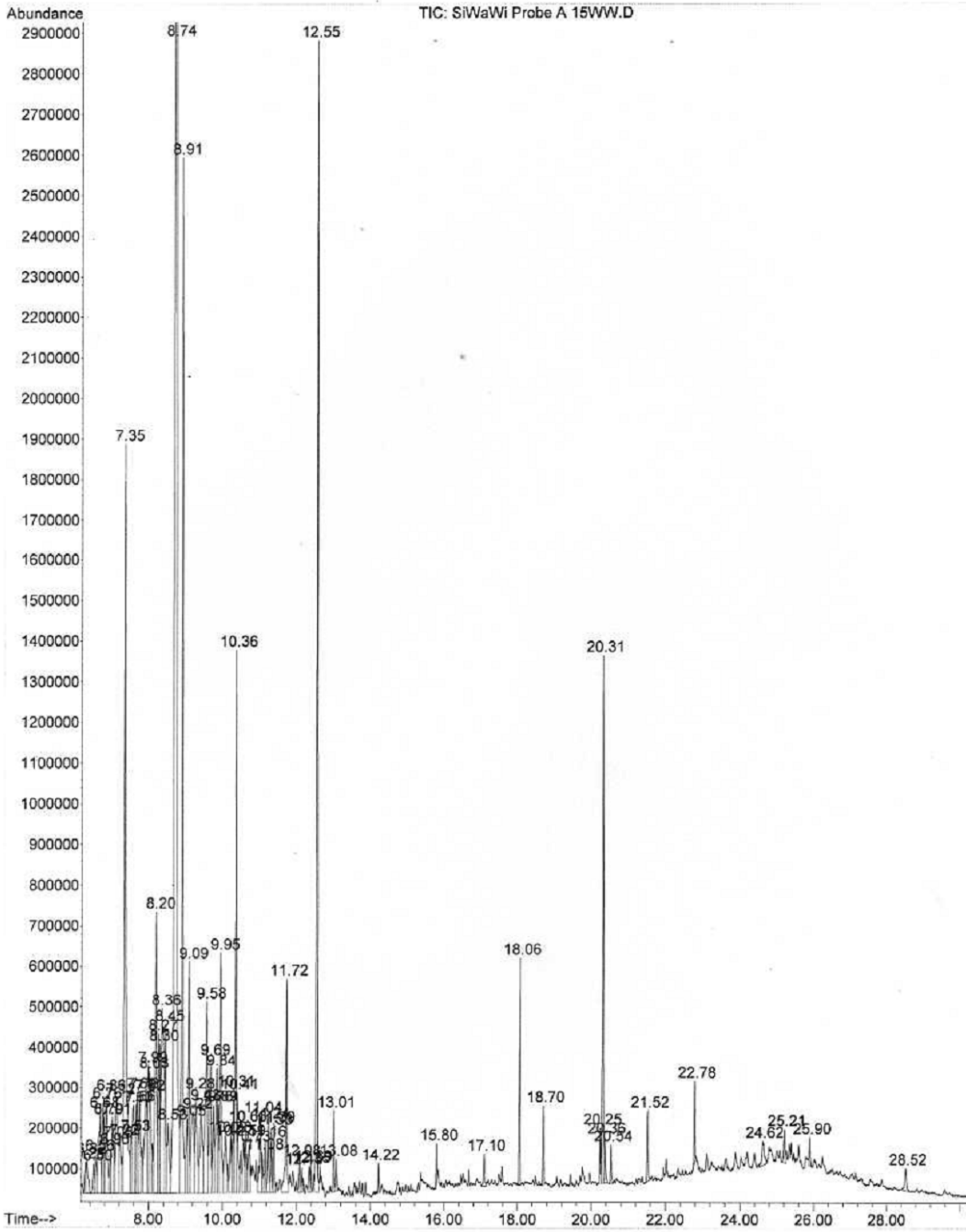


APÊNDICE I

O arquivo apresentado a seguir refere-se à análise de cromatografia gasosa realizada no laboratório do *Institute of Environmental and Sustainable Chemistry*, da Universidade Técnica de Braunschweig. A amostra analisada trata-se do efluente industrial utilizado nos ensaios de tratabilidade da presente dissertação.

File : F:\120329\SiWaWi Probe A 15WW.D
Operator : DP
Acquired : 29 Mar 2012 11:50 using AcqMethod ALLGEMEIN_SCAN.M
Instrument : Instrument 1
Sample Name: SiWaWi Probe A 15WW
Misc Info :
Vial Number: 2



Library Search Report

Data Path : F:\120329\
 Data File : SiWaWi Probe A 15WW.D
 Acq On : 29 Mar 2012 11:50
 Operator : DP
 Sample : SiWaWi Probe A 15WW
 Misc :
 ALS Vial : 2 Sample Multiplier: 1

Search Libraries: C:\Database\NIST98.L Minimum Quality:

Unknown Spectrum: Apex
 Integration Events: Chemstation Integrator - AUTOINT1.E

Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
1	6.28	0.18	C:\Database\NIST98.L Cyclohexane, (2-methylpropyl)- Cyclohexane, butyl- Cyclohexane, butyl-	14242 116444 116443	001678-98-4 001678-93-9 001678-93-9	58 58 58
2	6.32	0.39	C:\Database\NIST98.L 1-Hexacosanol 1-Tetracosanol 17-Pentatriacontene	109608 5175 5525	000506-52-5 000506-51-4 006971-40-0	53 53 46
3	6.51	0.21	C:\Database\NIST98.L Cyclohexane, 1,1-dimethyl-2-propyl 1-Ethyl-2,2,6-trimethylcyclohexane 3-Undecene, (Z)-	22875 22788 108588	081983-71-3 071186-27-1 000821-97-6	53 53 49
4	6.56	0.33	C:\Database\NIST98.L Benzene, 1-methyl-3-propyl- Benzene, 1-methyl-3-propyl- Benzene, 1-methyl-4-propyl-	46925 119334 46926	001074-43-7 001074-43-7 001074-55-1	92 92 70
5	6.68	1.18	C:\Database\NIST98.L Decane, 4-methyl- Decane, 4-methyl- Octane, 3-ethyl-	109903 109904 114591	002847-72-5 002847-72-5 005881-17-4	70 50 50
6	6.76	0.58	C:\Database\NIST98.L Decane, 2-methyl- Decane, 2-methyl- Decane, 2-methyl-	112401 109670 109669	006975-98-0 006975-98-0 006975-98-0	87 62 58
7	6.79	0.48	C:\Database\NIST98.L Benzene, 1-methyl-2-propyl- Benzene, 1-methyl-2-propyl- Benzene, 1-methyl-2-propyl-	119333 46927 119335	001074-17-5 001074-17-5 001074-17-5	87 55 55
8	6.86	0.92	C:\Database\NIST98.L Decane, 3-methyl- Undecane, 3,4-dimethyl- Nonane, 5-(1-methylpropyl)-	112572 5583 17065	013151-34-3 017312-78-6 062185-54-0	93 86 72
9	6.96	0.28	C:\Database\NIST98.L Benzene, 4-ethyl-1,2-dimethyl- Benzene, methyl(1-methylethyl)- Benzene, 1-methyl-2-(1-methylethyl)-	120816 53588 120829	000934-80-5 025155-15-1 000527-84-4	94 94 94
10	7.01	0.58	C:\Database\NIST98.L Benzene, 1-methyl-2-(1-methylethyl)- Benzene, 1-ethyl-2,4-dimethyl- Benzene, 2-ethyl-1,3-dimethyl-	120829 120822 53585	000527-84-4 000874-41-9 002870-04-4	94 94 94
11	7.06	0.35	C:\Database\NIST98.L Cyclohexane, 1,2-diethyl-3-methyl- Cyclopentane, 1,2-dibutyl-	22852 22825	061141-80-8 062199-52-4	43 35

			Cyclohexane, 1,1,3,5-tetramethyl-, trans-	114329	050876-31-8	35
12	7.12	1.23	C:\Database\NIST98.L Benzene, 1-methyl-4-(1-methylethyl)- Benzene, 1-methyl-2-(1-methylethyl)- Benzene, 1-methyl-2-(1-methylethyl)-	53586	000099-87-6	92
				120829	000527-84-4	92
				53596	000527-84-4	92
13	7.22	0.56	C:\Database\NIST98.L 1,3-Cyclohexanedione, 5-isopropyl- Cyclopentane, hexyl- Cyclopentane, 1-butyl-2-propyl-	42003	1000132-52-0	68
				114087	004457-00-5	60
				22791	062199-50-2	50
14	7.35	6.48	C:\Database\NIST98.L Undecane Undecane Heptadecane	112281	001120-21-4	95
				16533	001120-21-4	94
				112319	000629-78-7	86
15	7.53	0.46	C:\Database\NIST98.L Benzene, 1-methyl-4-(1-methylpropyl-)- Benzene, 1-methyl-4-(1-methylethyl)- Benzene, 1-methyl-3-(1-methylethyl)-	53644	001595-16-0	42
				120807	000099-87-6	38
				120828	000535-77-3	38
16	7.60	1.15	C:\Database\NIST98.L 2,6-Dimethyldecane Decane, 3,6-dimethyl- Undecane, 5-methyl-	5614	013150-81-7	91
				16418	017312-53-7	53
				5633	001632-70-8	53
17	7.66	0.50	C:\Database\NIST98.L cis-Decalin, 2-syn-methyl- Naphthalene, decahydro-2-methyl- trans-Decalin, 2-methyl-	41296	1000155-85-6	95
				116059	002958-76-1	95
				31696	1000152-47-3	94
18	7.69	0.89	C:\Database\NIST98.L Benzene, 1,2,4,5-tetramethyl- Benzene, 1,2,3,5-tetramethyl- Benzene, 1,2,3,4-tetramethyl-	120824	000095-93-2	95
				53580	000527-53-7	95
				53587	000488-23-3	94
19	7.76	0.80	C:\Database\NIST98.L Undecane, 4,8-dimethyl- Undecane, 3,8-dimethyl- Undecane, 4-methyl-	5610	017301-33-6	72
				16449	017301-30-3	72
				109896	002980-69-0	68
20	7.92	1.47	C:\Database\NIST98.L Benzene, 1-methyl-4-(1-methylpropyl)- Benzene, (1,1-dimethylpropyl)- Benzene, 1-methyl-4-(1-methylethyl)-	53644	001595-16-0	49
				120693	002049-95-8	46
				120806	000099-87-6	46
21	7.99	0.85	C:\Database\NIST98.L Cyclododecane Cyclododecane 1-Hexadecanol	111788	000294-62-2	93
				111351	000294-62-2	87
				109484	036653-82-4	60
22	8.02	1.22	C:\Database\NIST98.L Benzene, 1,3-diethyl-5-methyl- Benzene, 2,4-diethyl-1-methyl- 4'-Methylpropiophenone	122160	002050-24-0	58
				60096	001758-85-6	58
				53265	005337-93-9	38
23	8.19	2.77	C:\Database\NIST98.L Benzene, 1,2,4,5-tetramethyl- Benzene, 1-ethyl-2,3-dimethyl- Benzene, 1,2,4,5-tetramethyl-	120824	000095-93-2	91
				120728	000933-98-2	91
				120826	000095-93-2	91
24	8.28	0.92	C:\Database\NIST98.L			

			Undecane, 4-methyl-	109896	002980-69-0	70
			Undecane, 4-methyl-	6363	002980-69-0	53
			Decane, 3-methyl-	24416	013151-34-3	50
25	8.30	0.92	C:\Database\NIST98.L			
			Benzene, 1-methyl-4-(1-methylpropyl)-	53644	001595-16-0	81
			Benzene, 1-ethyl-2,3-dimethyl-	120813	000933-98-2	60
			Benzene, 1-ethyl-3,5-dimethyl-	120811	000934-74-7	55
26	8.36	2.63	C:\Database\NIST98.L			
			Heptadecane, 8-methyl-	17063	013287-23-5	64
			Nonadecane	16515	000629-92-5	58
			Tricosane	109662	000638-67-5	53
27	8.45	1.19	C:\Database\NIST98.L			
			Decane, 3,8-dimethyl-	112593	017312-55-9	81
			Tridecane, 7-propyl-	5639	055045-09-5	80
			Undecane, 3-methyl-	16522	001002-43-3	78
28	8.54	0.97	C:\Database\NIST98.L			
			Benzene, (1,1-dimethylpropyl)-	53213	002049-95-8	52
			Benzene, 2-ethyl-1,3-dimethyl-	120805	002870-04-4	43
			Benzene, 1-ethyl-2,4-dimethyl-	53594	000874-41-9	43
29	8.74	24.00	C:\Database\NIST98.L			
			Ethanol, 2-(2-butoxyethoxy)-	112444	000112-34-5	90
			Ethanol, 2-(2-butoxyethoxy)-	112450	000112-34-5	90
			Ethanol, 1-(2-butoxyethoxy)-	16709	054446-78-5	90
30	8.91	6.24	C:\Database\NIST98.L			
			Dodecane	112317	000112-40-3	94
			Dodecane	109555	000112-40-3	90
			Dodecane	16262	000112-40-3	90
31	9.05	0.61	C:\Database\NIST98.L			
			Benzene, pentamethyl-	122175	000700-12-9	38
			Benzene, diethylmethyl-	60095	025550-13-4	38
			Benzene, pentamethyl-	60212	000700-12-9	38
32	9.09	1.45	C:\Database\NIST98.L			
			Undecane, 2,6-dimethyl-	17111	017301-23-4	90
			Undecane, 2,6-dimethyl-	112287	017301-23-4	87
			Undecane, 2,6-dimethyl-	112404	017301-23-4	72
33	9.22	1.33	C:\Database\NIST98.L			
			Phytol	114546	000150-86-7	38
			Naphthalene, 1,2,3,4-tetrahydro-2-methyl-	118972	003877-19-8	35
			Naphthalene, 1,2,3,4-tetrahydro-2-methyl-	118970	003877-19-8	35
34	9.28	1.26	C:\Database\NIST98.L			
			4-Nonene, 5-butyl-	13853	007367-38-6	87
			Cyclohexane, 2-butyl-1,1,3-trimethyl-	114211	054676-39-0	55
			Cyclohexane, 2-butyl-1,1,3-trimethyl-	114101	054676-39-0	49
35	9.43	1.27	C:\Database\NIST98.L			
			6-Methyl-4-indanol	60214	020294-32-0	49
			Benzene, 1-ethyl-3-(1-methylethyl)	60062	004920-99-4	49
			Benzene, 1-ethyl-4-(1-methylethyl)	122149	004218-48-8	47
36	9.58	2.06	C:\Database\NIST98.L			
			1-Propanol, 3-phenoxy-	40868	006180-61-6	72
			1-Propanol, 2-phenoxy-	40869	004169-04-4	59
			Ethanol, 2-phenoxy-	118055	000122-99-6	50
37	9.69	1.39	C:\Database\NIST98.L			
			Undecane, 3,4-dimethyl-	5583	017312-78-6	43
			3-Ethyl-3-methylheptane	17115	017302-01-1	38

			Undecane, 5,7-dimethyl-	5598	017312-83-3	38
38	9.76	0.72	C:\Database\NIST98.L Undecane, 4,8-dimethyl- Decane, 2,3,4-trimethyl- Tridecane, 4-methyl-	5610 6373 109295	017301-33-6 062238-15-7 026730-12-1	64 64 59
39	9.85	0.97	C:\Database\NIST98.L 10-Methylnonadecane Hexatriacontane Tetracontane, 3,5,24-trimethyl-	17087 112335 16549	056862-62-5 000630-06-8 055162-61-3	80 72 64
40	9.89	0.56	C:\Database\NIST98.L 1,3-Dithiolane, 2-methyl-2-propyl- Benzene, 1,4-dimethyl-2-(2-methylp ropyl)- Benzene, 1,4-dimethyl-2-(2-methylp ropyl)-	53137 120795 53540	057230-59-8 055669-88-0 055669-88-0	49 46 43
41	9.95	1.87	C:\Database\NIST98.L Dodecane, 4,6-dimethyl- Octadecane, 2,6-dimethyl- Decane, 2-methyl-	112585 16455 112401	061141-72-8 075163-97-2 006975-98-0	95 64 62
42	10.09	0.75	C:\Database\NIST98.L Benzene, 2,4-dimethyl-1-(1-methylp ropyl)- Benzene, 1,4-dipropyl- 4,5-Dimethyl-3H-isobenzofuran-1-on	60250 59990 60245	001483-60-9 004815-57-0 1000188-08-0	49 46 43
43	10.22	0.42	C:\Database\NIST98.L 1-Octadecanol 1-Heptadecanol 1-Octadecanol	111484 13564 111449	000112-92-5 001454-85-9 000112-92-5	55 50 50
44	10.27	0.27	C:\Database\NIST98.L 1,7,7-Trimethyl-2-vinylbicyclo[2.2 .1]hept-2-ene Naphthalene, 1,2,3,4-tetrahydro-5, 7-dimethyl- Cyclopentane, 2-isopropyl-1,3-dime thyl-	53210 123181 13375	130930-56-2 021693-54-9 032281-85-9	18 18 15
45	10.31	0.61	C:\Database\NIST98.L Naphthalene, 1,2,3,4-tetrahydro-6- methyl- Naphthalene, 1,2,3,4-tetrahydro-5- methyl- Naphthalene, 1,2,3,4-tetrahydro-6- methyl-	122016 122047 122017	001680-51-9 002809-64-5 001680-51-9	90 64 60
46	10.37	2.67	C:\Database\NIST98.L Tridecane Tridecane Tridecane	112307 112308 112239	000629-50-5 000629-50-5 000629-50-5	97 96 93
47	10.41	0.76	C:\Database\NIST98.L Naphthalene, 1-methyl- Naphthalene, 2-methyl- Naphthalene, 2-methyl-	123000 123001 64283	000090-12-0 000091-57-6 000091-57-6	93 90 90
48	10.58	0.46	C:\Database\NIST98.L Nonacosane Undecane, 2-methyl- Decane, 2,9-dimethyl-	109621 5608 5629	000630-03-5 007045-71-8 001002-17-1	72 72 59
49	10.63	0.39	C:\Database\NIST98.L Naphthalene, 2-methyl- Naphthalene, 1-methyl- Naphthalene, 2-methyl-	123002 123000 64283	000091-57-6 000090-12-0 000091-57-6	93 93 92
50	10.73	0.46	C:\Database\NIST98.L			

			Naphthalene, 1,2,3,4-tetrahydro-1,4-dimethyl-	120656	004175-54-6	93
			Naphthalene, 1,2,3,4-tetrahydro-1,4-dimethyl-	65304	004175-54-6	64
			Naphthalene, 1,2,3,4-tetrahydro-2,7-dimethyl-	53001	013065-07-1	64
51	11.04	0.73	C:\Database\NIST98.L Tetradecane	112355	000629-59-4	41
			Tritetracontane	17076	007098-21-7	38
			Undecane, 5-methyl-	109658	001632-70-8	38
52	11.08	0.22	C:\Database\NIST98.L Heptane, 2,4-dimethyl-	110058	002213-23-2	58
			Undecane, 2,4-dimethyl-	5671	017312-80-0	47
			Heptane, 2,4,6-trimethyl-	7093	002613-61-8	43
53	11.15	0.36	C:\Database\NIST98.L Tridecane, 4-methyl-	109295	026730-12-1	76
			Tridecane, 4-methyl-	5620	026730-12-1	62
			Decane, 2,8,8-trimethyl-	24404	1000060-81-2	47
54	11.24	0.53	C:\Database\NIST98.L Hexatriacontane	112335	000630-06-8	64
			Octacosane	109620	000630-02-4	58
			Dotriacontane	112351	000544-85-4	58
55	11.33	0.34	C:\Database\NIST98.L Nonadecane, 9-methyl-	16462	013287-24-6	58
			10-Methylnonadecane	17087	056862-62-5	58
			Tetratriacontane	16431	014167-59-0	52
56	11.39	0.37	C:\Database\NIST98.L Dodecane, 2,6,10-trimethyl-	112559	003891-98-3	91
			Hexadecane, 2,6,10,14-tetramethyl-	112575	000638-36-8	90
			Dodecane, 2,6,10-trimethyl-	112315	003891-98-3	86
57	11.72	1.43	C:\Database\NIST98.L Tetradecane	112359	000629-59-4	98
			Tetradecane	16474	000629-59-4	96
			Tetradecane	112356	000629-59-4	96
58	12.08	0.22	C:\Database\NIST98.L Naphthalene, 1,5-dimethyl-	69582	000571-61-9	96
			Naphthalene, 2,3-dimethyl-	64018	000581-40-8	96
			Naphthalene, 1,3-dimethyl-	69579	000575-41-7	95
59	12.15	0.14	C:\Database\NIST98.L Naphthalene, 2,7-dimethyl-	123941	000582-16-1	93
			Naphthalene, 2,7-dimethyl-	123942	000582-16-1	86
			Naphthalene, 2,6-dimethyl-	69576	000581-42-0	83
60	12.35	0.19	C:\Database\NIST98.L Decane, 2,3,5-trimethyl-	16514	062238-11-3	38
			4,4-Dipropylheptane	17328	017312-72-0	38
			3-Octen-2-one, 4-methoxy-	8553	024985-52-2	30
61	12.40	0.16	C:\Database\NIST98.L Cyclotetradecane	13185	000295-17-0	53
			1-Tetradecene	108522	001120-36-1	38
			1-Tetradecene	108521	001120-36-1	38
62	12.55	6.67	C:\Database\NIST98.L Ethanol, 2-[2-(2-butoxyethoxy)ethoxy]-	110878	000143-22-6	86
			Ethanol, 2-[2-(2-butoxyethoxy)ethoxy]-	11694	000143-22-6	80
			Butane, 1,1'-[oxybis(2,1-ethanedioxy)]bis-	17205	000112-73-2	70
63	13.01	0.38	C:\Database\NIST98.L Pentadecane	112370	000629-62-9	97

			Pentadecane	16493	000629-62-9	96
			Pentadecane	112369	000629-62-9	95
64	13.07	0.18	C:\Database\NIST98.L			
			Butylated Hydroxytoluene	126413	000128-37-0	95
			Butylated Hydroxytoluene	84224	000128-37-0	93
			Butylated Hydroxytoluene	126390	000128-37-0	93
65	14.22	0.13	C:\Database\NIST98.L			
			Hexadecane	112410	000544-76-3	96
			Hexadecane	16554	000544-76-3	95
			Hexadecane	112407	000544-76-3	94
66	15.80	0.15	C:\Database\NIST98.L			
			3,6,9,12,15-Pentaoxanonadecan-1-ol	11693	001786-94-3	80
			1,4,7,10,13,16-Hexaoxacyclooctadecane	110946	017455-13-9	64
			3,3'-Isopropilidenbis(1,5,8,11-tetraoxacyclotridecane)	36194	120343-89-7	64
67	17.09	0.20	C:\Database\NIST98.L			
			1,2-Benzenedicarboxylic acid, butyl 2-methylpropyl ester	67019	017851-53-5	72
			1,2-Benzenedicarboxylic acid, bis(2-methylpropyl) ester	123453	000084-69-5	72
			1,2-Benzenedicarboxylic acid, bis(2-methylpropyl) ester	123445	000084-69-5	72
68	18.06	1.00	C:\Database\NIST98.L			
			Dibutyl phthalate	66999	000084-74-2	93
			Dibutyl phthalate	123485	000084-74-2	91
			1,2-Benzenedicarboxylic acid, butyl cyclohexyl ester	66736	000084-64-0	90
69	18.70	0.38	C:\Database\NIST98.L			
			Isopropyl Palmitate	4371	000142-91-6	64
			Isopropyl Palmitate	118751	000142-91-6	43
			Isopropyl Palmitate	110205	000142-91-6	27
70	20.25	0.25	C:\Database\NIST98.L			
			Isopropyl linoleate	21192	022882-95-7	96
			9,12-Octadecadienoic acid (Z,Z)-	113843	000060-33-3	93
			9,12-Octadecadienoic acid (Z,Z)-	113793	000060-33-3	83
71	20.31	2.82	C:\Database\NIST98.L			
			Elaidic acid, isopropyl ester	13539	022147-34-8	94
			9-Nonadecene	13042	031035-07-1	64
			Decyl oleate	5094	003687-46-5	49
72	20.36	0.29	C:\Database\NIST98.L			
			Z-5-Nonadecene	13523	1000131-11-8	89
			3-Eicosene, (E)-	16986	074685-33-9	83
			1-Nonadecene	109470	018435-45-5	64
73	20.54	0.18	C:\Database\NIST98.L			
			Isopropyl stearate	110207	000112-10-7	94
			Octadecanoic acid	128178	000057-11-4	86
			Isopropyl stearate	5496	000112-10-7	38
74	21.52	0.40	C:\Database\NIST98.L			
			2H-1-Benzopyran-2-one, 7-(diethylamino)-4-methyl-	86830	000091-44-1	98
			2H-1-Benzopyran-2-one, 7-(diethylamino)-4-methyl-	126776	000091-44-1	96
			Phenol, 2,6-bis(1,1-dimethylethyl)-4-isocyano-	86829	020600-84-4	78
75	22.78	0.34	C:\Database\NIST98.L			
			4,6-Dipropyl-nonan-5-one	17494	1000190-93-3	27
			Hexahydro-2(1H)-azocinone	968	000673-66-5	18
			8-Pentadecanone	112523	000818-23-5	16

76	24.62	0.34	C:\Database\NIST98.L				
			Heptacosane	16471	000593-49-7	86	
			Tetrapentacontane, 1,54-dibromo-	17122	1000156-09-4	64	
			Nonahexacontanoic acid	17028	040710-32-5	60	
77	25.20	0.22	C:\Database\NIST98.L				
			1,2-Benzenedicarboxylic acid, diis	66803	028553-12-0	52	
			nononyl ester				
			1,2-Benzenedicarboxylic acid, ditr	66776	000119-06-2	50	
			idecyl ester				
			6-Methoxy-2,3-dihydro-1-benzofuran	66956	1000146-55-0	38	
			-3-acetic acid				
78	25.89	0.17	C:\Database\NIST98.L				
			Octadecanoic acid, 2-hydroxy-, met	109269	002420-35-1	11	
			hyl ester				
			N-Acetylpyrrolidone	7671	000932-17-2	10	
			Tetracontane, 3,5,24-trimethyl-	16549	055162-61-3	10	
79	28.52	0.25	C:\Database\NIST98.L				
			Arsenous acid, tris(trimethylsilyl	84872	055429-29-3	35	
) ester				
			Cyclotrisiloxane, hexamethyl-	126481	000541-05-9	35	
			Cyclotrisiloxane, hexamethyl-	84874	000541-05-9	35	

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