

**METHODOLOGY AND SURVEY OF  
ORGANIC POLLUTANTS IN SOUTH  
AFRICAN SEWAGE SLUDGES  
VOLUME 2**

by

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## APPENDIX

### APPENDIX A Different organic compounds identified in various countries worldwide

A summary of experimentally determined data as reported in the current literature is presented, in A-1 to A-13. These tables document the typical concentrations of different groups of organic pollutants found in sewage sludge.

#### **A-1 AOX content in sewage sludges from Germany (UMG-AG, 2000).**

Year	Mean	Highest 90-percentile among German Bundeslaender mg/kg dm
1994	206	370
1995	201	400
1996	196	363

#### **A-2 Concentration of LAS in sewage sludge from Norway and Denmark.**

Country	No. of samples	Range mg/kg dm	Median mg/kg dm	References
Norway (1996-97)	36	<1-424	54	Paulsrud <i>et al.</i> , 2000
Danish (1995)	20	11-16100	530	Törslöv <i>et al.</i> , 1997
Danish (1993-94)	6	200-4640	455	Törslöv <i>et al.</i> , 1997

#### **A-3 Concentration of LAS in sewage sludge from selected countries (Jones, 2000).**

Country	No. of WWTP	Sludge description	Range mg./kg dm
Denmark	19	Various	11-16100
Germany	8	Anaerobically Digested	1600-11800
Germany	10	Aerobically Digested	182-432
Italy	1	Anaerobically Digested	11500-14000
Spain	3	Anaerobically Digested	12100-17800
Spain	2	Non-treated	400-700
Switzerland	10	Anaerobically Digested	2900-11900
UK	5	Anaerobically Digested	9300-18800

**A-4 Overview of concentration of Nonlyphenol(+ethoxylates) in Scandavian sewage sludges.**

Investigations	Number of samples	Range mg/kg dm	Median mg/kg dm	References
Norwegian (1989)	19	25-2298	189	Vigerust, 1989
Swedish (1993)	23	23-171	82	National Swedish Environmental Protection Board, 1995 cit in Paulsrud <i>et al.</i> , 2000.
Swedish (1989-91)	27	44-7214	825	National Swedish Environmental Protection Board, 1992 cit in Paulsrud <i>et al.</i> , 2000.
Danish (1995)	20	0.3-67	8	Törslöv <i>et al.</i> , 1997
Danish (1993-91)	9	55-537	-	Törslöv <i>et al.</i> , 1997

**A-5 Concentration of DEHP in sewage sludges of various countries.**

Investigations	Number of samples	Range mg/kg dm	Median mg/kg dm	References
Norway	36	<1-140	58	Paulsrud <i>et al.</i> , 2000
Norwegian (1989)	19	27-1115	83	Vigerust, 1989
Swedish (1989-91)	27	25-661	170	National Swedish Environmental Protection Board, 1992 cit in Paulsrud <i>et al.</i> , 2000.
Danish (1995)	20	3.9-170	24.5	Törslöv <i>et al.</i> , 1997
Danish (1993-94)	9	17-120	38	Törslöv <i>et al.</i> , 1997

**A-6 Concentrations of PAHs in sewage sludges of various countries.**

Investigations	Number of samples	Range mg/kg dm	Median mg/kg dm	References
Danish (1995) (Sum of 18 compounds)	20	<0.01-1.85	-	Törslöv <i>et al.</i> , 1997 (cit in Paulsrud <i>et al.</i> , 2000)
Danish (1993-94) (Sum of 18 compounds)	9	0.42-2.4	-	Törslöv <i>et al.</i> , 1997 (cit in Paulsrud <i>et al.</i> , 2000)
Norway	36	0.7-30	3.9	Paulsrud <i>et al.</i> , 2000.
Sweden (sum of 6 compounds)	-	-	1.6	Tideström, 1997
Parts of Germany (Sum of 6 compounds)	124	0.4-12.83	-	UMK-UG, 2000
Parts of Germany (Sum of 16 compounds)	88	0.25-16.28	-	UMK-UG, 2000

**A-7 Concentrations of PCBs in sewage sludge of various countries.**

Investigations	No. of samples	No. of congeners	Range mg/kg dm	Median mg/kg dm	References
Norway	36	7	0.017-0.10	0.0422	Paulsrud <i>et al.</i> , 2000.
Swedish (1993)	23	7	0.0006-0.232	0.113	National Swedish Environmental Protection Board, 1995 cit in Paulsrud <i>et al.</i> , 2000.
Swedish (1989-91)	27	7	-	-	National Swedish Environmental Protection Board, 1992 cit in Paulsrud <i>et al.</i> , 2000.
Sweden (Sum of 7 congeners)	-	7	-	0.1	Tideström, 1997
Germany	-	Each of congeners	<0.2	-	UMK-AG, 2000

**A-8 Mean PCB concentrations in sewage sludge in Germany (UMK-AG, 2000).**

Year	PCB congener no. (mg/kg dm)						
	28	52	101	138	153	180	Sum
1989	0.041	0.028	0.052	0.082	0.084	0.053	0.340
1992	0.015	0.015	0.024	0.039	0.039	0.026	0.158
1996	0.016	0.017	0.020	0.037	0.038	0.026	0.154

**A-9 Comparison of investigation of PCDD/Fs in sewage sludge (AEA Technology, 1999).**

	Country					
	Austria	Denmark	Germany	Spain	Sweden	UK
<b>Range</b> ngTEq/kg dm	8-38	0.7-55	0.7-1207	-	0.02-1.15	9-192
<b>Average</b> NgTEq/kg dm	14.5	21	20-40	64	20	

**A-10 Concentrations of PCBs in sewage sludge of various European countries.**

<b>Investigations</b>	<b>No. of samples</b>	<b>No. of congeners</b>	<b>Range mg/kg dm</b>	<b>Mean mg/kg dm</b>
<b>Norway</b> (Paulsrud <i>et al.</i> , 2000)	36	7	0.017-0.10	0.0422
<b>Swedish</b> (1993) (National Swedish Environmental Protection Board)	23	7	0.0006- 0.232	0.113
<b>Swedish</b> (1989-91) (National Swedish Environmental Protection Board)	27	7	-	-
<b>Sweden</b> (sum of 7 congeners) (Tideström, 1997)	-	7	-	(0.1)
<b>Germany</b> (UMK-AG, 2000)	-	Each of 6 congeners	<0.2	-

**A-11 Concentrations of PAHs in sewage sludges of various countries.**

<b>Investigations</b>	<b>No. of samples</b>	<b>Range mg/kg dm</b>	<b>Median mg/kg dm</b>
<b>Danish</b> (1995) (Sum of 18 compounds) (Törslöv <i>et al.</i> , 1997)	20	<0.01- 1.85	-
<b>Danish</b> (1993-94) (Sum of 18 compounds) (Törslöv <i>et al.</i> , 1997)	9	0.42-2.4	-
<b>Norway</b> (Paulsrud <i>et al.</i> , 2000)	36	0.7-30	3.9
<b>Sweden</b> (sum of 6 compounds) (Tideström, 1997)	-	-	1.6
<b>Parts of Germany</b> (sum of 6 compounds) (UMK-UG, 2000)	124	0.4-12.83	-
<b>Parts of Germany</b> (sum of 16 compounds) (UMK-UG, 2000)	88	0.25- 16.28	-

**A-12 Typical concentrations of organic pollutants in sewage sludge and priorities with respect to the sludge-soil pathway**

[UKWIR (United Kingdom Water Industry Research) 1995, Identification of priority organic contaminants in sewage sludge, vol. 2, Report Ref. No. 96/SL/03/1; UMK-AG, 2000].

<b>Compounds</b>	<b>Typical conc. in sludge (mg/kg dm)</b>	<b>Country</b>	<b>Reference</b>
<b><i>AOX</i></b>	<400		
Brominated Flame retardants	-	-	
PBB Polybrominated Biphenyls	-	-	
PBDE Polybrominated diphenyl ether	-	-	
Decabromodiphenylether	-		
Pentabromodiphenylether	-		
Octabromodiphenylether	-		
TBBPA Tetrabromobisphenol	-	-	
<b><i>CB Chlorobenzenes</i></b>	-	-	
1,4-Dichlorobenzene	561-2320	UK	Wang & Jones, 1994
1,2,4-Trichlorobenzene	14.7-1070	UK	Wang & Jones, 1994
HCB Hexachlorobenzene	0.013-0.118	Switzerland	Frost et al, 1993 industrial
<b><i>Chloroorganic Phosphate</i></b>	-		
Bromophosethyl	-		
Tris-(chloroethyl)-phosphate	-		
<b><i>Chlorophenols</i></b>			
2,4-Dichlorophenol	0.35-2.6	UK	Wild et al., 1993
2,4,6-Trichlorophenol	0.008-0.254	UK	Wild et al., 1993
PCP Pentachlorophenol (1986)	<0.03-8500	USA & Germany	Drescher-Kaden et al., 1992
<b><i>Chloro acetic acids</i></b>	-	-	
Monochloroacetic acid	-	-	
TCA Trichloroacetic acid	-	-	
<b><i>Lipid-lowering substances</i></b>	-	-	
Clofibrine acid	-		

**A-12** cont.

Compounds	Typical conc. in sludge (mg/kg dm)	Country	Reference
<i>EDs Endocrine disruptors</i>	-	-	
Ethynyl estradiol			
Ethanolamine	-	-	
EDTA Ethylenediaminetetraacetic acid	-		
<i>Musk xylenes and ketones</i>		-	
Musk xylene			
Musk ketone		-	
<i>Pesticides</i>	-	-	
Aldrin (1979)	-	-	
Chlordane (1971)	-	-	
DDT + metabolites (1977)	-		
DDE	-		
DDD	-		
Dieldrin	-	-	
Endosulfan (1991)	-	-	
Endrin	-	-	
Hexachlorocyclohexane (HCH)	-	-	
Alpha-HCH	0.00001-0.003	UK	Welsh Water, unpublished
Beta-HCH	0.00004-0.343	UK	Welsh Water, unpublished
Gamma-HCH (Lindane)	-		
Heptachlor (1981)	-	-	
Nitrofen (1980)	-	-	
Quintozen (1987)	-	-	
<i>Precipitation chemicals</i>	-	-	
Polyacrylamide (cationic)	-		

**A-12 cont.**

<b>Compounds</b>	<b>Typical conc. in sludge (mg/kg dm)</b>	<b>Country</b>	<b>Reference</b>
<b><i>Phenols</i></b>	-	-	
Alkylphenol	-	-	
Methylphenol	-	-	
NP Nonylphenol	-	-	
NPE Nonylphenol (+ethoxylate)	1-1000	-	
Nitrophenol	-	-	
DNOC 2-Methyl-4,6-dinitrophenol	-	-	
2,4-Dimethylphenol	-	-	
<b><i>Phthalates</i></b>	-	-	
DEHP Di-(2-ethylhexyl) phthalate	200-3000	-	
DBP Dibutylphthalate	50-1000	-	
DEP Diethylphthalate	-	-	
DNBP Di-n-butylphthalate	-	-	
<b><i>PAHs</i></b>	0.1-30	-	
Naphthalene (2-ring)	0.5-14.9	UK	Sweetman et al., 1991
Acenaphthene (3-ring)	<0.3-6.3	UK	Sweetman et al., 1991
Fluorene (3-ring)	3.4-15.8	UK	Sweetman et al., 1991
Pyrene (4-ring)	0.01-0.7	Sweden	Paxeus et al., 1991
Benz(a)anthracene (4-ring)	0.3-1.1	UK	Sweetman et al., 1991
Benzo(a)pyrene (5-ring)	0.1-15	Germany	Drescher-Kaden et al., 1992
Dibenz(a,h)anthracene (5-ring)	13-13	USA	Naylor & Loehr, 1982
<b><i>PCA Chlorinated paraffins</i></b>	-	-	
C10-C13	-	-	
C14-C17	-	-	
C20-C30	-	-	
<b><i>Polycarboxylates (anionic)</i></b>	-	-	
Polyacrylic acid-Na-salt	-	-	
<b><i>Silicones</i></b>	-	-	
Silicone oil	-	-	
<b><i>Surfactants</i></b>	-	-	
Fluorotensides	-	-	
LAS	10-10 000	-	

**A-12 cont.**

<b>Compounds</b>	<b>Typical conc. in sludge (mg/kg dm)</b>	<b>Country</b>	<b>Reference</b>
<b><i>PCBs</i></b>	0.001-0.1		
Coplanar PCBs	-		
Trichlorobiphenyls (PCB 28)	-	-	
Tetrachlorobiphenyls (PCB 52)	-	-	
Pentachlorobiphenyls (PCB 101)	-	-	
Hexachlorobiphenyls (PCB 138, 153)	-	-	
Heptachlorobiphenyls (PCB 180)	-	-	
<b><i>PCDD/F</i></b>	-		
2,3,7,8-TCDD	-	-	
1,2,3,7,8-PeCDD	-	-	
1,2,3,4,7,8-HxCDD	-	-	
1,2,3,4,6,7,8-HpCDD	-	-	
OCDD	-	-	
2,3,7,8-TCDF	-	-	
OCDF	-	-	
<b><i>Organo-tin compounds</i></b>			
TBTO Tributyltin oxide		-	
TBT Tributyltin			
Ugelic (60% Tetrach.benzyltol.)	-		
<b><i>VOCs</i></b>	-	-	
BTX-Aromatics	-	-	
Toluene	-		
Trichloroethylene	-		
Tetrachloroethylene	-		

**APPENDIX B Detailed description of WWTPs collected from various provinces in South Africa.**

Sample no.	WWTP name	Sample Description	Town	Sampling point
<b>GAUTENG</b>				
WRC 1339 01/01	Vlakplaats	Anaerobic digested	Alberton	Wet sludge
WRC 1339 02/01	Vlakplaats	Anaerobic digested	Alberton	Compost
WRC 1339 03/01	Vlakplaats	Anaerobic digested	Alberton	Paper, pulp compost
WRC 1339 04/01	Dekema	Anaerobic digested	Germiston	Peddies
WRC 1339 05/01	Waterval	Anaerobic digested	Germiston	Peddies
WRC 1339 06/01	Rondebult	Anaerobic digested	Alberton	Peddies
WRC 1339 07/01	CF Grundlingh	WAS	Nigel	Return flow
WRC 1339 08/01	Herbert Bickley	Anaerobic digested	Nigel	Digesters
WRC 1339 09/01	Tsakane WWTP	WAS	Brakpan	WAS
WRC 1339 10/01	Heidelberg	WAS	Heidelberg	Pit
WRC 1339 11/01	Heidelberg	Anaerobic digested	Heidelberg	Digesters
WRC 1339 12/01	Baviaanspoort WCW	Aerobic digested	Pretoria	Wet sludge
WRC 1339 13/01	Rooiwal Northern	Anaerobic digested	Pretoria	Wet sludge
WRC 1339 14/01	Rooiwal West/East	Aerobic digested	Pretoria	Wet sludge
WRC 1339 15/01	Zeekoegat WCW	Aerobic digested	Pretoria	Wet sludge
WRC 1339 16/01	Centurion WCW	Anaerobic digested	Centurion	Belt press
WRC 1339 17/01	Daspoort WCW	Anaerobic digested	Pretoria	Drying beds
WRC 1339 18/01	Olifantsvlei	Compost	JHB	Compost heap
WRC 1339 19/01	JHB Northern Works	WAS	JHB	Belt press
WRC 1339 20/01	JHB Northern Works	Compost	JHB	Compost heap
WRC 1339 21/01	Percy Steward	Anaerobic digested	Krugersdorp	Wet sludge
WRC 1339 22/01	Flip Human	Anaerobic digested	Krugersdorp	Wet sludge
WRC 1339 77/01	Rietspruit	Digested	Vanderbijlpark	Drying beds
<b>LIMPOPO</b>				
WRC 1339 47/01	Pietersburg WTP	Aerobic digested	Pietersburg	Plough fields
WRC 1339 48/01	Seshogo	Anaerobic digested	Pietersburg	Drying beds
WRC 1339 49/01	Phalaborwa	WAS	Phalaborwa	Drying beds
WRC 1339 50/01	Tzaneen	Anaerobic digested	Tzaneen	Drying beds
WRC 1339 51/01	Mankweng	Anaerobic digested	Pietersburg	Drying beds
WRC 1339 52/01	Mankweng	Anaerobic digested	Pietersburg	Compost (UNIN)
<b>NORTH-WEST</b>				
WRC 1339 53/01	Rustenburg	Anaerobic digested	Rustenburg	Drying beds
WRC 1339 54/01	Boitekong	Waste Activated	Rustenburg	Return flow
WRC 1339 55/01	Brits	Anaerobic digested	Brits	Drying beds
WRC 1339 69/01	Orkney	WAS & Digested	Orkney	Stock pile
WRC 1339 70/01	Klerksdorp	WAS & Digested	Klerksdorp	Drying beds
WRC 1339 71/01	Wolmaranstad	Compost	Wolmaranstad	Pit
WRC 1339 73/01	Vryburg	WAS	Vryburg	Drying beds
WRC 1339 23/01	Kingstonvale	Digested sludge	Nelspruit	Drying beds
WRC 1339 24/01	Lydenburg	Digested sludge	Lydenburg	Drying beds

## APPENDIX B cont.

Sample no.	WWTP name	Sample Description	Town	Sampling point
<b>FREE STATE</b>				
WRC 1339 25/01	Thabong	WAS	Welkom	Return flow
WRC 1339 26/01	Witpan	Digested sludge	Welkom	Drying beds
WRC 1339 27/01	Theronia	Digested sludge	Welkom	Drying beds
WRC 1339 38/01	Harrismith	Digested	Harrismith	Drying beds
WRC 1339 39/01	Phuthadithjaba	Digested sludge	Qwaqwa	Drying beds
<b>KWAZULU-NATAL</b>				
WRC 1339 40/01	Escort	Digested sludge	Estcourt	Drying beds
WRC 1339 41/01	Hammarsdale WCW	WAS	Pietermaritzburg	Centrifuge
WRC 1339 42/01	Darvil WCW	Digested + WAS	Pietermaritzburg	Return flow
WRC 1339 44/01	Isipingo	Digested sludge	Durban	Drying beds
WRC 1339 45/01	Kwa-Mashu	Digested sludge / DAF	Durban	Belt press
WRC 1339 56/01	Kwa-Mashu	Pellets	Durban	Bins
WRC 1339 57/01	Phoenix	Waste Activated	Pietermaritzburg	Belt press
WRC 1339 58/01	Durban Northern	WAS / Digested	Durban	Belt press
WRC 1339 59/01	Durban Northern	Pellets	Durban	Bins
WRC 1339 75/01	Klipfontein	Heated & digested	Vryheid	Heaps
WRC 1339 76/01	Newcastle	Petro	Newcastle	Drying beds
<b>EASTERN CAPE</b>				
WRC 1339 61/01	East London	Petro-process	East London	Drying beds
WRC 1339 78/01	Potsdam	Digested	East London	Drying beds
WRC 1339 79/01	Fishwater Flats	Heated , Centrifuged	Port Elizabeth	Centrifuge
WRC 1339 80/01	Cape Receife	WAS	Port Elizabeth	Drying beds
<b>NORTHERN CAPE</b>				
WRC 1339 67/01	Kameelmond	WAS	Upington	Drying beds
WRC 1339 68/01	Kameelmond	Digested sludge	Upington	Drying beds
WRC 1339 72/01	Kimberley	WAS & Digested	Kimberley	Drying beds
WRC 1339 74/01	Kuruman	WAS	Kuruman	Drying beds
<b>WESTERN CAPE</b>				
WRC 1339 28/01	Borcherds Quarry	WAS	Cape Town	Return flow
WRC 1339 29/01	Bellville	WAS	Cape Town	Belt press
WRC 1339 30/01	Athlone	WAS	Cape Town	Drying lagoons
WRC 1339 31/01	Cape Flats	Pellets	Cape Town	Old stock bags
WRC 1339 32/01	Mitchell's plain	Digested sludge	Cape Town	Centrifuge cake
WRC 1339 33/01	Wesfleur	WAS	Cape Town	Industrial drying beds
WRC 1339 34/01	Wesfleur	WAS	Cape Town	Domestic drying beds
WRC 1339 35/01	Gwain	Petro Sludge	George	Drying beds
WRC 1339 36/01	Mosselbay	WAS	Mosselbay	Drying beds
WRC 1339 37/01	Oudtshoorn	Compost	Oudtshoorn	Compost heap
WRC 1339 60/01	Beaufort West	WAS	Beaufort West	Drying beds
WRC 1339 62/01	Vredenburg WCW	WAS	Vredenburg	Fenced DLD area
WRC 1339 63/01	Saldanha	WAS	Saldanha bay	Drying beds
WRC 1339 64/01	Clanwilliam	WAS	Clanwilliam	Drying beds
WRC 1339 65/01	Vredendal WCW	WAS	Vredendal	Stockpile

**APPENDIX C** The organic compounds identified in individual sewage sludge samples across the country using the GC-MS at confidence limit equal or greater than 80 %.

**C-1A GAUTENG**

Organic compounds	Sample Number/%																							
	1S	1N	1A	1B	2	3	4	5	6	7	8	9N	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Phenols</b>																								
2,6-bis (1,1-dimethylethyl)-4-methyl-phenol	91	95																						
3,5-Dimethyl-phenol		95																						
4-(1-methylethyl)-phenol							93																	
4,4'-(1-Methylethylene)bis-phenol/																	89							
p,p'-Isopropylidenebisphenol																								
2-Methyl-phenol/o-Cresol		97	97																					
3-Methyl-phenol/m-Cresol																		96						
4-Methyl-phenol/p-Cresol	95	97	96	96				94			94		94	94			97						96	
Nonylphenol						80					90													
Nonylphenol isomer					90																			
Phenol/tzal													94	94										
4-(1,1,3,3-Tetramethylbutyl)-phenol	81																							
<b>PAHs</b>																								
6-Acetyl-7-hydroxy-2,2-dimethylbenzopyran													83											
(-)-alpha.-Amorphene																								
Benz[a]anthracene						93																		
Decahydro-2-methyl-naphthalene													94											
.delta.Cadinene																								98
7,12-Dihydro-7,12-dimethyl-benz[a]anthracene															94									
1,3-Dimethylnaphthalene						95																		
1,5-Dimethylnaphthalene	96																							
1,8-Dimethyl-naphthalene						93																		
1,7-Dimethyl-naphthalene								98																



**C-1A cont.**

Organic Compounds	Sample Number/%																						
	1S	1N	1A	1B	2	3	4	5	6	7	8	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Furans</b>																							
5-Acetyl-4,7-dimethoxy-6-hydrobenzofuran									83														
5-Acetyl-4,7-dimethoxy-6-hydrobenzofuran									83														
1,2,3,4,6,7,8-Heptachlorodibenzofuran							90																
4-Methyl-dibenzofuran	93																						
2-Pentyl-furan											91												
<b>Amines</b>																							
4-Chloro-benzanamine	95																						
N,N-Dibutyl-1-butanamine	95						91				81	90											
N,N-Dimethyl-1-octadecanamine	80																						
N,N-Dimethylpalmitamide																	94						
Hexadecanamide			81																				
(Z)-9-Octadecenamide			91	91																			
N-(2-phenylethyl)-acetamide																							
n-Tetradecanoic acid amide			91	90																			
<b>Aldehydes</b>																							
Decanal											91												
Friedenlan-y-al																							
Heptanal											83												
Hexadecanal/Palmitic aldehyde			91														87						97
n-Hexanal																							
4-Hydroxy benzaldehyde							90		90														
Ios-alpha.-cedren-15-al																							
n-Nonanal											91												
Nonylaldehyde																							

**C-1A cont.**

Organic Compounds	Sample Number/%																							
	1S	1N	1A	1B	2	3	4	5	6	7	8	9N	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Aldehydes</b>																								
9-Octadecenal													91											
Octanal										87					90									
Pentadecanal	94		95																					
Tetradecanal/Myristaldehyde	91		91															95						
Tridecanal				86																				
<b>Esters</b>																								
5.alpha.-Cholestan-3-one	93								87															
1-(2-Aminophenyl)-ethanone		94												93										
5-(3-Aminopropyl)-5,10-dihydro-11H-dibenzo[b,e][1,4]diazepin-11-one										91														
5-(3-Aminopropyl)-1,5-diazacycloheptadecan-6-one															83									
14.beta.-3-Methoxy-6-oxaestra-1,3,5(10),8,15-pentaen-7,17-dione			83																					
6-(Bromomethyl)-5-[(ethoxycarbonyl)-(phenylthio)-methyl]-4-methoxy-2H-pyran-2-one												90												
Cholest-4-en-3-one								83	95		93		99											
Cholestan-3-one																								
Cholestan-4-one		93																						
Coprostan-3-one	93																							
.delta.-Decalactone/ Tetrahydro-6-pentyl-H-pyran-2-one																		80						
7,8-dihydrobenzo[g]chrysen-5(6H)-one																								83
1,3-dihydro-2H-Indol-2-one																								
2,3-Dihydro-4-methyl-1H-indole														93									95	96
6,10-Dimethyl-5,9-undecadien-2-one							93																	
(1R+,6S+,7R+)-10,10-Dimethyl-7-vinyl-tricyclo(4.3.2.0)undec-2-en-one																86								

**C-1A cont.**

Organic Compounds	Sample Number/%																						
	1S	1N	1A	1B	2	3	4	5	6	7	8	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Esters</b>																							
Diphenyl-methanone														95									
3-Ethenyl-4-isopropylcyclohexanone					93																		
Geranyl acetone																							
2-Heptadecanone																							
Hexahydro-2H-azepin-2-one																							
2-Hydroxy-cyclopentadecanone						95																	
1H-Indole/Ketol							91										94						
1,3-Isobenzofurandione					95	91	94																
5-Methyl dibenz(6,F)azapine-10-one																							
6-Methyl-5-hepten-2-one																							
Methyl 6(r,s)-8-hydroxy-7-oxo-8,9-secolabdan-15-oate					87																		
3-Methyl-1H-indole		91									94			91			91						
5-Methyl-1H-indole																							
7-Methylindole									93														
3-Methylindole-2(3H)-one		87	87													90							
Methyl 9,10-methylene											83												
Octadecanoate																							
Muskalactone														87									
Oxacyclotetradecane-2,11-dione																							
2-Pentadecanone																							
2-Piperidinone																							
2-Tridecanone																							
2-Undecanone																							
<b>Acids</b>																							
Benzenoacetic acid			91						87					91			91					91	
Benzenobutanoic acid/4-Phenylbutyric acid																	90					91	
Benzenopropanoic acid																94	94					94	
Benzoic acid/Retardex																	96						
Bis(2-ethylhexyl) ester of 1,2-Benzenedicarboxylic acid																							83

**C-1A cont.**

Organic Compounds	Sample Number/%																							
	1S	1N	1A	1B	2	3	4	5	6	7	8	9N	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Acids</b>																								
Bis(2-methoxyethyl) ester of 1,2-Benzenedicarboxylic acid																								80
Butanoic acid/n-Butyric acid					83								91					91					91	
Butyl cyclohexyl ester of 1,2-benzenedicarboxylic acid																							86	
Cyclohexanecarboxylic acid			92																					
Cyclohexanepropanoic acid			91																					
Decanoic acid/Capric acid																	89							
Dibutyl ester 1,2-Benzenedicarboxylic acid		91				95						89	96				91	83						
Diethyl ester of 1,2-Benzenedicarboxylic acid												92												96
Diethyl-carbamodithioic acid													81											
Diethyl-4-nitrophenyl Ester of phosphoric acid															90									
Diisodecyl ester of 1,2-benzenedicarboxylic acid													91											
Docosanoic acid	91																							
Dodecanoic acid/Lauric acid											97				95									
2-Ethyl-hexanoic acid								83	91									94						
2-Ethylhexyl diphenyl of ester Phosphoric acid													86											
Hepatadecanoic acid/Margaric acid	95								96								99	97						
Heptanoic acid																		91						
Heptadecene-(8)-carbonic acid(1)		95																						
Hexadecanoic acid/Palmitic acid			99				93		98								99	99						
9-Hexadecenyl ester of palmitic acid	93	99									97													
Hexadecyl ester of hexadecanoic acid												91												99

**C-1A cont.**

Organic Compounds	Sample Number/%																							
	IS	1N	1A	1B	2	3	4	5	6	7	8	9N	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Acids</b>																								
Hexadecyl ester of dodecanoic acid																								
Hexadecyl ester of hexadecanoic acid													98											
n-Hexanoic acid																		90					90	
2-Hydroxy-methyl ester of docosanoic acid															90									
5-Isobutylidene-N,N-dimethylbarbituric acid															83									
Linoleic acid										93														
2-Methyl butanoic acid/2-Methylbutyric acid																		90					83	
3-Methyl-butanoic acid/Isovaleric acid																								
3-Methyl decanoic acid		92	95																					
Methyl ester hexadecanoic acid	94										91													
2-Methyl-hexanoic acid																		80					83	
5-Methyl-hexanoic acid																		91					91	
Methyl ester of 9,12-octadecadienoic acid																								
Methyl ester of (Z)-9-octadecenoic acid																								81
2-Methyl-pentanoic acid																			90				90	
2-Methyl-propanoic acid													80					90				90		
2-Methylvaleric acid																								
2-Methyl pentanoic acid																								
2-Methylpropyl ester of 1,2-benzenedicarboxylic acid			86																					
Moronic acid											86													
3-Nitro-1,2-benzenedicarboxylic acid																								
Nonanoic acid	87							80															91	

**C-1A cont.**

Organic Compounds	Sample Number/%																							
	IS	1N	1A	1B	2	3	4	5	6	7	8	9N	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Acids</b>																								
Octadecanoic acid/Stearic acid		99							96								99	99						
(Z)-9-Octadecenoic acid									99								98							
Octanoic acid/Caprylic acid																		95						
Oleic acid																								
(Z)-9-Octadecenoic acid																	98							
9-Octadecenyl ester of (Z)-Octadecanoic acid																								90
Octadecyl-(Z)-9-octadecenoic acid																		95						
Pentadecanoic acid	86	99	95						91								96	98						
14-Pentadecenoic acid																		83					90	
Pentanoic acid/Valeric acid			91																					
3-Phenylbutyric acid			97																					
(R)-2-Phenylpropionic acid																		87						
1,2,3-Propanetricarboxylic acid			91				90	98	98															
Propanoic acid																		94						
Tetradecanoic acid/ Myristic acid	98	83	81																					
Tetradecyl ester of hexadecanoic acid																								
Tridecanoic acid																								
Tributyl ester 2-hydroxy-1,2,3- propanetricarboxylic acid				80																				
Undecanoic acid																								

**C-1A cont.**

Organic Compounds	Sample Number/%																							
	1S	1N	1A	1B	2	3	4	5	6	7	8	9N	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Chlorinated hydrocarbons</b>																								
1-Chloro-2-isocyanato-benzene					96																			
Chloromethyl-benzene						99									83									
1-Chloro-octadecane																		83						
5,7-Dichloro-1-methyl-1,4-benzodiazepin-2-one																	83							
1,2-Dichloro-benzene							94		86															
2,4-Dichlorophenyl isocyanate								90																
3-p-Chlorophenyl-1-methyldioxindol													83											
Trichlorododecyl-silane								91																
Trichloroicosyl-silane																								
<b>Alcohols</b>																								
Benzenemethenethiol	81										91													
2H-1-Benzopyran-6-ol/Vitamin E											81													
3.beta.-Cholest-5-en-3-ol																	96							
3.beta.-lup-20(29)-en-3-ol										90														
7,8-dihydrobenzo[g]chrysen-5(6H)-one																								83
Dihydrocholesterol/5.alpha.-Cholestan-3.beta.-ol	86	93	86														93							
1-Dodecanethiol																								
1,16-Hexadecanediol																								
1-Hexanethiol											91													
2-Ethyl-1-hexanol		86																						
Farnesol																								
D:A-Friedooleanane-1,24-diol											80													
Isoheptadecanol																								
20.xi.-Lanosta-7,9(11)-diene-3.beta.,18,20-triol											92													

**C-1A cont.**

Organic Compounds	Sample Number/%																						
	1S	1N	1A	1B	2	3	4	5	6	7	8	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Alcohols</b>																							
(22E,24S)-24-Methyl-5.alpha.-cholesta-8,22-dien-3.beta.-ol																							
p-Menth-3-en-1-ol		86																					
2-Methyl-1-hexadecanol			86																				
(R)-(-)-(Z)-14-Methyl-8-hexadecen-1-ol																							
(E)-13-Methyl-11-tetradecen-1-ol	80																						
1-Octadecanethiol																							97
(Z)-9-Octadecen-1-ol							91														83		
1-Octanethiol								91															
1-Pentadecanethiol																							90
1,15-Pentadecanethiol																	86						
Terpinene-1-ol																							
(E)-2-Tridecen-1-ol	90																						
2-(Tetradecyloxy)ethanol																							
<b>Hydrocarbons</b>																							
.alpha.-Humulene																							
.alpha.-Pinene																							
.alpha.-phellandrene																							
5-(3-Aminopropyl)-1,5-diazacycloheptadecan-6-one														83									
.beta.-Caryophyllene	99																						
7H-Benzocycloheptene						90																	
.beta.-Caryophyllene														99									
1,1-Bis(p-tolyl)ethane						91																	
11-Butyl-docosane	94																						
(1-Butylheptyl)-benzene			94				91		95														
(1-Butylhexyl)-benzene			95						95														
(1-Butyloctyl)-benzene									96														
(1-Butylnonyl)-benzene									87					91									
Butylated hydroxy toluene																							
11-Butyl-docosane	94																						

**C-1A cont.**

Organic Compounds	Sample Number/%																							
	1S	1N	1A	1B	2	3	4	5	6	7	8	9N	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Hydrocarbons</b>																								
cis-Caryophyllene	97					97																		
Cyclodecane																	89							
Cyclodecene																	91							
Cyclododecane																								
Cycloicosane																							81	
Cyclohexadecane																							87	
Cyclooctane															92									
Cyclopentadecane																								
Cyclotetradecane	95																							
Cyclotridecane																								
n-Decane	95	94				94	91	95			91			94	95									
11-Decyl-docosane															91									
10-Demethylsqualene																								
1,2-Diethyl-benzene									86															
1,5-Diethyl-3-methyl-2-methylene-																								
[1.alpha.,3.alpha.,5.alpha.]cyclohexane																								
1,2-Dimethyl-benzene	97					93		97			97													
1,3-Dimethyl-benzene																								
1,4-Dimethyl-benzene												81												
1,2-Dimethyl-cyclooctane	86																							
1,3-Dimethyl-2(2,4,6-																								
trimethylphenyl)-						83																		
1,3-cyclopentadiene																								
3,6-Dimethyl-decane																								
3,8-Dimethyl-decane									81															
4,6-Dimethyl-dodecane																								
1,3-Dimethyl-2(2,4,6-																								
trimethylphenyl)-1,3-																								
cyclopentadiene																								
2,10-Dimethyl-undecane																								
n-Docosane																								
1-Docosene			93				93		91		94			92										
n-Dodecane	87					93	95	90			91													
1-Dodecene/Adecene						93																		

**C-1A cont.**

Organic Compounds	Sample Number/%																						
	1S	1N	1A	1B	2	3	4	5	6	7	8	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Hydrocarbons</b>																							
(E)-9-Eicosene																							83
4R*,5R*,6S*,8S*-4,5-Epoxy-8-isopropenyl-2,6-trimethyl-7-oxabicyclo[4.3.0]non-9-ene						83																	
1,1-[1,2-Ethanediy]bis(oxy)bis-benzene/1,2-Diphenoxymethane																83							
(1-Ethenyloxy)-hexadecane									93														93
5-(Ethyldecyl)-benzene									94														
4-Ethyl-1,2-diethyl-benzene									87														
2-Ethyl-1,3-dimethyl-benzene																							
4-Ethyl-1,2-dimethyl-benzene																				94			
1-Ethyl-2-methyl-benzene									95														
3-Ethyltoluene																				86			
4-Ethyltoluene																				95			
3-Ethyl-tridecane																							
Henriacotane																							
n-Heptacosane																							90
6(Z),9(E)-Heptadecadiene																							
n-Heptadecane	89																						
1-Heptadecene/Hexahydroap	95	96	97			87																	
8-Heptadecene																							
2,2,4,4,6,8,8-Heptamethyl-nonane																							
n-Hexacosane																							
9-Hexacosene	95	91						86	92														
n-Hexadecane																							
1-Hexadecene/Cetene	97		94			93	94		95	97													
	94					93																	
2,6,10,15,19,23-Hexamethyl-2,6,10,14,18,22-tetracosane	93	91	98	91			96	98	93														83
7-Hexyl-docosane																							
(1-Hexyloctyl)-benzene										92													
1-Iodo-tetradecane									93														
Isoterpinolene																							90

**C-1A cont.**

Organic Compounds	Sample Number/%																						
	IS	1N	1A	1B	2	3	4	5	6	7	8	9N	9A	9B	10	11S	11N	11A	11B	12S	12A	12B	
<b>Hydrocarbons</b>																							
2-Methoxy-3,8-dioxocephalotax-1-ene					90																		
(2-Methyl-1-butenyl)-benzene	91																						
2-Methyl-decane	83						86																
3-Methyl-decane	94																						
4-Methyl-decane	89																						
5-Methyl-decane	90																						
4-Methyl-dodecane															97								
6-Methyl-dodecane															93								
10-Methyl-eicosane	83																						
1,1'Methylenebis(4-methyl)-benzene															91								
1-Methylethyl-benzene									94														
1-Methyl-2-(methyl-ethyl)-benzene	95																						
1-Methyl-2-[(3-methylphenyl)methyl]-benzene						90																	
9-Methyl-nonadecane																							
2-Methyl-pentadecane															91								
3-Methyl-pentadecane									89														
1-Methyl-2-propyl-benzene								90															
2-Methyl-6-propyl-dodecane										83													
2-Methyl-tetradecane							83																
2-Methyl-tridecane															95								
3-Methyl-tridecane															81		86						
4-Methyl-tridecane															91								
2-Methyl-undecane															87								
(1-Methylundecyl)-benzene									87														
Neopentylindene-cyclohexane																							
n-Nonacosane	95																						
1-Nonadecene																							
n-Nonane/Shellis						91		97					93										

**C-1A cont.**

Organic Compounds	Sample Number/%																							
	IS	1N	1A	1B	2	3	4	5	6	7	8	9N	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Hydrocarbons</b>																								
n-Octacosane	91	91					92	96				95												
n-Octadecane	92	93	98			93							93				95	98						89
1-Octadecene	94																							96
9-Octyl-heptadecane							96																	
Octyl-heptadecane								91																
1,1'-Oxybis-decane									94															
Pentacosane	91		90						93								91							
n-Pentadecane	98		97	86		95	89	98	96			97			98		97	97						
1-Pentadecene		94	90									95												
Pentyl-benzene												81												
(1-Pentyheptyl)-benzene	93				83				94				90											
(1-Pentylhexyl)-benzene	94				95				94															
(1-Pentyl-2-propyl)-benzene					90																			
(1-Pentyl-octyl)-benzene	96				80	95	97																	
(1-Propyl-nonyl)-benzene	94				80	90	97																	
(1-Propyl-octyl)-benzene	93				90	95	93						83											
Spiro[4.5]decane																								
n-Tetracosane	90	96						96	87				83		90									
1,13-Tetradecadiene																								
n-Tetradecane	97				95	98		96	96	97			98											
(Z)-3-Tetradecene																								
2,6,10,14-Tetramethyl-hexadecane	95						93	95							97									
2,6,10,14-Tetramethyl-pentadecane									91															
trans-Caryophyllene												80												
n-Triacontane						90		98	91															
Tricosane	91							86				97												
(Z)-11-Tricosene																								84
n-Tridecane	98					96	95	94							98									

**C-1A cont.**

Organic Compounds	Sample Number/%																							
	IS	1N	1A	1B	2	3	4	5	6	7	8	9N	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Hydrocarbons</b>																								
1,2,3-Trimethyl-benzene							94									87								
1,2,4-Trimethyl-benzene			97			95																		
1,3,5-Trimethyl-benzene																95								
1,7,11-Trimethyl-cyclotetradecane							94																	
2,6,11-Trimethyl-dodecane								86							91									
2,7,10-Trimethyl-dodecane	80																							
Tritracontane					91																			
Trtriacontane															91									
n-Undecane	96		97			95	95	95	95	95	95				96		97							
<b>Others</b>																								
Alloaromadendrene					95																			
5.alpha.,14.beta.)-Cholestane								86						90										
(5-alpha)-Cholest-3-ene																								96
(5-alpha)-Cholest-7-ene														93										
.alpha.-Copaene	95																							
.alpha.Cubebene	98																							
.alpha.(p-chloro benzoyl)-p-chloro																								
.alpha-(dimethylphenylsilyl)styre																								
.alpha.-Gurjunene												94												
5.alpha.-Pregnane			91				95	95	95	95	95													
Aromadendrene												99												
Bacchotricuneatin								95	95	95	95				90									
(Benzene)ethylene											83													
e(trimethylphosphine)ruthenium(0)											83													
Benzo[b]phenanthro[2,1-d]thiophene																								
.beta.-Bisabolene	92											86												
14.beta.-H-Pregna													86											

**C-1A cont.**

Organic Compounds	Sample Number/%																						
	IS	1N	1A	1B	2	3	4	5	6	7	8	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Others</b>																							
2,5-Bisdimethylamino-3,9-dimethyl-3H-1,3,4,6-tetrazacyclopent(E)azulene	83																						
(+)-Calarene	95																						
3-(1-Camphenyl)-2-chlorpansuare	83																						
1,8-Cineole									89														
cis-Caryophyllene	97				97																		
(+)-cis-3,4,6,9-tetrahydro-10-hyd7								83															
5-Cyano-3,6-dimethyl-3,4-dihydropyrrolo(1,2,3-de)-2H-1,4-benzoxazine														83									
Decamethyl-cyclopentasiloxane					90																		
(c-4a,c-7a)-delta.6-Dodecahydro-3,3-dimethyl-r-2,c-4,c-8-metheno-3a,7c-diazapentaleno[6,1,2-bcd]-as-indacene						83								90		83							
10-Demethylsqualene	87														90								
2,3-dicyano-7,7-dimethyl-5,6-benzonorbornadiene						83	83																
1a,9b-dihydro-1a-(methylsulfinyl)							86																
3,7-Dihydroxy-5-methoxy-4,6-diphenyldibenzophosphole 5-oxide			83				90						90										
3',4'-Dihydro-2'-(morpholin-4-yl)-5',7'-nitrospiro[cyclopentane-1,3'-quinazoline]	80																						
3,12-Dimethylphenyl-isocynate																							
3-(2,2-Dimethylpropylindene)(bicyclo[3.3.1]nonane-2,4-dione			83																				

**C-1A** cont.

Organic Compounds	Sample Number/%																							
	IS	1N	1A	1B	2	3	4	5	6	7	8	9N	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Others</b>																								
Dimethyl tetrasulphide											87													
Dimethyl-Trisulfide					95																			
7,9-di-tert-butyl-1-oxaspiro[4.5]d												91												
Docosanolide																								
Dodecamethyl-cyclohexasiloxane					90	91						86												
1-Ethylidibenzothiophene						83						83	80	83							83	83		
2-Ethylidibenzothiophene					83			83																
3-Ethylidibenzothiophene			83			83		83	83															
Galoxide 1 and 2					87	93						98												91
.gamma.-Gurjunene																								
Geranyl linalool isomer																								
(+)-15-Hexadecanolide		87																						
Hexamethyl-cyclotrisiloxane					91	90	91	90	91			91												
8-Hydroxyquinoline		96	94	96																				
Isomaturin						90																		
Junipene		99																						
Koiganal II		83										93												
Koiganal I			90																					
Lycopersen																								
3-methoxy-(3.beta.22E)-Stigmasta-5,22-diene							90																	

**C-1A cont.**

Organic Compounds	Sample Number/%																								
	1S	1N	1A	1B	2	3	4	5	6	7	8	9N	9A	9B	10	11S	11N	11B	11A	11B	12S	12N	12A	12B	
<b>Others</b>																									
7-Methylbenz[c]acridine																									
Methyl-d3-hydrazine sulfate	81	93		83						93			97											90	
5-Methyl-19-norcholesterol-8(11)-ene						90																			
3-(1-Methyl-2-pyrrolidinyl)pyridine/Nicotine																		95							
(E,Z,Z)-and-(Z,E,Z)-14-Methyl-16							90																		
Muscopiridine										90															
28-Nor-17-.alpha(h)-hopane	83														83										
28-Nor-17-.beta(h)-hopane							83								83										
Octamethyl-cyclotetrasiloxane												91													
1,1,4,5,6-Pentamethyl-2,3-dihydroindene	87																								
1-Phellandrene																									
4-Phenyl-bicyclohexyl																									
3-Phenyl-5-t-butylpyridine																									
2-(Phenylthiomethyl)pyridine																									
5.alpha.-Pregnane																									
N-propyl-3-aza-5.alpha.-cholestane																									
Pyrolo(3,2,1-b)carbazole																									

**C-1A cont.**

	Sample Number/%																							
	1S	1N	1A	1B	2	3	4	5	6	7	8	9N	9A	9B	10	11S	11N	11A	11B	12S	12N	12A	12B	
<b>Organic Compounds</b>																								
<b>Others</b>																								
Sabinene												81												
Terbutylazine/Gardoprim		98																						
1-[1(tert-butylidimethylsilyl)ox															83									
Trendione						87							96											
Tricarbonyl(n-phenyl-2-pyridine)iron																	86							
Triethylammonio-N-diphenylphosphin																								
4,8,8-trimethyl-3-oxatricyclo [5.4.0.0(1,4)]undec-1(1-y) isopropyl ether													89											
Vitamin E acetate							83																	

**C-1B GAUTENG**

Organic Compounds	Sample Number/%																
	13	14	15	16	17	18	19	20	21S	21N	21A	21B	22S	22N	22A	22B	77
<b>Phenols</b>																	
2,6-Bis(1,1-dimethylethyl)-4-methyl-phenol				93								97					
3-Methyl-phenol/m-Cresol															96		
4-Methyl-phenol/p-Cresol	95	97		95	95												
Octyl-phenol isomer			83														
Nonylphenol				87			83						80				
4-(1,1,3,3-Tetramethylbutyl)-phenol/ p-tert-Octylphenol													91				
<b>Pesticides</b>																	
2,4,6-Trimethylindane													80				
<b>PAHs</b>																	
Acenaphthene													90				
Anthracene/Anthracin													96				
(-)-alpha.-Amorphene		86															
.delta.Cadinene		98															
7,12-Dihydro-7,12-dimethyl- benzo[ <i>a</i> ]anthracene,							83										
9,9-Dimethyl-1,4-dihydro-1,4- methanonaphthalene					87												
1,5-Dimethyl-naphthalene													86				
1,7-Dimethyl-naphthalene													97				
2,6-Dimethyl-naphthalene					97								95				
2-Ethyl-naphthalene				86									95				
Fluorene				95				95					97				
1,3,4,5,6,7-Hexahydro-1,1,5,5-tetramethyl- (2 <i>S</i> )-2 <i>H</i> -2,4 <i>a</i> -methanonaphthalene/ Isolongifolene				99													
6-Methoxy-1-acetonaphthone							83										
1-Methyl-naphthalene				94									94				
2-Methyl-naphthalene													94				
Naphthalene/White tar													91				
Phenanthrene													94				
1,2,3,4-tetrahydro-phenanthrene					83												
1,2,3,4-Tetrahydro-1-1,6- trimethylnaphthalene		94					97						93				

**C-1B cont.**

Organic Compounds	Sample Number/%																
	13	14	15	16	17	18	19	20	21S	21N	21A	21B	22S	22N	22A	22B	77
<b>Phthalates</b>																	
Di-(2-ethylhexyl)-phthalates						91									91		
Diisooctyl-phthalate												86					
<b>Biphenyls</b>																	
1,1'-Biphenyl													93				
<b>Furans</b>																	
Dibenzofuran													90				
4-Methylidibenzofuran/4-Methyldiphenylene oxide													90				
2-Octylfuran					83												
<b>Amines</b>																	
4-Chloro-benzanamine					94												
6-Chloro-N,N'-diethyl-1,3,5-triazine-2,4-diamine								86									
N,N-Dibutyl-1-butylamine		92			83											90	
Dodecanamide																	
1-Methyl-acetamide					86												
N-(2-phenyl)-acetamide		86															
(Z)-9-Octadecenamide								86							90		91
n-Tetradecanoic acid amide																	
<b>Aldehydes</b>																	
2,2-Dideutero-octadecanal					86												
Friedelan-y-al					90		94										
Hexanal					90												
4-Hydroxy-benzaldehyde					90											97	
Nonanal																	
Nonylaldehyde			91														
Octadecanal		98	90		91												
Pentadecanal																93	
Tetradecanal/Myristaldehyde		97														95	
<b>Esters</b>																	
5.alpha.-Cholestan-3-one		80															96
5.alpha.17.xi.21-Norcholest-24-en-20-one								95									
1-(2-Aminophenyl)-ethanone				97													
5-(3-Aminopropyl)-1,5-diazacycloheptadecan-6-one					90												90
Cholestan-3-one																	91
Cholestan-4-one						81		86									93

**C-1B cont.**

Organic Compounds	Sample Number/%																
	13	14	15	16	17	18	19	20	21S	21N	21A	21B	22S	22N	22A	22B	77
<b>Esters</b>																	
1,3-Dihydro-2-H-indol-2-one	94																
2,3-Dihydro-4-methyl-1H-indole			94				94										
Geranyl acetone																	
2-Heptadecanone	93																
Hexahydro-2H-azepin-2-one			87														
2-Hydroxy-cyclopentadecane		81															
2-Hydroxy-1,2,3-propanetricarboxylic acid tributyl ester / Citric acid tri-n-butyl ester															91		
1H-Indole/Ketol	95		91	91		97		97									
5-Methoxy-2,2-dimethylindan-1-one							83										
5-Methylidibenzo(6,F)azapine-10-one		90															
6-Methyl-5-hepten-2-one			87														
3-Methylindole-2(3H)-one				87													
3-Methyl-1H-indole	91																
5-Methyl-1H-indole		91															
7-Methyl-1H-indole				94				94									
3-Methylindole-2(3H)-one	86							87									
Methyl tetradecanoate							91										
Muskalactone																	
Neryl acetone									81								
Oxacyclotetradecane-2,11-dione			91														
2-Pentadecanone			91												86		
2-Piperidinone	80																
4,4a,5,9-Tetrahydro-4a,8-dimethyl-5,9-dioxazuleno(6,5-b)furan-3-carboxylic acid-methyl ester							83										
2-Tridecanone			93				83										
<b>Acids</b>																	
Benzenoacetic acid	91														91		
Benzenebutanoic acid															94		
Benzenepropanoic acid	94			80													
Benzoic acid/Retardex																	94
Bis(2-ethylhexyl) ester of 1,2-Benzenedicarboxylic acid				90													

**C-1B cont.**

Organic Compounds	Sample Number/%																
	13	14	15	16	17	18	19	20	21S	21N	21A	21B	22S	22N	22A	22B	77
<b>Acids</b>																	
Butanoic acid/n-Butyric acid	91	95				91											
Dibutyl ester of 1,2-benzenedicarboxylic acid			90	81	87												
Disodecyl ester of 1,2-benzenedicarboxylic acid			86														
Docosanoic acid																	
Dodecanoic acid/Lauric acid		97	99	99	86								98				
Eicosanoic acid/Arachidic acid																	
Ethyl ester of cis and trans-4-(1,1-dimethylethyl)-1-ethenylcyclohexanecetic acid					86												
2-Ethyl-hexanoic acid			83	80													
Hepatadecanoic acid/Margaric acid		95	94	96									99				
Heptadecene-(8)-carbomic acid																	
Heptanoic acid		90															
Hexadecanoic acid/Palmitic acid	98	99	93	99	95	99	99	99					96		99		
Hexadecyl ester of dodecanoic acid			97	95													
Hexadecyl ester of octanoic acid							91										
Hexadecyl ester of tetradecanoic acid							84										
n-Hexanoic acid	90	90				83	83	90									
Linoleic acid			90				83										
3-Methyl-benzoic acid															90		
2-Methyl butanoic acid				86		86									86		
3-Methyl butanoic acid		83															
3-Methyl-2-butenic acid						80											
Methyl ester hexadecanoic acid				91	95	95	97	97									
Methyl ester of 9,12-octadecadienoic acid			90				87	87									
2-Methyl-hexanoic acid	86																
14-Methyl-methyl ester Heptadecanoic acid								91									
2-Methyl pentanoic acid		90		80		90	90	90							93		
4-Methyl pentanoic acid	90						83	83									
2-Methyl-propanoic acid	91					90	91	91									
2-Methylvaleric acid		80															
Nonadecanoic acid				80													
Nonanoic acid		96	95														
Octadecanoic acid/Stearic acid				96	93	96	96	93					96				

**C-1B cont.**

Organic Compounds	Sample Number/%																
	13	14	15	16	17	18	19	20	21S	21N	21A	21B	22S	22N	22A	22B	77
<b>Acids</b>																	
(Z)-9-Octadecenoic acid	98			99	93								98				
Octanoic acid		86	93														
Oleic acid	94																
Pentadecanoic acid		96	91	91	93								96		84		
Pentanoic acid/Valeric acid	90	90		80				83									
Tetradecanoic acid/Myristic acid	83	98	98	98		98		95					98				
Tetradecyl ester of dodecanoic acid								91									
Tetradecyl ester of hexadecanoic acid		92															
Tridecanoic acid			98	87													
Undecanoic acid		87	86														
<b>Chlorinated hydrocarbons</b>																	
7-Chloro-7-heptadecene																83	
1,4-Dichloro-benzene					93												
<b>Alcohols</b>																	
Benzene methenethiol																	
2H-1-Benzopyran-6-ol/Vitamin E					91												
3.beta.-Cholest-5-ene-3-ol			83														
(2Z,Z)-Dehydrocholesterol								90									
Dihydrocholesterol/Cholestan-3-ol													95				
1-Dodecanethiol		94															
.gamma.-Tocopherol					83												
Geranyl acetone																	
1-Heptacosanol					83												
1,16-Hexadecanediol		86															
1-Hexadecen-1-ol/Cetal				83									87				
20.xi.-Linosta-7,(11)-diene-3.beta.18,20-triol					81												
(22E,24S)-24-Methyl-5.alpha.-cholesta-8,22-diene-3.beta.-ol		87															
2-Methyl-1-hexadecanol			91														
1-Octadecanethiol		91															
1-Octadecanol/Stenol				91													
1,15-Pentadecanethiol			86														
2-(Tetradecyloxy)-ethanol																	
(E)-2-Tridecen-1-ol																90	

**C-1B cont.**

Organic Compounds	Sample Number/%																
	13	14	15	16	17	18	19	20	21S	21N	21A	21B	22S	22N	22A	22B	77
<b>Hydrocarbons</b>																	
.alpha.-Caryophyllene													94				
.alpha.-Copaene			90		99	99											
.alpha.-Curcumen													86				
.alpha.-phellandrene							95										
.alpha.-Humulene	99	95	91														
Azulene/Cyclopentacycloheptene															81		
7H-Benzocycloheptene					86												
.beta.-Caryophyllene	99				99	99		99					94				
.beta.-Bisabolene													94				
Butylated hydroxy toluene	90																
11-Butyl-docosane				90													
(1-Butylheptyl)-benzene			95	94	94			96					94				
(1-Butylhexyl)-benzene			93	91	87												
(1-Butyloctyl)-benzene	94	95	91				95	94					86				
(1-Butylnonyl)-benzene			91		87			87									
cis-Caryophyllene			97		96												
Cyclohexadecane			95														
Cyclopentadecane			91														
Cyclotetradecane	81	94						87					94				
Decahydro-4H-cyclopentacyclooctene								90									
n-Decane				95	97	95		95					95		93		
10-Demethylsqualene			90														
5,14-Dibutyl-octadecane				93													
1,5-Diethyl-3-methyl-2-methylene-[1.alpha.,3.alpha.,5.alpha.]cyclohexane	89																
1,3-Dimethyl-benzene			97		97								97				
1,4-Dimethyl-benzene/p-Xylene				95													
3,6-Dimethyl-decane			83														
4,11-dimethyl-tetradecane					83												
3,4-Dimethyl-undecane													90				
n-Docosane			94	98	95			93					91		97		
n-Dodecane				96	87	96		90					97		87		
1-Dodecene/Adecene				93													

**C-1B cont.**

Organic Compounds	Sample Number/%																
	13	14	15	16	17	18	19	20	21 S	21 N	21 A	21 B	22 S	22 N	22 A	22 B	77
<b>Hydrocarbons</b>																	
Eicosane				96													
2-Ethenyl-1,3,5-trimethyl-benzene												87					
1-(Ethyldecyl)-benzene						92											
5-(Ethyldecyl)-benzene							93										
3-Ethyl-tridecane													87				
Heneicosane				96													
1-Heneicosene												86					
Heptacosane	95	96															
6(E),8(E)-Heptadecadiene			91				91										
n-Heptadecane				97	94	97	96						97				
1-Heptadecene/Hexahydroap		91	91			96	91										
8-Heptadecene	95					93	93										
n-Hexacosane					98	93							97				
9-Hexacosene		94			83												
n-Hexadecane		93		97	95	97	95						97		97		
1-Hexadecene/Cetene		91				86	83										
7-Hexadecyne						94											
2,6,10,15,19,23-hexamethyl- 2,6,10,14,18,22-Tetracosahexaene	93	96	94	94	86	96	95						95		96		
2,6,10,15,19,23-Hexamethyl- tetracosane/ Squalane						80											
7-Hexyl-docosane	91																
7-Hexyl-eicosane													90				
1-Isopropenyl-2-methyl-benzene					91												
3-Methyl-decane				90													
5-Methyl-decane				90													
2-Methyl-decane					80								86				
7-Methyl-(Z)-decene													95				
4-Methyl-dodecane													97				
6-Methyl-dodecane													81				
2-Methyl-eicosane													94				
10-Methyl-eicosane					90			86									
1-Methyl-3-(methyl-ethyl)-benzene				80									90				

**C-1B cont.**

Organic Compounds	Sample Number/%																
	13	14	15	16	17	18	19	20	21 S	21 N	21 A	21 B	22 S	22 N	22 A	22 B	77
<b>Hydrocarbons</b>																	
1-Methyl-4-(1-methylethyl)-benzene			93	95													
1-Methyl-4-(1-methylethyl)-cyclohexene			93														
9-Methyl-nonadecane			90		93												
10-Methyl-nonadecane						81											
2-Methyl-nonane				87													
4-Methyl-nonane				80													
3-Methylpentacosane						83											
3-Methyl-pentadecane				86													
1-Methyl-3-propyl-benzene				93													
3-Methyl-tetradecane					93												
2-Methyl-tridecane												93					
4-Methyl-tridecane												80					
2-Methyl-undecane												80					
5-Methyl-undecane												91					
n-Nonacosane												89					
n-Nonadecane				90													
1-Nonadecene					99		95										
n-Octacosane		98		93	98								93		91		
n-Octadecane	92	90	91	95	95	97		93					95		98		
1-Octadecene	86					80	94	83									
9a-octahydro-3,5,5-trimethyl-9-methylene(4aS-cis)-1H-banzocycloheptene							94										
Octyl-cyclohexane					95												
9-Octyl-heptadecane			93					91									
Pentacosane			93														
n-Pentadecane	96	98	97	98	96	97		97					98		95		
1-Pentadecene		94				99		98									
Pentyl-benzene																	
(1-Pentylheptyl)-benzene		95	86			94							90				
(1-Pentylhexyl)-benzene		95	94	90		81							80				
(1-Pentylloctyl)-benzene			96	91		96							81				
(1-Propylheptyl)-benzene				81			94	93									
(1-Pentylhexyl)-benzene					96		96										

**C-1B cont.**

Organic Compounds	Sample Number/%																	
	13	14	15	16	17	18	19	20	21 S	21 N	21 A	21 B	22 S	22 N	22 A	22 B	77	
<b>Hydrocarbons</b>																		
(1-Propylonyl)-benzene	95	95	94	96			95	94					97					
(1-Propyloctyl)-benzene	95																	
Spiro[4.5]decane	94																	
n-Tetracosane						94							97		95			
1,13-Tetradecadiene		95	91	91		91									81			
n-Tetradecane			98	97	97		97						97		91			
(Z)-3-Tetradecene		91																
(Z)-3-Tetradecen-5-yne							86											
1,2,3,4-Tetramethyl-benzene			93															
2,6,10,15-Tetramethyl-heptadecane			91															
4,8,12,16-Tetramethyl-heptadecane-4				80														
2,6,10,14-Tetramethyl- hexadecane				98			94						99		91			
trans-Caryophyllene	99	99											99					
trans-2-Nonadecene			91															
n-Triacontane		97			96													
Tricosane		91	98	95	96	95							95					
n-Tridecane		94	96	95	96			96					97					
2,7,10-Trimethyl-dodecane													90					
2,6,10-Trimethyl-pentadecane					83								80					
2,3,4-Trimethylphenyl methane					95			96										
Undecane			96	95	93			96					97		94			
<b>Others</b>																		
Alloaromadendrene																		
5-alpha,14-beta,17-beta-cholestane							97											
(5.alpha.,14.beta.)-Cholestane							86											
.alpha.(p-Chlorobenzoyl)-p-chloro																		
.alpha.-Copaene	98	99																
.alpha.Cubebene			99	97														
.alpha.-Pinene							93											
.alpha.- Ylangene							97											
5-amino-2-(p-methoxyphenyl)-2-methyl-2H								83										
-[1,2,4]triazolo[1,5-a][1,3,5]triazine																		
Atromadendrene							99											

**C-1B cont.**

Organic Compounds	Sample Number/%															
	13	14	15	16	17	18	19	20	21S	21A	21B	22S	22N	22	22 B	77
<b>Others</b>																
Bacchotricuneatin					94											
(+)-beta.-Funebrene							84									
.beta.-Himachalene							95									
14.beta.-H-Pregna					83	81										
Bicyclogermacrene							93									
(+)-Calarene							90									
9-Carbomethoxy-6,11-dimethoxy-5-oxoantho[3,2-g]tetralin		83														
Cholest-3,5-diene														90		
Cholest-4-ene												95				
cis-Calamenene												83				
Citroflex A											91					
(+)-Cycloisotivene					98											
Decamethyl-cyclopentasiloxane			90	90	90	90		90				83				
(2Z,Z)-Dehydrocholesterol								90								
2,3-dicyano-7,7-dimethyl-5,6-benzonorbornadiene		83														
1a,11c-Dihydrochryseno[5,6-b]azirine/1a,11c-Dihydro-1H-chryseno[5,6-b]azirine												86				
2,3-Dihydro-1,2-dimethyl-1H-Indene					91											
3',4'-dihydro-2'-(morpholin-4-yl)-5',7'-dinitrospiro[cyclopentane-1,3'-quinazoline]				83												
3,12-Dimethylphenyl-isocynate								86						86		
3-(2,2-Dimethylpropylindene) bicyclo[3.3.1]nonane-2,4-dione			90													
n-Docosyl-formate/1-Docosanol formate												80				
Dodecamethyl-cyclohexasiloxane		90	81	80			87									
3,4-Epoxy-4a-ethyl-2,3,4,4a,5,6-hexahydro-1H-pyrido[3,2-C]carbazole				93			83									
1-Ethylidibenzothiophene	83															
2-Ethylidibenzothiophene							83	83								
3-Ethylidibenzothiophene							83									

**C-1B cont.**

Organic Compounds	Sample Number/%																	
	13	14	15	16	17	18	19	20	21 S	21 N	21A	21 B	22 S	22 N	22 A	22 B	77	
Others																		
Galoxide 1 and 2					90	94	94											
gamma.-Gurjunene		94																
.gamma.-Terpinene					93													
Garvin A					90													
Garvin B													83					
Geranyl linalool isomer		87										93						
Hahnfett																		
Hexadecyl-oxirane							90											
Hexamethyl-cyclosiloxane							86											
8-Hydroxyquinoline															94			
Junipene		99	99		93		99						99					
7-Methylbenz[c]lacridine		83																
3-Methylbenzo[2,3]phenanthro [4,5-bcd]thiophene					83													
Methyl-d3-hydrazine sulfate		93	90															
1-(3-Methylphenyl)4-methyl-3-pente					89													
10-Methylsqualene					89													
28-Nor-17-.alpha(h)-hopane	86			81														
28-Nor-17-beta(H)-hopane					89													
n-Propyl-3-aza-5.alpha.-cholestane	83																	
Octamethyl-cyclotetrasiloxane	91						90											
Sabinene							91											
Tricarbonyl[N-(phenyl-2-pyridinyl)methylene] benzenamine-N,N']-iron													90					

## C-2 LIMPOPO

Sample Number/%

Organic Compounds	46	47	48	49	50	51	52
<b>Phenols</b>							
2,6-Bis(1,1-dimethylethyl)-4-methyl-phenol							89
4-Methyl-phenol/p-Cresol		97				94	97
<b>PAHs</b>							
.delta.-Cadinene						87	
2,6-Dimethyl-naphthalene	95						
3,7-Dimethyl-naphthalene	98						
1-Ethyl-naphthalene	87						
6-methoxy-1-acetonaphthone		83					
8-methoxy-1-acetonaphthone		83					
1,2,3,4-Tetrahydro-1,1,6-trimethyl-naphthalene			96			91	
<b>Phthalates</b>							
Di-(2-ethylhexyl)-phthalates			86				
<b>Furans</b>							
2-Octyl-furan			83				
<b>Amines</b>							
4-Chloro-benzanamine							93
N,N-Dibutyl-1-butamine							96
(Z)-9-Octadecenamide		91					
N-(2-Phenylethyl)-acetamide						86	
n-Tetradecanoic acid amide		91		91			
<b>Aldehydes</b>							
Hexadecanal/Palmitic aldehyde						87	
Octadecanal/Stearylaldehyde			94				
Tetradecanal/Myristaldehyde						91	90
<b>Esters</b>							
5.alpha.-Cholestan-3-one							93
5.alpha.-Cholestan-4-one			90				
(5.alpha.,17.xi.)-21-Norcholest-24-en-20-one				96			
.beta.-Ionone							87
3-(2,2-dimethylpropylidene)bicyclo [3.3.1]nonane-2,4-dione				83			
(+)-cis-3,4,6,9-tetrahydro-10-hydroxy-1,3,8-trimethyl-1H-naphtho[2,3-c]pyran-6,9-dione		83					

**C-2 cont.**

Organic Compounds	Sample Number/%										
	46	47	48	49	50	51	52				
<b>Esters</b>											
Geranyl acetone				89							
Hex-2-one						86					
2-Hydroxy-cyclopentadecanone				86							
1H-Indole/Ketol			94			97	91				
5-Methyl-1H-indole			91				91				
7-Methylindole											
5-Methyl-4-phenyl-trans-2-oxazolidinone			83								
Muskolactone/Oxacyclohexadecan-2-one				93							
Oxacycloheptade-2-one				91							
2-Pentadecanone				94							
2-Tridecanone				91							
<b>Acids</b>											
S-(2-Aminoethyl) ester thiosulfuric acid							86				
Benzenepropanoic acid			87								
Bis(2-ethylhexyl) ester				90						91	
1,2-Benzenedicarboxylic acid											
Butanoic acid/n-Butyric acid			94								
Butyl ester of linoleic acid										93	
Butyl ester of octadecanoic acid										93	
Decanoic acid/Capric acid				91		96					
Dibutyl ester of 1,2-benzenedicarboxylic acid			83							95	
Dodecanoic acid/Lauric acid				98	99		99				
Hepatadecanoic acid/Margaric acid				99	99		99			86	
6-Heptadecatri-8(Z),11(Z),14(Z)-enyl-2-hydroxybenzoic acid				86							
Heptadecene-(8)-carbonic acid								86			
Hexadecanoic acid/Palmitic acid			99	98	95		98	95		99	
Hexadecyl ester of tetradecanoic acid				91	87						
n-Hexanoic acid										87	
Linoleic acid								92			
2-Methyl butanoic acid				83							
2-Methylhexanoic acid				83							
Methyl ester of hexadecanoic acid				95						97	97

**C-2 cont.**

Organic Compounds	Sample Number/%									
	46	47	48	49	50	51	52			
<b>Acids</b>										
Methyl ester of 7,10-octadecadienoic acid						90				
Methyl ester of octadecanoic acid							95			
Methyl ester of 8-octadecenoic acid							99			
Methyl ester of tetradecanoic acid							96			
2-Methyl pentanoic acid			83							
3-Nitro-1,2-benzenedicarboxylic acid						86				
Nonadecanoic acid				89						
Nonanoic acid				81		90				
(Z,Z)-9,12-octadecadienoic acid		83		95						
Octadecanoic acid/Stearic acid		97	99	96		99	95			
(Z)-9-Octadecenoic acid			99			93				
Octanoic acid/Caprylic acid			98	87		95				
2-Octenoic acid						86				
Pentadecanoic acid			98	97		98	98			
Pentanoic acid/Valeric acid			90							
Tetradecanoic acid/Myristic acid			99	97		99	96			
Tetradecyl ester of hexadecanoic acid				93						
Tridecanoic acid				97		97				
Undecanoic acid				96						
<b>Chlorinated hydrocarbons</b>										
17-Chloro-7-heptadecene						89				
1-Chloro hexadecane							98			
1-Chloro-2-isocyanato-benzene		90								
1-Chloro-octadecane							99			
<b>Alcohols</b>										
Cyclododecanol				90						
1-Dodecanol				81		91				
Epifriedelinol		89								
2-Methyl-1-hexadecanol				93						
1-Octadecanol/Stenol							91			
1,15-Pentadecanethiol							91			
1-Phenyl-6-oxanonan-1-ol			80							
Totarol		93								

**C-2 cont.**

Organic Compounds	Sample Number/%									
	46	47	48	49	50	51	52			
<b>Hydrocarbons</b>										
.alpha.-Humulene/.alpha.-Caryophyllene				98						86
.beta.-Caryophyllene			99	99		99				99
(1-Butylheptyl)-benzene						93				91
(1-Butylhexyl)-benzene			91	87						
(1-Butyloctyl)-benzene		96	97	92		89				95
cis-Caryophyllene						94				
Cyclopentadecane				91						
Cyclotetacosane		90								
Cyclotetradecane				91						
n-Decane			95							
1,3-Dimethyl-benzene						97				87
1,4-Dimethyl-benzene										
n-Docosane				80						
n-Dodecane			81							
1-Dodecene/Adcene										86
n-Eicosane			96			91				
(E)-9-Eicosene		96								
1-Heneicosene		83								
n-Heptadecane			97			97				95
1-Heptadecene/Hexahydroap			95							
8-Heptadecene			98							
n-Hexacosane			81							
n-Hexadecane			89							93
1-Hexadecene/Cetene				94						99
2,6,10,15,19,23-hexamethyl-										
2,6,10,14,18,22-Tetracosahexaene			98	96		95				
(1-Hexylheptyl)-benzene				91						
2-Methyl-decane				93						
2-Methyl-1,1-diphenyl-1-propene						83				
2-(Methylthio)-benzothiazole										98
7-Methyl-3,4-octadiene										89
n-Nonadecane			94							93
1-Nonadecene			81							90

**C-2 cont.**

Organic Compounds	Sample Number/%											
	46	47	48	49	50	51	52					
<b>Hydrocarbons</b>												
n-Octacosane				99								
n-Octadecane		93				93						
1-Octadecene				90								93
(E)-9-Octadecene				91								
Octyl-heptadecane							93					
9-Octyl-heptadecane												93
Pentacosane			89			96	93					
n-Pentadecane			98	94		96	96					
1-Pentadecene			95				98					
Pentylbenzene							81					
(1-Pentyheptyl)-benzene		94	91	94		94	94					
(1-Pentylhexyl)-benzene			91									
(1-Pentylonyl)-benzene			97									
(1-Pentylloctyl)-benzene			94									
(1-Propylonyl)-benzene		87										
n-Tetradecane			94			93	91					
1-Tetradecene			80			90	93					
2,6,10,14-Tetramethyl-hexadecane		93										
trans.-Caryophyllene				91								
Tricosane				90								
n-Tridecane			91				91					
Undecane			95									
<b>Others</b>												
7-Ac-6-et-1144-me4-tetralin		90										
(5.alpha.)-cholest-3-ene		93					89	95				
.alpha.-Copaene												92
.alpha.Cubebene			89	97							94	92
.alpha.-Elemene		86										
.alpha.-Phellandrene		94										
.alpha.-Pinene		90										
5-amino-2-(p-methoxyphenyl)-2-methyl-2H-[1,2,4]triazolo[1,5-a][1,3,5]triazine			83									

**C-2 cont.**

Organic Compounds	Sample Number/%									
	46	47	48	49	50	51	52			
Aromadendrene		87								
(+)-Aromadendrene		98								
.beta.-Himachalene		87								
Caryophyllene oxide				83						
Cystathionine-DTMS				90						
Decamethyl-cyclopentasiloxane		90	91	91		87	91			
.delta.3-Carene		86								
10-Demethylsqualene										94
Digitoxigenin				91						
2,3-Dihydro-1,1-dipropyl 1H-1-silaindene										86
2,3-Dimethyl-trisulfide						96				
Dodecamethyl-cyclohexasiloxane		90	86	87		87	91			
1-Ethylidibenzothiophene		83	90				83			
Galoxide 1 and 2	93	93	94				90			
.gamma.-Terpinene										91
Henicosane			91	93						94
(+)-Hexadecanolide			90							
Hexamethyl-cyclotrisiloxane		91				91	80			
Junipene										90
(+)-Longifolene		94								
Methyl-d3-hydrazine sulfate			83			91	94			
5-Methyl-19-norcholest-8(11)-ene			87							
Muscovyridine		90								
Octamethyl-cyclotetrasiloxane		91								86
2,6,10,14,18-Pentamethyl-eicosane							91			91
3-Phenyl-5-t-butylpyridazine										90
Sabinene		91								
(-)-Sinularene				95						
Valencene		91								

### C-3 NORTH-WEST

Organic Compounds	Sample Number/%						
	53	54	55	69	70	71	73
<b>Phenols</b>							
2,6-Bis(1,1-dimethylethyl)-4-methyl-phenol		96					
Nonylphenol	93			91			
4-Nonylphenol/p-Nonylphenol						83	
Nonylphenol isomer				90			
<b>PAHs</b>							
6-*Methoxy-7(2h)-benz[a]lanthracenon				83			
<b>Furans</b>							
1,3-Isobenzofurandione					87		
<b>Amines</b>							
N,N-Dibutyl-1-butanamine				95	97	97	94
<b>Aldehydes</b>							
Hexadecanal/Palmitic aldehyde							94
Octadecanal/Stearylaldehyde							95
<b>Esters</b>							
(24S)-5.alpha.-Ergostan-3-one					93		
.beta.-Ionone					93		
14.beta.-3-Methoxy-6-oxaestra-1,3,5(10),8,15-pentaen-7,17-dione		80					
Butyl tetradecanoate/Myristate							86
Cholestan-4-en-3-one	99						
Coprostan-3-one							96
Hex-2-one	93						
D-Homoestra-1,3,5(10)-triene-17a-one	95						
Stigmast-4-ene-3-one	83						
2-Tridecanone					87		
<b>Acids</b>							
Bis(2-ethylhexyl) ester	91				83		83
1,2-Benzenedicarboxylic acid							
Dodecanoic acid/Lauric acid				99		97	98
Exo-methyl-cholan-24-oic acid				86			
Hepatadecanoic acid/Margaric acid				99			
Hexadecanoic acid/Palmitic acid	99	98					

**C-3 cont.**

Organic Compounds	Sample Number/%						
	53	54	55	69	70	71	73
<b>Acids</b>							
Methyl ester of hexadecanoic acid						96	
Methyl ester of 9-hexadecenoic acid					99		
12-Methyl ester of tetradecanoic acid					96		
3-Nitro-1,2-benzenedicarboxylic acid		91		86		96	
Nonadecanoic acid					99		
Nonanoic acid						98	
(Z,Z)-9,12-octadecadienoic acid	95						80
Octadecanoic acid/Stearic acid	99			93	70		91
(Z)-9-Octadecenoic acid	99	93		99	89	99	97
Octanoic acid/Caprylic acid					86		
Oleic acid	94					89	
2-Oxo-methyl-cholan-24-oic acid							80
Pentadecanoic acid						99	99
14-Pentadecenoic acid					89	99	97
Tetradecanoic acid/Myristic acid				99			98
<b>Chlorinated hydrocarbons</b>							
1-Chloro-hexane	90						
1-Chloro-octane	86						
<b>Alcohols</b>							
Benzene methenethiol	87						
3.beta.-Cholest-5-ene-3-ol	97						
Dihydrocholesterol	90					99	
1-Dodecanethiol					87		
Geranyl acetone					89		
1-Hexadecanol/Cetal							94
(Z)-11-Hexadecen-1-ol					87		
Isoheptadecanol				87			
2-Methyl-1-hexadecanol							93
1,15-Pentadecanethiol	86						
Podocarpan-14-.beta.-ol							90

**C-3 cont.**

Organic Compounds	Sample Number/%										
	53	54	55	56	57	58	59	60	61	62	63
<b>Hydrocarbons</b>											
1-Butyl-docosane		91									
(1-Butylheptyl)-benzene	86						93				
(1-Butylhexyl)-benzene							93				
(1-Butyloctyl)-benzene											96
(1-Butylnonyl)-benzene	93										
2-Butyl-1,1,3-trimethyl-cyclohexane							96				
Cyclopentadecane		87							95		
Cyclotetradecane									95		
n-Decane									95		
(2-Decyldodecyl)-cyclohexane	81										
11-Decyl-heneicosane	96										
2,5-Dimethyl-nonane										90	
3,6-Dimethyl-undecane										83	
n-Docosane	95	96						95	84		
n-Dodecane	87										
(E,E)-1,4,8-Dodecatriene										89	
Dotriacontane								83			
n-Eicosane	95	92								97	
Heneicosane	94	99	97								
1-Heneicosene								86			
n-Heptacosane	94										
n-Heptadecane		89									86
8-Heptadecene										99	
n-Hexacosane	92							83			
n-Hexadecane										96	95
1,E-8,Z-10-Hexadecatriene										93	
1-Hexadecene/Cetene	89							83	83		
2,6,10,15,19,23-hexamethyl-2,6,10,14,18,22-Tetracosahexaene	94	96						98			98
1-Iodo-decane									86		
Isocaryophyllene									90		
9-Methyl-acridine										86	
2-Methyl-decane	94										
3-Methyl-decane										87	

**C-3 cont.**

Organic Compounds	Sample Number/%										
	53	54	55	56	57	58	59	60	61	62	63
<b>Hydrocarbons</b>											
2-Methyl-heptadecane									91		
(R)-(-)-Z)-14-Methyl-8-hexadecene	86										
2-Methyl-octadecane	84										
2-Methyl-tetradecane									94		
4-Methyl-tetradecane									93		
5-Methyl-tetradecane									87		
2-Methyl-tridecane									93		
3-Methyl-tridecane									90		
2-Methyl-undecane									83		
Neopentylindene-cyclohexane							86				
n-Nonadecane									97		
1-Nonadecene							86				
n-Octacosane	94	93									
n-Octadecane							94		98	97	
1-Octadecene	96										
Octyl-eicosane	89										
n-Pentadecane								96	98		
Pentatriacontane	91										
(1-Pentyheptyl)-benzene								83			
(1-Pentyl-octyl)-benzene	86							81		93	
5-Propyl-decane									91		
(1-Propyl-nonyl)-benzene								90		97	
(1-Propyl-octyl)-benzene								81		94	
6-Propyl-tridecane									81		
1,13-Tetradecadiene								83			
n-Tetradecane								93	98		
Tetratetracontane									81		
n-Triacontane		93									
2,6,10,14-Tetramethyl-hexadecane										99	
Tricosane	97	93								95	93
n-Tridecane	81						90				
n-Tridec-1-ene									99		
1,2,4-Triethyl-benzene								86			

**C-3 cont.**

Organic Compounds	Sample Number/%						
	53	54	55	59	70	71	73
<b>Hydrocarbons</b>							
1,7,11-Trimethyl-cyclotetradecane						83	
2,6,11-Trimethyl-dodecane						86	
2,6,10-Trimethyl-pentadecane						94	
Undecane	90					97	
<b>Others</b>							
.alpha.-Copaene						99	
.alpha.Cubebene						86	
3-(1-Amphenyl)-2-chloropropsaure	90						
(+)-Cularicine	90						
Decamethyl-cyclopentasiloxane		91			91	91	91
Epi-isopodophyllotoxin				90			
3,4-Epoxy-4a-ethyl-2,3,4,4a,5,6,he	91						
5-Ethyl-3,4-bis(trifluoromethyl)-2	86					90	
2-Ethylidibenzothiophene							90
3-Ethylidibenzothiophene							90
Galoxide 1 and 2	93			94		87	
(+)-15-Hexadecanolide							83
Hexamethyl-cyclotrisiloxane	90						
Hexatriacontane							93
(14a)-Homo-27-nor-14.beta.-gammac				84			
Junipene							
Methyl-arachidonate						96	
28-Nor-17.alpha(h)-hopane							89
				86			

## C-4 FREE STATE

Organic Compounds	Sample Number/%							
	25N	25A	25B	26	27	38	39	
<b>Phenols</b>								
2,6-Bis(1,1-dimethylethyl)-4-methyl-phenol							81	
Nonylphenol						91	90	
Nonylphenol isomer						98		
<b>Pesticides</b>								
Epoxyheptachlor							91	
<b>PAHs</b>								
7-Ac-6-et-1144-me4-tetralin/ 1,1,4,4-tetramethyl-6-ethyl-7-acetyl- 1,2,3,4-tetrahydronaphthalene							91	
<b>Phthalates</b>								
Di-(2-ethylhexyl)-phthalates							83	
<b>Amines</b>								
N,N-Dibutyl-1-butanamine							96	
N,N-Dimethyl-tetradecanamine						80		
<b>Esters</b>								
(+)-cis-3,4,6,9-tetrahydro-10-hydroxy- 1,3,8-trimethyl-1H-naphtho[2,3-c]pyran-6,9-dione							83	
Coprostan-3-one							89	
6,10,14-Trimethyl-2-pentadecanone							94	
<b>Acids</b>								
Bis(2-ethylhexyl) ester of 1,2-Benzenedicarboxylic acid							81	
Butyl ester of octadecanoic acid						87		
Dodecanoic acid/Lauric acid						96		
Ethyl ester of (Z)-9-octadecenoic acid						99		
Hepatadecanoic acid/Margar						99		
Hexadecanoic acid/Palmitic acid						99	98	
Hexadecyl ester of tetradecanoic acid						99		
Octadecanoic acid/Stearic acid						99		
Pentadecanoic acid						97		
Tridecanoic acid						96		
<b>Chlorinated hydrocarbons</b>								
1-Chloro-octadecane							93	
1-Chloro-2-isocyanato-benzene							94	
1,4-Dichloro-benzene							93	

**C-4 cont.**

Organic Compounds	Sample Numbers/%									
	25N	25A	25B	26	27	28	38	39		
<b>Organic Compounds</b>										
<b>Chlorinated hydrocarbons</b>										
1,4-Dichloro-2-isocyanato-benzene										98
<b>Alcohols</b>										
Hexadecanol/Cetal							91			
<b>Hydrocarbons</b>										
(1-Butyl/hexyl)-benzene										87
N,N-Dimethyl-cycloundecane										96
n-Docosane										95
(E,E)-1,4,8-Dodecatriene										
n-Eicosane	93									93
1-Heptadecene/Hexahydroap				94						
n-Hexadecane				93						95
2,6,10,15,19,23-hexamethyl- 2,6,10,14,18,22-Tetracosahexaene										95
2-Methyl-decane										93
1-Nonadecene										99
n-Octadecane										96
n-Pentadecane										95
n-Tetracosane										90
Tetradecantane										87
trans.-Caryophyllene										99
<b>Others</b>										
5.alpha.-Cholest-3-ene										81
.alpha.-Guaiene										80
.beta.-Bisabolene										99
Chromolaenim										90
Dodecamethyl-cyclohexasiloxane										90
(Z)-3-(2-Ethoxyethenyl)pyridine										80
1-Ethylidibenzothiophene										83
Galoxide 1 and 2										
Hexadecyl-oxirane										
Hexamethyl-cyclotrisiloxane										
Methyl-d3-hydrazine sulfate										91
Octahydro-1,9,9-trimethyl-4-methylene- (1.alpha.,3.alpha.,7.alpha.,8a.beta.)- 1H-3a,7-Methanoazulene										87
Octamethyl-cyclotetrasiloxane										91

**C-5 KWAZULU-NATAL**

Organic Compounds	Sample number/%													
	40	41	42S	42N	42A	42B	44	45	56	57	58	59	75	76
<b>Phenols</b>														
4-Methyl-phenol/p-Cresol												97		
Nonylphenol											83	93		83
<b>PAHs</b>														
4-Allyl-1,2-dimethyl-naphthalene											83			
Anthracene/Anthracin									83					86
Chrysene/Benzo[a]phenanthrene								97	95					
2,3-Dimethyl-naphthalene														
Fluoranthene									93					
Fluorene								95			94			
4-Methoxy-acenaphthene									86					
1-Methyl-naphthalene								89			91			
2-Methyl-naphthalene								90			92			
Phenanthrene									96					
<b>Biphenyl</b>														
1,1'-Biphenyl											81			
<b>Furans</b>														
Dibenzofuran								93						
<b>Amines</b>														
N,N-Bis(2-hydroxyethyl)dodecamide												92		
N,N-Dibutyl-1-butanamine							95	97	97		95	97	86	97
2,5-Dichloro-benzanamine												95		
3,4-Dichloro-benzanamine									96					
3,5-Dichloro-benzanamine								80						
(Z)-9-Octadecenamide						93								
<b>Aldehydes</b>														
n-Dodecanal														
(E,E)-2,6-Nonadienal												90	91	
Octadecanal/Stearylaldehyde	90													
Tetradecanal/Myristaldehyde										98		91		

**C-5 cont.**

Organic Compounds	Sample Number/%															
	40	41	42S	42N	42A	42B	44	45	56	57	58	59	75	76		
<b>Esters</b>																
(24S)-5.alpha.-Ergostan-3-one								93								
5.alpha.-Stigmast-3-one								83								
(24R)-5.alpha.-Stigmastan-3-one								80								
14.beta.-3-Methoxy-6-oxaestra-1,3,5(10),8,15-pentaen-7,17-dione										90			90			
Butyl octadecanoate															91	
Cholest-5-en-3-one							94									
2-Chloroethyl-inoleate							91									
Coprostan-3-one								81				83	83	90		
.delta.-4-Cholestene3-one										96						
2,3-Dihydro-4-methyl-1H-indole			96		95											
5-Methylindole																
3-Methylindole-2(3H)-one															83	
Oxacycloheptade-8-en-2-one																
3-Phenyl-4-hydroxyacetophenone							83									
2-Tridecanone															90	
6,10,14-Trimethyl-2-pentadecanone															91	
<b>Acids</b>																
Benzenoacetic acid									81							
Benzenepropanoic acid								94				94				
Butyl ester of octadecanoic acid	95															
Decanoic acid/Capric acid	89							95	83	83	91	97				
Dibutyl ester of 1,2-benzenedicarboxylic acid									96							
Diethyl ester of 1,2-Benzenedicarboxylic acid									90							
Diiso-1,2-benzenedicarboxylic acid																
[1-(1,1-Dimethylethyl)-4,4-dimethyl-1,2-pentadienyl]-phosphonic acid									91							
Dodecanoic acid/Lauric acid									93							
Hepatadecanoic acid/Margar	93								98							
Heptadecene-(8)-carbonic acid	90															
Hexadecanoic acid/Palmitic acid	99	99					99	99	93		99	99	99	99	99	
Hexadecyl ester of hexadecanoic acid		93														

**C-5 cont.**

Organic Compounds	Sample Number/%													
	40	41	42S	42N	42A	42B	44	45	56	57	58	59	75	76
<b>Acids</b>														
Methyl ester of hexadecanoic acid									98			97		
Methyl ester of octadecanoic acid	95													86
3-Nitro-1,2-benzenedicarboxylic acid	91									92				
Nonahexacontanoic acid														
Octadecanoic acid/Stearic acid	97	91					93				90			
(Z)-9-Octadecenoic acid	99						99					99		97
Octadecyl ester of tetradecanoic acid												87		
2-Octenoic acid														
Oleic acid	94	87					86						80	
2-Oxo-methyl-cholan-24-oic acid													86	
Pentadecanoic acid	91						96					99		
Pentanoic acid/Valeric acid												99		
Tetradecanoic acid/Myristic acid	98						96						98	
Tetradecanoic acid amide														
Chlorinated hydrocarbons						93								
1-Chloro-7-heptadecene												92		
1-Chloro-hexadecane	96													97
1-Chloro-octadecane	93										86	96		93
1-Chloro-pentadecane												87		
<b>Alcohols</b>														
Benzene methenethiol	94													
2H-1-Benzopyran-6-ol/Vitamin E														91
6,10,14-Hexadecatrien-1-ol	86													87
(E)-13-Methyl-1-1-tetradecen-1-ol													80	
1-Nonadecanol/Nonadecyl alcohol													80	
(Z)-9-Octadecen-1-ol													90	
Peucelediol														
n-Tridecanol													86	

**C-5 cont.**

Organic Compounds	Sample Number/%															
	40	41	42S	42N	42A	42B	44	45	56	57	58	59	75	76		
<b>Hydrocarbons</b>																
(1-Butylheptyl)-benzene								94	96		94				96	
2-Butyl-1,1,3-trimethyl-cyclohexane	90															
Cyclodecene	94															
Cyclotetradecane									93					95		
n-Decane	95						94			95						
1,5,9-Decatriene						80										
1,2-Diethyl-benzene											91					
1,4-Dimethyl-benzene														90		
N,N-Dimethyl-cycloundecane	96														80	
3,8-Dimethyl-decane												90				
4,6-Dimethyl-dodecane								90		86						
3,6-Dimethyl-octane										93						
2,6-Dimethyl-undecane	95						95									
n-Docosane											87	87				
n-Dodecane	95							95	90	87		97				
1-Dodecene/Adcene														81		
n-Eicosane	90	91						97	91		98	96				
5-(Ethyldecyl)-benzene											90					
2-Ethyl-1,3-dimethyl-benzene											95					
3-Ethyl-tridecane												87				
Heneicosane	96	94							91					95		
n-Heptadecane	96	95								93	97		96			
n-Heptadecyl-cyclohexane											81					
n-Hexacosane									94							
n-Hexadecane		86										94				
1-Hexadecene/Cetene	90							98	93		95	97		94		
2,6,10,15,19,23-hexamethyl- 2,6,10,14,18,22-Tetracosahexaene													98	87		
(1-Heptylhexyl)-benzene								81								

**C-5 cont.**

Organic Compounds	Sample Number/%															
	40	41	42S	42N	42A	42B	44	45	56	57	58	59	75	76		
<b>Hydrocarbons</b>																
2-Methyl-decane		90							90							
3-Methyl-decane							94			91						
4-Methyl-decane	90						90									
5-Methyl-decane							91			91						
4-Methyl-dodecane	90									93						
6-Methyl-dodecane										81						
3-Methyl-hexadecane							83									
1-Methyl-2-(methylene)-benzene											80					
1-Methyl-3-(methylene)-benzene											80					
1-Methyl-4-(1-methylene)-benzene											90					
9-Methyl-nonadecane											87					
3-Methyl-nonane											87					
2-Methyl-octadecane							81									
3-Methyl-pentadecane							97			81	93			91		
1-Methyl-2-propyl-benzene										80						
3-Methyl-3-propyl-nonane							91									
3-Methyl-tetradecane							87									
4-Methyl-tetradecane										91						
5-Methyl-tetradecane							80									
2-Methyl-tridecane	86						93			80						
3-Methyl-tridecane							90									
4-Methyl-tridecane	86															
2-Methyl-undecane							87									
4-Methyl-undecane	90						90			91						
n-Nonadecane										94			94			
1-Nonadecene	83															
2-Nonadecene										86						
n-Nonane/Shells							94				96					

**C-5 cont.**

Organic Compounds	Sample Number/%															
	40	41	42 S	42N	42 A	42 B	44	45	56	57	58	59	75	76		
<b>Hydrocarbons</b>																
n-Octacosane		87									83					
n-Octadecane	95							96	95	90	97	95				
1-Octadecene												94				
(E)-5-Octadecene									91							
Oxacylotetradecane-2,11-diene									86							
n-Pentadecane	96				97				96	93	97	96				
1-Pentadecene									83				90	91		
Pentyl-cyclohexane								89								
(1-Heptylpentyl)-benzene	96	94					96				94				97	
(1-Pentyl-octyl)-benzene							83				89	92		91		
(1-Propyldecyl)-benzene														86		
(1-Propyl-nonyl)-benzene											91					
(1-Propyl-octyl)-benzene															94	
n-Tetracosane	86							98	86		83	95				
n-Tetradecane	94					98		98	95	81	98	96		93		
1,2,3,4-Tetramethyl-benzene								95				80				
4,8,12,16-Tetramethyl-heptadecane-4									83						93	
2,6,10,14-Tetramethyl-hexadecane	90										98	91		98		
2,6,10,14-Tetramethyl-pentadecane															93	
Tetratetracontane	83															
trans.-Caryophyllene												99				
n-Triacontane												83	83			
Tricosane		93					90	98			93				90	
n-Tridecane	90					96		94	93		96					
1,2,4-Triethyl-benzene											95					
1,2,3-Trimethyl-benzene								97								
2,6,11-Trimethyl-dodecane								90								
2,6,14-Trimethyl-dodecane	86							90				90				
2,6,10-Trimethyl-pentadecane												80				
Tritetracontane		86														
n-Undecane	96							94			96					

**C-5 cont.**

Organic Compounds	Sample Number/%																
	40	41	42 S	42N	42A	42 B	44	45	46	47	48	49	50	51	52	53	
Others																	
5.alpha-Cholest-3-ene										93							
5-amino-2-(p-methoxyphenyl)-2-methyl-2H-[1,2,4]triazolo[1,5-a][1,3,5]triazine																83	
Bacchotricuneatin	83																
14.beta.-H-Pregna						81					92						
Cholest-3,5-diene									95								
Citroflex A						91											
Cystathionine-DTMS																90	
Decamethyl-cyclopentasiloxane									90								
Dibenz(b,f)azepine																	86
4,6-Dibromo-1(N)-methyl-2-methylsu						86											
Dihydrocholesterol								91									95
(+)-Dihydroreferylolide																	90
Docosanolide									80								
Dodecamethyl-cyclohexasiloxane											86						
Dotriacontane	86	86															
1,1-Dodecanediol diacetate																91	
5-Ethyl-3,4-bis(trifluoromethyl)-											90						
1-Ethyl-dibenzothiophene								90								83	
2-Ethyl-dibenzothiophene	90																
Galoxide 1 and 2	91							89									93
.gamma.-Terpinene																	97
Garvin B																83	
Hexamethyl-cyclotrisiloxane																	
8-Hydroquinoline	87									95							
Junipene																	
20.*1-Lacosta-7,9(11)-diene																90	
2-Naphthalene-carbonitrile																95	
Octahydro-1,9,9-trimethyl-4-methylene-(1.alpha.,3a.alpha.,7.alpha.,8a.beta.)-1H-3a,7-Methanoazulene																	
Octamethyl-cyclotetrasiloxane																90	
Tetratetracontane	83																
trans.Anethole								93									

**C-6 EASTERN CAPE**

	Sample Number/%	61	78	79	80
<b>Organic Compounds</b>					
<b>Phenols</b>					
3,5-Di-tert-butyl-2,6-dinitrophenol				83	
2-Methoxy-4-(1-propenyl)-phenol				93	
4-Methyl-phenol/p-Cresol	97				
Nonylphenol		91		87	
Chlorinated Phenols					
Trichlorosal-5-chloro-2-(2,4-dichlorophenoxy)-phenol	90				
<b>PAHs</b>					
Anthracene/Anthracin		92			
Cadinene	89				
1,4-Dimethoxy-phenanthrene	90				
Fluoranthene		93			
6-Methyl-7(12h)-benz[a]lanthracenon		98			
1,2,3,4,4a,5,6,8a-Octylhaphthalene	96				
Pyrene		95			
.beta.-Selinene	96				
<b>Amines</b>					
N,N-Dibutyl-1-butanamine	91	95	80		
Aldehydes					
2,2-Dideutero-octadecanal				86	
Tetradecanal/Myristaldehyde				94	
<b>Esters</b>					
1H-Indole/Ketol	91				
2-Pentadecanone				86	
2-Undeconone				87	
<b>Acids</b>					
Benzenepropanoic acid	93				
Butyl ester octadecanoic acid				91	
Decanoic acid/Capric acid				90	
Dipropyl-1,2-benzenedicarboxylic acid		80			
Dodecanoic acid/Lauric acid				99	
Hepatadecanoic acid/Margaric acid				98	
Hexadecanoic acid/Palmitic acid	99			99	
Linoleic acid				97	

**C-6 cont.**

Organic Compounds	Sample Number/%			
	61	78	79	80
<b>Acids</b>				
3-Nitro-1,2-benzenedicarboxylic acid	91			
Octadecanoic acid/Stearic acid	95	99	94	
(Z)-9-Octadecenoic acid		83	99	
Pentadecanoic acid			99	
Tetradecanoic acid/Myristic acid			98	
Undecanoic acid			90	
<b>Alcohols</b>				
7.beta.-Trichlorohec-9-en-4-.beta.-ol	86			
1-Docosanal/Behenic alcohol	80			
1-Hentetracontanol	86			
2-Methyl-1-hexadecanol		89		
1-Octadecanol/Stenol			91	
<b>Hydrocarbons</b>				
.alpha.-Humulene	96			
(1-Butylheptyl)-benzene	93			
Cyclotetradecane	92			
n-Decane			95	
3,6-Dimethyl-decane			83	
2,5-Dimethyl-nonane			81	
n-Docosane	90	97		
n-Dodecane	91			
1-Ethyl-2,3-dimethyl-1-benzene			80	
n-Heneicosane	97		89	
n-Heptadecane	95			
Hexatriacontane				83
(Z)-3-Hexadecene			83	
Isocaryophyllene	99			
2-Methyl-decane			96	
3-Methyl-decane			94	
4-Methyl-dodecane			96	
(1-Methyl-dodecyl)-benzene			87	
1-Methyl-2-(methylethyl)-benzene			95	
3-Methyl-nonane			91	

**C-6 cont.**

Organic Compounds	Sample Number/%			
	61	78	79	80
<b>Hydrocarbons</b>				
4-Methyl-nonane			86	
3-Methyl-tridecane			83	
2-Methyl-undecane			87	
3-Methyl-undecane			87	
5-Methyl-undecane			96	
9-Methyl-(E)-2-undecane	87			
n-Octadecane	91		94	
n-Pentadecane			94	
1-Pentadecene			97	
(1-Pentyl-octyl)-benzene	93			
(1-Propyl-nonyl)-benzene	95			
n-Tetracosane	95		91	
n-Tetradecane	93			97
2,6,10,14-Tetramethyl-hexadecane			96	
Tetratetracontane			83	
n-Triacontane			91	
3-Thio-8-p-methadien-7			98	
Tricosane	97			
n-Tridecane		94		
1,2,3-Trimethyl-benzene				
2,3,6-Trimethyl-decane				
2,3',4'-Trimethylphenyl methane				
Undecane			96	
<b>Others</b>				
5-Bromo-(3.beta.)-cholest-5-ene		93		
10-Demethylsqualene			86	
Dihydrocholesterol			89	
Dodecamethyl-cyclohexasiloxane	91			
Galoxide 1 and 2	90	93		
.gamma.-Terpinene	97			
Hahnfett	80			
28-Nor-17-.alpha(h)-hopane	86			
2(10)Pinene	91			

**C-7 NORTHERN CAPE**

Organic Compounds	Sample Number/%			
	67	68	72	74
<b>Phenols</b>				
2,6-Bis(1,1-dimethylethyl)-4-methyl-phenol	86			
4-Methyl-phenol/p-Cresol		93		97
Nonylphenol mix of isomers		81		
<b>PAHs</b>				
4-Methoxybenzo[c]phenanthrene			90	
<b>Furans</b>				
2(4H)-Benzofuranone	95			
Dibenzofuran			80	
<b>Amines</b>				
N,N-Dibutyl-1-butanamine	97		95	97
N,N-Dimethyl-1-dodecanamine	80			
<b>Aldehydes</b>				
2-Methyl-undecanal		80		
Octadecanal/Stearylaldehyde				90
<b>Esters</b>				
.beta.-Isomethyl-1-ionone	91			
Butyl tetradecanoate/Myristate	87			
Cholestan-4-en-3-one		92		
Friedelan-y-al	98			
1H-Indole/Ketol				97
Methyl ester 9-octadecanoate				95
5-Methyl-1H-indole				94
Muskolactone/Oxacyclohexadecan-2-one				89
2-Nonadecanone	81			
2-Pentadecanone				83
<b>Acids</b>				
(E)-2-Butenoic acid	93			
Butyl ester of linoleic acid				86
Butyl ester of octadecanoic acid				93
<b>Acids</b>				
Decanoic acid/Capric acid				91
Diiso-1,2-benzenedicarboxylic acid	93			
Dodecanoic acid/Lauric acid	97			91
Eicosanoic acid/Arachidic acid				

**C-7 cont.**

Organic Compounds	Sample Number/%			
	67	68	72	74
<b>Acids</b>				
Ethyl ester of (Z)-9-octadecenoic acid	93			
Heptadecanoic acid/Margaric acid	98			91
Hexadecanoic acid/Palmitic acid	99	99		90
Methyl ester of hexadecanoic acid	97			
Methyl ester of 9,12-octadecadienoic acid				91
Methyl ester of octadecanoic acid	94			93
Methyl ester of tetradecanoic acid	90			
Nonahexacontanoic acid		83		
Octadecanoic acid/Stearic acid		96		
(Z)-9-Octadecenoic acid	90	96		87
Pentadecanoic acid	93			99
Tetradecanoic acid/Myristic acid	94			98
<b>Chlorinated hydrocarbons</b>				
1-Chloro hexadecane			90	
1-Chloro-octadecane	93		98	80
<b>Alcohols</b>				
4,4-Dimethyl-cholestan-3-ol	92			
<b>Hydrocarbons</b>				
.beta.-Caryophyllene			90	91
(1-Butylheptyl)-benzene	93	93		
(1-Butylhexyl)-benzene	97			
(1-Butylonyl)-benzene				94
2,6-Dimethyl-heptadecane		94		
n-Docosane	93	93	96	97
n-Heneicosane			96	98
n-Heptadecane				96
n-Heneicosane	94	90		
n-Heptadecane	96	95		
1-Heptadecene/Hexahydroap	93			
n-Hexacosane		96		
Hexatriacontane	91	91		
(Z)-7-Hexadecene	90			
1-Hexadecene/Cetene	95			

**C-7 cont.**

	Sample Number/%			
Organic Compounds	67	68	72	74
<b>Hydrocarbons</b>				
2-Methyl-decane		87		
Methyl eicosa-5,8,1,1,4,17-pentaen				86
6-Methyl-dodecane		81		
3-Methyl-nonane		86		
3-Methyl-5-propyl-nonane		80		
1-Nomadecene	91			
1-Nonene	93			
n-Octacosane	90		94	
n-Octadecane	98			
n-Pentadecane				96
(1-Pentyheptyl)-benzene	80	94	96	96
(1-Pentylctyl)-benzene			91	
(1-Propylonyl)-benzene	90	89		
n-Tetraosane				98
n-Tetradecane		95		
(Z)-3-Tetradecene		83		
2,6,10,14-Tetramethyl-hexadecane	89	98		
trans.-Caryophyllene		99		
n-Tridecane		90		
2,3,6-Trimethyl-decane		80		
Undecane	96			
<b>Others</b>				
.alpha.Cubebene		93		
Decamethyl-cyclopentasiloxane	90	90		
Dodecamethyl-cyclohexasiloxane	90			
Galoxide 1 and 2	91	93	93	
Germacrane B		80		
Hexamethyl-cyclotrisiloxane	91			
Methyl-arachidonate				94
Methyl-dihydromalvate		91		
Methyl-3D,5,9,13-tetramethyl-5-vin	81			
Octamethyl-cyclotetrasiloxane	90			
Pyrrolo(3,2,1-b)carbazole			83	
3,3'-Trimethylene-2,2'-biquinoline		83		

**C-8 WESTERN CAPE**

Organic Compounds	Sample Number/%																		
	28	29	30S	30N	30A	30B	31	32	33	34	35	36	37	60	62	63	64	65	
<b>Phenols</b>																			
2,6-Bis(1,1-dimethylethyl)-4-methyl-phenol			92			93			92					91					
2-Methyl-phenol/o-Cresol				97	97														
3-Methyl-phenol/m-Cresol						94													
4-Methyl-phenol/p-Cresol		97	97	97	96		97		93										
Nonylphenol							90				86			95					
Phenol/Izal					95														
Octyl-phenol isomer															80				
<b>PAHs</b>																			
Anthracene/Anthracin												96							
.beta.-Selinene			98						98										
2,6-Dimethyl-naphthalene									89					86					
2,3-Dimethyl-naphthalene																			
Fluoranthene												94							
Fluorene														90					
1-Methyl-naphthalene														95					
2-Methyl-naphthalene									83										
Phenanthrene														95					
.beta.-Selinene/Naphthalene,de			98						98					97					
Phthalates																			
Di-(2-ethylhexyl)-phthalates		90												83	83		83		
<b>Amines</b>																			
4-Chloro-benzanamine																			
N,N-Dibutyl-1-butamine										93									
2,5-Dichloro-benzanamine									96	96				95	97	96	97	95	
3,5-Dichloro-benzanamine										96									
N,N-Dimethyl-1-dodecanamine																			
(Z)-9-Octadecenamide					89		80												
<b>Aldehydes</b>																			
Hexadecanal/Palmitic aldehyde					91											91			
Octadecanal/Stearylaldehyde																	95		
Tetradecanal/Myristaldehyde					91			94		91		83			87				90

**C-8 cont.**

Organic Compounds	Sample Number/%																		
	28	29	30S	30N	30A	30B	31	32	33	34	35	36	37	60	62	63	64	65	
<b>Esters</b>																			
5.alpha.-Cholestan-3-one										90									
Butyl octadecanoate										83									
Cholestan-1,1-dien-3-one					94	94													
2-Chloroethyl-linoleate				90															
Coprostan-3-one								91											
Ethyl linoleate	90						87				86				87				
2-Heptadecanone							90												
1H-Indole/Ketol	94		95						92	95		94		94					
3(2H)-Isoquinolinone					93														
Methyl-hexadecanoate							97			97									
3-Methylindole	91						91							95					
5-Methylindole									94	94									
7-Methylindole									94	94									
5-Methyl-1H-indole					90														
15-Methyl-oxacyclopentadecan-2-one												91							
Oxacycloheptade-8-en-2-one												91							
<b>Acids</b>																			
Benzenepropanoic acid	91				91										93				
Benzoic acid/Retardex					96														
Butanoic acid/n-Butyric acid	91													60					
(E)-2-Butenoic acid					97														
Butyl ester of linoleic acid														91					
Butyl ester of octadecanoic acid		93	95				93	93			93	93							
2-Chloro-benzeneacetic acid					91														
Decanoic acid/Capric acid			83				95		95	95				96					
Dioctadecyl ester of phosphonic acid																			
Docosanoic acid														90					
Dodecanoic acid/Lauric acid	99	98	98					98	98	98	97			98		98			

**C-8 cont.**

Organic Compounds	Sample Number/%																		
	28	29	30S	30N	30A	30B	31	32	33	34	35	36	37	60	62	63	64	65	
<b>Acids</b>																			
Ethyl ester of (Z)-9-octadecenoic acid	99			81												81			
2-Ethyl-hexanoic acid																99			93
Hepatadecanoic acid/Margar	99	99	99				96	98			99	99		99					
Heptadecene-(8)-carbonic acid																			87
Hexadecanoic acid/Palmitic acid	93			99	99			94		99	99	94	95	96	99	99	99	99	99
9-Hexadecenoic acid		91	91					93											
9-Hexadecenyl ester of palmitic acid												92							
9-Hexadecenyl ester of stearic acid									94										
Hexadecyl ester of hexadecanoic acid		99				99	99	98	98		99	99				98			
Hexadecyl ester of tetradecanoic acid			99				90	99	99	99									
n-Hexanoic acid	90				90														
2-Methyl butanoic acid					83														
Methyl ester of hexadecanoic acid									97					98		97			
Methyl ester of 9,12-octadecadienoic acid			90				95												
Methyl ester of octadecanoic acid							97	97	95	97									
Methyl ester of 3-octadecenoic		93												94					
Methyl ester of 8-octadecenoic acid		95																	
Methyl ester of 15-octadecenoic acid			87																
Methyl ester of tetracosanoic acid							87												
Methyl ester of tetradecanoic acid										95				94					
2-Methyl pentanoic acid				83															
2-Methyl-propanoic acid					91														
3-Nitro-1,2-benzenedicarboxylic acid												86	91						
(Z)-9,12-octadecadienoic acid			89														96		
Octadecanoic acid/Stearic acid	99	96	94				98	93	94	97	94	99	99	98	95	96	95	99	99
(Z)-9-Octadecenoic acid	86	99						99		98	99	99	99	95	86	90	93	99	99
Octadecyl ester of tetradecanoic acid										94									
Oleic acid		93														93			
2-Oxo-methyl-cholan-24-oic acid															90				
Pentadecanoic acid	99	97	97				99	94	98	99	99	99		99		97			95
14-Pentadecenoic acid	90		99																
Pentanoic acid/Valeric acid	83				90														
2-Pentenoic acid				83										86					

**C-8 cont.**

Organic Compounds	Sample Number/%																	
	28	29	30S	30N	30 A	30 B	31	32	33	34	35	36	37	60	62	63	64	65
<b>Acids</b>																		
Tetradecanoic acid/Myristic acid	98	99	99				99	99	98	98	98	98	99	98		98		98
Tetradecyl ester of hexadecanoic acid		81										91						
Tridecanoic acid		98	98						89	97								
<b>Chlorinated hydrocarbons</b>																		
1-Chloro-hexane															99			
1-Chloro-hexadecane				89														
1-Chloro-octadecane				94														
1-Chloro-octane															98			
1,2-Dichloro-benzene												97						
Dichlorotoluene									93									
<b>Alcohols</b>																		
2H-1-Benzopyran-6-ol/Vitamin E								90		90		89				91		
3.beta.-Cholest-5-ene-3-ol		99	97				91		90	91						91		
Cycloheptadecanol										89								
(2Z,2Z)-Dehydrocholesterol							81											
Dihydrocholesterol		99								94		86				99		
1,3-Dimethyl-cyclopentanol										80							89	
2-(Dodecyloxy)-ethanol																		
.gamma.-Tocopherol			90															
Hexadecanol/Cetal			94	80												94		
6,10,14-Hexadecatrien-1-ol												90						
2-(Hexadecyloxy)ethanol							87											
2-Methyl-1-hexadecanol										87								
(E)-13-Methyl-11-tetradecen-1-ol																87		
9,12-Octadecadien-1-ol									94	95								
2-(9,12-Octadecadienyloxy)-ethanol															83			
1-Octadecanethiol					93	94					92							
1-Octadecanol/Stenol				83														
(Z)-9-Octadecen-1-ol										90								
2(9-Octadecenyloxy)-(Z)-ethanol											83							
1,15-Pentadecanethiol																91		
8-Quinolol				90		93												
1-Tetradecanol			98							99								

**C-8 cont.**

Organic Compounds	Sample Number/%																		
	28	29	30S	30N	30A	30B	31	32	33	34	35	36	37	60	62	63	64	65	
<b>Hydrocarbons</b>																			
.beta.-Caryophyllene			99																
11-Butyl-docosane								96	96	91				95	94			95	
(1-Butylheptyl)-benzene																			
(1-Butylhexyl)-benzene									83	86								92	
(1-Butyloctyl)-benzene																		90	
2-Butyl-1,1,3-trimethyl-cyclohexane			91					86											
cis-1,4-Dimethyl-cyclooctane																			
cis-2-Methyl-7-octadecene	83																		
Cyclohexadecane						90	98												
Cyclohexane									81										
Cyclopentadecane		95					95												
Cyclotetradecane			95				89		94									95	
n-Decane			94						94					93					
Dec-1-ene									96										
1,5-Diethyl-3-methyl-cyclohexane										86									
1,3-Dimethyl-1-benzene														93					
1,5-Dimethyl-cyclooctane																			
N,N-Dimethyl-cycloundecane	91	95	95	97			95	96				96	96						
1,1-Dimethyl-2,3-diphenylindene					80														
2,6-Dimethyl-undecane			98					98	97			99	99	89	96	97			
n-Docosane												90	90	89					
1-Docosene			87	91					87	90				91					
n-Dodecane																		86	
1-Dodecene/Adecene																			
(E,E)-1,4,8-Dodecatriene											92								
n-Eicosane	93					96	98	91	83							93			
(1-Ethenyloxy)-hexadecane																			
Heptacosane	97		96				93	97	95						95				
n-Heptacosane									95										
1-Heptadecene/Hexahydroap									86	94						84			

**C-8 cont.**

Organic Compounds	Sample Number/%																	
	28	29	30S	30N	30A	30B	31	32	33	34	35	36	37	60	62	63	64	65
<b>Hydrocarbons</b>																		
n-Hexacosane							93		98	97								
1,E-8,Z-10-Hexadecatriene										89								
1-Hexadecene/Cetene			86								98					93		
2,6,10,15,19,23-hexamethyl-2,6,10,14,18,22-Tetracosahexaene	96	95	98	98				95	96	98		98	98	98	97	98	97	
1-Iodo-decane															83			
1-Iodo-2-methyl-undecane			91															
Isocaryophyllene												99					98	
1-Isocyanato-2-methyl-benzene			93															
Methyl-cycloheptane																84		
7-Methyl-(Z)-decene										92								
1-Methyl-4-(1-methylethyl)-benzene														94				
7-Methyl-tridecane									86									
1-Nonadecene								94						93			96	
n-Nonane/Shells														96				
n-Octacosane	97		80									95						89
1-Octadecene		90											91			96		
(E)-9-Octadecene														83				
Pentacosane																		
n-Pentadecane										96								
1-Pentadecene	97	97	98													98	95	94
(1-Heptylpenyl)-benzene		83	92															
9-Hexyl-heptadecane			95	94											80	90		94
(1-Hexylpenyl)-benzene										93								
(1-Pentylolyl)-benzene										87								
(1-Pentylolyl)-benzene															90	90	90	
3-Phenyl-1,4-(E)-dodecadiene																		
(1-Propylonyl)-benzene					86										80			

**C-8 cont.**

Organic Compounds	Sample Number/%																		
	28	29	30S	30N	30 A	30 B	31	32	33	34	35	36	37	60	62	63	64	65	
<b>Hydrocarbons</b>																			
n-Tetracosane	94		86					93				95							
1,13-Tetradecadiene				81			93												
1-Tetradecene									95										
(Z)-3-Tetradecene		83							95			91							
2,6,10,14-Tetramethyl-hexadecane	94																		
2,6,10,14-Tetramethyl-pentadecane																			
trans.-Caryophyllene	99	99						99	99	99	94	99		99	99	99			
Tricosane			83				94							91	92				
(Z)-9-Tricosene										86									
n-Tridecane	96	95	97				96		94	95		86		97					
n-Tridec-1-ene								89											
1,2,4-Triethyl-benzene																89			
1,2,3-Trimethyl-benzene														97					
Triacontane												95							
n-Undecane			97							96				96					
Others																			
.alpha.-Copaene			98					99											95
.alpha.(p-chlorobenzoyl)-p-chloro									92										
.alpha.Humulene																			
.alpha.-Pinene																			
.alpha.Terpinene																			
(-)-.alpha.-Terpineol																			
5-amino-2-(p-methoxyphenyl)-2-methyl-2H-[1,2,4]triazolo[1,5-a][1,3,5]triazine																			
.beta.-Pinene																			83
14.beta.-H-Pregna									81										83
Cadina-1,4-diene																			
Carotol																			95
Caryophyllene oxide																			98
Chromolaenim																			
		90																	

**C-8 cont.**

Organic Compounds	Sample Number/%																		
	28	29	30S	30N	30 A	30 B	31	32	33	34	35	36	37	60	62	63	64	65	
<b>Others</b>																			
Decamethyl-cyclopentasiloxane	91							90	91	91		91				91		91	
Dihydrocholesterol	99								94	86						99			
.gamma.-Tocopherol			90																
Docosanolide							87			90									
Dodecamethyl-cyclohexasiloxane			91						90	87								90	
Epi-isopodophyllotoxin														90					
2-Ethylidibenzothiophene	83							86								83			
Farnesol isomer B					91														
Galoxide 1 and 2								93		93	93				93		94	94	
.gamma.-Terpinene									95										
Hahnfett																91			
(+)-Hexadecanolide	93	97	93									89							
Hexadecyl-oxirane												86							
Hexamethyl-cyclotrisiloxane				91															
18-Hydroxy-(1S*, 1R*)-dolabella			83											99				98	
Isocaryophyllene																			
Koiganal												86							
Limonene									98					98					
Methyl-arachidonate										89									
28-Nor-17-alpha(h)-hopane																		95	
Octamethyl-cyclotetrasiloxane				87															
3-Phenyl-5-t-butylpyridazine	83											83			83			86	
2-(Phenylthiomethyl)-pyridine						80													
Terpinolene									98										
Tetradecamethyl-hexasiloxane										91									
trans.beta.-Farnesene													97						
trans.Farnesol									90										
Tricarbonyl(n-phenyl-2-pyridine)iron														90					

**C-9 Summary of the organic compounds detected in the nine South African provinces.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP*	FSP	KZNP	ECP	NCP	WCP
<b>Phenols</b>									
2,6-Bis (1,1-dimethylethyl)-4-methyl-phenol	4	1	1		1			1	4
3,5-Dimethyl-phenol	1								
3,5-Di-tert-butyl-2,6-dinitrophenol							1		
2-Methoxy-4-(1-propenyl)-phenol							1		
4-(1-Methylethyl)-phenol	1								
4,4'-(1-Methylethylidene) bis-phenol	1								
2-Methyl-phenol/o-Cresol	2								2
3-Methyl-phenol/m-Cresol	3								1
4-Methyl-phenol/p-Cresol	14	3				1	1	2	6
Nonylphenol	6		3		2	3	2		3
Nonylphenol mix of isomers	1		1		1			1	
Octyl-phenol isomer									1
Phenol/Izal	3								1
4-(1,1,3,3-Tetramethylbutyl)-phenol/ p-tert-Octylphenol	2								
Chlorinated Phenols									
Triclosanal-5-chloro-2-(2,4-dichlorophenoxy)-phenol							1		
<b>Pesticides</b>									
Epoxyheptachlor					1				
2,4,6-Trimethylindane	1								

\* Organic compounds identified in two Mpumalanga sewage works were below the 80% confidence limit, hence are not shown.

GP	Gauteng Province	WTTPs	Wastewater Treatment Plants
LP	Limpopo Province	ECP	Eastern Cape Province
NWP	North-West Province	FSP	Free State Province
KZNP	KwaZulu-Natal Province	NCP	Northern Cape Province
WCP	Western Cape Province	MP	Mpumalanga Province

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FSP	KZNP	ECP	NCP	WCP
<b>PAHs</b>									
Acenaphthene	1								
6-Acetyl-7-hydroxy-2,2-dimethylbenzopyran	1								
7-Ac-6-et-1144-me4-tetralin/1,1,4,4-tetramethyl-6-ethyl-7-acetyl-1,2,3,4-tetrahydronaphthalene		1			1				
4-Allyl-1,2-dimethyl-naphthalene						1			
(-).alpha.-Amorphene	1								
Anthracene/Anthracin	1					2	1		1
Benz[a]anthracene	1								
.beta.-Selinene							1		3
Chrysene/Benzo[a]phenanthrene						1			
.delta.-Cadinene		1					1		
Decahydro-2-methylnaphthalene	3					2			1
7,12-Dihydro-7,12-dimethyl-benz[a]anthracene	2								
1,4-Dimethoxy-phenanthrene							1		
9,9-Dimethyl-1,4-dihydro-1,4-methanonaphthalene	1								
1,3-Dimethylnaphthalene	1								
1,5-Dimethylnaphthalene	2								
1,8-Dimethyl-naphthalene	1								
1,7-Dimethyl-naphthalene	2								
2,3-Dimethyl-naphthalene						1			1
2,6-Dimethyl-naphthalene	3	1							1
2,7-Dimethyl-naphthalene	1								
3,7-Dimethyl-naphthalene		1							
Epizonaren	1								
1-Ethyl-naphthalene		1							
2-Ethyl-naphthalene	2								
Fluoranthene	1					1	1		1
Fluorene	5					2			2
1,2,3,7,8,9-Hexahydro-perylene	1								
1,3,4,5,6,7-Hexahydro-1,1,5,5-tetramethyl-2H-2,4a-methanonaphthalene	1								
1H-Indene/Indonaphthene	1								
1,6-Methanofluorene	1								
4-Methoxy-1-acetonaphthone						1			
6-Methoxy-1-acetonaphthone	1	1							
8-Methoxy-1-acetonaphthone	1								
6-Methyl-7(12h)-benz[a]anthracenone			1				1		
4-Methoxybenzo[c]phenanthrene								1	
Methoxy-3-methylcholanthrene	1								
1-Methyl-2-(2-methyl-3-butenyl)-naphthalene	3					2			1
Naphthalene/White tar	3								
1,2,3,4,4a,5,6,8a-Octylnaphthalene							1		
Phenanthrene	3					1			1
Pyrene	1						1		
Perylene/Dibenz[de,kl]anthracene	1								
1,2,3,4-Tetrahydro-1,4-epoxyphenanthrene	1								
1,2,3,4-Tetrahydro-1,1,6-trimethylnaphthalene	2								
1,2,3,4-Tetrahydro-6-methyl-naphthalene	1								
1,2,3,4-Tetrahydro-1-1,6-trimethylnaphthalene	2	2							
1,3,6-Trimethyl-naphthalene	1								

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FSP	KZNP	ECP	NCP	WCP
<b>Phthalates</b>									
Di-(2-ethylhexyl)-phthalate	4	1			1				5
Diethyl phthalate	2								
Diisooctyl-phthalate	1								
<b>Biphenyls</b>									
1,1'-Biphenyl	3					1			
(Phenylmethyl)-1,1'-biphenyl	1								
2,2',3,3',4,4',5,5'-octachloro-1,1'-Biphenyl	1								
<b>Furans</b>									
5-Acetyl-4,7-dimethoxy-6-hydrobenzofuran	1								
5-Acetyl-4,7-dimethoxy-6-hydrobenzofuran	1								
2(4H)-Benzofuranone								1	
Dibenzofuran						1		1	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	1								
1,3-Isobenzofurandione			1						
4-Methyl-dibenzofuran	2								
2-Octylfuran	1	1							
2-Pentyl-furan	1								
<b>Amines</b>									
N,N-Bis(2-hydroxyethyl)dodecanamide						1			
4-Chloro-benzanamine	2	1							1
6-Chloro-N,N'-diethyl-1,3,5-triazine-2,4-diamine	1								
N,N-Dibutyl-1-butanamine	6	1	4		1	7	3	3	7
2,5-Dichloro-benzanamine						1			1
3,4-Dichloro-benzanamine						1			
3,5-Dichloro-benzanamine						1			1
N,N-Dimethyl-1-dodecanamine								1	1
N,N-Dimethyl-1-octadecanamine	1								
N,N-Dimethyl-tetradecanamine					1				
N,N-Dimethylpalmitamide	1								
Dodecanamide	1								
Hexadecanamide	1								
1-Methyl-acetamide	1								
(Z)-9-Octadecenamide	6	1				1			
N-(2-phenylethyl)-acetamide	1	1							
n-Tetradecanoic acid amide	3	2				1			
<b>Aldehydes</b>									
Decanal	1								
2,2-Dideutero-octadecanal	1						1		
n-Dodecanal						2			
Friedenlan-y-al	3								
Heptanal	2								
Hexadecanal/Palmitic aldehyde	3	1	1						2
n-Hexanal	4								
p-Hydroxy-m-methoxybenzaldehyde	2								
Ios-.alpha.-Cedren-15-al	1								
2-Methyl-undecanal								1	
n-Nonanal	3								
Nonylaldehyde	1								

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FSP	KZNP	ECP	NCP	WCP
<b>Aldehydes</b>									
Octadecanal/Stearylaldehyde	3	1	1			2		1	1
9-Octadecenal	1								
Octanal	2								
Pentadecanal	3								
Tetradecanal/Myristaldehyde	5	2				2	1		6
Tridecanal	1								
<b>Esters</b>									
6-Acetyl-7-hydroxy-2,2-dimethylbenzopyran	1								
5.alpha.-Cholestan-3-one	5	1							1
5.alpha.-Cholestan-4-one		1							
(24S)-5.alpha.-Ergostan-3-one			1						
5.alpha,17.xi.-21-Norcholest-24-en-20-one	1	1							
5.alpha.-Stigmast-3-one						1			
(24R)-5.alpha.-Stigmastan-3-one						1			
1-(2-Aminophenyl)-ethanone	3								
5-(3-Aminopropyl)-5,10-dihydro-11H-dibenzo[b,e][1,4]diazepin-11-one	1								
5-(3-Aminopropyl)-1,5-diazacycloheptadecan-6-one	3								
.beta.-Ionone		1	1						
.beta.-Isomethyl-ionone								1	
14.beta.-3-Methoxy-6-oxaestra-1,3,5(10),8,15-pentaen-7,17-dione	1		1			2			
6-(Bromomethyl)-5-[(ethoxycarbonyl)-(phenylthio)-methyl]-4-methoxy-2H-pyran-2-one	1								
Butyl octadecanoate						1			
Butyl tetradecanoate/Myristate			1					1	
Cholestan-1,1-dien-3-one									
Cholest-4-en-3-one	1		1					1	
Cholest-5-en-3-one						1			
Cholestan-3-one	5		1						
Cholestan-4-one	4								
2-Chloroethyl-linoleate						1			
(+)-cis-3,4,6,9-Tetrahydro-10-hydroxy-1,3,,8-trimethyl-1H-naphtho[2,3-c]pyran-6,9-dione		1			1				
Coprostan-3-one	1		1		1	4			
.delta.-4-Cholestene-3-one						2			
.delta.-Decalactone/ Tetrahydro-6-pentyl-H-pyran-2-one	1								
7,8-Dihydrobenzo[g]chrysen-5(6H)-one	1								
1,3-Dihydro-2H-Indol-2-one	3								
2,3-Dihydro-4-methyl-1H-indole	4					2			
3-(2,2-Dimethylpropylidene)bicyclo[3.3.1]nonane-2,4-dione		1							
6,10-Dimethyl-5,9-undecadien-2-one	1								
(1R+,6S+,7R+)-10,10-Dimethyl-7-vinyl-tricyclo(4.3.2.0)undec-2-en-one	1								
Diphenyl-methanone	1								
3-Ethenyl-4-isopropylcyclohexanone	1								
Ethyl linoleate									4
Geranyl acetone	1	1							

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FS	KZN	EC	NC	WC
<b>Esters</b>									
2-Heptadecanone	1								1
Hexahydro-2H-azepin-2-one	1								
Hex-2-one		1	1						
D-Homoestra-1,3,5(10)-triene-17a-one			1						
2-Hydroxy-cyclopentadecanone	2	1							
2-Hydroxy-1,2,3-propanetricarboxylic acid tributyl ester / Citric acid tri-n-butyl ester	1								
1H-Indole/Ketol	8	3					1	1	6
1,3-Isobenzofurandione	3								
3(2H)-Isoquinolinone									1
5-Methoxy-2,2-dimethylindan-1-one	1								
5-Methyl-6,6-diazapine-10-one	1								
6-Methyl-5-hepten-2-one	1								
Methyl-hexadecanoate									2
Methyl 6(r,s)-8-hydroxy-7-oxo-8,9-secolabdan-15-oate	1								
3-Methyl-1H-indole	5								3
5-Methyl-1H-indole	1	2				1		1	3
7-Methylindole	2	1							2
3-Methylindole-2(3H)-one	1					1			
Methyl 9,10-methylene octadecanoate	1								
15-Methyl-oxacyclopentadecan-2-one									1
5-Methyl-4-phenyl-trans-2-oxazolidinone		1							
Methyl tetradecanoate	1								
Muskolactone/Oxacyclohexadecan-2-one	1	1						1	
Neryl acetone	1								
2-Nonadecanone								1	
Oxacycloheptade-8-en-2-one	1	1				1			1
13-Methyl-oxacyclotetradecane-2,11-dione	1								
2-Pentadecanone	2	1					1	1	
3-Phenyl-4-hydroxyacetophenone						1			
2-Piperidinone	1								
Stigmast-4-ene-3-one			1						
2-Tridecanone	1	1	1						
4,4a,5,9-Tetrahydro-4a,8-dimethyl-5,9-dioxoazuleno(6,5-b)furan-3-carboxylic acid-methyl ester	1								
6,10,14-Trimethyl-2-pentadecanone					1	1			
2-Tridecanone	2					1			
2-Undecanone							1		
<b>Acids</b>									
S-(2-Aminoethyl) ester thiosulfuric acid		1							
Benzeneacetic acid	7					1			
Benzenebutanoic acid/4-Phenylbutyric acid	3								
Benzenepropanoic acid	5	1				2	1		3
Benzoic acid/Retardex	2								1
Bis(2-ethylhexyl) ester of 1,2-Benzenedicarboxylic acid	3	2	3		1				
Bis(2-methoxyethyl) ester of 1,2-Benzenedicarboxylic acid	1								
Butanoic acid/n-Butyric acid	7	1							1
(E)-2-Butenoic acid								1	1

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FSP	KZNP	ECP	NCP	WCP
<b>Acids</b>									
Butyl cyclohexyl ester of 1,2-benzenedicarboxylic acid	1								
Butyl ester of linoleic acid		1						1	1
Butyl ester of octadecanoic acid		1			1	1	1	1	6
2-Chloro-benzeneacetic acid									1
Cyclohexanecarboxylic acid	1								
Cyclohexanepropanoic acid	1								
Decanoic acid/Capric acid	2	2				6	1	1	5
Dibutyl ester 1,2-Benzenedicarboxylic acid	4	2				1			
Diethyl ester of 1,2-Benzenedicarboxylic acid	2					1			
Diethyl-carbamodithioic acid	1								
Diethyl-4-nitrophenyl ester of phosphoric acid	1								
Diisodecyl ester of 1,2-benzenedicarboxylic acid	2							1	
[1-(1,1-Dimethylethyl)-4,4-dimethyl-1,2-pentadienyl-phosphonic acid						1			
Dinonyl ester of 1,2-Benzenedicarboxylic acid	1								
Diocetadecyl ester of phosphonic acid									1
Dipropyl-1,2-benzenedicarboxylic acid							1		
Docosanoic acid	1								1
Dodecanoic acid/Lauric acid	8	3	3		1	1	1	2	9
Eicosanoic acid	1								
2-Ethyl-hexanoic acid	4								2
Ethyl ester of cis and trans-4-(1,1-dimethylethyl)-1-ethenylcyclohexanecetic acid	1								
Ethyl ester of (Z)-9-octadecenoic acid					1			1	3
2-Ethyl-hexanoic acid	1								
2-Ethylhexyl diphenyl of ester Phosphoric acid	2								
Exo-methyl-cholan-24-oic acid			1						
Heptadecanoic acid/Margaric acid	8	4	1		1	2	1	2	8
Heptanoic acid	2								
6-Heptadecatri-8(Z),11(Z),14(Z)-enyl-2-hydroxybenzoic acid		1							
Heptadecene-(8)-carbonic acid(1)	1	1				1			1
Hexadecanoic acid/Palmitic acid	15	5	2		2	9	2	3	13
9-Hexadecenoic acid	1								3
9-Hexadecenyl ester of palmitic acid	4								1
Hexadecyl ester of dodecanoic acid	2								
9-Hexadecenyl ester of stearic acid									1
Hexadecyl ester of hexadecanoic acid	3					1			7
Hexadecyl ester of octanoic acid	1								
Hexadecyl ester of tetradecanoic acid	1	2			1				4
n-Hexanoic acid	7	1							2
2-Hydroxy-methyl ester of docosanoic acid	1								
5-Isobutylidene-N,N-dimethylbarbituric acid	1								
Linoleic acid	3	1					1		
2-Methyl-benzoic acid	1								
2-Methyl butanoic acid/2-Methylbutyric acid	6	1							1
3-Methyl-butanoic acid/Isovaleric acid	1								
3-Methyl-2-butenic acid	1								
3-Methyl decanoic acid	2								
Methyl ester of hexadecanoic acid	1		1			2		1	3

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FSP	KZNP	ECP	NCP	WCP
<b>Acids</b>									
Methyl ester of 9-hexadecenoic acid			1						
Methyl ester of 7,10-octadecadienoic acid		1							
Methyl ester of 9,12-octadecadienoic acid	2							1	2
Methyl ester of octadecanoic acid		1				2		2	4
Methyl ester of 3-octadecenoic acid									2
Methyl ester of 8-octadecenoic acid		1							1
Methyl ester of (Z)-9-octadecenoic acid	2								
Methyl ester of 15-octadecenoic acid									1
Methyl ester of tetracosanoic acid									1
Methyl ester of tetradecanoic acid		1	1					1	2
2-Methyl-hexanoic acid	3	1							
5-Methyl-hexanoic acid	2								
14-Methyl methyl ester heptadecanoic acid	1								
2-Methyl-pentanoic acid	7	1							1
4-Methyl-pentanoic acid	1								
2-Methyl-propanoic acid	6								1
2-Methylvaleric acid	1								
2-Methylpropyl ester of 1,2-benzenedicarboxylic acid	1								
Moronic acid	1								
3-Nitro-1,2-benzenedicarboxylic acid	1	1	3			1	1		2
Nonadecanoic acid	1	1	1						
Nonahexacontanoic acid						1		1	
Nonanoic acid	5	2	1						
(Z,Z)-9,12-Octadecadienoic acid		2	2						2
Octadecanoic acid/Stearic acid	11	5	4		1	5	3	1	15
(Z)-9-Octadecenoic acid	8	2	6			4	2	3	12
Octadecyl ester of tetradecanoic acid						1			
Octanoic acid/Caprylic acid	4	3	1						
2-Octenoic acid		1				1			
Oleic acid	1		2			4			2
9-Octadecenyl ester of (Z)-octadecanoic acid	1								
Octadecyl ester of tetradecanoic acid									1
Octadecyl-(Z)-9-octadecenoic acid	1								
2-Oxo-methyl-cholan-24-oic acid			1			1			1
Pentadecanoic acid	13	4	2		1	4	1	2	11
14-Pentadecenoic acid			3						2
Pentanoic acid/Valeric acid	8	1				1			2
2-Pentenoic acid									2
3-Phenylbutyric acid	1								
(R)-2-Phenylpropionic acid	1								
1,2,3-Propanetricarboxylic acid	4								
Propanoic acid	1								
Tetradecanoic acid/Myristic acid	13	4	2			4	1	2	12
Tetradecyl ester of dodecanoic acid	1								
Tetradecyl ester of hexadecanoic acid	2	1							2
Tridecanoic acid	2	2			1				4
Tributyl ester 2-hydroxy-1,2,3-propanetricorbixylic acid	1								
Triphenyl ester phosphoric acid	1								
Undecanoic acid	3	1					1		

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FSP	KZNP	ECP	NCP	WCP
<b>Chlorinated hydrocarbons</b>									
7-Chloro-7-heptadecene	1	1				1			
1-Chloro hexadecane		1				2		1	1
1-Chloro-hexane			1						1
1-Chloro-2-isocyanato-benzene	1	1			1				
1-Chloro-octadecane	2	1			1	4		3	1
1-Chloro-octane			1						1
1-Chloro-pentadecane						1			
3-p-Chlorophenyl-1-methyldioxindol	1								
1,2-Dichloro-benzene									1
1,4-Dichlorobenzene	1				1				
1,4-Dichloro-2-isocyanato-benzene					1				
5,7-Dichloro-1-methyl-1,4-benzodiazepin-2-one	1								
2,4-Dichlorophenyl isocyanate	1								
Dichlorotoluene									1
Trichlorododecyl-silane	1								
Trichloroicosyl-silane	1								
<b>Alcohols</b>									
Benzenemethenethiol	3		1			1			
2H-1-Benzopyran-6-ol/Vitamin E	2					1			4
3.beta.-Cholest-5-en-3-ol	2		1						6
3.beta.-lup-20(29)-en-3ol	1								
7.beta.-Trichlorohec-9-en-4-.beta.-ol							1		
Cyclododecanol		1							
Cycloheptadecanol									1
1-Docosanal/Behenic alcohol							1		
1-Dodecanol		2							
7,8-Dihydrobenzo[g]chrysen-5(6H)-one	1								
(2Z,Z)-Dehydrocholesterol	1								1
Dihydrocholesterol/ 5.alpha.-Cholestan-3.beta.-ol	5		2			2	1		4
4,4-Dimethyl-cholestan-3-ol								1	
1,3-Dimethyl-cyclopentanol									1
1-Dodecanethiol	1		1						
2-(Dodecyloxy)-ethanol									1
Epifriedelinol		1							
2-Ethyl-hexanol	1								
Farnesol	1								
D:A-Friedooleanane-1,24-diol	1								
.gamma.-Tocopherol	1								1
Geranyl acetone			1						
1-Hentetracontanol							1		
1-Heptacosanol	2								
1,16-Hexadecanediol	2								
6,10,14-Hexadecatrien-1-ol						2			1
1-Hexadecen-1-ol/Cetal	2		1		1				3
(Z)-11-Hexadecen-1-ol			1						
2-(Hexadecyloxy)ethanol									1
Hexanethiol	2								
8-Hydroxyquinoline	4					1			
Isoheptadecanol			1						
20.xi.-Linosta-7,9(11)-diene-3.beta.18,20-triol	2					1			

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FSP	KZNP	ECP	NCP	WCP
<b>Alcohols</b>									
(22E,24S)-24-Methyl-5.alpha.-cholesta-8,22-dien-3.beta.-ol	1								
p-Menth-3-en-1-ol	1								
2-Methyl-1-hexadecanol	2	1	1				1		1
(R)-(-)-(Z)-14-Methyl-8-hexadecen-1-ol	1								
(E)-13-Methyl-11-tetradecen-1-ol	1					1			1
1-Nonadecanol/Nonadecyl alcohol						1			
9,12-Octadecadien-1-ol									2
2-(9,12-Octadecadienyloxy)-ethanol									1
1-Octadecanethiol	2								3
1-Octadecanol/Stenol	1	1					1		1
(Z)-9-Octadecen-1-ol	1					1			1
2(9-Octadecenyloxy)-(Z)-ethanol									1
1-Octanethiol	2								
1-Pentadecanethiol	1								
1,15-Pentadecanethiol	1	1	1						1
Peucedenediol						1			
1-Phenyl-6-oxanonan-1-ol		1							
Podocarpin-14-.beta.-ol			1						
8-Quinolol									2
Totarol		1							
Terpinene-1-ol	1								
n-Tridecanol						1			2
(E)-2-Tridecen-1-ol	1								
2-(Tetradecyloxy)-ethanol	1								
(E)-2-Tridecen-1-ol	1								
<b>Hydrocarbons</b>									
.alpha.-Caryophyllene/.alpha.-Humulene	4	2					1		
.alpha.-Copaene	3								
.alpha.-Curcumen	1								
.alpha.-Phellandrene	1								
.alpha.-Pinene	1								2
Azulene/Cyclopentacycloheptane	1								
.beta.-Caryophyllene	6	4						2	1
.beta.-Bisabolene	1								
1,1-Bis(p-tolyl)ethane	1								
11-Butyl-docosane	2		1						1
(1-Butylheptyl)-benzene	10	2	2			4	1	2	6
(1-Butylhexyl)-benzene	6	2	1		1			1	
(1-Butyloctyl)-benzene	9	5	1						3
(1-Butylnonyl)-benzene	5		1					1	
Butylated hydroxy toluene	1								
11-Butyl-docosane	1								
2-Butyl-1,1,3-trimethyl-cyclohexane			1			1			2
cis-Caryophyllene	4	1							
cis-1,4-Dimethyl-cyclooctane									1
cis-2-Methyl-7-octadecene									1
Cyclodecane	1								
Cyclodecene						1			
Cyclododecane	1								
Cycloeicosane	1								
Cyclohexadecane	2								2

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FSP	KZNP	ECP	NCP	WCP
<b>Hydrocarbons</b>									
Cyclohexane									1
Cyclooctane	1								
Cyclopentadecane	2	1	2				1		2
Cyclotetracosane		1							
Cyclotetradecane	5	1	1			2			3
Decahydro-4H-cyclopentacyclooctene	1								
n-Decane	14	1	1			3	1		3
Dec-1-ene									1
1,5,9-Decatriene						1			
(2-Decyldodecyl)-cyclohexane			1						
11-Decyl-docosane	1								
11-Decyl-heneicosane			1						
10-Demethylsqualene	3	1					1		
5,14-Dibutyl-octadecane	1								
1,2-Diethyl-benzene	1					1			
1,5-Diethyl-3-methyl-cyclohexane									1
1,5-Diethyl-3-methyl-2-methylene-[1.alpha.,3.alpha.,5.alpha.]cyclohexane	1								
1,2-Dimethyl-benzene	5								
1,3-Dimethyl-benzene	4	1							1
1,4-Dimethyl-benzene/p-Xylene	4	2				1			
1,2-Dimethyl-cyclooctane	1								
N,N-Dimethyl-cycloundecane					1	2			8
1,2-Dimethyl-cyclooctane	1								
N,N-Dimethyl-cycloundecane					1	2			8
3,6-Dimethyl-decane	1						1		
3,8-Dimethyl-decane	1					1			
1,1-Dimethyl-2,3-diphenylindene									1
4,6-Dimethyl-dodecane	1					2			
2,6-Dimethyl-heptadecane								1	
2,5-Dimethyl-nonane			1				1		
3,6-Dimethyl-octane						1			
2,6-Dimethyl-undecane						2			1
2,10-Dimethyl-undecane	1								
3,4-Dimethyl-undecane	1								
3,6-Dimethyl-undecane			1						
4,11-Dimethyl-tetradecane	1								
1,3-Dimethyl-2(2,4,6-trimethylphenyl)-1,3-cyclopentadiene	1								
n-Docosane	12	1	4		1	2	2	4	7
1-Docosene									2
n-Dodecane	14	1	1			5	1		5
(E,E,E)-1,4,8-Dodecatriene			1						1
1-Dodecene/Adecene	2	1				1			1
Dotriacontane			1						
Eicosane	2	2	3		2	7			6
(E)-9-Eicosene	1	1							
4R*,5R*,6S*,8S*)-4,5-Epoxy-8-isopropenyl-2,2,6-trimethyl-7-oxabicyclo[4.3.0]non-9-ene	1							1	
1,1'-[1,2-Ethanedylbis(oxy)]bis-benzene/1,2-Diphenoxethane	1								

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FSP	KZNP	ECP	NCP	WCP
<b>Hydrocarbons</b>									
(1-Ethenyloxy)-hexadecane	1								3
2-Ethenyl-1,3,5-trimethyl-benzene	1								
1-(Ethyldecyl)-benzene	1								
5-(Ethyldecyl)-benzene	2					1			
4-Ethyl-1,2-diethyl-benzene	1								
2-Ethyl-1,3-dimethyl-benzene	1					1			
4-Ethyl-1,2-dimethyl-benzene	1								
1-Ethyl-2,3-dimethyl-benzene							1		
1-Ethyl-2-methyl-benzene	1								
4-Ethyl-tetradecane	1								
3-Ethyltoluene	1								
4-Ethyltoluene	1								
3-Ethyl-tridecane	1					1			
Heneicosane	2		3			4	2	4	6
1-Heneicosene	1	1	1						
Hentriacontane	1								
n-Heptacosane	3		1						2
6(Z),8(E)-Heptadecadiene	1								
6(Z),9(E)-Heptadecadiene	2								
n-Heptadecane	16	3	2			5	1	3	
1-Heptadecene/Hexahydroap	5	1			1			1	3
8-Heptadecene	3	1	1						
n-Heptadecyl-cyclohexane						1			
2,2,4,4,6,8,8-Heptamethyl-nonane	2								
n-Hexacosane	9	1	2			3		1	3
9-Hexacosene	2								
n-Hexadecane	14	2	2		2	5			
1,E-8,Z-10-Hexadecatriene			1						1
1-Hexadecene/Cetene	6	2	3			1		1	3
(Z)-3-Hexadecene							1		
(Z)-7-Hexadecene								1	
7-Hexadecyne	1								
2,6,10,15,19,23-Hexamethyl-2,6,10,14,18,22-tetracosahexane	21	3	4		1	4			13
2,6,10,15,19,23-Hexamethyl-tetracosane/Squalane	1								
Hexatriacontane			1					2	
7-Hexyl-eicosane	1								
9-Hexyl-heptadecane									1
(1-Hexylheptyl)-benzene		1				1			
(1-Hexyloctyl)-benzene	1								
1-Iodo-decane			1						1
1-Iodo-2-methyl-undecane									1
1-Iodo-tetradecane	2								
Isocaryophyllene			1				1		2
1-Isocyanato-2-methyl-benzene									1
1-Isopropentyl-2-methyl-benzene	1								
Isoterpinolene	1								
2-Methoxy-3,8-dioxocephalotax-1-ene	1								
9-Methyl-acridine			1						
(2-Methyl-1-butenyl)-benzene	1								
Methyl-cycloheptane									1
2-Methyl-decane	4	1	1		1	2	1	1	
3-Methyl-decane	2		1			2	1		

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FSP	KZNP	ECP	NCP	WCP
<b>Hydrocarbons</b>									
4-Methyl-decane	1					2			
5-Methyl-decane	2					2			
7-Methyl-(Z)-decene	1								1
2-Methyl-1,1-diphenyl-1-propene		1							
4-Methyl-dodecane	2					2	1		
6-Methyl-dodecane	2					1		1	
(1-Methylundecyl)-benzene							1		
2-Methyl-eicosane	1								
10-Methyl-eicosane	3								
1,1'Methylenebis(4-methyl)-benzene	1								2
1-Methylethyl-benzene	1								
2-Methyl-heptadecane			1						
3-Methyl-hexadecane						1			
(R)-(-)-(Z)-14-Methyl-8-hexadecene			1						
1-Methyl-2-(methylethyl)-benzene	1					1	1		
1-Methyl-3-(methylethyl)-benzene	2					1			
1-Methyl-4-(1-methylethyl)-benzene	2					1			
1-Methyl-4-(1-methylethenyl)-cyclohexene	1								
9-Methyl-nonadecane	2					1			
10-Methyl-nonadecane	1								
2-Methyl-nonane	1								
3-Methyl-nonane						1	1	1	
4-Methyl-nonane	1						1		
2-Methyl-octadecane			1			1			
7-Methyl-3, 4-octadiene		1							
3-Methylpentacosane	1								
2-Methyl-pentadecane	1								
3-Methyl-pentadecane	2					4			
1-Methyl-2-propyl-benzene	1					1			
1-Methyl-3-propyl-benzene	1								
2-Methyl-6-propyl-dodecane	1								
3-Methyl-3-propyl-nonane						1			
3-Methyl-5-propyl-nonane								1	
2-Methyl-tetradecane	1		1						
3-Methyl-tetradecane	1					1			
4-Methyl-tetradecane			1			1			
5-Methyl-tetradecane			1			1			
2-(Methylthio)-benzothiazole		1							
2-Methyl-tridecane	2		1			3			
3-Methyl-tridecane	2		1			1	1		
4-Methyl-tridecane	2					1			
7-Methyl-tridecane									1
2-Methyl-undecane	2		1			1	1		
3-Methyl-undecane							1		
4-Methyl-undecane						3			
5-Methyl-undecane	1						1		
9-Methyl-(E)-2-undecane							1		
(1-Methylundecyl)-benzene	1								
Neopentylindene-cyclohexane			1						
Neophytadiene	1								
n-Nonacosane	3								
n-Nonadecane	1	3	1			2			

**C-9** cont.

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FS	KZNP	ECP	NCP	WCP
<b>Hydrocarbons</b>									
1-Nonadecene	4	1	1		1	1		1	3
2-Nonadecene						1			
n-Nonane/Shells	4					2			1
1-Nonene								1	
Nonyl-cyclopropane	1								
n-Octacosane	10	1	2			2		2	5
n-Octadecane	18	2	3		1	6	2	1	
1-Octadecene	6	2	1			1			5
(E)-5-Octadecene						1			
(E)-9-Octadecene		1							1
Octyl-cyclohexane	2								
Octyl-eicosane			1						
9-Octyl-heptadecane	5	2							
Oxacyclotetradecane-2,11-diene						1			
1,1'-Oxybis-decane	1								
9a-Octahydro-3,5,5-trimethyl-9-methylene(4aS-cis)-1H-banzocycloheptene	1								
Octyl-cyclohexane	2								
Octyl-eicosane			1						
9-Octyl-heptadecane	5	2							
Oxacyclotetradecane-2,11-diene						1			
1,1'-Oxybis-decane	1								
Pentacosane									1
n-Pentadecane	1								10
1-Pentadecene	1								2
Pentyl-benzene	2	1							
Pentyl-cyclohexane						1			
(1-Pentylheptyl)-benzene	9	5	1			5		4	8
(1-Pentylhexyl)-benzene	3	1							1
(1-Pentylonyl)-benzene		1							
(1-Pentylloctyl)-benzene	7	1	3			4	1	1	3
(1-Pentyl-2-propyl)-benzene	1								
3-Phenyl-1,4-(E)-dodecadiene									1
5-Propyl-decane			1						
(1-Propyldecyl)-benzene						1			
(1-Propylheptyl)-benzene	3								
(1-Propylonyl)-benzene	10	1	2			1	1	2	1
(1-Propylloctyl)-benzene	6		2			1			3
6-Propyl-tridecane			1						
Spiro[4.5]decane	1								
n-Tetracosane	9				1	5	2	1	4
1,13-Tetradecadiene	4		1						3
n-Tetradecane	15	3	2			8	1	1	
1-Tetradecene									2
(Z)-3-Tetradecene								1	1
1,2,3,4-Tetramethyl-benzene	1					2			
2,6,10,15-Tetramethyl-heptadecane	1								
4,8,12,16-Tetramethyl-heptadecane-4	1					2			
2,6,10,14-Tetramethyl-hexadecane	9	1	1			4	1	2	1
2,6,10,14-Tetramethyl-pentadecane	1					1			2
Tetratetracontane			1			1	1		

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FSP	KZNP	ECP	NCP	WCP
<b>Hydrocarbons</b>									
trans.-Caryophyllene	6	1			1	1		1	9
trans-2-Nonadecene	1								
n-Triacontane	5	1	4			2	1		
Tricosane	10					5	1		4
(Z)-11-Tricosene	1								1
n-Tridecane	11	2	2			5	1	1	8
Tridec-1-ene			1						1
1,2,4-Triethyl-benzene						1			1
1,2,3-Trimethyl-benzene	2					1			1
1,2,4-Trimethyl-benzene	2								
1,3,5-Trimethyl-benzene	1								
1,7,11-Trimethyl-cyclotetradecane	1								
2,3,6-Trimethyl-decane								1	
2,6,11-Trimethyl-dodecane	3					1			
2,6,14-Trimethyl-dodecane						3			
2,7,10-Trimethyl-dodecane	2								
2,6,10-Trimethyl-pentadecane	2		1			1			
2,3',4-Trimethylphenyl methane	2								
2,6,10-Trimethyl-pentadecane	2		1			1			
2,3',4-Trimethylphenyl methane	2								
Tritetracontane	1					1			1
Trtriacontane	1								
n-Undecane	13	1	2			3	1	1	3
<b>Others</b>									
Alloaromadendrene	2								
5.alpha,14-beta,17-beta-cholestane	3								
(5-alpha)-Cholest-3-ene	1	3			1	1			
(5-alpha)-Cholest-7-ene	1								
.alpha.-Copaene	4	1	1						3
.alpha.Cubebene	5	4	1					1	
.alpha.-Elemene		1							
.alpha.-Guaiene					1				
.alpha.-Gurjunene	1								
.alpha.-Pinene	1	1							
(-)-.alpha.-Terpineol									1
.alpha.Terpipene									1
5.alpha.-Pregnane	2								
5-Amino-2-(p-methoxyphenyl)-2-methyl-2H-[1,2,4]triazolo[1,5-a][1,3,5]triazine	1	1				1			2
3-(1-Amphenyl)-2-chlorprosaure			1						
Aromadendrene	2	1							
Bacchotricuneatin	3					1			
(Benzene)ethylene(trimethylphosphine)ruthenium(0)	1								
Benzo[b]phenanthro[2,1-d]thiophene	1								
.beta.-Bisabolene	1				1				
(+)-.beta.-Funebrene	1								
.beta.-Himachalene	1	1							
.beta.-Pinene									1
14.beta.-H-Pregna	4					2			3

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FSP	KZNP	ECP	NCP	WCP
<b>Others</b>									
Bicyclogermacrene	1								
N,N,N',N'-Bis(cyclopentamethylene)urea	1					1			
2,5-Bisdimethylamino-3,9-dimethyl-3H-1,3,4,6-tetrazacyclopent(E)azulene	1								
5-Bromo-(3.beta.)-cholest-5-ene							1		
Cadina-1,4-diene									2
(+)-Calarene	2								
3-(1-Camphenyl)-2-chlorpansuare	1								
9-Carbomethoxy-6,11-dimethoxy-5-oxoxantho[3,2-g]tetralin	1								
Carotol									1
Caryophyllene oxide		1							1
Cholest-3,5-diene						1			
Chromolaenim					1				1
1,8-Cineole	1								
Cis.-Calamenene	1								
Citroflex A	1					1			
(+)-Cularicine			1						
5-Cyano-3,6-dimethyl-3,4-dihydropyrrolo(1,2,3-de)-2H-1,4-benzoxazine	1								
(+)-Cycloisativene	1								
Cystathionine-DTMS		1				1			
Decamethyl-cyclopentasiloxane	8	5	4			2		2	7
.delta.3-Carene		1							
(c-4a,c-7a)-.delta.6-Dodecahydro-3,3-dimethyl-r-2,c-4,c-8-metheno-3a,7c-diazapentaleno[6,1,2-bcd]-as-indacene	3								
Dibenz(b,f)azepine						1			
2,3-Dicyano-7,7-dimethyl-5,6-benzonorbornadiene	3								
Digitoxigenin		1							
1a,11c-Dihydrochryseno[5,6-b]azirine/	1								
2,3-Dihydro-1,2-dimethyl-1H-Indene	1								
2,3-Dihydro-1,1-dipropyl 1H-1-silaindene		1							
3,7-Dihydroxy-5-methoxy-4,6-diphenyldibenzophosphole 5-oxide	3								
3',4'-Dihydro-2'-(morpholin-4-yl)-5',7'-nitrospiro[cyclopentane-1,3'-quinazoline]	2								
(+)-Dihydroreciferolide						1			
3,12-Dimethylphenyl-isocynate	2								
3-(2,2-Dimethylpropylindene)(bicyclo[3.3.1]nonane-2,4-dione	2								
2,3-Dimethyl-trisulfide		1							
Docosanolide						1			2
n-Docosyl-formate/1-Docosanol formate	1								
Dodecamethyl-cyclohexasiloxane	3	5			1	1	1	1	4
1,1-Dodecanediol diacetate						1			
Epi-isopodophyllotoxin	1		1						1
3,4-Epoxy-4a-ethyl-2,3,4,4a,5,6-hexahydro-1H-pyrido[3,2-C]carbazole	2								

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FSP	KZNP	ECP	NCP	WCP
<b>Others</b>									
(Z)-3-(2-Ethoxyethyl)pyridine					1				
1-Ethylthiobenzothiophene	5	3			1	2			
2-Ethylthiobenzothiophene	5		1			2			3
3-Ethylthiobenzothiophene	6		1						
Farnesol isomer B									1
Friedelan-y-al								1	
Galoxide 1 and 2	6	4	3		1	4	2	3	6
.gamma.-Gurjunene	1								
.gamma.-Terpinene	1	1				1	1		1
Garvin A	1								
Garvin B	1					1			
Geranyl linalool isomer	1								
Germacrane B								1	
Hahnfett	1						1		1
(+)-15-Hexadecanolide	1	1	1						4
Hexadecyl-oxirane	1				1				1
Hexamethyl-cyclosiloxane	1								
Hexamethyl-cyclotrisiloxane	8	3	1		1	1		1	1
18-Hydroxy- (1S <sup>*</sup> , 1R <sup>*</sup> )-dolabella									1
Isomaturin	1								
Junipene	7	2	1			1			
Koiganal II	1								1
Koiganal I	1								
Limonene									2
(+)-Longifolene		1							
Lycopersen	1								
3-Methoxy-(3.beta.22E)-Stigmasta-5,22-diene	1								
Methyl-arachidonate			1					1	1
7-Methylbenz[c]acridine	1								
3-Methylbenzo[2,3]phenanthro[4,5-bcd]thiophene	1								
Methyl-d3-hydrazine sulfate	9	3			1	1			
5-Methyl-19-norcholest-8(11)-ene	1	1							
3-(1-Methyl-2-pyrrolidinyl)-pyridine/Nicotine	1								
10-Methylsqualene	1								
Muscovyridine	1	1							
28-Nor-17-.alpha(h)-hopane	4		1				1		1
28-Nor-17-.beta(h)-hopane	3								
Octahydro-1,9,9-trimethyl-4-methylene-(1.alpha.,3a.alpha.,7.alpha.,8a.beta.)-1H-3a,7-Methanoazulene					1				
Octamethyl-cyclotetrasiloxane	6	2			1	1		1	1
1,1,4,5,6-Pentamethyl-2,3-dihydroindene	1								
2,6,10,14,18-Pentamethyl-eicosane		1							
1-Phellandrene	1	1							
3-Phenyl-5-t-butylpyridine	6	1							4
2-(Phenylthiomethyl)-pyridine									1
2(10)Pinene							1		
N-Propyl-3-aza-5.alpha.-cholestane	1								
Pyrrolo(3,2,1-b)carbazole								1	

**C-9 cont.**

Organic Compounds	Province/Frequency								
	GP	LP	NWP	MP	FSP	KZNP	ECP	NCP	WCP
<b>Others</b>									
Sabinene	1	1							
(-)-Sinularene		1							
Terbutylazine/Gardoprim	1								
Terpinolene									1
trans.Anethole						1			
Trendione	2								
Terbutylazine/Gardoprim	1								
Tetradecamethy-hexasiloxane									
trans.Anethole						1			
trans.beta.-Farnesene									1
trans.Farnesol									1
Trendione	2								
Tricarbonyl[N-(phenyl-2-pyridinylmethylene) benzenamine-N,N']-iron	2								1
Triethylammonio-N-diphenylphosphin	1								
3,3'-Trimethylene-2,2'-biquinoline								1	
4,8,8-Trimethyl-3-oxatricyclo[5.4.0.0(1,4)]undec-11-yl) isopropyl ether	1								
Valencene		1							
Vitamin E acetate	2								

**APPENDIX D GC-FID areas of p-cresol and nonylphenol used to calculate the phenol concentration in top best and worst sludge samples.**

Sample no.	p-Cresol Area/Counts	Nonylphenol Area/Counts
<i>Top best:</i> Sample 28 (WC) Borcherds Quarry	753065	134062
Sample 37 (WC) Oudtshoorn	-	-
Sample 41 (KZN) Hammarsdale	649718	105266
Sample 54 (NW) Boitekong	89342	136523
Sample 75 (KZN) Klipfontein	-	-
<i>Top worst:</i> Sample 1 (Gauteng) Vlakplaats (wet sludge)	306388	20207433
Sample 2 (Gauteng) Vlakplaats (compost)	18642	11727224
Sample 4 (Gauteng) Dekema	-	17136
Sample 6 (Gauteng) Rondebult	-	25854
Sample 15 (Gauteng) Zeekoegat	-	8541
Sample 21 (Gauteng) Percy Steward	26894 <b>13456788</b>	6564051 <b>1036072</b>
Sample 22 (Gauteng) Flip Human	90944 <b>12694810</b>	120162200 <b>10223449</b>
Sample 30 (WC) Athlone	137274 <b>25210353</b>	47453632 <b>3227920</b>
Sample 55 (NW/Brits)	-	-

- The bolded numbers are from the liquid extracts.