.	.	1,192	.	.
	,250	14,081	.	.	1,149	.	.
	,300	12,881	.	.	1,110	.	.
	,350	11,860	.	.	1,074	.	.
	,400	10,967	.	.	1,040	.	.
	,450	10,166	.	.	1,007	.	.
	,500	9,436	.	.	,975	.	.
	,550	8,757	.	.	,942	.	.
	,600	8,118	.	.	,909	.	.
	,650	7,506	.	.	,875	.	.
	,700	6,912	.	.	,840	.	.
	,750	6,323	.	.	,801	.	.
	,800	5,725	.	.	,758	.	.
	,850	5,100	.	.	,708	.	.
	,900	4,410	.	.	,644	.	.
	,910	4,257	.	.	,629	.	.
	,920	4,098	.	.	,613	.	.
	,930	3,929	.	.	,594	.	.
	,940	3,749	.	.	,574	.	.
	,950	3,554	.	.	,551	.	.
	,960	3,338	.	.	,523	.	.
	,970	3,090	.	.	,490	.	.
	,980	2,788	.	.	,445	.	.
	,990	2,372	.	.	,375	.	.

a. Logarithm base = 10.

Analisis probit (LT₅₀) ekstrak mint

Confidence Limits

	Probability	Estimate	95% Confidence Limits for Jam		95% Confidence Limits for log(Jam) ^a		
			Lower Bound	Upper Bound	Estimate	Lower Bound	Upper Bound
PROBIT	,010	418,512	.	.	2,622	.	.
	,020	373,546	.	.	2,572	.	.
	,030	347,555	.	.	2,541	.	.
	,040	329,203	.	.	2,517	.	.
	,050	314,991	.	.	2,498	.	.
	,060	303,379	.	.	2,482	.	.
	,070	293,551	.	.	2,468	.	.
	,080	285,021	.	.	2,455	.	.
	,090	277,479	.	.	2,443	.	.
	,100	270,713	.	.	2,433	.	.
	,150	244,412	.	.	2,388	.	.
	,200	225,343	.	.	2,353	.	.
	,250	210,174	.	.	2,323	.	.
	,300	197,424	.	.	2,295	.	.
	,350	186,301	.	.	2,270	.	.
	,400	176,326	.	.	2,246	.	.
	,450	167,184	.	.	2,223	.	.
	,500	158,649	.	.	2,200	.	.
	,550	150,551	.	.	2,178	.	.
	,600	142,745	.	.	2,155	.	.
	,650	135,102	.	.	2,131	.	.
	,700	127,490	.	.	2,105	.	.
	,750	119,756	.	.	2,078	.	.
	,800	111,695	.	.	2,048	.	.
	,850	102,981	.	.	2,013	.	.
	,900	92,975	.	.	1,968	.	.
	,910	90,708	.	.	1,958	.	.
	,920	88,308	.	.	1,946	.	.
	,930	85,742	.	.	1,933	.	.
	,940	82,964	.	.	1,919	.	.
	,950	79,906	.	.	1,903	.	.
	,960	76,456	.	.	1,883	.	.
	,970	72,419	.	.	1,860	.	.
	,980	67,380	.	.	1,829	.	.
	,990	60,141	.	.	1,779	.	.

a. Logarithm base = 10.



Material Safety Data Sheet
Linear Alkylbenzene Sulfonate, 1 mL = 1mg

Section 1 - Chemical Product and Company Identification

MSDS Name:

Linear Alkylbenzene Sulfonate Standard, 1 mL = 1 mg

Catalog Numbers:

LC16150

Synonyms:**Company Identification:**

LabChem, Inc.
 200 William Pitt Way
 Pittsburgh, PA 15238

Company Phone Number:

(412) 826-5230

Emergency Phone Number:

(800) 424-9300

CHEMTREC Phone Number:

(800) 424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name:	Percent
25155-30-0	Sodium dodecylbenzene sulfonate	0.107
7664-93-9	Sulfuric acid	<1
7732-18-5	Water	Balance

Section 3 - Hazards Identification

Emergency Overview

Appearance: clear, colorless solution**Caution! Corrosive.** Causes irritation or burns to eyes, skin, digestive and respiratory tracts. Risk of serious eye damage. Toxic. Harmful if swallowed.**Target Organs:** Eyes, skin, respiratory system, teeth**Potential Health Effects****Eye:**

Causes eye irritation and burns. Eye contact can result in blindness; exposure to mist leads to watering, irritation.

Skin:

Skin contact may result in severe burns, blistering and pain.

Ingestion:

May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. Vomiting and diarrhea of dark blood may occur; asphyxia from throat swelling. Stomach and esophagus may become perforated.

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

N,N-Diethyl-m-toluamide (DEET)

Synonyms:

N,N-Diethyl-m-toluamide, DETA

Chemical Abstracts Registry No.:

134-62-3

1.2. Relevant identified uses of the substance or mixture and uses advised against

For Manufacturing of End-User Insect Repellent Products and Testing Purposes.

1.3. Details of the supplier of the safety data sheet

Vertellus LLC
201 North Illinois Street, Suite 1800
Indianapolis, Indiana 46204 USA
1-336-292-1781

e-mail Address:

sds@vertellus.com

1.4. Emergency telephone number

Vertellus: 1-336-292-1781

CHEMTREC (USA): +1-800-424-9300 (collect calls accepted)

CHEMTREC (International): +1-703-527-3887 (collect calls accepted)

NRCC (China): +86 25 85477110

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture (According to Regulation (EC) No 1272/2008, 29 CFR 1910.1200 and the Globally Harmonized System)

Skin Irritation Category 2
Serious Eye Irritation Category 2
Environmental Chronic Category 3
Acute Toxicity Oral Category 4

2.2. Label elements

Hazard Symbols (Pictogram):



Signal Word:

Warning

Hazard Precautions:

H315 - Causes skin irritation.
H302 - Harmful if swallowed.
H319 - Causes serious eye irritation.
H412 - Harmful to aquatic life with long lasting effects.

Prevention Precautionary Statements:

P270 - Do not eat, drink or smoke when using this product.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

First Aid Precautionary Statements:

P302+P352 - IF ON SKIN: Wash with plenty of soap and water.

SAFETY DATA SHEET

Revision Date 17-Jan-2018

Revision Number 3

1. Identification

Product Name Sodium triphosphate
Cat No. : S645-500
Synonyms Sodium triphosphate; Sodium Tripolyphosphate.
Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Warning

Hazard Statements
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation



Precautionary Statements**Prevention**

Wash face, hands and any exposed skin thoroughly after handling
 Wear protective gloves/protective clothing/eye protection/face protection
 Avoid breathing dust/fume/gas/mist/vapors/spray
 Use only outdoors or in a well-ventilated area

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 Call a POISON CENTER or doctor/physician if you feel unwell

Skin

IF ON SKIN: Wash with plenty of soap and water
 If skin irritation occurs: Get medical advice/attention
 Take off contaminated clothing and wash before reuse

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 If eye irritation persists: Get medical advice/attention

Storage

Store in a well-ventilated place. Keep container tightly closed
 Store locked up

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Pentasodium triphosphate	7758-29-4	98 - 100

4. First-aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.
Ingestion	Do not induce vomiting. Obtain medical attention.
Most important symptoms and effects	No information available.
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

- 1.1 Product Code:** 24117
Product Name: Cypermethrin
Synonyms: 3-(2,2-dichloroethenyl)-2,2-dimethyl-cyclopropanecarboxylic acid, cyano(3-phenoxyphenyl)methyl ester;
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**
Relevant identified uses: For research use only, not for human or veterinary use.
- 1.3 Details of the Supplier of the Safety Data Sheet:**
Company Name: Cayman Chemical Company
 1180 E. Ellsworth Rd.
 Ann Arbor, MI 48108
Web site address: www.caymanchem.com
Information: Cayman Chemical Company +1 (734)971-3335
- 1.4 Emergency telephone number:**
Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300
 CHEMTREC Outside USA and Canada: +1 (703)527-3887

Section 2. Hazards Identification

- 2.1 Classification of the Substance or Mixture:**
Acute Toxicity: Inhalation, Category 4
Acute Toxicity: Oral, Category 3
Skin Corrosion/Irritation, Category 2
Skin Sensitization, Category 1
Specific Target Organ Toxicity (single exposure), Category 3
Specific Target Organ Toxicity (repeated exposure), Category 2
Aquatic Toxicity (Acute), Category 1
Aquatic Toxicity (Chronic), Category 1

2.2 Label Elements:



GHS Signal Word: **Danger**

GHS Hazard Phrases:

- H301: Toxic if swallowed.
 H315: Causes skin irritation.
 H317: May cause an allergic skin reaction.
 H332: Harmful if inhaled.
 H335: May cause respiratory irritation.
 H373: May cause damage to {organs} through prolonged or repeated exposure.
 H400: Very toxic to aquatic life.
 H410: Very toxic to aquatic life with long lasting effects.



SAFETY DATA SHEET

Cypermethrin

GHS Precaution Phrases:

- P260: Do not breathe (dust/fume/gas/mist/vapors/spray).
- P264: Wash (hands) thoroughly after handling.
- P272: Contaminated work clothing should not be allowed out of the workplace.
- P273: Avoid release to the environment.
- P280: Wear (protective gloves/protective clothing/eye protection/face protection).

GHS Response Phrases:

- P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P302+352: IF ON SKIN: Wash with plenty of soap and water.
- P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312: Call a POISON CENTER or doctor/physician if you feel unwell.
- P314: Get medical attention/advice if you feel unwell.
- P330: Rinse mouth.
- P332+313: If skin irritation occurs, get medical advice/attention.
- P333+313: If skin irritation or rash occurs, seek medical advice/attention.
- P362+364: Take off contaminated clothing and wash it before reuse.
- P391: Collect spillage.

GHS Storage and Disposal Phrases:

Please refer to Section 7 for Storage and Section 13 for Disposal information.

- 2.3 Adverse Human Health** Causes skin irritation.
- Effects and Symptoms:** Harmful if inhaled.
- Material may be irritating to the mucous membranes and upper respiratory tract.
 - May be harmful by skin absorption.
 - May cause an allergic skin reaction.
 - May cause eye or respiratory system irritation.
 - May cause damage to (organs) through prolonged or repeated exposure.
 - Toxic if swallowed.
 - Very toxic to aquatic life with long lasting effects.
 - To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	GHS Classification
52315-07-8 GZ1250000	Cyclopropanecarboxylic acid, 3-(2,2-dichloroethenyl)-2,2-dimethyl-, cyano(3-phenoxyphenyl)methyl es	100.0 %	257-842-9 607-421-00-4	Acute Tox.(O) 3: H301 Acute Tox.(I) 4: H332 STOT (SE) 3: H335 Aquatic (A) 1: H400 Aquatic (C) 1: H410 Skin Corr. 2: H315 Skin Sens. 1: H317 STOT (RE) 2: H373

ENZYME MATERIAL SAFETY DATA SHEET (MSDS)

WHITE STYLE

(GRANULATED ENZYME AND SPECIFIC INACTIVATED YEAST)

Revision date : Aug. 14, 2007

Revision number : 002

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Commercial product name	: WHITE STYLE
Description	: enzyme preparation and specific inactivated yeast preparation
Manufacturer	: LALLEMAND SA
	Parc d'Activité de Font Grasse
	BP 59
	19 rue des Briquetiers, 31700 BLAGNAC, FRANCE
	Phone : +33 5 62 74 55 55 Fax : +33 5 62 74 55 00
Emergency phone number	: +33 5 62 74 55 55

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization of active component	: granulated fungal pectinase enzyme preparation from <i>Aspergillus niger</i>
IUB number	: 3.2.1.6
CAS number	: 622 13 14 3
EINECS number	: 263 462 4
Classification	: X _n (harmful), R 42

3. HAZARD IDENTIFICATION

Repeated inhalation of enzyme dust may induce sensitization and may cause allergic type reactions in sensitized individuals. The product may be irritant to eyes. Prolonged skin contact may cause minor irritation.

4. FIRST AID MEASURES

Skin contact	: Wash off with plenty of water. If irritation occurs, seek medical advice.
Eye contact	: Rinse with plenty of water for at least 15 minutes. If irritation occurs, seek medical advice.
Ingestion	: Rinse mouth and throat thoroughly with water. Should irritation occur seek medical advice.
Inhalation	: Remove from exposure. If irritation or allergic response occurs, consult a doctor.

5. FIRE-FIGHTING MEASURES

Suitable fire extinguishing media	: water, foam
Non-suitable media	: none
Special exposure hazards	: none
Protection against fire and explosions	: no special requirements

6. ACCIDENTAL RELEASE MEASURES

After spillage avoid raising dust or aerosols. Pick up by mechanical means or by a vacuum equipped with a high efficiency filter. Dilute remainder with plenty of water. Never use high pressure water jet. Assure sufficient ventilation. Wash contaminated clothing.

Imiprothrin 50%

SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name:	Imiprothrin 50%
Other Names:	Pralle [®] , Imiprothrin MUP
Recommended Use:	A raw synthetic material used for the manufacture and preparation of insecticidal products for use by professionals and householders/domestic.
Company:	Sumitomo Chemical Australia Pty Ltd A.B.N. 21 081 096 255
Address:	51 Rawson Street, EPPING NSW 2121
Telephone Number:	(02) 8752 9000 (Mon–Fri 8am–5pm EST)
Emergency Telephone Number:	1800 024 973 (24 hours) (EMERGENCIES ONLY)
Website:	www.sumitomo-chem.com.au

SECTION 2: HAZARDS IDENTIFICATION

Hazard Classification:	Hazardous according to the criteria of the Australian Safety and Compensation Council (ASCC).
Risk Phrases:	Xn: R20 - Harmful by inhalation. N: R50/53 – Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Phrases:	S23 – Do not breathe fumes or vapour. S24 – Avoid contact with skin. S25 – Avoid contact with eyes.
SUSDP Classification (Poison Scheduling):	S5 – CAUTION (as a preparation of 50% technical)
ADG Classification:	Not classified as a Dangerous Good (under the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code)).

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Identity	CAS number	Proportion
Imiprothrin	72963-72-5	50%
Other ingredients	-	to 100%

SECTION 4: FIRST AID MEASURES

If poisoning occurs, immediately contact a doctor or Poisons Information Centre (Phone Australia 131126; New Zealand 0800 764 766), and follow the advice given. Show this Material Safety Data Sheet to a doctor.

General:	In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).
Swallowed:	<u>If swallowed</u> , do not induce vomiting, seek medical advice.
Skin contact:	<u>If on skin</u> , remove contaminated clothing and wash skin thoroughly with soap and water. Launder contaminated clothing before re-use. Seek medical advice if irritation develops.
Eye contact:	<u>If in eyes</u> , hold eyes open and flood with water for at least 15 minutes and seek medical advice.
Inhalation:	If affected, remove from contaminated area to fresh air. If any signs or symptoms occur or persist, seek medical advice.

SAFETY DATA SHEET

M35886 - ANSI - EN



Occidental Chemical Corporation

A subsidiary of Occidental Petroleum Corporation



LIQUID SODIUM SILICATE - ALKALINE

SDS No.: M35886

SDS Revision Date: 18-Mar-2015

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Company Identification:	Occidental Chemical Corporation 5005 LBJ Freeway P.O. Box 809050 Dallas, TX 75380-9050 1-800-752-5151
24 Hour Emergency Telephone Number:	1-800-733-3665 or 1-972-404-3228 (USA); CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186
To Request an SDS:	MSDS@oxy.com or 1-972-404-3245
Customer Service:	1-800-752-5151 or 1-972-404-3700
Product Identifier:	LIQUID SODIUM SILICATE - ALKALINE
Trade Name:	Sodium Silicate Liquid Alkaline, Grades 2.2, 2.2 Special, 30 Clear, 47, 47 Light, 47 Special, 49FG, 49FG Special, 50, 50 Clear, 50 Light, 50 Special, 50 Special Clear, 52, 52 Special, JW-25, JW Clear, Pilot Special, WD-43, WD-43 Heavy, WD-43 Special; Moroc 1
Synonyms:	Liquid sodium silicate, Water glass, Sodium silicate liquid alkaline
Product Use:	adhesives and binders, pulp and paper, deinking, detergents / soaps, catalysts, textiles, drilling fluids, mineral processing, refractory cements, zeolites
Uses Advised Against:	Neutralizing acidic wastewater.

Print date: 18-Mar-2015

1 of 13

Material Safety Data SheetVersion 5.1
Revision Date 10/09/2012
Print Date 03/26/2014**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : Zeolite

Product Number : 96096
Brand : Sigma

Supplier : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # (For : (314) 776-6555
both supplier and
manufacturer)

Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION**Emergency Overview****OSHA Hazards**

Irritant

Target Organs

Lungs, Bone

GHS Classification

Acute toxicity, Inhalation (Category 5)

Acute toxicity, Dermal (Category 5)

Specific target organ toxicity - single exposure (Category 3)

GHS Label elements, including precautionary statements

Pictogram



Signal word

Warning

Hazard statement(s)

H313 + H333

May be harmful in contact with skin or if inhaled.

H335

May cause respiratory irritation.

Precautionary statement(s)

P261

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

HMIS Classification**Health hazard:** 2**Flammability:** 0**Physical hazards:** 0**NFPA Rating****Health hazard:** 2**Fire:** 0**Reactivity Hazard:** 0