

**Aromatic hydrocarbons**

GC/MS detection HP-6890/5973

Ratios, from heights and amounts



Norsk Hydro E&P Research Centre, Bergen, Norway  
Petroleum Geochemistry Laboratories

Data file name: M2758\_A.D  
 Sample name: 7216/11-1 MUD 2758m ARO  
 Data File Path: C:\HPCHEM\1\DATA\IRAN\_PRI  
 Misc. info.:  
 Vial no.: 20  
 Method: MSD\_A\_E2  
 Operator: ANNEK  
 Date: #VALUE!

Aromatic HC ratios, heights and amounts		Height	Amount
Naphthalene	Naphthalene	1068	1
C1 Naphthanes	Sum C1 Naphthanes	2313	1
C2 Naphthanes	Sum C2 Naphthanes	1367	1
C3 Naphthanes	Sum C3 Naphthanes	736	0
Phenanthrene	Phenanthrene	536	0
C1 Phenanthrenes	Sum C1 Phenanthrenes	415	0
C2 Phenanthrenes	Sum C2 Phenanthrenes	339	0
$\frac{3}{2} \cdot \frac{(3MP+2MP)}{(P+9MP+1MP)}$	MPI1	0.4	0.4
$\frac{(3MP+2MP)}{(3MP+2MP+9MP+1MP)}$	F1	0.5	0.5
$\frac{2MP}{(3MP+2MP+9MP+1MP)}$	F2	0.3	0.3
$(2.6+2.7)DMN/1.5DMN$	DNR	3.3	3.3
$100 \cdot \frac{20TA}{(20TA+S28TA+R28TA)}$	%-TAS'n	43.5	43.5
DBT/P	DBT/P	0.1	0.0
F/P	F/P	0.2	0.2
BP/1.6DMN	BP/1.6DMN	0.5	0.4
2MN/1MN	2MN/1MN	1.2	1.2
2EN/1EN	2EN/1EN	2.0	2.0
4MDBT/1MDBT	4MDBT/1MDBT	2.5	2.5

#	Rt.min.	m/z	Rf.	Name	Height	Amount
						ng/mg
<b>Internal standard (if added):</b>						
14)	11.87	136		d8N	49061	50
16)	18.15	164		d10BP	58247	44
59)	29.75	188		d10P	69859	50
79)	45.25	240		d12C	28462	50
<b>Aryl isoprenoids:</b>						
1)	20.24	133	0	C13AI	9	
2)	22.05	133	0	C14AI	14	
3)	26.36	133	0	C15AI	5	
4)	28.74	133	0	C16AI	8	
5)	30.77	133	0	C17AI	8	
6)	33.76	133	0	C18AI	6	
7)	34.73	133	0	C19AI	6	
8)	37.76	133	0	C20AI	6	
9)	39.72	133	0	C21AI	4	
10)	42.76	133	0	C22AI	4	
11)	44.75	133	0	C23AI	9	
12)	55.75	133	0	C30AI	7	
13)	56.74	133	0	C31AI	12	
<b>Naphthalenes:</b>						
15)	11.95	128	a1	N	2038	2
17)	15.54	142	a2	2-MN	1702	1
18)	16.09	142	a2	1-MN	1376	1
19)	18.73	156	a3	2-EN	66	0
20)	18.85	156	a3	1-EN	40	0
21)	19.08	156	a3	2.6+2.7-DMN	283	0
22)	19.53	156	a3	1.3+1.7-DMN	483	0
23)	19.64	156	a3	1.6-DMN	328	0
24)	20.13	156	a3	2.3+1.4-DMN	206	0
25)	20.24	156	a3	1.5-DMN	96	0
26)	20.61	156	a3	1.2-DMN	95	0
27)	22.31	170	a4	C3-N-1	22	0
28)	22.67	170	a4	C3-N-2	22	0
29)	22.79	170	a4	1.3.7-TMN	90	0
30)	22.92	170	a4	1.3.6-TMN	140	0
31)	23.40	170	a4	1.3.5+1.4.6-TMN	135	0
32)	23.48	170	a4	2.3.6-TMN	104	0
33)	23.90	170	a4	1.6.7+1.2.7-TMN	91	0
34)	23.96	170	a4	1.2.6-TMN	71	0
35)	24.41	170	a4	1.2.4-TMN	17	0
36)	24.60	170	a4	1.2.5-TMN	126	0
<b>Biphenyls:</b>						
37)	18.27	154	a5	BP	409	0
38)	21.57	168	a5	3-MBP	238	0
39)	21.83	168	a5	4-MBP	92	0
40)	21.89	182	a4	2.3'-DMBP	9	0
41)	22.07	182	a4	2.5-DMBP	6	0
42)	22.25	182	a4	2.4+2.4'-DMBP	8	0
43)	22.87	182	a4	2.3-DMBP	15	0
44)	24.26	182	a4	3-EBP	11	0
45)	24.60	182	a4	3.5-DMBP	25	0
46)	24.69	182	a4	3.3'-DMBP	56	0
47)	24.81	182	a4	4-EBP	9	0
48)	24.99	182	a4	3.4'-DMBP	44	0
49)	25.21	182	a4	4.4'-DMBP	11	0
50)	25.77	182	a4	3.4-DMBP	28	0

## Aromatic hydrocarbons

GC/MS detection HP-6890/5973

### Compound data



Norsk Hydro E&P Research Centre, Bergen, Norway  
Petroleum Geochemistry Laboratories

Data file name: **M3200\_A.D**  
Sample name: **7216/11-1 MUD 3200m ARO**  
Data File Path: **C:\HPCHEM\1\DATA\IRAN\_PRI**  
Misc. info.:  
  
Vial no.: 21  
Method: MSD\_A\_E2  
Operator: ANNEK  
Date: #VALUE!

Response curve:  $y = ax + b$   
Response factor groups: a1...a11, responses as defined in method

#	Rt.min.	m/z	Rf.	Name	Height	Amount
						ng/mg
<b>Dibenzofuranes:</b>						
51)	22.47	168	a5	DBF	195	0
52)	25.56	182	a4	MDBF-1	71	0
53)	25.93	182	a4	MDBF-2	53	0
54)	26.23	182	a4	MDBF-3	40	0
<b>Fluorenes:</b>						
55)	24.43	166	a6	F	139	0
56)	27.64	180	a6	C1-F-1	21	0
57)	27.89	180	a6	C1-F-2	94	0
58)	28.19	180	a6	1-MF	16	0
<b>Dibenzothiophenes:</b>						
60)	29.14	184	a7	DBT	43	0
61)	31.77	198	a7	4-MDBT	29	0
62)	32.29	198	a7	3+2-MDBT	6	0
63)	32.87	198	a7	1-MDBT	10	0
<b>Phenanthrenes:</b>						
64)	29.87	178	a8	P	557	0
65)	32.82	192	a9	3-MP	92	0
66)	32.96	192	a9	2-MP	100	0
67)	33.43	192	a9	9-MP	121	0
68)	33.56	192	a9	1-MP	96	0
69)	35.56	206	a10	2EP+9EP+3.6-DMP	14	0
70)	35.77	206	a10	1EP	26	0
71)	35.87	206	a10	2.6+2.7+3.5-DMP	14	0
72)	36.21	206	a10	1.3+2.10+3.9+3.10-DMI	59	0
73)	36.35	206	a10	1.6+2.5+2.9-DMP	34	0
74)	36.50	206	a10	1.7-DMP	35	0
75)	36.64	206	a10	2.3-DMP	11	0
76)	36.77	206	a10	1.9+4.9+4.10-DMP	19	0
77)	37.06	206	a10	1.8-DMP	9	0
<b>Retene:</b>						
78)	40.36	219	a8	Retene	52	0
<b>Triaromatic steroids:</b>						
80)	44.86	231	a11	20TA	7	0
81)	46.72	231	a11	21TA	3	0
82)	53.63	231	a11	S26TA	12	0
83)	54.88	231	a11	R26TA/S27TA	10	0
84)	55.89	231	a11	S28TA	5	0
85)	56.37	231	a11	R27TA	5	0
86)	57.59	231	a11	R28TA	8	0

**Aromatic hydrocarbons**

GC/MS detection HP-6890/5973

Ratios, from heights and amounts



Norsk Hydro E&P Research Centre, Bergen, Norway  
 Petroleum Geochemistry Laboratories

Data file name: M3200\_A.D  
 Sample name: 7216/11-1 MUD 3200m ARO  
 Data File Path: C:\HPCHEM\1\DATA\IRAN\_PRI  
 Misc. info.:

Vial no.: 21  
 Method: MSD\_A\_E2  
 Operator: ANNEK  
 Date: #VALUE!

Aromatic HC ratios, heights and amounts		Height	Amount
Naphthalene	Naphthalene	2038	2
C1 Naphthanes	Sum C1 Naphthanes	3078	2
C2 Naphthanes	Sum C2 Naphthanes	1597	1
C3 Naphthanes	Sum C3 Naphthanes	818	1
Phenanthrene	Phenanthrene	557	0
C1 Phenanthrenes	Sum C1 Phenanthrenes	409	0
C2 Phenanthrenes	Sum C2 Phenanthrenes	221	0
$3/2 \cdot (3MP+2MP)/(P+9MP+1MP)$	MPI1	0.4	0.4
$(3MP+2MP)/(3MP+2MP+9MP+1MP)$	F1	0.5	0.5
$2MP/(3MP+2MP+9MP+1MP)$	F2	0.2	0.2
$(2.6+2.7)DMN/1.5DMN$	DNR	2.9	2.9
$100 \cdot 20TA/(20TA+S28TA+R28TA)$	%-TAS'n	35.0	35.0
DBT/P	DBT/P	0.1	0.0
F/P	F/P	0.2	0.2
BP/1.6DMN	BP/1.6DMN	1.2	0.9
2MN/1MN	2MN/1MN	1.2	1.2
2EN/1EN	2EN/1EN	1.7	1.7
4MDBT/1MDBT	4MDBT/1MDBT	2.9	2.9

#	Rt.min.	m/z	Rf.	Name	Height	Amount ng/mg
<b>Internal standard (if added):</b>						
14)	11.87	136		d8N	63708	47
16)	18.17	164		d10BP	72574	42
59)	29.75	188		d10P	92132	47
79)	45.25	240		d12C	34628	47
<b>Aryl isoprenoids:</b>						
1)	20.25	133	0	C13AI	13	
2)	22.13	133	0	C14AI	7	
3)	26.39	133	0	C15AI	4	
4)	28.77	133	0	C16AI	6	
5)	30.71	133	0	C17AI	2	
6)	33.75	133	0	C18AI	10	
7)	34.74	133	0	C19AI	7	
8)	37.77	133	0	C20AI	8	
9)	39.73	133	0	C21AI	6	
10)	42.75	133	0	C22AI	6	
11)	44.77	133	0	C23AI	8	
12)	55.74	133	0	C30AI	7	
13)	56.75	133	0	C31AI	6	
<b>Naphthalenes:</b>						
15)	11.95	128	a1	N	6405	4
17)	15.54	142	a2	2-MN	4881	3
18)	16.10	142	a2	1-MN	3522	2
19)	18.74	156	a3	2-EN	182	0
20)	18.85	156	a3	1-EN	114	0
21)	19.08	156	a3	2.6+2.7-DMN	944	0
22)	19.55	156	a3	1.3+1.7-DMN	1422	1
23)	19.64	156	a3	1.6-DMN	1034	1
24)	20.14	156	a3	2.3+1.4-DMN	568	0
25)	20.25	156	a3	1.5-DMN	277	0
26)	20.62	156	a3	1.2-DMN	307	0
27)	22.30	170	a4	C3-N-1	51	0
28)	22.67	170	a4	C3-N-2	66	0
29)	22.79	170	a4	1.3.7-TMN	293	0
30)	22.94	170	a4	1.3.6-TMN	411	0
31)	23.42	170	a4	1.3.5+1.4.6-TMN	343	0
32)	23.49	170	a4	2.3.6-TMN	308	0
33)	23.91	170	a4	1.6.7+1.2.7-TMN	221	0
34)	23.97	170	a4	1.2.6-TMN	228	0
35)	24.41	170	a4	1.2.4-TMN	48	0
36)	24.60	170	a4	1.2.5-TMN	391	0
<b>Biphenyls:</b>						
37)	18.28	154	a5	BP	806	0
38)	21.57	168	a5	3-MBP	547	0
39)	21.83	168	a5	4-MBP	215	0
40)	21.88	182	a4	2.3'-DMBP	12	0
41)	22.09	182	a4	2.5-DMBP	6	0
42)	22.25	182	a4	2.4+2.4'-DMBP	15	0
43)	22.89	182	a4	2.3-DMBP	32	0
44)	24.27	182	a4	3-EBP	29	0
45)	24.60	182	a4	3.5-DMBP	66	0
46)	24.70	182	a4	3.3'-DMBP	142	0
47)	24.82	182	a4	4-EBP	15	0
48)	25.00	182	a4	3.4'-DMBP	115	0
49)	25.21	182	a4	4.4'-DMBP	25	0
50)	25.77	182	a4	3.4-DMBP	57	0

## Aromatic hydrocarbons

GC/MS detection HP-6890/5973

### Compound data



Norsk Hydro E&P Research Centre, Bergen, Norway  
Petroleum Geochemistry Laboratories

Data file name: M4230\_A.D  
Sample name: 7216/11-1 MUD 4230m ARO  
Data File Path: C:\HPCHEM\1\DATA\IRAN\_PR\

Misc. info.:

Vial no.: 22  
Method: MSD\_A\_E2  
Operator: ANNEK  
Date: #VALUE!

Response curve: y = ax+b

Response factor groups: a1...a11, responses as defined in method

#	Rt.min.	m/z	Rf.	Name	Height	Amount ng/mg
<b>Dibenzofuranes:</b>						
51)	22.47	168	a5	DBF	560	0
52)	25.56	182	a4	MDBF-1	217	0
53)	25.93	182	a4	MDBF-2	188	0
54)	26.23	182	a4	MDBF-3	135	0
<b>Fluorenes:</b>						
55)	24.43	166	a6	F	367	0
56)	27.66	180	a6	C1-F-1	68	0
57)	27.90	180	a6	C1-F-2	255	0
58)	28.19	180	a6	1-MF	44	0
<b>Dibenzothiophenes:</b>						
60)	29.15	184	a7	DBT	99	0
61)	31.78	198	a7	4-MDBT	65	0
62)	32.31	198	a7	3+2-MDBT	28	0
63)	32.88	198	a7	1-MDBT	22	0
<b>Phenanthrenes:</b>						
64)	29.87	178	a8	P	1145	0
65)	32.82	192	a9	3-MP	212	0
66)	32.97	192	a9	2-MP	239	0
67)	33.44	192	a9	9-MP	264	0
68)	33.57	192	a9	1-MP	253	0
69)	35.55	206	a10	2EP+9EP+3.6-DMP	27	0
70)	35.77	206	a10	1EP	40	0
71)	35.86	206	a10	2.6+2.7+3.5-DMP	29	0
72)	36.21	206	a10	1.3+2.10+3.9+3.10-DMI	133	0
73)	36.36	206	a10	1.6+2.5+2.9-DMP	83	0
74)	36.50	206	a10	1.7-DMP	90	0
75)	36.65	206	a10	2.3-DMP	27	0
76)	36.76	206	a10	1.9+4.9+4.10-DMP	37	0
77)	37.05	206	a10	1.8-DMP	19	0
<b>Retene:</b>						
78)	40.36	219	a8	Retene	96	0
<b>Triaromatic steroids:</b>						
80)	44.86	231	a11	20TA	10	0
81)	46.73	231	a11	21TA	8	0
82)	53.64	231	a11	S26TA	13	0
83)	54.88	231	a11	R26TA/S27TA	17	0
84)	55.89	231	a11	S28TA	6	0
85)	56.36	231	a11	R27TA	9	0
86)	57.61	231	a11	R28TA	8	0

**Aromatic hydrocarbons**

GC/MS detection HP-6890/5973

Ratios, from heights and amounts



Norsk Hydro E&P Research Centre, Bergen, Norway  
Petroleum Geochemistry Laboratories

Data file name: M4230\_A.D  
Sample name: 7216/11-1 MUD 4230m ARO  
Data File Path: C:\HPCHEM\1\DATA\IRAN\_PRI  
Misc. info.:

Vial no.: 22  
Method: MSD\_A\_E2  
Operator: ANNEK  
Date: #VALUE!

Aromatic HC ratios, heights and amounts		Height	Amount
Naphthalene	Naphthalene	6405	4
C1 Naphthanes	Sum C1 Naphthanes	8403	5
C2 Naphthanes	Sum C2 Naphthanes	4848	2
C3 Naphthanes	Sum C3 Naphthanes	2360	1
Phenanthrene	Phenanthrene	1145	0
C1 Phenanthrenes	Sum C1 Phenanthrenes	968	0
C2 Phenanthrenes	Sum C2 Phenanthrenes	485	0
3/2*(3MP+2MP)/(P+9MP+1MP)	MPI1	0.4	0.5
(3MP+2MP)/(3MP+2MP+9MP+1MP)	F1	0.5	0.5
2MP/(3MP+2MP+9MP+1MP)	F2	0.2	0.2
(2.6+2.7)DMN/1.5DMN	DNR	3.4	3.4
100*20TA/(20TA+S28TA+R28TA)	%-TAS'n	41.7	41.7
DBT/P	DBT/P	0.1	0.0
F/P	F/P	0.3	0.3
BP/1.6DMN	BP/1.6DMN	0.8	0.5
2MN/1MN	2MN/1MN	1.4	1.4
2EN/1EN	2EN/1EN	1.6	1.6
4MDBT/1MDBT	4MDBT/1MDBT	3.0	3.0

#	Rt.min.	m/z	Rf.	Name	Height	Amount
						ng/mg
<b>Internal standard (if added):</b>						
14)	11.87	136		d8N	30720	48
16)	18.17	164		d10BP	24758	42
59)	29.78	188		d10P	41562	48
79)	45.28	240		d12C	26204	48
<b>Aryl isoprenoids:</b>						
1)	20.26	133	0	C13AI	8241	
2)	22.07	133	0	C14AI	5045	
3)	26.37	133	0	C15AI	3360	
4)	28.78	133	0	C16AI	4030	
5)	30.74	133	0	C17AI	800	
6)	33.80	133	0	C18AI	1544	
7)	34.67	133	0	C19AI	1730	
8)	37.69	133	0	C20AI	1220	
9)	39.74	133	0	C21AI	1193	
10)	42.79	133	0	C22AI	1205	
11)	44.77	133	0	C23AI	511	
12)	55.71	133	0	C30AI	91	
13)	56.70	133	0	C31AI	242	
<b>Naphthalenes:</b>						
15)	11.96	128	a1	N	689826	985
17)	15.58	142	a2	2-MN	830065	1350
18)	16.13	142	a2	1-MN	644715	1048
19)	18.75	156	a3	2-EN	63620	97
20)	18.86	156	a3	1-EN	29231	45
21)	19.11	156	a3	2,6+2,7-DMN	323851	494
22)	19.58	156	a3	1,3+1,7-DMN	479760	732
23)	19.69	156	a3	1,6-DMN	436929	666
24)	20.18	156	a3	2,3+1,4-DMN	164235	250
25)	20.28	156	a3	1,5-DMN	105202	160
26)	20.65	156	a3	1,2-DMN	68165	104
27)	22.34	170	a4	C3-N-1	31728	49
28)	22.70	170	a4	C3-N-2	31729	49
29)	22.83	170	a4	1,3,7-TMN	152695	237
30)	22.97	170	a4	1,3,6-TMN	241902	375
31)	23.45	170	a4	1,3,5+1,4,6-TMN	190981	296
32)	23.52	170	a4	2,3,6-TMN	149032	231
33)	23.94	170	a4	1,6,7+1,2,7-TMN	113396	176
34)	24.00	170	a4	1,2,6-TMN	73712	114
35)	24.43	170	a4	1,2,4-TMN	22256	35
36)	24.64	170	a4	1,2,5-TMN	77762	121
<b>Biphenyls:</b>						
37)	18.30	154	a5	BP	184858	198
38)	21.61	168	a5	3-MBP	173575	185
39)	21.86	168	a5	4-MBP	58278	62
40)	21.90	182	a4	2,3'-DMBP	6318	10
41)	22.12	182	a4	2,5-DMBP	2926	5
42)	22.29	182	a4	2,4+2,4'-DMBP	5804	9
43)	22.91	182	a4	2,3-DMBP	11556	18
44)	24.30	182	a4	3-EBP	14971	23
45)	24.62	182	a4	3,5-DMBP	23267	36
46)	24.73	182	a4	3,3'-DMBP	58698	91
47)	24.84	182	a4	4-EBP	5363	8
48)	25.02	182	a4	3,4'-DMBP	46654	72
49)	25.24	182	a4	4,4'-DMBP	8850	14
50)	25.80	182	a4	3,4-DMBP	24774	38

## Aromatic hydrocarbons

GC/MS detection HP-6890/5973

### Compound data



Norsk Hydro E&P Research Centre, Bergen, Norway  
Petroleum Geochemistry Laboratories

Data file name: NSO1\_23A.D  
Sample name: nso1\_23 aro  
Data File Path: C:\HPCHEM\1\DATA\7216\  
Misc. info.:  
Vial no.: 11  
Method: MSD\_A\_E2  
Operator: annek  
Date: #VALUE!

Response curve: y = ax+b  
Response factor groups: a1...a11, responses as defined in method

#	Rt.min.	m/z	Rf.	Name	Height	Amount
						ng/mg
<b>Dibenzofuranes:</b>						
51)	22.49	168	a5	DBF	39703	42
52)	25.58	182	a4	MDBF-1	47568	74
53)	25.95	182	a4	MDBF-2	33088	51
54)	26.25	182	a4	MDBF-3	25118	39
<b>Fluorenes:</b>						
55)	24.46	166	a6	F	61378	80
56)	27.69	180	a6	C1-F-1	24634	32
57)	27.94	180	a6	C1-F-2	98690	128
58)	28.24	180	a6	1-MF	16032	21
<b>Dibenzothiophenes:</b>						
60)	29.18	184	a7	DBT	36462	12
61)	31.80	198	a7	4-MDBT	43867	15
62)	32.33	198	a7	3+2-MDBT	13100	4
63)	32.91	198	a7	1-MDBT	13579	5
<b>Phenanthrenes:</b>						
64)	29.91	178	a8	P	248832	241
65)	32.86	192	a9	3-MP	83974	95
66)	33.00	192	a9	2-MP	97611	111
67)	33.49	192	a9	9-MP	140663	160
68)	33.61	192	a9	1-MP	110382	125
69)	35.58	206	a10	2EP+9EP+3,6-DMP	19518	21
70)	35.80	206	a10	1EP	24759	27
71)	35.90	206	a10	2,6+2,7+3,5-DMP	13619	15
72)	36.26	206	a10	1,3+2,10+3,9+3,10-DMI	108564	118
73)	36.40	206	a10	1,6+2,5+2,9-DMP	60205	65
74)	36.53	206	a10	1,7-DMP	56521	61
75)	36.68	206	a10	2,3-DMP	16865	18
76)	36.79	206	a10	1,9+4,9+4,10-DMP	34194	37
77)	37.10	206	a10	1,8-DMP	13272	14
<b>Retene:</b>						
78)	40.41	219	a8	Retene	52832	51
<b>Triaromatic steroids:</b>						
80)	44.88	231	a11	20TA	9147	4
81)	46.75	231	a11	21TA	10312	4
82)	53.71	231	a11	S26TA	9392	4
83)	54.91	231	a11	R26TA/S27TA	28346	11
84)	55.91	231	a11	S28TA	14203	6
85)	56.41	231	a11	R27TA	12492	5
86)	57.62	231	a11	R28TA	14603	6

**Aromatic hydrocarbons**

GC/MS detection HP-6890/5973

Ratios, from heights and amounts



Norsk Hydro E&P Research Centre, Bergen, Norway  
 Petroleum Geochemistry Laboratories

Data file name: NSO1\_23A.D  
 Sample name: nso1\_23 aro  
 Data File Path: C:\HPCHEM\1\DATA\7216\  
 Misc. info.:

Vial no.: 11  
 Method: MSD\_A\_E2  
 Operator: annek  
 Date: #VALUE!

Aromatic HC ratios, heights and amounts		Height	Amount
Naphthalene	Naphthalene	689826	985
C1 Naphthanes	Sum C1 Naphthanes	1474780	2398
C2 Naphthanes	Sum C2 Naphthanes	1670993	2549
C3 Naphthanes	Sum C3 Naphthanes	1085193	1683
Phenanthrene	Phenanthrene	248832	241
C1 Phenanthrenes	Sum C1 Phenanthrenes	432630	491
C2 Phenanthrenes	Sum C2 Phenanthrenes	347517	377
$3/2 \cdot (3MP+2MP)/(P+9MP+1MP)$	MPI1	0.5	0.6
$(3MP+2MP)/(3MP+2MP+9MP+1MP)$	F1	0.4	0.4
$2MP/(3MP+2MP+9MP+1MP)$	F2	0.2	0.2
$(2.6+2.7)DMN/1.5DMN$	DNR	3.1	3.1
$100 \cdot 20TA/(20TA+S28TA+R28TA)$	%-TAS'n	24.1	24.1
DBT/P	DBT/P	0.1	0.1
F/P	F/P	0.2	0.3
BP/1.6DMN	BP/1.6DMN	0.4	0.3
2MN/1MN	2MN/1MN	1.3	1.3
2EN/1EN	2EN/1EN	2.2	2.2
4MDBT/1MDBT	4MDBT/1MDBT	3.2	3.2

#	Rt.min.	m/z	Rf.	Name	Height	Amount
						ng/mg
<b>Internal standard (if added):</b>						
14)	11.84	136		d8N	41140	48
16)	18.14	164		d10BP	36307	42
59)	29.76	188		d10P	58546	48
79)	45.28	240		d12C	36272	48
<b>Aryl isoprenoids:</b>						
1)	20.24	133	0	C13AI	11205	
2)	22.05	133	0	C14AI	7649	
3)	26.35	133	0	C15AI	4703	
4)	28.77	133	0	C16AI	6345	
5)	30.72	133	0	C17AI	1079	
6)	33.80	133	0	C18AI	2216	
7)	34.65	133	0	C19AI	2724	
8)	37.67	133	0	C20AI	793	
9)	39.73	133	0	C21AI	1694	
10)	42.78	133	0	C22AI	2192	
11)	44.76	133	0	C23AI	980	
12)	55.73	133	0	C30AI	377	
13)	56.70	133	0	C31AI	341	
<b>Naphthalenes:</b>						
15)	11.94	128	a1	N	898188	957
17)	15.57	142	a2	2-MN	1164586	1291
18)	16.11	142	a2	1-MN	890596	988
19)	18.73	156	a3	2-EN	93959	98
20)	18.84	156	a3	1-EN	43595	45
21)	19.09	156	a3	2.6+2.7-DMN	474815	494
22)	19.57	156	a3	1.3+1.7-DMN	631589	657
23)	19.68	156	a3	1.6-DMN	593128	617
24)	20.16	156	a3	2.3+1.4-DMN	247705	258
25)	20.26	156	a3	1.5-DMN	153559	160
26)	20.62	156	a3	1.2-DMN	101669	106
27)	22.31	170	a4	C3-N-1	40984	43
28)	22.68	170	a4	C3-N-2	48398	51
29)	22.80	170	a4	1.3.7-TMN	213359	226
30)	22.95	170	a4	1.3.6-TMN	333116	352
31)	23.43	170	a4	1.3.5+1.4.6-TMN	274371	290
32)	23.51	170	a4	2.3.6-TMN	218700	231
33)	23.92	170	a4	1.6.7+1.2.7-TMN	158064	167
34)	23.98	170	a4	1.2.6-TMN	109896	116
35)	24.41	170	a4	1.2.4-TMN	30032	32
36)	24.61	170	a4	1.2.5-TMN	113578	120
<b>Biphenyls:</b>						
37)	18.27	154	a5	BP	277617	202
38)	21.58	168	a5	3-MBP	262267	191
39)	21.83	168	a5	4-MBP	86036	63
40)	21.88	182	a4	2.3'-DMBP	9120	10
41)	22.10	182	a4	2.5-DMBP	4475	5
42)	22.26	182	a4	2.4+2.4'-DMBP	8022	8
43)	22.89	182	a4	2.3-DMBP	17593	19
44)	24.28	182	a4	3-EBP	22512	24
45)	24.61	182	a4	3.5-DMBP	33463	35
46)	24.71	182	a4	3.3'-DMBP	86318	91
47)	24.83	182	a4	4-EBP	7981	8
48)	25.01	182	a4	3.4'-DMBP	68371	72
49)	25.22	182	a4	4.4'-DMBP	12942	14
50)	25.79	182	a4	3.4-DMBP	34129	36

## Aromatic hydrocarbons

GC/MS detection HP-6890/5973

### Compound data



Norsk Hydro E&P Research Centre, Bergen, Norway  
Petroleum Geochemistry Laboratories

Data file name: NSO1\_28A.D  
Sample name: nso1\_28 ref .aro  
Data File Path: C:\HPCHEM\1\DATA\IRAN\_PR\  
Misc. info.:  
Vial no.: 12  
Method: MSD\_A\_E2  
Operator: ANNEK  
Date: #VALUE!

Response curve: y = ax+b  
Response factor groups: a1...a11, responses as defined in method

#	Rt.min.	m/z	Rf.	Name	Height	Amount
						ng/mg
<b>Dibenzofuranes:</b>						
51)	22.47	168	a5	DBF	57311	42
52)	25.57	182	a4	MDBF-1	67034	71
53)	25.93	182	a4	MDBF-2	45089	48
54)	26.23	182	a4	MDBF-3	36668	39
<b>Fluorenes:</b>						
55)	24.44	166	a6	F	94818	84
56)	27.68	180	a6	C1-F-1	35712	32
57)	27.93	180	a6	C1-F-2	132383	117
58)	28.22	180	a6	1-MF	24073	21
<b>Dibenzothiophenes:</b>						
60)	29.16	184	a7	DBT	51379	12
61)	31.80	198	a7	4-MDBT	65186	16
62)	32.32	198	a7	3+2-MDBT	18769	4
63)	32.90	198	a7	1-MDBT	19748	5
<b>Phenanthrenes:</b>						
64)	29.89	178	a8	P	344768	237
65)	32.85	192	a9	3-MP	123777	100
66)	33.00	192	a9	2-MP	140336	113
67)	33.49	192	a9	9-MP	182695	147
68)	33.61	192	a9	1-MP	160422	129
69)	35.57	206	a10	2EP+9EP+3.6-DMP	28263	22
70)	35.80	206	a10	1EP	37226	29
71)	35.90	206	a10	2.6+2.7+3.5-DMP	19707	15
72)	36.26	206	a10	1.3+2.10+3.9+3.10-DMI	151680	117
73)	36.40	206	a10	1.6+2.5+2.9-DMP	79612	61
74)	36.54	206	a10	1.7-DMP	80777	62
75)	36.69	206	a10	2.3-DMP	23382	18
76)	36.79	206	a10	1.9+4.9+4.10-DMP	48632	37
77)	37.09	206	a10	1.8-DMP	19636	15
<b>Retene:</b>						
78)	40.41	219	a8	Retene	82244	56
<b>Triaromatic steroids:</b>						
80)	44.87	231	a11	20TA	12725	4
81)	46.74	231	a11	21TA	14070	4
82)	53.70	231	a11	S26TA	14461	4
83)	54.91	231	a11	R26TA/S27TA	41361	12
84)	55.90	231	a11	S28TA	20090	6
85)	56.40	231	a11	R27TA	17783	5
86)	57.62	231	a11	R28TA	22820	7



**Aromatic hydrocarbons**

GC/MS detection HP-6890/5973

Ratios, from heights and amounts


 Norsk Hydro E&P Research Centre, Bergen, Norway  
 Petroleum Geochemistry Laboratories

 Data file name: NSO1\_28A.D  
 Sample name: nso1\_28 ref .aro  
 Data File Path: C:\HPCHEM\1\DATA\NAN\_PR\  
 Misc. info.:

 Vial no.: 12  
 Method: MSD\_A\_E2  
 Operator: ANNEK  
 Date: #VALUE!

Aromatic HC ratios, heights and amounts		Height	Amount
Naphthalene	Naphthalene	898188	957
C1 Naphthanes	Sum C1 Naphthanes	2055182	2279
C2 Naphthanes	Sum C2 Naphthanes	2340019	2434
C3 Naphthanes	Sum C3 Naphthanes	1540498	1629
Phenanthrene	Phenanthrene	344768	237
C1 Phenanthrenes	Sum C1 Phenanthrenes	607230	489
C2 Phenanthrenes	Sum C2 Phenanthrenes	488915	377
$3/2 \cdot (3MP+2MP)/(P+9MP+1MP)$	MPI1	0.6	0.6
$(3MP+2MP)/(3MP+2MP+9MP+1MP)$	F1	0.4	0.4
$2MP/(3MP+2MP+9MP+1MP)$	F2	0.2	0.2
$(2.6+2.7)DMN/1.5DMN$	DNR	3.1	3.1
$100 \cdot 20TA/(20TA+S28TA+R28TA)$	%-TAS'n	22.9	22.9
DBT/P	DBT/P	0.1	0.1
F/P	F/P	0.3	0.4
BP/1.6DMN	BP/1.6DMN	0.5	0.3
2MN/1MN	2MN/1MN	1.3	1.3
2EN/1EN	2EN/1EN	2.2	2.2
4MDBT/1MDBT	4MDBT/1MDBT	3.3	3.3

#	Rt.min.	m/z	Rf.	Name	Height	Amount ng/mg
<b>Internal standard (if added):</b>						
14)	11,84	136		d8N	12252	48
16)	18,16	164		d10BP	13852	42
59)	29,76	188		d10P	15607	48
79)	45,27	240		d12C	8857	48
<b>Aryl isoprenoids:</b>						
1)	20,25	133	0	C13AI	4450	
2)	22,05	133	0	C14AI	2990	
3)	26,35	133	0	C15AI	1693	
4)	28,77	133	0	C16AI	2123	
5)	30,73	133	0	C17AI	316	
6)	33,79	133	0	C18AI	874	
7)	34,66	133	0	C19AI	893	
8)	37,69	133	0	C20AI	598	
9)	39,73	133	0	C21AI	586	
10)	42,78	133	0	C22AI	832	
11)	44,76	133	0	C23AI	309	
12)	55,77	133	0	C30AI	48	
13)	56,80	133	0	C31AI	103	
<b>Naphthalenes:</b>						
15)	11,94	128	a1	N	308969	1106
17)	15,56	142	a2	2-MN	406356	1181
18)	16,10	142	a2	1-MN	304168	884
19)	18,73	156	a3	2-EN	38506	105
20)	18,85	156	a3	1-EN	18134	49
21)	19,09	156	a3	2,6+2,7-DMN	180847	493
22)	19,56	156	a3	1,3+1,7-DMN	266566	727
23)	19,65	156	a3	1,6-DMN	232900	635
24)	20,14	156	a3	2,3+1,4-DMN	96018	262
25)	20,25	156	a3	1,5-DMN	56898	155
26)	20,62	156	a3	1,2-DMN	38490	105
27)	22,31	170	a4	C3-N-1	17026	47
28)	22,67	170	a4	C3-N-2	17556	49
29)	22,80	170	a4	1,3,7-TMN	80915	224
30)	22,95	170	a4	1,3,6-TMN	117994	327
31)	23,43	170	a4	1,3,5+1,4,6-TMN	99502	276
32)	23,50	170	a4	2,3,6-TMN	71550	198
33)	23,92	170	a4	1,6,7+1,2,7-TMN	57115	158
34)	23,98	170	a4	1,2,6-TMN	38368	106
35)	24,41	170	a4	1,2,4-TMN	11519	32
36)	24,61	170	a4	1,2,5-TMN	40354	112
<b>Biphenyls:</b>						
37)	18,28	154	a5	BP	109106	208
38)	21,58	168	a5	3-MBP	93007	178
39)	21,83	168	a5	4-MBP	31718	61
40)	21,88	182	a4	2,3'-DMBP	3589	10
41)	22,10	182	a4	2,5-DMBP	1742	5
42)	22,26	182	a4	2,4+2,4'-DMBP	3300	9
43)	22,89	182	a4	2,3-DMBP	6611	18
44)	24,28	182	a4	3-EBP	8686	24
45)	24,60	182	a4	3,5-DMBP	12234	34
46)	24,71	182	a4	3,3'-DMBP	31366	87
47)	24,82	182	a4	4-EBP	2952	8
48)	25,01	182	a4	3,4'-DMBP	23461	65
49)	25,22	182	a4	4,4'-DMBP	4691	13
50)	25,77	182	a4	3,4-DMBP	12908	36

## Aromatic hydrocarbons

GC/MS detection HP-6890/5973

Compound data



Norsk Hydro E&P Research Centre, Bergen, Norway  
Petroleum Geochemistry Laboratories

Data file name: NSO1\_2A.D  
Sample name: nso1\_2 ref .aro  
Data File Path: C:\HPCHEM1\DATA\DNK\_NAM  
Misc. info.:

Vial no.: 18  
Method: MSD\_A\_E2  
Operator: anne-Karin  
Date: #VALUE!

Response curve: y = ax+b  
Response factor groups: a1...a11, responses as defined in method

#	Rt.min.	m/z	Rf.	Name	Height	Amount ng/mg
<b>Dibenzofuranes:</b>						
51)	22,47	168	a5	DBF	20905	40
52)	25,57	182	a4	MDBF-1	24781	69
53)	25,93	182	a4	MDBF-2	16990	47
54)	26,23	182	a4	MDBF-3	13681	38
<b>Fluorenes:</b>						
55)	24,45	166	a6	F	34657	80
56)	27,67	180	a6	C1-F-1	12259	28
57)	27,92	180	a6	C1-F-2	46845	109
58)	28,22	180	a6	1-MF	7987	19
<b>Dibenzothiophenes:</b>						
60)	29,15	184	a7	DBT	22705	20
61)	31,79	198	a7	4-MDBT	24846	22
62)	32,31	198	a7	3+2-MDBT	7887	7
63)	32,89	198	a7	1-MDBT	8203	7
<b>Phenanthrenes:</b>						
64)	29,88	178	a8	P	114392	294
65)	32,84	192	a9	3-MP	42330	128
66)	32,98	192	a9	2-MP	48378	146
67)	33,46	192	a9	9-MP	70576	213
68)	33,59	192	a9	1-MP	57030	172
69)	35,56	206	a10	2EP+9EP+3,6-DMP	9392	27
70)	35,79	206	a10	1EP	12099	35
71)	35,89	206	a10	2,6+2,7+3,5-DMP	6905	20
72)	36,23	206	a10	1,3+2,10+3,9+3,10-DMI	51750	150
73)	36,38	206	a10	1,6+2,5+2,9-DMP	28444	82
74)	36,52	206	a10	1,7-DMP	27371	79
75)	36,67	206	a10	2,3-DMP	7834	23
76)	36,78	206	a10	1,9+4,9+4,10-DMP	15357	44
77)	37,08	206	a10	1,8-DMP	6585	19
<b>Retene:</b>						
78)	40,39	219	a8	Retene	25857	67
<b>Triaromatic steroids:</b>						
80)	44,87	231	a11	20TA	4481	5
81)	46,74	231	a11	21TA	4759	6
82)	53,70	231	a11	S26TA	4693	5
83)	54,91	231	a11	R26TA/S27TA	13323	16
84)	55,89	231	a11	S28TA	6623	8
85)	56,40	231	a11	R27TA	6037	7
86)	57,62	231	a11	R28TA	7006	8

### Aromatic hydrocarbons

GC/MS detection HP-6890/5973

Ratios, from heights and amounts



Norsk Hydro E&P Research Centre, Bergen, Norway  
Petroleum Geochemistry Laboratories

Data file name: NSO1\_2A.D  
Sample name: nso1\_2\_ref.aro  
Data File Path: C:\HPCHEM\1\DATA\DNK\_NAM\

Misc. info:  
Vial no.: 18  
Method: MSD\_A\_E2  
Operator: anne-Karin  
Date: #VALUE!

Aromatic HC ratios, heights and amounts		Height	Amount
Naphthalene	Naphthalene	308969	1106
C1 Naphthanes	Sum C1 Naphthanes	710524	2065
C2 Naphthanes	Sum C2 Naphthanes	928359	2531
C3 Naphthanes	Sum C3 Naphthanes	551899	1530
Phenanthrene	Phenanthrene	114392	294
C1 Phenanthrenes	Sum C1 Phenanthrenes	218314	659
C2 Phenanthrenes	Sum C2 Phenanthrenes	165737	479
3/2*(3MP+2MP)/(P+9MP+1MP)	MPI1	0,6	0,6
(3MP+2MP)/(3MP+2MP+9MP+1MP)	F1	0,4	0,4
2MP/(3MP+2MP+9MP+1MP)	F2	0,2	0,2
(2.6+2.7)DMN/1.5DMN	DNR	3,2	3,2
100*20TA/(20TA+S28TA+R28TA)	%-TAS'n	24,7	24,7
DBT/P	DBT/P	0,2	0,1
F/P	F/P	0,3	0,3
BP/1.6DMN	BP/1.6DMN	0,5	0,3
2MN/1MN	2MN/1MN	1,3	1,3
2EN/1EN	2EN/1EN	2,1	2,1
4MDBT/1MDBT	4MDBT/1MDBT	3,0	3,0