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GEOCHEMICAL INVESTIGATION OF CRUDE  
OIL SAMPLES FROM WELL 6407/9-1  
NORWAY

by  
F.M.van der Veen and J. Posthuma



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KONINKLIJKE/SHELL EXPLORATIE EN PRODUKTIE LABORATORIUM

RIJSWIJK, THE NETHERLANDS

(Shell Research B.V.)

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Investigation: 9.5.5142

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GEOCHEMICAL INVESTIGATION OF CRUDE OIL SAMPLES FROM  
WELL 6407/9-1, NORWAY

1. INTRODUCTION

To investigate the general character of a crude oil sample from well 6407/9-1 (rft sample, 1600M) the API has been determined and the saturated fraction of this sample (OMC 3359) has been analysed as requested in telex for 090804 of 9.8.84. A complete geochemical analysis has been carried out on a PT sample from the interval 1631-1637M (OMC 3367) which has been sent later (for 120906 of 12.9.84).

2. RESULTS AND CONCLUSIONS

The results of the geochemical analyses are given in Table 1 and Figures 1-7.

The gas chromatograms of the whole crude and of the saturated hydrocarbons show a gap between C10 and C15 while the crude has a high percentage of light fraction (<120C). This is rather unusual and it cannot be excluded that we are dealing here with a mixture of a condensate and an oil.

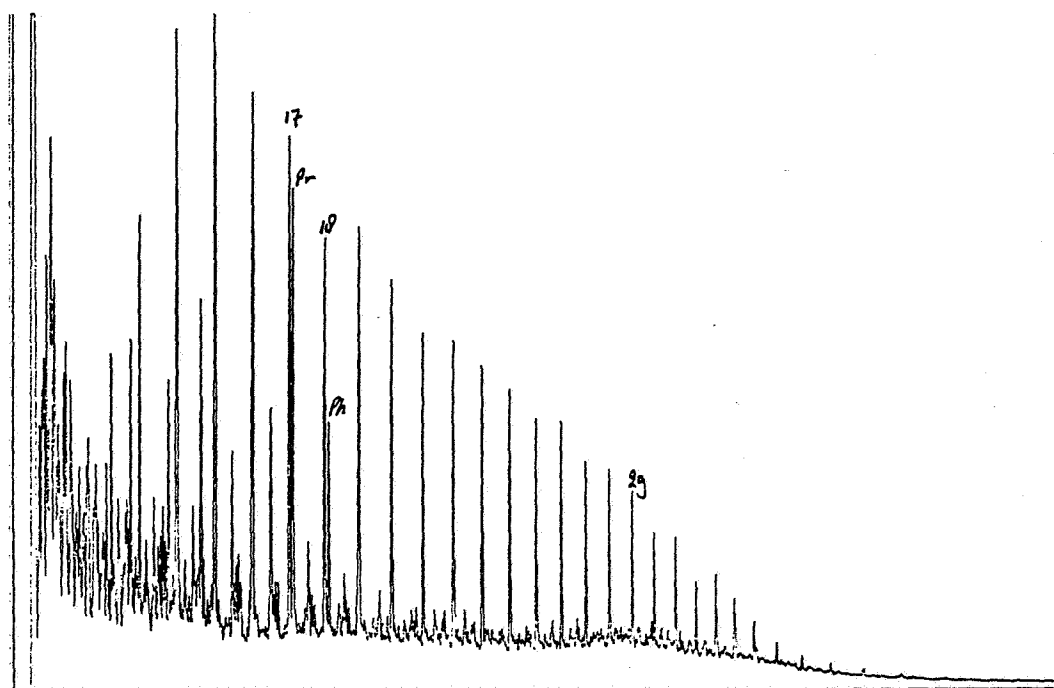
Assuming that the light and heavy fractions have the same origin, the complete oil analysis carried out on the PT sample indicates the following:

- the C7 distribution indicates that this sample has not been bacterially degraded.
- it has been expelled from a mature source rock containing structureless organic matter which is of bacterially reworked phytoplanktonic origin.
- the C7 distribution and the pristane n-C17 alkane ratio suggest a terrestrial influx to the organic matter.

Table- 1 GEOCHEMICAL DATA OF CRUDE OILS

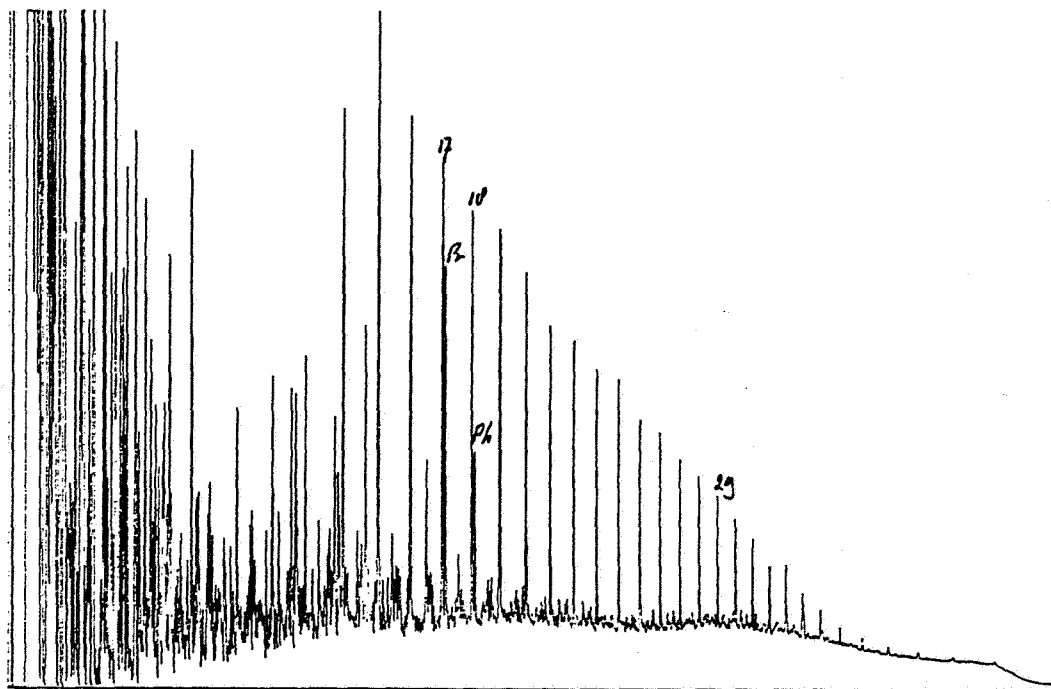
	OIL SAMPLES WELL 6407/9-1, NORWAY	
	1635M(RFT) OMC 3359	1631-1637M(PT) OMC 3367
API	41.2	42.2
specific gravity	0.8193	0.8148
%w. boil. 120 deg C	-	17.6
% sulphur	-	0.3
ppm V as metals	-	-
ppm Ni as metals	-	-
Pristane/Phytane	2.1	2.2
Pristane/n-C17	1.0	1.0
Phytane/n-C18	0.5	0.6
C7-distribution		
C7-alkane		
n-C7	-	49
monobranched	-	10
polybranched	-	11
C7-alk/naphthene		
n-C7	-	20
naphthenes	-	58
branched alkanes	-	22
C7-alk/napht/arom		
n-C7	-	40
naphthenes	-	56
aromatics	-	4
C15-distribution		
1-ring	-	38
2-ring	-	42
3-ring	-	20
C30-distribution		
3-ring	-	25
4-ring	-	46
5-ring	-	29
C29 VR/E (DOM)	-	0.76(64)
% asphaltenes	-	-
% saturates	-	62
% aromatics	-	24
% heterocompounds	-	14
$\delta$ 13C o/oo	-	-28.6

- not determined



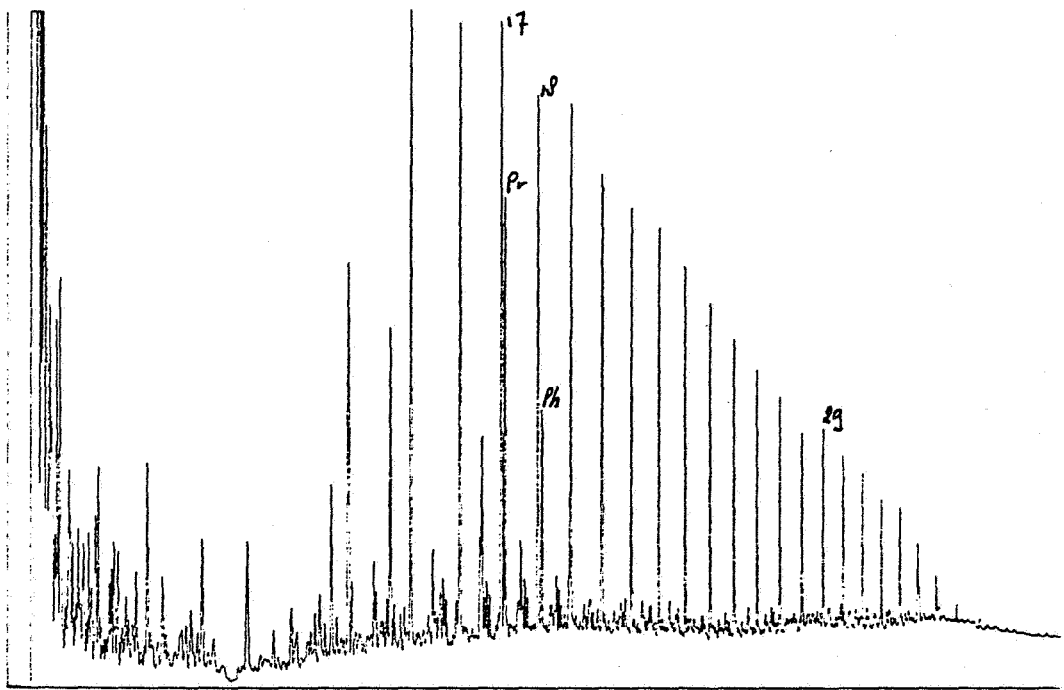
GAS CHROMATOGRAM OF SATURATED HYDROCARBONS

FIG. 1. NORWAY 6407/9-1 1635 M OMC 3359



GAS CHROMATOGRAM

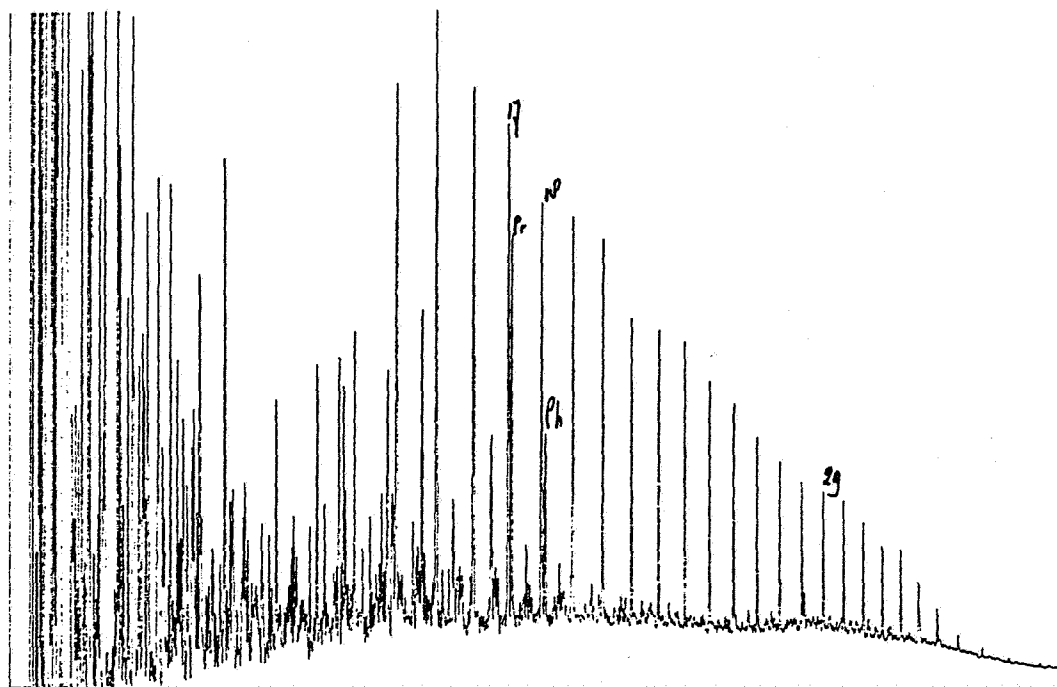
FIG. 2. 6407/9-1 OMC 3359 TOTAL CRUDE



GAS CHROMATOGRAM OF SATURATED HYDROCARBONS

FIG. 3. NORWAY 6407/9-1, 1631-1637 M, OMC. 3367



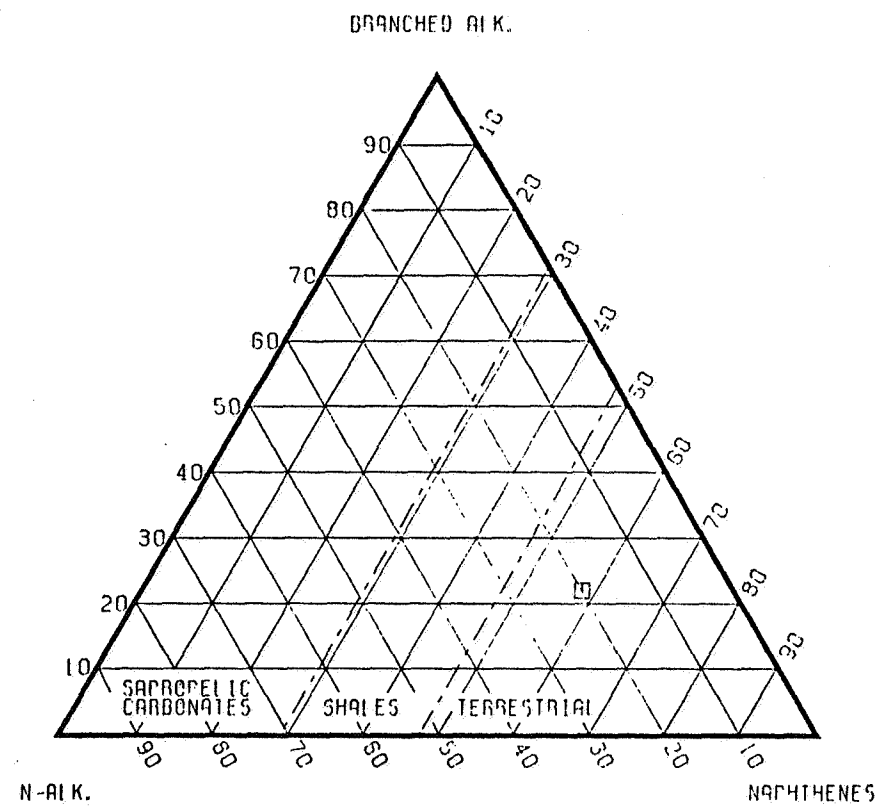
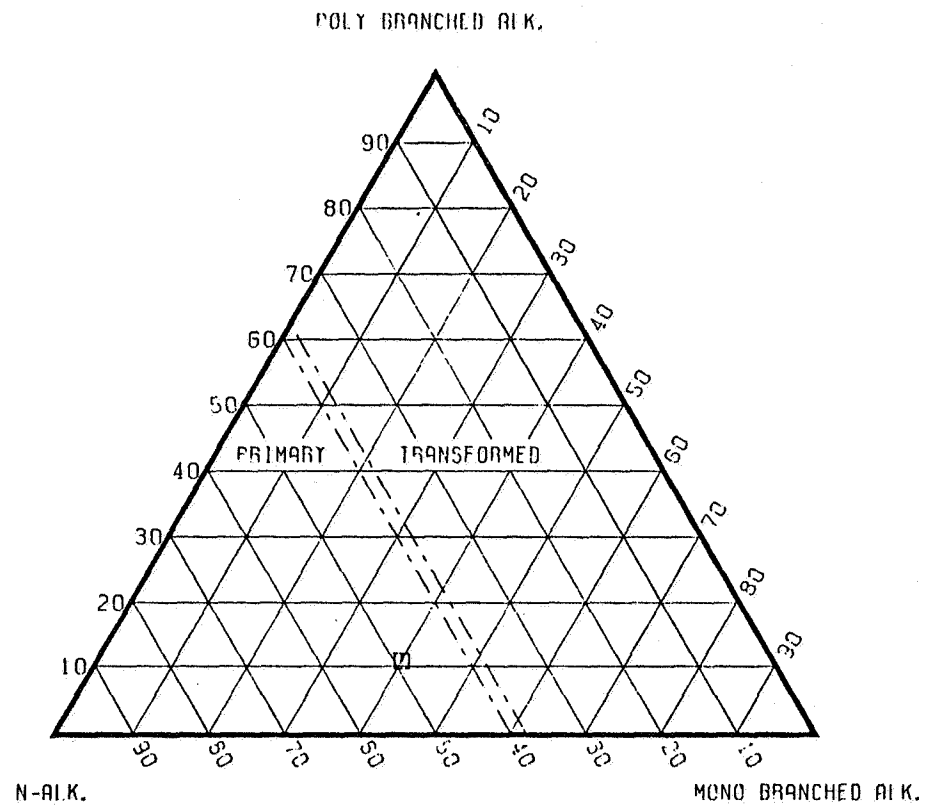


GAS CHROMATOGRAM

FIG. 4. NORWAY 6407/9-1.1631-1637 M. OMC. 3367 TCT

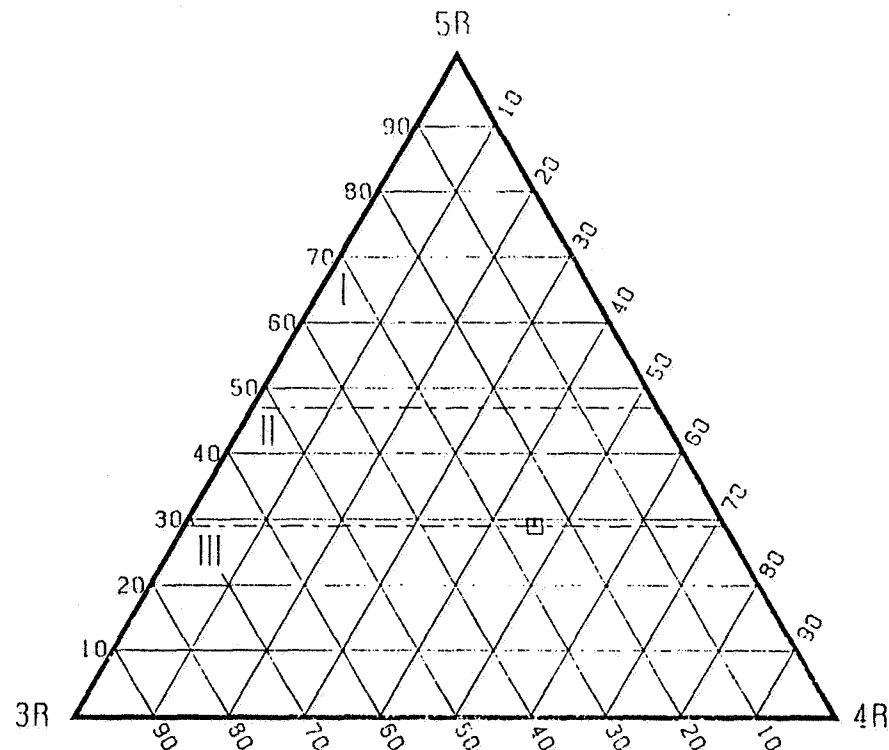
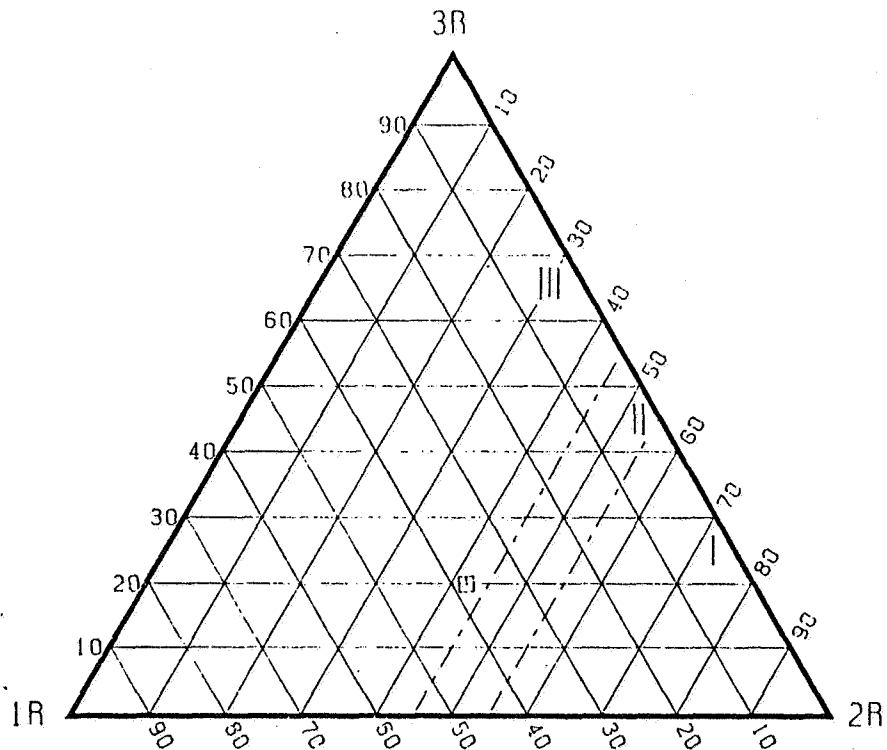
C7-ALKANE DISTRIBUTION

C7-ALKANE/NAPHTHENE DISTRIBUTION



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☐ - NORWAY, 6407/9-1, 1631-1637 M. OMC 3367



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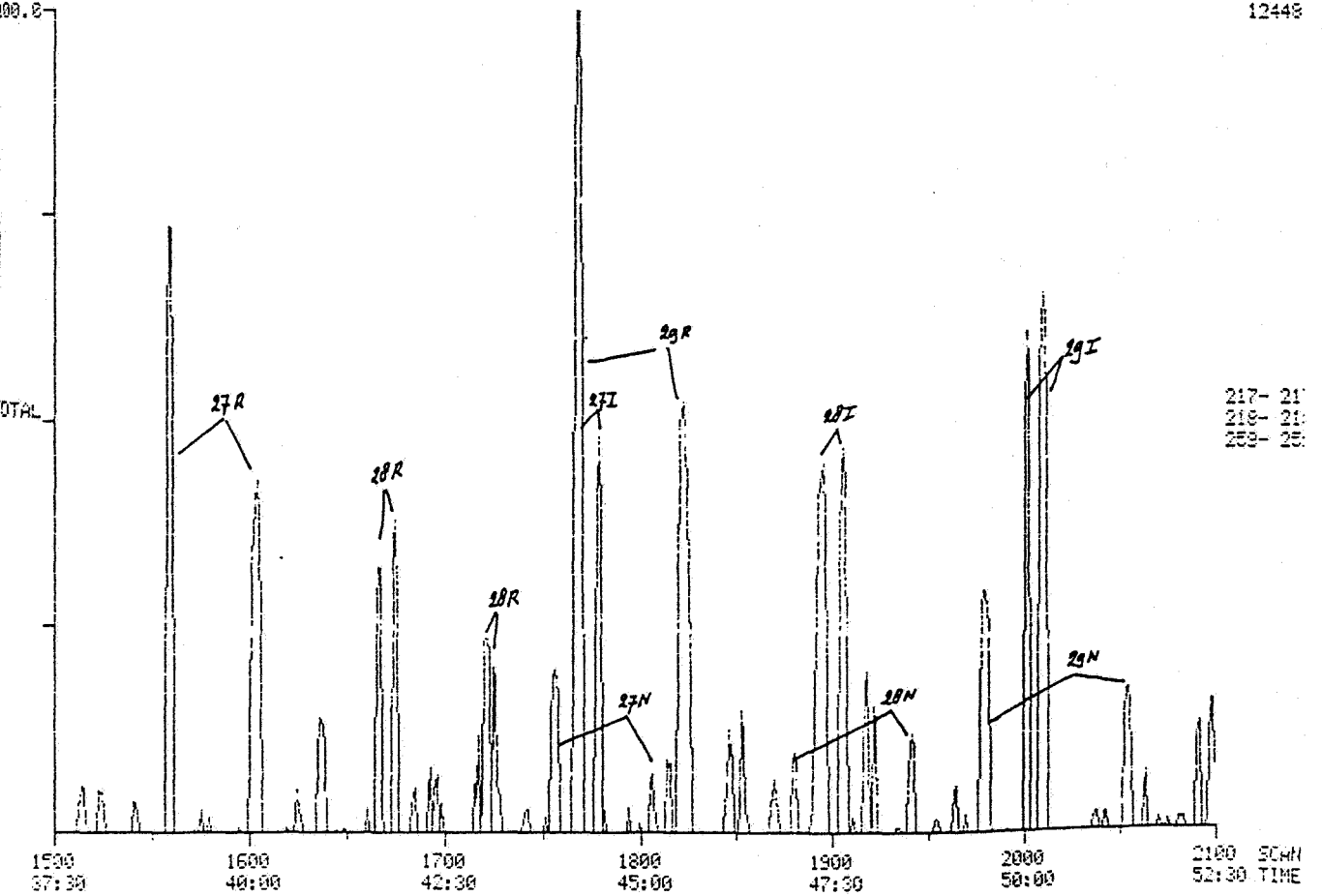
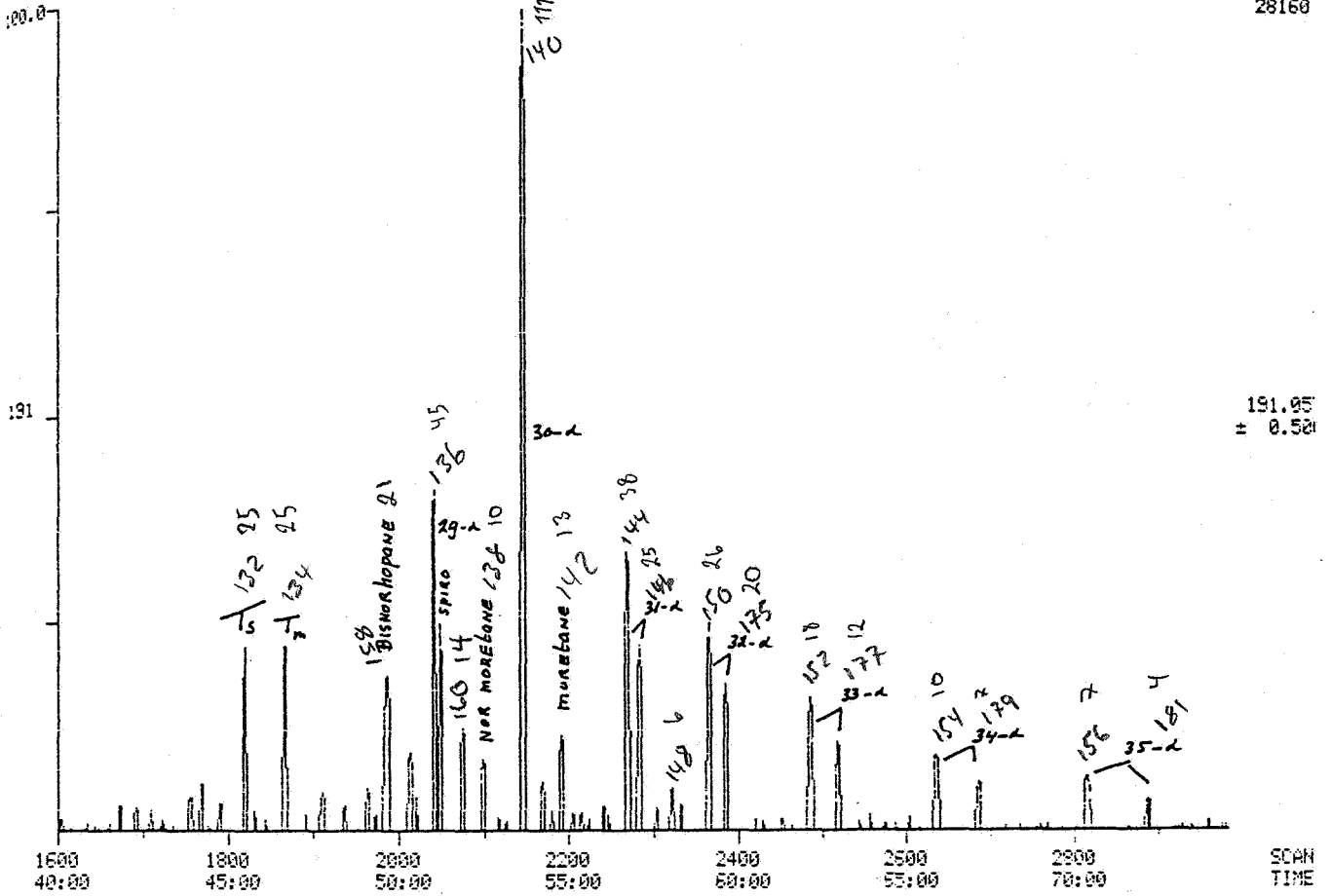


Fig. 7

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