

**GEOCHEMICAL EVALUATION OF WELLS
FROM THE MANDAL HIGH AREA**

GEOCHEMICAL ANALYSIS

Well NOCS 2/6-2

PART 1

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INTRODUCTION

The well NOCS 2/6-2 is sited to the west of the Mandal High and was plugged and abandoned in 1980 as a minor oil/gas discovery, having TD at 4760 m in the Permian.

A total of 125 samples was collected at the Norwegian Petroleum Directorate in Stavanger. The samples between 3990 m and 4760 m (RKB) were washed and lithologically described. The analysed interval is from 3990 m to 4760 m (RKB), including formations from the Lower Cretaceous to the Permian.

From the 125 samples examined, 94 lithologies from 78 samples were selected for screening analysis (TOC and Rock-Eval analyses). Based on the results of these, the following number of samples were selected for further analyses.

Thermal extraction - pyrolysis - gas chromatography	42 samples
Extraction, MPLC fractionation, saturated and aromatic hydrocarbon - gas chromatography	14 samples
Vitrinite reflectance microscopy	25 samples
Visual kerogen analysis	20 samples
Gas chromatography - mass spectrometry of saturate and aromatic hydrocarbons	5 samples
Stable carbon isotope analysis of C ₁₅ + fractions	5 samples

Sample lists and tabulated analytical results are displayed in the Appendix.

General well data is as follows:

Position : 56°30'48,90"N, 03°42'39,66"E
 Elevation : 25 m AMSL
 Water depth : 70 m
 Status : Minor oil/gas discovery, plugged and abandoned

Based on information supplied by the NPD, the following stratigraphic division of the well was used:

<u>Tertiary</u>	~ 510 m
Chalk Group	3152 m
<u>Upper Cretaceous</u>	3748 m
<u>Lower Cretaceous</u>	3826 m
Cromer Knoll Group	3826 m
Rødby Formation	3826 m
Valhall Formation	3851 m
<u>Upper Jurassic</u>	4118 m
Tyne Group	4118 m
Mandal Formation	4118 m
Farsund Formation	4149 m
Haugesund Formation	4236 m
<u>Middle Jurassic</u>	4560 m
Vestland Group	4560 m
Bryne Formation	4560 m
<u>Permian</u>	4723 m
Zechstein Group	4723 -
	4760 m TD

LITHOLOGY AND TOTAL ORGANIC CARBON CONTENT

Figure 1 shows the variation in TOC over the analysed interval of the well plotted with a generalized litho-stratigraphic column. Only the analysed section of the well is shown in this figure. Only samples from 3990 m and below were analysed.

Lower Cretaceous (3826 - 4118 m)

Cromer Knoll Group (3826 - 4118 m)

Valhall Formation (3851 - 4118 m)

Twelve samples were described in this formation. Six TOC analyses were performed on four different samples. The analysed samples are from 4000 m, 4040 m, 4100 m and 4110 m. The lithology consists of greyish and brownish claystones. In the bottom sample (from 4110 m) there is a minor amount of a black claystone. This might represent material from the Mandal Fm.

The TOC content of all the analysed samples is poor to fair (0.21 - 0.32 %). The value for the black claystone from 4110 m is 0.32 %. This is extremely low and might be due to difficulties in picking out this material from the dark grey claystone in the same sample.

Jurassic (4118 - 4723 m)

Tyne Group (4118 - 4560 m)

Mandal Formation (4118 - 4149 m)

Three samples from this interval were described. They are similar to the lowest sample of the Valhall Fm. and consist mostly of greyish and brownish claystones. Minor amounts of a black claystone were also observed. This black claystone is believed to be the in-situ lithology of the Mandal Fm. The one black claystone analysed has a TOC content of only 0.58 %. This is low and might be due to difficulties in separating the black claystone from the dark grey claystone found in the same sample. The other analysed claystones are believed to be caved and they are all poor in TOC content (0.18 - 0.23 %).

It is likely that very little in-situ material is present in the samples from this interval and that the results for this material are not correct, due to mixing with caved material.

Farsund Formation (4149 - 4236 m)

Thirteen samples have been described from this formation and twenty-two TOC analyses have been performed. The upper part of this formation (down to 4200 m) is also believed to be dominated by caved material while the lower part probably has more representative samples. The samples from the upper part are dominated by a medium grey to dark grey claystone with a poor TOC content (range 0.10 - 0.29 %). This claystone is believed to be caved from the Valhall Fm. The small amounts of a brown-grey, calcareous claystone present in the same samples are also believed to be caved. The TOC content of this claystone is also poor (range 0.17 - 0.25 %). The blackish claystone that is found in small quantities is

probably in-situ. The TOC content of this claystone is good to rich (range 1.87 to 2.44 %). Traces of a white sandstone are also seen. This sandstone was not analysed due to the small amounts present. In the sample from 4200 m there is also some white limestone.

The samples from the lower part (from 4210 m to 4230 m) contain a mixture of white to pinkish limestone, light to medium grey claystone and a blackish claystone. All of these lithologies are thought to be in-situ, although the limestone is possibly over-represented in the samples. The TOC content of the light to medium grey claystone is fair (range 0.32 - 0.46 %) while it is rich for the blackish claystone (range 2.62 - 2.80 %). Four core chip claystones between 4220 m and 1235 m were also analysed. These included two black claystones, a dark olive-grey to dusky yellow-brown claystone and a light to dark grey claystone. The last two have fair TOC contents (0.5, 0.9 %). The black claystones have rich TOC contents of 2.7 % and 2.9 %.

Haugesund Formation (4236 - 4560 m)

Forty-six samples were described from this formation and all had one lithology upon which a TOC analysis was performed. The well has probably been turbo-drilled from about 4400 m and at least down to 4620 m. This is based on observations of the samples only as no information about drilling has been available.

This formation seems to be dominated by a blackish claystone. Except for the two samples from 4370 m and 4374 m the TOC content of this claystone is rich (range 2.15 to 5.69 %), with the richest samples around 4500 m. The two samples from 4370 m and 4374 m have a good TOC content (range 1.04 to 1.57 %). There is also a greyish claystone present. This can be dominant in some samples but it does not dominate the formation. It is most prominent in the

upper part of the formation. One analysis of TOC content was performed on this claystone, giving a fair value (0.35 %). Minor amounts of limestone are found throughout the formation, but it was not analysed. Based on logs, it appears that the formation contains relatively thin limestone beds throughout.

Vestland Group (4560 - 4723 m)

Bryne Formation (4560 - 4723 m)

Thirty-two samples were described from this formation and seventeen TOC analyses were performed. The samples from the upper part of this formation have a large content of caved material from the Haugesund Fm. (blackish claystone). The TOC content of this claystone is rich (range 2.72 - 3.91 %). The samples from the lower part of this formation are dominated by additives.

The in-situ lithologies of this formation are probably the greyish, brownish and reddish claystones and the sandstones. The claystones considered to be in-situ have a fair to good TOC content (range 0.62 - 1.75 %). The sandstone is probably the dominant in-situ lithology, but the amounts found in the samples were too small for analysis.

Permian (4723 - 4760 m, TD)

Zechstein Group (4723 - 4760 m)

The samples from this formation are dominated by additives and by dark claystones. The claystones are believed to be caved from the formations above. Minor amounts of various evaporites can be seen in the samples. These evaporites are probably the only in-situ lithology found in the samples. This evaporite was not analysed due to small quantities.

ROCK-EVAL ANALYSIS

1. Kerogen Type and Richness (Hydrogen Index, Oxygen Index and Petroleum Potential)

Lower Cretaceous (3826 - 4118 m)

Valhall Formation (3851 - 4118 m)

Six samples were analysed.

The S1 and S2 peaks of most of the samples from the Valhall Fm. are below the detection limit of the Rock-Eval instrument. Only one hydrogen index could be calculated (from 4100 m) and it is 17. This strongly indicates that the samples are barren of hydrocarbons and that they can only contain type IV kerogen.

Jurassic (4118 - 4723 m)

Tyne Group (4118 - 4560 m)

Mandal Formation (4118 - 4149 m)

Four samples were analysed.

The analysed material is probably entirely caved from the Valhall Fm. The analysed samples are similar to those from the Valhall Fm.

Farsund Formation (4149 - 4236 m)

Twenty-two samples were analysed from this formation.

Most of the analysed samples above 4200 m are caved. The caved samples are the brown grey and medium grey to dark grey claystones. The Rock-Eval results for these samples are the same as for the Valhall Fm. samples. Half of the analysed samples are considered to be caved.

The thirteen samples including four shale core chips consist mainly of black claystones and light grey to medium grey claystones. The blackish claystones have hydrogen indices in the range 195 to 287, indicating kerogen type II/III. They have petroleum potentials in the range 5.0 - 10.8 mg HC/g rock, which is fair to good. The light grey to medium grey claystone cuttings have lower hydrogen indices (range 34 - 46) and fairly high oxygen indices (range 69 - 81), indicating kerogen type IV. It appears that the Farsund Fm. contains mostly a dark claystone with a fair to good petroleum potential and kerogen type II/III. Due to the high maturity (see vitrinite chapter) the original samples might have contained kerogen type II. This lithology seems to be interbedded with greyish claystone with poor petroleum potential and kerogen type IV.

Haugesund Formation (4236 - 4560 m)

Forty-six samples were analysed and all samples are believed to be in-situ. All of the analysed samples, except the one from 4270 m, consist of blackish claystone. The one exception is a greyish claystone. The blackish claystones can be subdivided into two zones.

Zone 1. The blackish claystones from 4240 m to 4356 m

Zone 2. The blackish claystones from 4370 m to 4560 m

Zone 1 claystones have hydrogen indices in the range 229 to 283 indicating kerogen type II/III. Due to the high maturity (see vitrinite chapter) the original samples might have contained kerogen type II. The petroleum potential is good for all of these samples (range 6.9 - 11.3 mg HC/g rock).

Zone 2 claystones generally have hydrogen indices below 200 and even below 100. The hydrogen indices range from 58 to 260, with the lowest values just above 4500 m and the highest values spread out throughout the zone. These hydrogen indices indicate kerogen types II/III to IV. The petroleum potentials of these samples are also very variable ranging from 2.3 to 13.4 mg HC/g rock, indicating that they have a fair to good petroleum potential.

The one greyish sample from 4270 m has a hydrogen index of 3 and an oxygen index of 74 indicating type IV kerogen and it has a poor petroleum potential (0.1 mg HC/g rock).

Vestland Group (4560 - 4723 m)

Bryne Formation (4560 - 4723 m)

This formation consists mostly of sandstone and tuff, but only claystones have been analysed. The blackish claystone samples analysed are believed to be caved. These blackish claystones have analytical results similar to those for the lower part of the Haugesund Fm..

Seventeen samples were analysed, of which ten are believed to be in-situ.

The samples considered to be in-situ are all grey and/or greyish red. The hydrogen indices range from 60 to 313 (although only one sample has a hydrogen index above 200), with the majority of the samples in the range 100 to 200. This latter range indicates kerogen type III. The very low

Tmax values for these samples (see discussion later) indicates that there is something anomalous about the Bryne Fm. claystones.

Permian (4723 - 4760 m, TD)

Zechstein Group (4723 - 4760 m)

The three samples analysed in this section are all believed to be caved. The Rock-Eval results are similar to those for the lower part of the Haugesund Fm.

No data for the Zechstein Group is therefore available.

2. Generation and Migration

(Production Index $S1/(S1+S2)$ and $S1/TOC$)

The production index data for the Valhall Fm. samples are very unreliable due to the very low $S1$ and $S2$ values.

The production index data from the in-situ samples of the Tyne Group seem to fall into two different groups. One in the upper analysed section from about 4160 m to about 4360 m which has production indices ranging from 0.23 to 0.33 mg HC/g rock. The other in the lower analysed section from about 4360 m to about 4560 m which has production indices in the range 0.36 to 0.56. The in-situ samples from the Bryne Fm. have even higher indices ranging 0.48 to 0.77. Note that the core chip samples from 4220 - 4235 m have higher production index values in the TOC-poor than TOC-rich shales (e.g. > 0.4 compared to < 0.3), which suggests that the shales are in fact stained with migrated hydrocarbons.

The $S1/TOC$ data is approximately 1 for most of the analysed

samples except in the Bryne Fm. and the lower part of the Haugesund Fm. where the S1/TOC can be more than 2.

One interpretation of these data is that the upper part of the Tyne Group (4160 m - 4360 m) contains mostly in-situ generated hydrocarbons, while the lower part of the Tyne Group (4360 m - 4560 m) contains both in-situ generated hydrocarbons and some migrated hydrocarbons. The high production index for the lower part of the Tyne Group is difficult to explain if there are not migrated hydrocarbons present. The very high production indices and the high S1/TOC data for the Bryne Fm. can only be explained as being due to migrated hydrocarbons. The high S2 values found might be due to migrated asphaltenes and not due to original kerogen being broken down during the pyrolysis.

3. Maturity (Tmax)

The Tmax data for the Valhall Fm. is unreliable due to the low S2 values. The Tmax of the blackish claystones of the Tyne Group is probably representative, although the values might be depressed somewhat due to migrated hydrocarbons in the lower part of the Tyne Group (4360 m - 4560 m). The in-situ samples of the Bryne Fm. have extremely low Tmax values (below 400^o C). These low values are probably due to migrated hydrocarbons.

The analysed section of the Tyne Group (4160 m - 4560 m) has reached oil window maturity based on Tmax values. The true maturity of the Bryne Fm. cannot be assessed on the basis of Tmax data.

EXTRACTION DATA

Jurassic (4118 - 4723 m)

Tyne Group (4118 - 4560 m)

Mandal Formation (4118 - 4149 m)

No extractions were performed.

Farsund Formation (4149 - 4236 m)

Two cuttings samples and four core samples of claystones were extracted. For the composition of the samples see Table 3a-e.

The samples have extractable organic material contents (EOM) ranging from 4129 ppm to 7764 ppm. They have extractable hydrocarbon contents (EHC) ranging from 3247 ppm to 7058 ppm respectively. Based on this, the samples must be classified as rich both in EOM and EHC.

Where EOM and extractable hydrocarbons are normalised to total organic carbon (TOC) they have values ranging from 164 - 870 mg EOM/g TOC and 202.82 and 123 to 750 mg EHC/g TOC respectively. Based on this, the samples must be classified as rich both in EOM and EHC. However, the EOM normalised and EHC normalised to TOC of the shales with lowest TOC values, are extremely high compared with the rest (7800 mgs EOM/gTOC and > 690 mgs EHC/g TOC), which suggests they are most probably stained with migrated hydrocarbons.

Haugesund Formation (4236 - 4560 m)

Ten samples were extracted. For the compositions and list of the samples, see Table 3a-e.

The EOM values of all of the samples are rich (range 2420 to 13269 ppm) with the highest EOM values in the zone from 4430 m to 4544 m. The EHC is rich for all the samples, except the sample from 4398 m (range 1538 to 6818 ppm). The sample from 4398 m has a fair EHC (166 ppm). Again the highest values are found in the zone from 4430 m to 4544 m.

The zone from 4430 m to 4544 m has roughly double the content of EHC compared with the zone from 4270 m to 4356 m. The content of saturated hydrocarbons, in particular, is higher for the lower zone. See Table 3b.

Normalized to TOC the EOM is rich for all except two samples (range 211.74 to 290.11 mg EOM/g rock). The two exceptions are the samples from 4270 m and 4398 m which have values of 199.40 mg EOM/g rock and 99.20 mg EOM/g rock respectively, which means that the first sample has a good EOM, while the second has a fair EOM.

The observed data could be interpreted to mean that the samples in the zone from 4430 m to 4544 m contain migrated hydrocarbons, which have increased the amount of hydrocarbons found in the rock, alternatively that this lower zone is more mature and therefore has produced more hydrocarbons.

Vestland Group (4560 - 4723 m)

Bryne Formation (4560 - 4723 m)

Two samples were extracted (4602 m and 4666 m). For the composition of the samples see Table 3a-e.

The sample from 4602 m is probably dominated by material caved from the Haugesund Fm.

Both samples have a rich EOM (13104 and 11052 ppm) and rich EHC (6169 and 5657 ppm). The proportion of hydrocarbons is high in both samples as is the content of saturated hydrocarbons.

Normalized to TOC, both the EOM (347.61 and 293.17 mg EOM/g rock) and EHC (163.64 and 150.08 mg HC/g rock) must be classified as rich.

Saturated Hydrocarbons

Jurassic (4118 - 4723 m)

Farsund Formation (4149 - 4236 m), Haugesund Formation (4236 - 4560 m) and Bryne Formation (4560 - 4723 m)

All of the analysed formations are discussed together in the saturated hydrocarbons section, because the saturated hydrocarbon data is very similar for all of the samples in these formations.

The calculated saturated ratios are very similar for all the analysed samples in this well. The CPI ranges from 1.06 to 1.16 which rules out immature kerogen type III as a source for the hydrocarbons. The isoprenoid to n-alkane ratios are moderate indicating that the samples are not immature but neither over-mature. The pristane/phytane ratios range from 0.84 to 1.40 which can probably be taken to indicate a fairly reducing environment of deposition. No significant variation can be seen between the analysed formations, indicating that the same types of saturated hydrocarbons are present throughout the analysed section.

The chromatograms are typical for hydrocarbons generated by mature type II kerogen, with a front-end biased chromatograms with n-alkanes decreasing gradually towards the higher molecular weight end. In some of the samples a peak can be seen immediately after the nC₁₅ peak. This is believed to be a contaminant (probably a phthalate) derived from a mud additive.

There is a distinct difference in the n-alkane distribution between the two TOC-rich and two TOC-poor claystone core chips. In the former there is a distinct front-end biased n-alkane distribution due to generation from in-situ marine-derived organic matter. In the TOC-poor claystones the n-alkanes from nC₁₅ - nC₂₀ are relatively less abundant, i.e. there is no front-end bias. This is considered to be due to the presence of residual migrated hydrocarbons in these shales.

Aromatic Hydrocarbons

Commonly used aromatic hydrocarbon parameters are given in Table 5.

Jurassic (4118 - 4723 m)

Farsund Formation (4149 - 4235 m)

The calculated aromatic ratios are fairly similar for the six samples from this formation. The dibenzothiophene/phenanthrene ratio is fairly low (< 0.25), which indicates that the organic sulphur content is fairly low. The MPI 1 index varies considerably. In the cuttings samples it is about 0.8, which indicates that the organic matter is oil window mature, possibly close to the base of the oil window

(equivalent to a calculated vitrinite reflectance of 0.9 % to 1 % Ro). Values of MPI 1 for the core samples are higher in the TOC-poor than the TOC-rich samples. This is expected, as the TOC-poor shales are considered to be heavily stained with migrated hydrocarbons. Calculated vitrinite reflectance of the TOC-rich claystones is about 0.7 % Ro, i.e. within the oil window, but less mature than estimates from the cuttings samples (which may also be stained with migrated hydrocarbons).

The chromatograms of TOC-poor core chip claystones and the cuttings samples are more similar than they might appear at first sight, because the scale is different in the chromatograms. Both cuttings samples have a very prominent peak (labelled A in Figure 4) in their aromatic hydrocarbon gas chromatograms. This peak is believed to be due to a contaminant from the drilling mud. The most abundant compounds in all these samples are the alkyl phenanthrenes. This probably represents the residual migrated hydrocarbons in the samples. The TOC-rich claystones core chips have more alkyl naphthalenes than phenanthrenes and it is presumed that these represent mainly in-situ hydrocarbons, whereas the others consist of a mixture of in-situ and residual migrated hydrocarbons.

Haugesund Formation (4236 - 4560 m)

Ten samples were analysed, but two of them contained too little material of the aromatic fraction to give proper results (the samples from 4356 m and 4398 m). Therefore aromatic ratios were only calculated for eight samples.

The three samples from the zone from 4270 m to 4330 m are similar, both in aromatic ratios and in the overall appearance of the chromatograms. The dibenzothiophene/phenanthrene ratio is similar to the one found in the Farsund Fm. and indicates a low sulphur content. The MPI1

suggests that the hydrocarbons are of oil window maturity. Phenanthrenes and the heavier naphthalenes dominate the chromatograms. They are typical of mature hydrocarbons.

The chromatograms probably represent hydrocarbons generated from kerogen type II.

The zone from 4356 m to 4544 m is more variable than the previous zone. The aromatic ratios are fairly similar within the zone, but could not be calculated for the samples from 4356 m and 4544 m. Most of the ratios are similar to those found in the upper zone, indicating that this lower zone has hydrocarbons of oil window maturity and that they contain relatively little sulphur.

The chromatograms of the samples are somewhat different. The chromatograms of the two upper samples are very poor due to the small amount of material available for analysis and they do not reveal any details about the composition of the aromatic hydrocarbon fraction.

The chromatograms of the samples from 4474 m, 4528 m and 4544 m are fairly similar to those from the upper zone of the Haugesund Fm., although the dimethylnaphthalenes are more prominent in these samples than in the upper zone. This could be a maturation effect but is more likely due to slight variations in the work-up procedure. However, these chromatograms probably represent the same type of hydrocarbons generated from the same type of kerogen as in the upper zone of the Haugesund Fm.

The chromatograms of the samples from 4430 m and 4482 m display peaks that are identical and proportional with the other chromatograms of the Haugesund Fm. However, they also contain a large unresolved hump which increases with increasing retention time. This probably represents

residual/migrated oil. See discussion in thermal extraction/
pyrolysis gas - chromatography sections.

Vestland Group (4560 - 4723 m)

Bryne Formation (4560 - 4723 m)

The calculated aromatic ratios are similar to the other ones for this well although some of the ratios could not be calculated. The samples are lean in sulphur compounds as are the other samples from this well.

The first of the samples (from 4602 m) is believed to contain caved material (see discussion in previous sections). The chromatogram for this sample is very similar to the ones from 4430 m and 4482 m and it is believed to have the same hydrocarbon content as these samples (see discussion above).

The second of the samples (from 4666 m) is not very different from the first sample, but seems to contain less hydrocarbons in the form of identifiable peaks than does the first sample. Large amounts of the hydrocarbons are also present as a general "hump" in the chromatogram. This "hump" probably represents residual/migrated hydrocarbons. See discussion in thermal extraction/pyrolysis gas - chromatography sections.

THERMAL EXTRACTION - GAS CHROMATOGRAPHY

Jurassic (4118 - 4723 m)

Tyne Group (4118 - 4560 m)

Mandal Formation (4118 - 4149 m)

One sample from this formation was analysed (from 4130 m). It consists of grey-black to brown-black claystone, although it is probably mixed with material caved from the Valhall Fm. and it is probably more representative of the Valhall Fm. than the Mandal Fm.

The chromatogram shows that the sample is virtually barren of free hydrocarbons.

Farsund Formation (4149 - 4236 m)

Six samples were analysed. Of these samples the one from 4200 m of a medium grey to dark grey claystone, probably represents material caved from the Valhall Fm.. This sample is virtually barren of free hydrocarbons.

The five samples thought to be in-situ have fairly similar chromatograms, although some variation can be found. The chromatogram of the first sample (4160 m) is very similar to the chromatogram of diesel (see Figure 6). However, the variation in the chromatograms for the samples of this formation is much greater than would be expected for a distilled product like diesel. The most likely explanation is that the samples contain mostly in-situ generated hydrocarbons. The reason for the lack of the material below C₁₃ is probably that these hydrocarbons have escaped during the long storage period of the samples (seven years).

Haugesund Formation (4236 - 4560 m)

Twenty-seven samples have been analysed. The analysed samples might be divided into two zones, the upper zone from 4250 m to 4356 m and the lower zone from 4374 m to 4550 m.

The samples from the first zone generally have a unimodal distribution of hydrocarbons. The maximum in the samples seems to shift from around C_{15} to around C_{20} . As for the samples from the Farsund Fm., the lighter hydrocarbons have probably been lost during storage, and the chromatograms therefore represent a normal distribution of in-situ generated hydrocarbons. Some of the samples might also contain migrated/residual oil which is seen as an unresolved hump at the higher molecular weight end of some of the chromatograms.

The samples from the second zone are not markedly different from the samples from the first zone, but they tend to have a bimodal distribution of hydrocarbons, and some of them also clearly contain residual oil (migrated into the rock). An extreme example of both a bimodal distribution and of a sample containing residual oil can be seen in figure 7. The hydrocarbons in the $nC_{20} - nC_{30}$ range believed to represent residual oil, left by hydrocarbons migrating through the rock. The lighter hydrocarbons, around nC_{13} are believed to be in-situ generated hydrocarbons.

The upper zone of the Haugesund Fm. (4236 m to about 4360 m) is believed to contain almost only hydrocarbons generated in-situ. If one assumes that the light hydrocarbons have been lost during seven years of storage the composition of the hydrocarbons of the samples would be typically produced by kerogen type II to II/III at close to peak oil generation maturity.

The lower zone of the Haugesund Fm. (about 4360 m to 4560 m) is believed to contain a mixture of in-situ generated

hydrocarbons and migrated hydrocarbons of the residual oil type. The in-situ hydrocarbons are difficult to distinguish entirely from the migrated hydrocarbons. It therefore appears that the Haugesund Fm. (although itself a source rock), acts as a cap-rock, with the lower part impregnated with migrated hydrocarbons.

Vestland Group (4560 - 4723 m)

Bryne Formation (4560 - 4723 m)

Seven samples have been analysed. The two upper samples (from 4580 m and 4602 m) are believed to contain caved material. The chromatograms are similar to those of the Haugesund Fm.. (Compare the chromatograms for 4540 m and for 4580 m for example). The sample from 4616 m is believed to be in-situ. The chromatogram of this sample is typical of residual oil, with a maximum at around nC_{22} . The front end of this chromatogram is dominated by a contaminant (between about 23 and 30 minutes retention time). The sample from 4656 m displays the same peak of residual oil around nC_{22} and the same contaminant, but it also contains some lighter hydrocarbons, and the distribution of hydrocarbons is clearly bimodal. The source of these lighter hydrocarbons might be caved material from the Haugesund Fm.. The sample from 4670 m is probably very strongly influenced by caved material from the Haugesund Fm. (see also discussion in previous sections). The front end of the chromatogram is dominated by the same contaminant as the other samples from the Bryne Fm.. The residual oil peak can be seen, but there also seems to be a second peak around nC_{30}/nC_{31} . This peak might represent a contaminant or heavy residual oil. The light hydrocarbons in the front end (around nC_{15}) are probably due to influence from caved material from the Haugesund Fm.. The sample of grey red claystone from 4714 m contains the same contaminant as the other Bryne Fm. samples. It is also typical for the residual oils of the

Bryne Fm. although it can not be excluded that the light hydrocarbons might be due to influence from caved material from the Haugesund Fm.. The chromatogram of the sample from the medium to dark grey claystone from the same depth is fairly similar, except that it contains more of the light hydrocarbons. This sample is also believed to be heavily influenced by caved material from the Haugesund Fm.

It appears that the hydrocarbon content of the lower part of the Haugesund Fm. and the Bryne Fm. is somewhat similar, in that both contain residual oil, but the Haugesund Fm. samples also contain in-situ generated lighter hydrocarbons.

Permian (4723 - 4760 m, TD)

Zechstein Group (4723 - 4760 m)

One sample was analysed. The sample is believed to contain only caved material (see previous discussions). The chromatogram is very similar to those of the Haugesund Fm. chromatograms of in-situ generated hydrocarbons. This chromatogram does not give any information about the Zechstein Group.

PYROLYSIS - GAS CHROMATOGRAPHY

Jurassic (4118 - 4723 m)

Tyne Group (4118 - 4560 m)

Mandal Formation (4118 - 4149 m)

One sample was analysed (from 4130 m). The analysed material is caved from the Valhall Fm. and the results are therefore applicable to the Valhall Fm. and not to the Mandal Fm.. The chromatogram shows a sample that is virtually barren.

Farsund Formation (4149 - 4236 m)

Six samples were analysed. The medium to dark grey sample from 4200 m is believed to be caved and the chromatogram shows a sample that is virtually barren. The other five chromatograms are similar and are typical of samples containing kerogen type II/III. There is, however, one abnormal feature in all of the pyrograms. At the higher molecular weight end of the pyrograms, (nC_{20} - nC_{30} range), the doublets are completely dominated by n-alkanes. These hydrocarbons are not believed to be cracking products of the kerogen of the samples, but are believed to come from asphaltenes or residual oil in the samples (see figure 8).

Haugesund Formation (4236 - 4560 m)

Twenty-seven samples were analysed. All of these samples are believed to be in-situ. The samples from the upper zone (from 4236 m to 4360 m) have very similar pyrograms and they are also similar to the pyrograms for the Farsund Fm. samples. Figure 8 is a typical pyrogram for the upper zone

of the Haugesund Fm.. The upper zone of the Haugesund Fm. contains kerogen type II/III but also some asphaltene and/or residual oil that comes from hydrocarbons that have probably migrated through the rock.

The samples from the lower zone of the Haugesund Fm. (4360 m to 4560 m) are somewhat different from those of the upper zone. In the nC_{20} - nC_{30} range, pyrograms are dominated by n-alkanes, which indicates asphaltenes/residual oil, probably due to migrated hydrocarbons. Otherwise the pyrograms are typical of samples containing kerogen type III. See Figure 9 for a typical pyrogram of the lower zone.

Vestland Group (4560 - 4723 m)

Bryne Formation (4560 - 4723 m)

Eight samples were analysed. The two samples from 4580 m and 4602 m are believed to be caved and the pyrograms are similar to those of the Haugesund Fm.. The two samples from 4616 m and 4656 m are believed to be in-situ. The pyrograms of these samples are similar and display a relatively large amount of asphaltenes/residual oil. The amount of hydrocarbons produced by pyrolysis of the kerogen of these samples is small. The samples probably contain smaller amounts of kerogen type III, but the total yield from this kerogen is small. See Figure 10 for a typical example.

The samples from 4670 m and 4714 m are probably strongly affected by caved material from the Haugesund Fm.

Permian (4723 - 4760 m, TD)

Zechstein Group (4723 - 4760 m)

One sample was analysed. It represents caved material.

VITRINITE REFLECTANCE ANALYSIS

Reflectance data can be found in Table 6. A reflectance/depth profile appears in Figure 11.

Twenty-five samples were analysed over the interval 940 m to 4714 m. Thirteen samples were analysed from the Tertiary section of the well. Lithologies are shales and coals and between 940 m and 2820 m, all samples contain moderate to high proportions of vitrinite to inertinite and generally low total amounts of phytoclasts. Reflectance values increase gently and regularly in this region of the profile, rising from 0.32 % at 940 m to 0.46 % at 2820 m. The claystone at 2300 m and the coal at 2480 m have depressed reflectances due to bitumen staining. Spores are present in almost all of these samples and both yellow and yellow-orange spore fluorescence colours are found. The sample from 2820 m, however, contains only yellow-orange spores, indicating an increase in maturity. The lowermost Tertiary sample (3000 m), again, has a claystone lithology but is very poor in organic matter and contains only a trace of vitrinite. A reflectance value of 0.47 % was obtained from only 3 readings but it appears to be reliable as it fits well with the preceding gradient and also agrees with the yellow-orange and light orange fluorescing spores identified in this sample.

Six samples were analysed from the Cretaceous section of the well. The uppermost Cretaceous sample (3170 m) has a partly oxidized claystone lithology and also contains coal additive. Only a trace of phytoclasts are present, most of which are inertinite. Eleven vitrinite particles were located and form two distinct reflectance populations. The lower reflecting population (0.39 %, 6 readings) is almost certainly caved from the Tertiary, whereas the higher reflecting population (0.58 %, 4 readings) represents in-situ vitrinite but probably has an elevated reflectance

due to the oxidized state of the lithology. The following two Cretaceous samples (3340 m and 3500 m) have pure chalk lithologies and are barren of organic matter. The two samples below this (3670 m and 4020 m) are mainly chalk but contain a trace amount of claystone. In the upper sample a reflectance value of 0.42 % was obtained from 5 readings, indicating that the claystone is caved. The trace of claystone in the lower sample is very calcareous and contains no vitrinite. The lowermost Cretaceous sample (4110 m) has a mixed calcareous claystone and marl lithology which is virtually barren of organic matter. Four vitrinites were located and these give an average reflectance of 0.79 %. The sample is virtually barren of fluorescing organic matter and no spores were detected.

Six samples were analysed from the Jurassic section of the well. The uppermost Jurassic sample has a calcareous claystone and limestone lithology which is virtually barren of organic matter. However, there is also a trace of organic rich claystone which contains moderate staining and a low amount of phytoclasts. A reflectance value of 0.82 % was obtained from 24 readings on the organic rich lithology. No vitrinite was located in the calcareous lithologies. In U.V. light one moderate orange spore was identified, indicating a slightly lower maturity equivalent to 0.6 % to 0.7 % Ro.

Three samples were analysed from the Haugesund Fm. The upper sample (4300 m) has a silty claystone lithology and moderate to high staining and liptinitic wisps and laminae. There is a moderate amount of phytoclasts which are largely inertinite. A reflectance value of 0.81 % was obtained from 16 readings. Much low-reflecting vitrinite (0.35 % - 0.5 % Ro) is also present. In UV light a large amount of fluorescing, hydrocarbon-rich fluid passes out of hair-line cracks in the rock surface. In addition, a high amount of fluorescing organic matter is present, mainly in the form of bituminite and semi-degraded material. Many partly degraded tasmanites algae are present and it appears that most of the

semi-degraded material is of algal origin. No spores were identified in this sample. The next Haugesund sample (4398 m), again, has a silty claystone lithology but contains a high amount of very fine grained pyrite. Some of the cuttings have been turbodrilled. Bitumen staining is high and only a trace of phytoclasts are present, most of which are inertinite. A reflectance value of 0.84 % was obtained from 15 readings. In UV light viewing of the sample is made difficult by the large amount of yellow-green fluorescing liquid which pours from the cuttings. It is possible that this liquid is an additive as it appears to come mainly from turbodrilled cuttings. Some orange, semi-structured, organic matter is visible (possibly semi-degraded tasmanites algae) but no spores were found. The lowermost Haugesund Fm. sample (4498 m) is completely turbodrilled and also contains coal additive. Bitumen staining is high and a trace of phytoclasts are present. Six vitrinites were located and these give an average reflectance of 0.96 %. A trace of very dull reddish-orange fluorescence is present. This comes from liptodetrinite and semi-amorphous organic matter. Fluorescing fluid is, again, expelled from the cuttings but not as strongly as in the previous sample. Again, no spores were located.

Two samples were analysed from the Bryne Fm. The upper sample (4616 m) has a claystone and calcareous claystone lithology which is entirely turbodrilled. Organic matter is virtually barren but eleven vitrinites were located and these give an average reflectance of 0.96 %. In UV light a trace of dark reddish fluorescing organic matter is present and, again, fluorescing liquid passes from the cuttings. The lowermost sample from the Bryne Fm. (4714 m) has an organic rich claystone lithology and only a few of the cuttings are turbodrilled. Bitumen staining and liptinitic wisps are high but only a trace of phytoclasts are present. Vitrinites are small but generally have good surfaces and an average reflectance of 0.98 % was obtained from 27 readings. A high amount of dull fluorescing, reddish-orange bituminite and

semi-amorphous organic matter is present. A small amount of fluorescing liquid passes from the cuttings and, again, no spores were identified.

To summarize the reflectance gradient for the well, a very smooth gentle increase in reflectance is seen over the interval 940 m to 3000 m and data is of good quality. The Cretaceous section of the well, on the other hand gives very poor data due to the absence of in-situ vitrinite. The lowermost Cretaceous sample, although organic lean, does appear to contain some in-situ vitrinite and gives a value of 0.79 %, indicating that maturity has risen from moderately mature to mature over the Cretaceous interval. Data for the Jurassic section of the well is generally of good quality, despite the turbodrilling between 4390 m and 4620 m. The data points show a more rapid increase in reflectance than in the upper section of the well, with values rising from approximately 0.8 % at 4150 m to 1 % at approximately 4700 m. The well is immature from the top of the analysed section down to a depth of approximately 2000 m, moderately mature from 2000 m to approximately 3450 m and mature from 3450 m to the bottom of the analysed section. Peak oil maturity is at approximately 4400 m.

VISUAL KEROGEN COMPOSITION

Twenty samples from this well were examined in transmitted light. The samples range from 4190 m (Farsund Fm.) to 4740 m (Zechstein). All of the samples are shale/claystone and most are grey-black or brown-black with some grey-red towards the base.

The data is plotted in Figure 12.

Two samples of grey-black, brown-black claystone from the Farsund Fm. were analysed. Both samples appear to be completely dominated by vitrinite (90 %, vitrodetrinite and amorphinite V) with only small amounts of liptinite (5 %, detrital and spore/pollen material) and inertinite (5 %, inertodetrinite). The samples appear to be very dark although an SCI of approximately 6 is observed (early oil window maturity).

Fourteen samples from the Haugesund Fm. were examined. In these samples, vitrinite is dominant throughout, although less so in the middle of the sequence. The vitrinite component in this section ranges from 60 % (4430 m and 4498 m) to 90 % (4260 m and 4550 m) and is mainly amorphous and detrital. The inertinite component is secondary and includes inertodetrinite throughout with some semi-fusinite recognizable. The inertinite content ranges from 5 % (4260 m) to 40 % (4498 m). Liptinite is minor throughout (trace to 10 %) and is mainly liptodetrinite with some spore/pollen material. In several samples the liptinite component occurs in aggregates. There is very little fluorescence observed and the samples appear dark. It is possible that maturation or drilling affects have reduced the amount of recognizable liptinite material. Spore colour indices are very variable (everything from 5 to 8 observed). It is not clear if this is due to reworking or drilling artefacts. It appears that the whole formation is within the

oil window.

Three samples from the Bryne Fm. were analysed (4616 m, 4670 m and 4714 m). The sample from 4714 m is a grey-red claystone and the kerogen extracted was too sparse for a confident compositional estimate. Vitrinite dominates in the remaining two samples (90% in 4616 m and 70 % in 4670 m). The vitrinite is both detrital and amorphous. The inertinite content (10 % in 4616 m and 30 % in 4670 m) contains both inertodetrinite and semi-fusinite. Only traces of liptodetrinite were observed. No estimate of SCI level was possible for this section.

The one sample from the Zechstein (4740 m) is a medium grey to dark grey claystone. It is difficult to give a precise composition for this sample but it appears to be dominated by vitrinite (60 %, vitrodetrinite and amorphinite V) with 30 % inertinite (semi-fusinite and inertodetrinite). The liptinite content is 10 %, mainly as liptodetrinite but also possibly resinite (the sample contains some amorphous, flaky, slightly fluorescent lumps which may be vitrinite or resinite). It was not possible to establish a SCI value for this sample.

GAS CHROMATOGRAPHY - MASS SPECTROMETRY

Five samples, one from the Mandal Fm., three from the Haugesund Fm. and one from the Bryne Fm., were analysed by GC - MS (Tables 9-13).

Saturated Hydrocarbons

Terpanes

The M/Z 163 fragmentograms show only background noise, except for the sample from 4300 m, which clearly shows the steranes and triterpanes. The M/Z 177 fragmentograms only show the C₂₉ αβ hopane peak, except for the sample from 4300 m, which shows a complete pattern of steranes and triterpanes. The M/Z 191 fragmentograms show the tricyclic terpanes as minor components in all samples, compared to the pentacyclic compounds. The pentacyclic compounds show some variation between the different samples. In the Mandal Fm. sample the C₃₀ αβ hopane is the largest peak and there is approximately equal abundance of C₂₉ αβ hopane and the C₃₁ αβ hopanes. Peak X is also quite prominent in this sample. The Haugesund Fm. samples show some variation, especially in the relative intensity of the C₂₉ αβ hopane. This is the largest peak in the sample from 4430 m, whilst the samples from 4300 m and 4520 m show this as a minor peak. In these two samples the peak X has a similar relative intensity compared to C₂₉ αβ hopane, as in the Mandal Fm. sample, whilst it is not identified for the sample from 4430 m. In the Bryne Fm. sample the C₂₉ αβ hopane and C₃₀ αβ hopane peaks are of approximately equal height. This sample shows a large peak where the C₃₀ 22R αβ hopane would elute. This is probably gammacerane which coelutes with C₃₀ 22R αβ hopane. The presence of gammacerane indicates hydrocarbons generated from a lacustrine environment. The M/Z 205 fragmentograms

mainly show the doublet from the C_{31} $\alpha\beta$ hopane. Again, the Bryne Fm. sample shows a strange distribution, with the second peak in the doublet, i.e. C_{31} 22R $\alpha\beta$ hopane dominant. It is presently not known why such a strange pattern is seen. Of the fragmentograms of the molecular ions, the M/Z 370 fragmentograms show the two peaks for 17 α trisnorhopane and 18 α trisnorneohopane for most samples, whilst the 25,28,30 trisnorhopane is also found for the sample from 4430 m. The M/Z 384 fragmentograms show mainly background material whilst the M/Z 398 fragmentograms show some variations. The samples from the Mandal Fm., 4300 m in the Haugesund Fm. and the Bryne Fm. samples, show the C_{29} $\alpha\beta$ hopane and C_{30} $\alpha\beta$ hopane peaks. The two remaining samples from the Haugesund Fm. show these two peaks together with another peak eluting in front of the C_{29} $\alpha\beta$ hopane peak. It must be another C_{29} triterpane, but it is not identified. The rest of the molecular ion fragmentograms verify what has been discussed above.

Steranes

The M/Z 149 fragmentograms show only one large peak for some of the samples, whilst the Haugesund Fm. samples from 4300 m and 4430 m also show the steranes, with the C_{27} rearranged steranes as the largest peaks. The M/Z 189 fragmentograms show the rearranged steranes, especially the C_{27} components, as the major peaks. This is verified in the M/Z 259 fragmentograms. The M/Z 217 and M/Z 218 fragmentograms show a strange pattern where the Haugesund Fm. samples have a large abundance of C_{29} regular steranes. This indicates an input of terrestrial matter in these samples. The fragmentograms of the molecular ions verify what has been discussed above, especially the large abundance of the C_{29} regular steranes in the Haugesund Fm. samples.

Aromatic Hydrocarbons

Alkyl Benzenes

The M/Z 106 fragmentograms for the C₂ alkyl benzenes show the typical series of doublets for all five samples. The greatest difference between the samples is the relative abundance of the single peak with a retention time of approximately 41 minutes. This decreases with increasing depth for the Mandal and Haugesund Fm. samples, then increases again for the Bryne Fm. samples. The M/Z 134 fragmentograms for the C₄ alkyl benzenes show only a few distinct peaks, whilst the background is prominent. Further discussion is therefore not undertaken.

Naphthalenes

The M/Z 142 fragmentograms show that the methyl naphthalenes are affected by evaporation in almost all of the samples, whilst the M/Z 156 fragmentograms show some variation for the five samples. This is mainly in the relative intensity of the 2,6 + 2,7 dimethyl naphthalene peak versus the 1,4 + 2,3 + 1,5 dimethyl naphthalene peak. The former is the smallest in the Mandal Fm. sample and the Bryne Fm. sample, whilst they have approximately equal peak height in the Haugesund Fm. samples. This variation might be due to severe evaporation in the Mandal Fm. and Bryne Fm. samples. The M/Z 170 fragmentograms show only minor variation for the five samples.

Phenanthrenes

The M/Z 178 fragmentograms only show the single peak for phenanthrene, whilst the M/Z 192 fragmentograms show the two doublets for methyl phenanthrenes. The 9+1 methyl

phenanthrene doublet is the largest for all five samples. The M/Z 206 and M/Z 220 fragmentograms for C₂ and C₃ substituted phenanthrenes respectively show only minor variations for the five samples.

Dibenzothiophenes

The M/Z 198 fragmentograms, representing methyl dibenzothiophenes, show that the 4 methyl dibenzothiophene is the largest peak and 1 methyl dibenzothiophene is the smallest peak, typical for well mature samples. The five samples have almost identical patterns. The M/Z 212 fragmentograms show the usual pattern for C₂ dibenzothiophenes in well mature samples. There are only minor variations between the five samples.

Aromatic Steranes

In the M/Z 231 fragmentograms the C₂₀ and C₂₁ peaks are the largest peaks in all five samples, clearly indicating high maturity. There is clearly a variation in the relative abundance of the C₂₆ - C₂₈ triaromatic steranes compared to the C₂₀ - C₂₁ triaromatic steranes, for the five samples. There is a far lower abundance of the C₂₆ - C₂₈ components in the sample from 4528 m in the Haugesund Fm. and the Bryne Fm. samples, than in the other samples. This probably represents the increase in maturity for these samples compared to the Mandal Fm. sample. The ratio of low molecular weight components to high molecular components is far larger for the triaromatic steranes than for the monoaromatic steranes in these samples.

ISOTOPE ANALYSIS OF C₁₅⁺ FRACTIONS

The results of the stable carbon isotope analysis can be found in Table 14.

One shale from the Farsund Fm. (4200 m), four shales from the Haugesund Fm. (4300 m, 4430 m, 4482 m and 4528 m) and two shales from the Bryne Fm. (4602 m, 4666 m) were analysed. Figure 15 shows a crossplot of the $\delta^{13}\text{C}$ of saturated versus aromatic hydrocarbon fractions based on published data of Sofer's (1984). Where data was available, for three Haugesund Fm. shales, samples plot within or close to the boundary between the marine and non-marine fields of the diagram. Either this indicates a high terrestrial input to the Haugesund Fm. (?) or the samples are contaminated with a non-marine derived oil (?). The isotope values for the NSO compounds are apparently lighter than the aromatics in these samples, which is unusual and might mean that the fractions consist of a mixture of indigenous and migrated hydrocarbons.

CONCLUSIONS

1. Source Rock Potential

Lower Cretaceous (3826 - 4118 m)

Valhall Formation (3851 - 4118 m)

The Valhall Fm. does not seem to have any source rock potential.

Jurassic (4118 - 4723 m)

Tyne Group (4118 - 4560 m)

Mandal Formation (4118 - 4149 m)

No in-situ samples from the Mandal Fm. were analysed, as caving was very prominent in this part of the well. No interpretation can therefore be given about the source rock potential of this formation. It is, however, possible that material from the Mandal Fm. can have been mixed into the material from the Farsund Fm. and Haugesund Fm. and thereby affected the hydrocarbon potential of these formations.

Farsund Formation (4149 - 4236 m)

This formation seems to have a rich potential for generation of hydrocarbons. The kerogen is believed to be of type II/III. The formation is probably mostly gas prone, although it is also believed to be capable of generating some oil.

The presence of migrated oil might have led to some over estimation of the hydrocarbon potential of this formation.

Haugesund Formation (4236 - 4560 m)

The upper zone of this formation (down to about 4360 m) seems to have a rich potential for generation of hydrocarbons. The kerogen is very similar to that of the Farsund Fm. The zone is probably mostly gas prone, although it is also believed that it can generate hydrocarbons in the form of oil.

For the lower zone of this formation (from about 4360 m), it is difficult to estimate the potential for generation of hydrocarbons due to the content of migrated hydrocarbons. The kerogen is believed to be mostly of type III and the zone is gas prone.

The Haugesund Fm. is considered to have a rich potential for hydrocarbon generation. However, it could be that the potential for hydrocarbon generation has been over estimated due to the presence of migrated oil.

Vestland Group (4560 - 4723 m)

Bryne Formation (4560 - 4723 m)

This formation probably has a very poor potential for hydrocarbon generation. This conclusion is mainly derived from the pyrograms of the samples believed to be in-situ. The other analysed samples are highly obscured by migrated hydrocarbons.

Permian (4723 - 4760 m, TD)

Zechstein Group (4723 - 4760 m)

No analyses on in-situ material could be performed. No information about this group has been derived.

2. Generation and Migration

Hydrocarbons seems to have migrated into the Haugesund Fm. (and possibly into the Farsund Fm). These hydrocarbons are mostly found as residual oil in the lower half of the Haugesund Fm. The original reservoir of these hydrocarbons was probably sandstones in the Vestland Group as seems to be confirmed by the presence of residual oil in the otherwise barren red claystones of the Bryne Fm.

3. Maturity

The well seems to become moderately mature at about 2000 m and it is mature from about 3450 m. Peak oil maturity is reached at about 4400 m.

LEGEND FOR FIGURES:

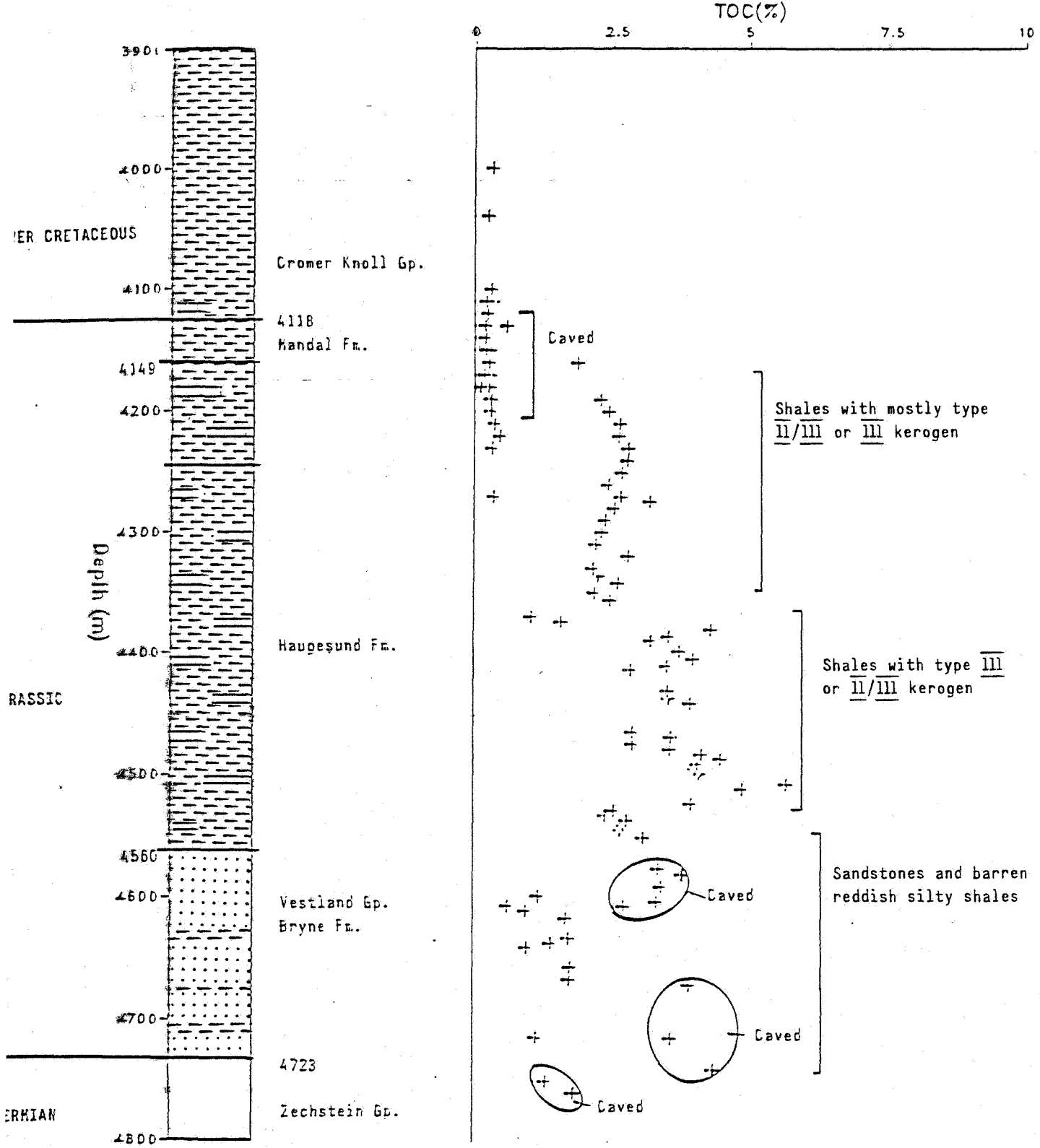
TOC versus Depth
 Production Indices versus Depth
 Tmax versus Depth

- + Shale/Claystone
- x Siltstones
- o Coals
- ▷ Carbonates
- ◇ Sandstones
- ▣ Anhydrite
- ◊ Marls
- Bulk

Figure: 1

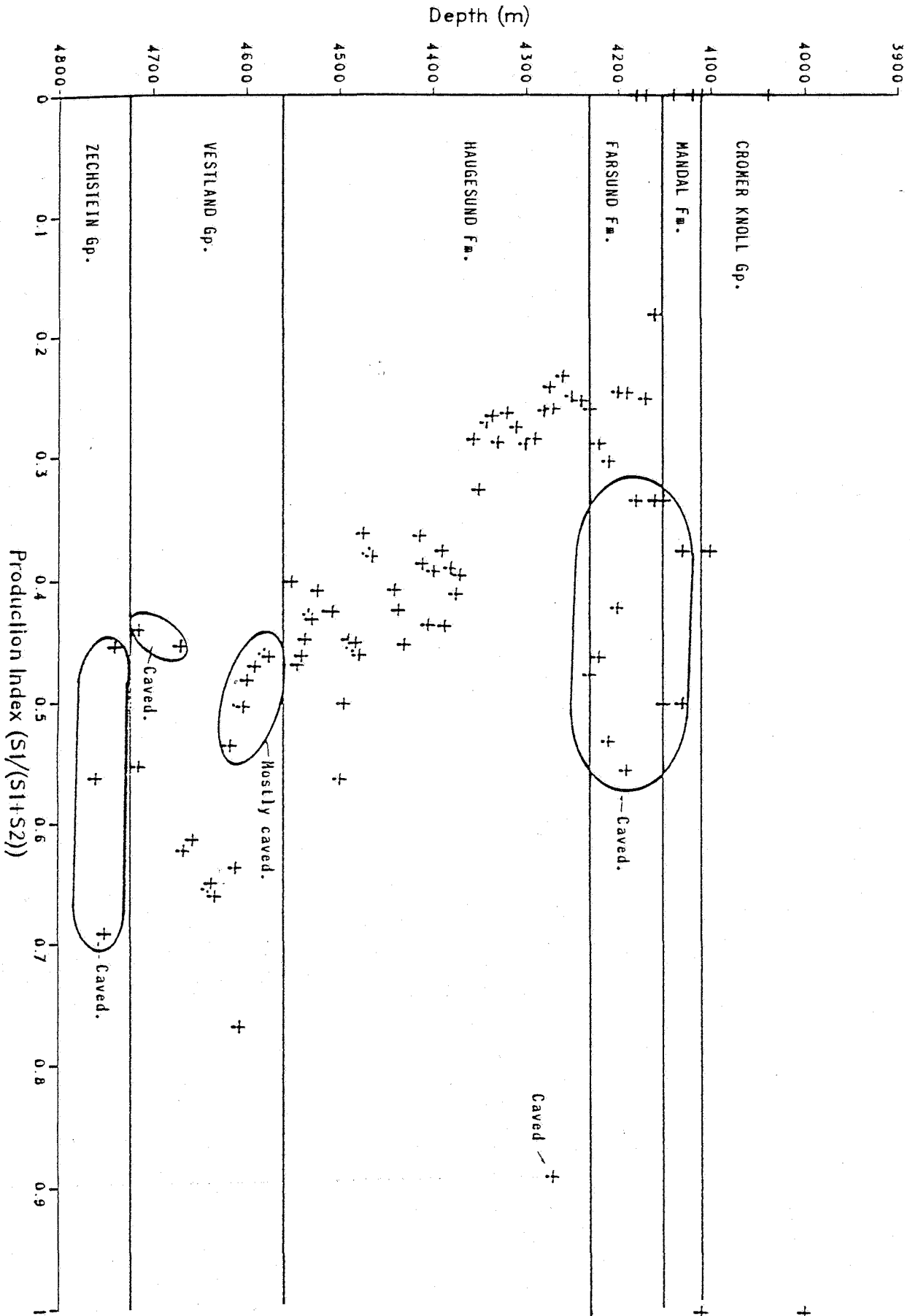
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TOC Data for Well NOCS 2/6-2

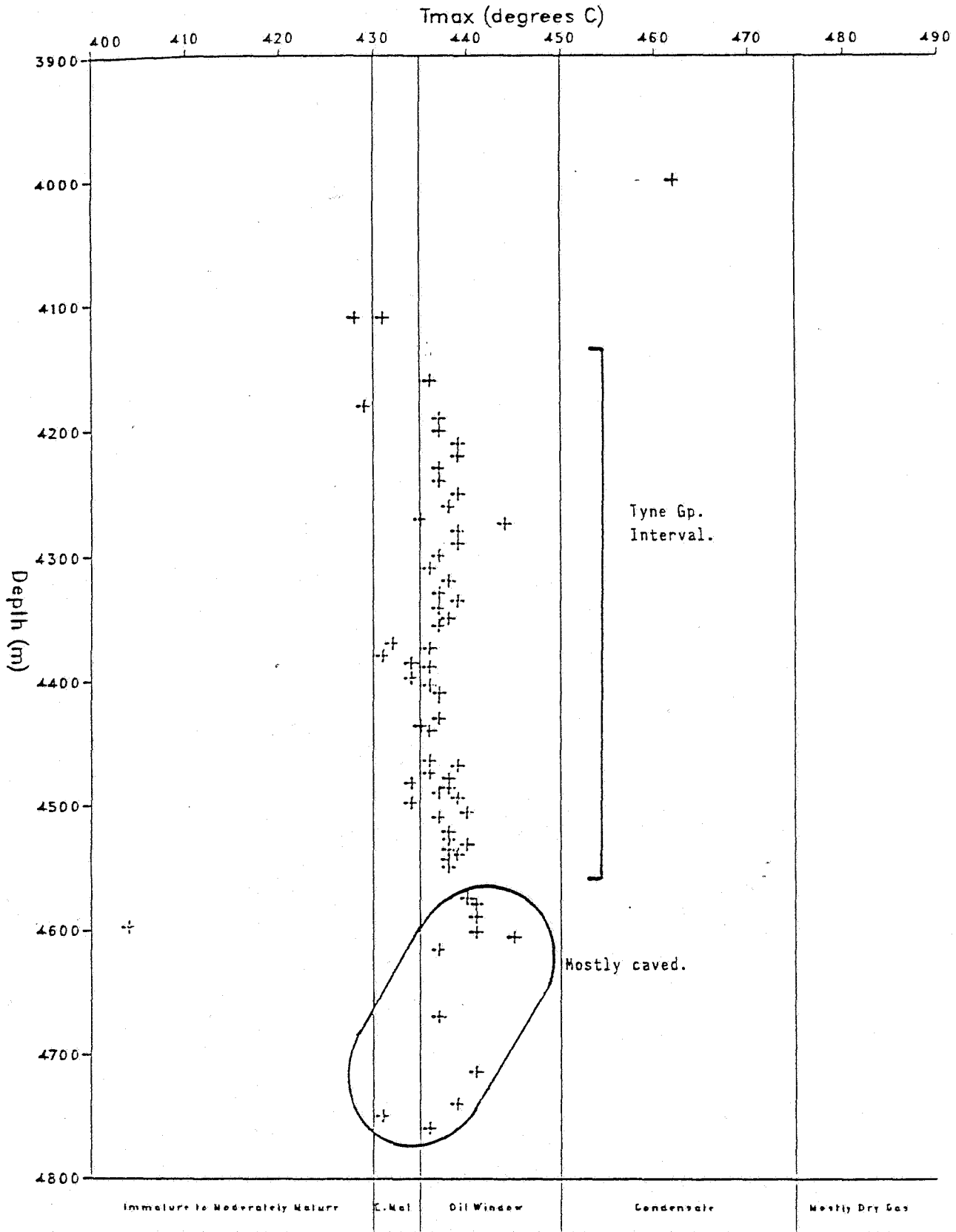


- + Shales
- x Siltstones
- o Coals
- v Carbonates
- d Sandstones
- e Anhydrite

Production Index Data for Well NOCS 2/6-2



Tmax Data for Well NOCS 2/6-2



Analysis AC101260B

8, 1, 1

2/6-2, 4200m, ARO

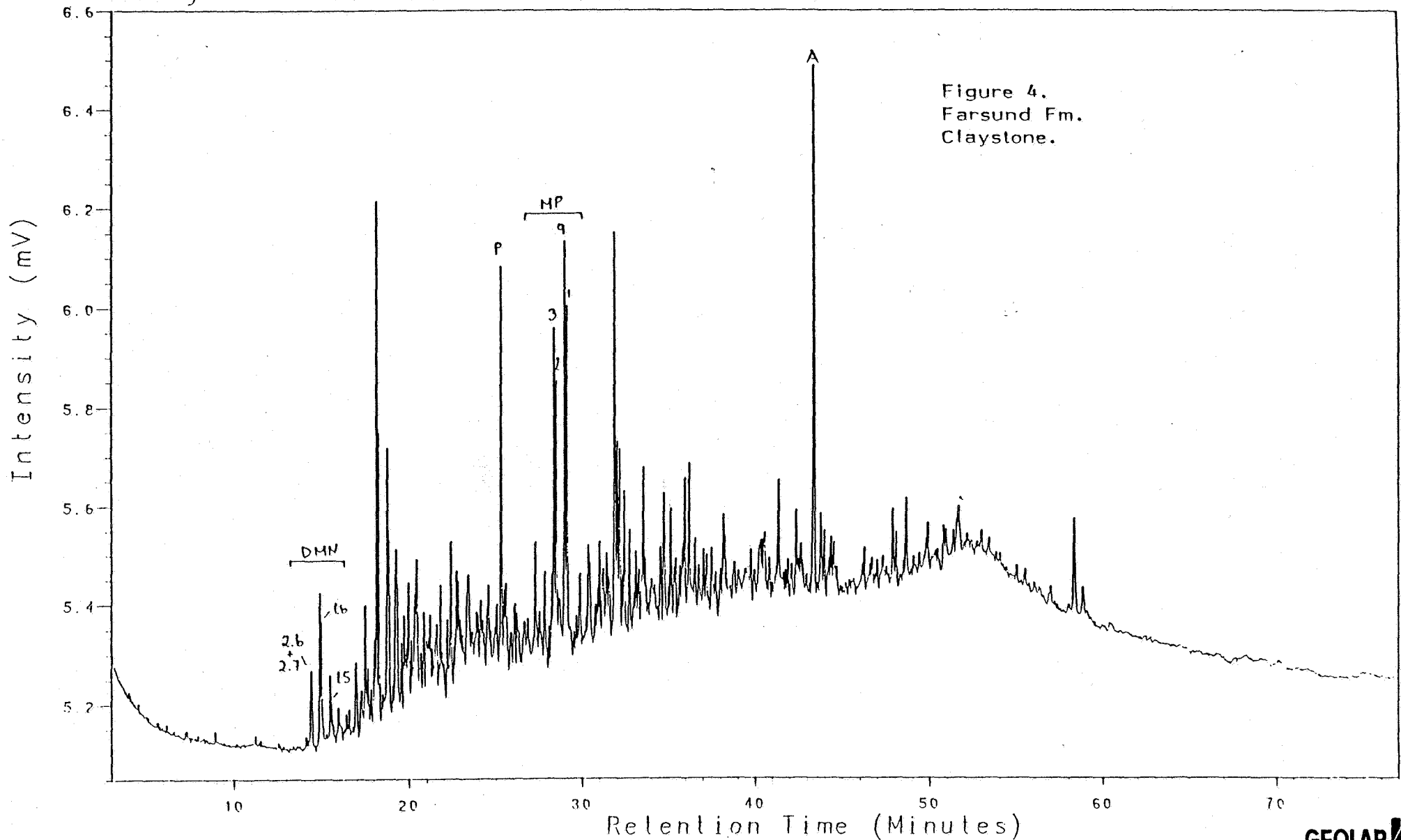


Figure 4.
Farsund Fm.
Claystone.

NOCS 2/6-2 4160-4200m
AROMATIC GC (FID)
CLS: gy blk, brn blk

Analysis AC101360B

8, 1, 1

2/6-2, 4528m, ARO

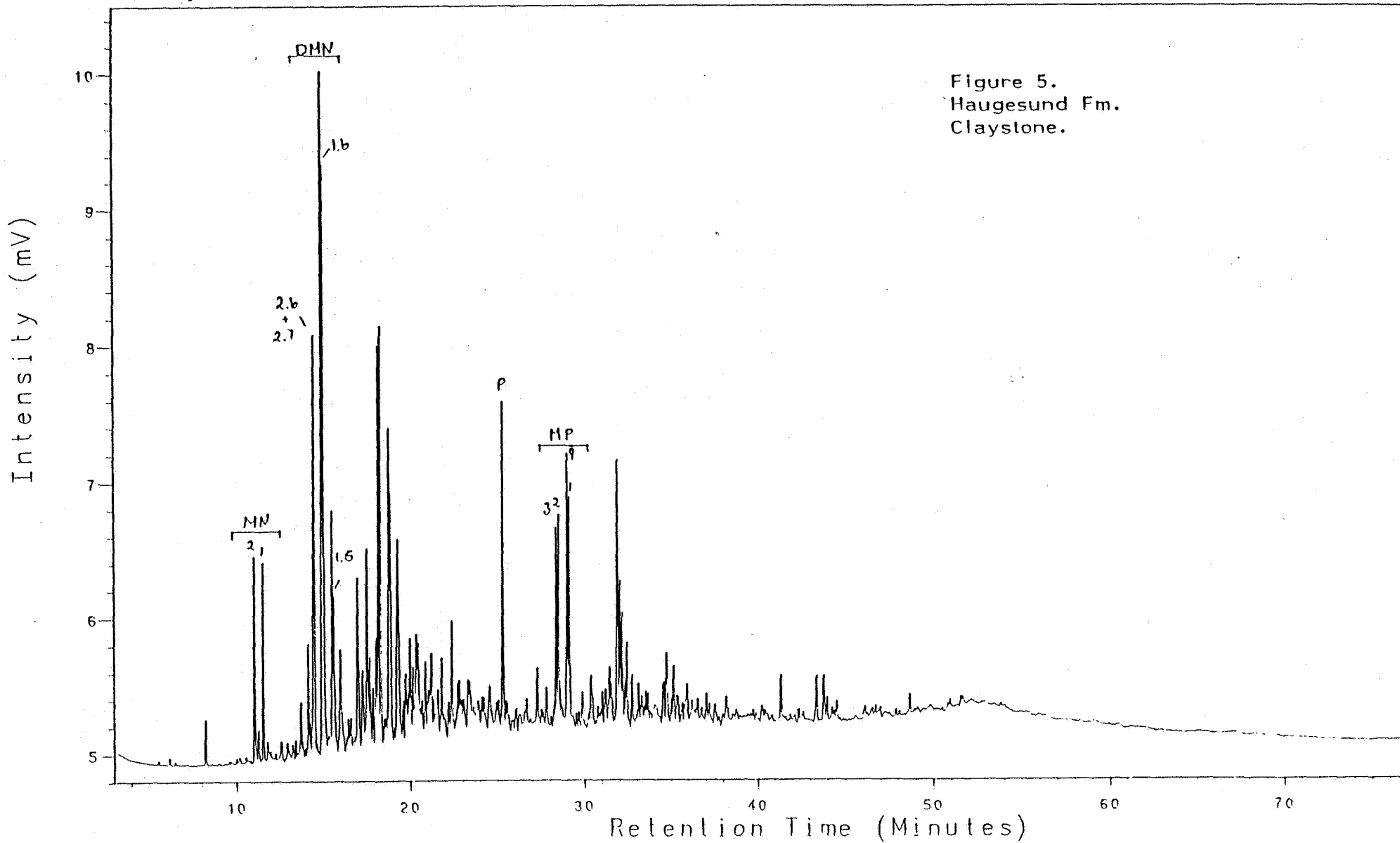


Figure 5.
Haugesund Fm.
Claystone.

NOCS 2/6-2 4506-28m
AROMATIC GC (FID)
CLS: gy blk, brn blk

Analysis PC100342L 24, 1, 1 2/6-2, 4160m, S1

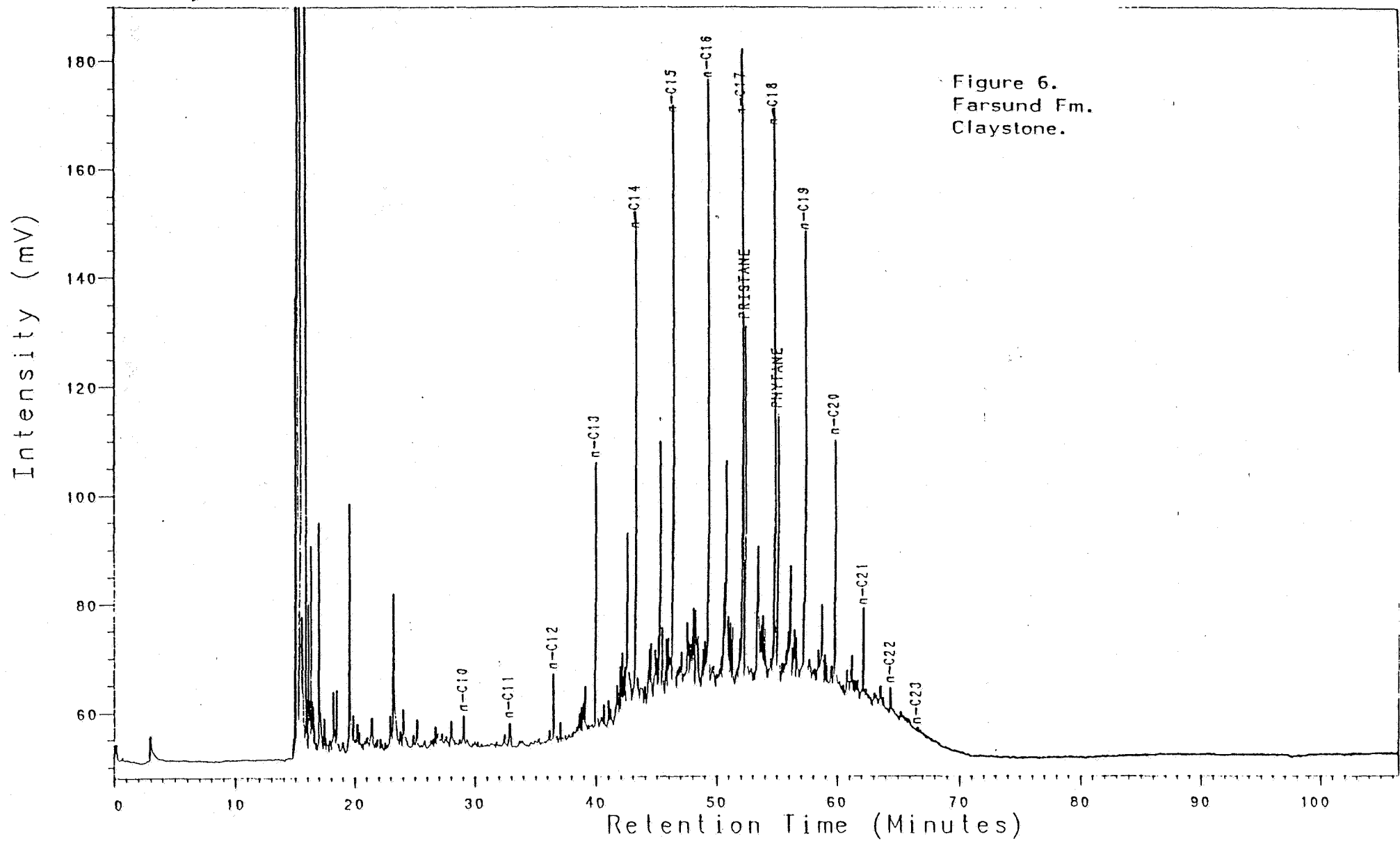


Figure 6.
Farsund Fm.
Claystone.

NOCS 2/6-2 4160m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100651L 24, 1, 1 2/6-2, 4413m, S1

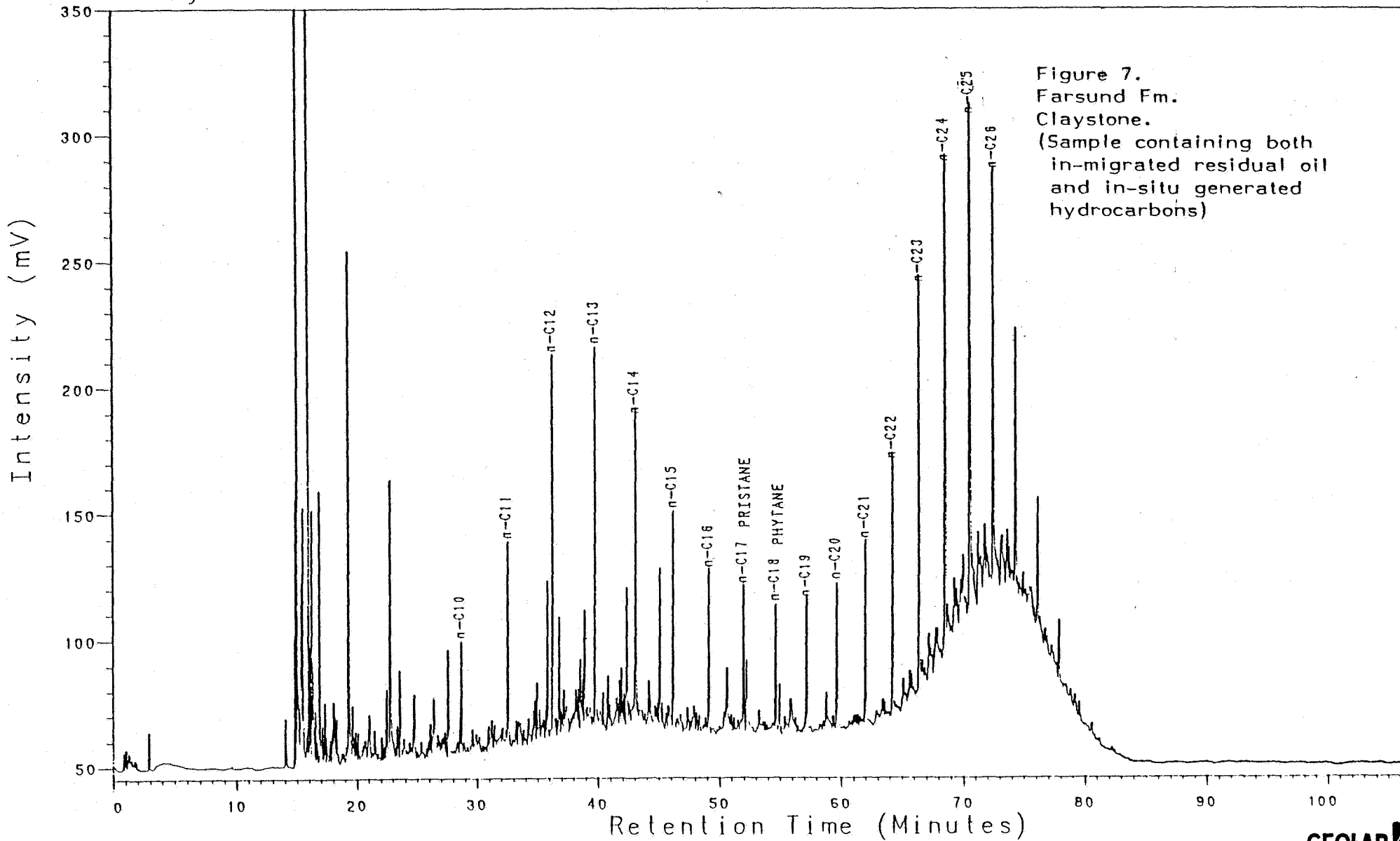


Figure 7.
Farsund Fm.
Claystone.
(Sample containing both
in-migrated residual oil
and in-situ generated
hydrocarbons)

NOCS 2/6-2 4413m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100961L 24, 1, 1 2/6-2, 4616m, S|

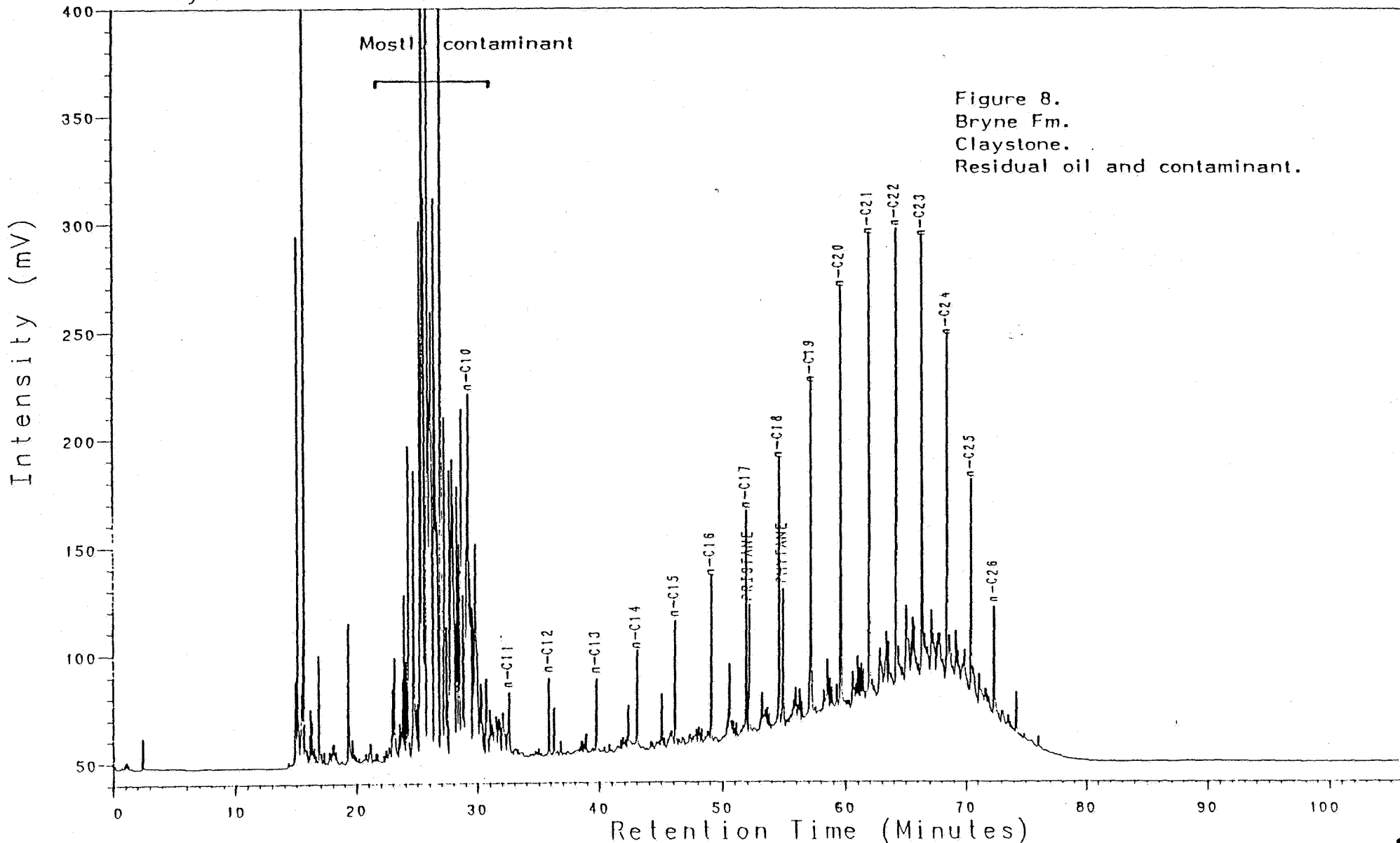


Figure 8.
Bryne Fm.
Claystone.
Residual oil and contaminant.

NOC5 2/6-2 4616m
THERMAL EXTRACTION GC (S1)
CLST:gy, gy red, m gy

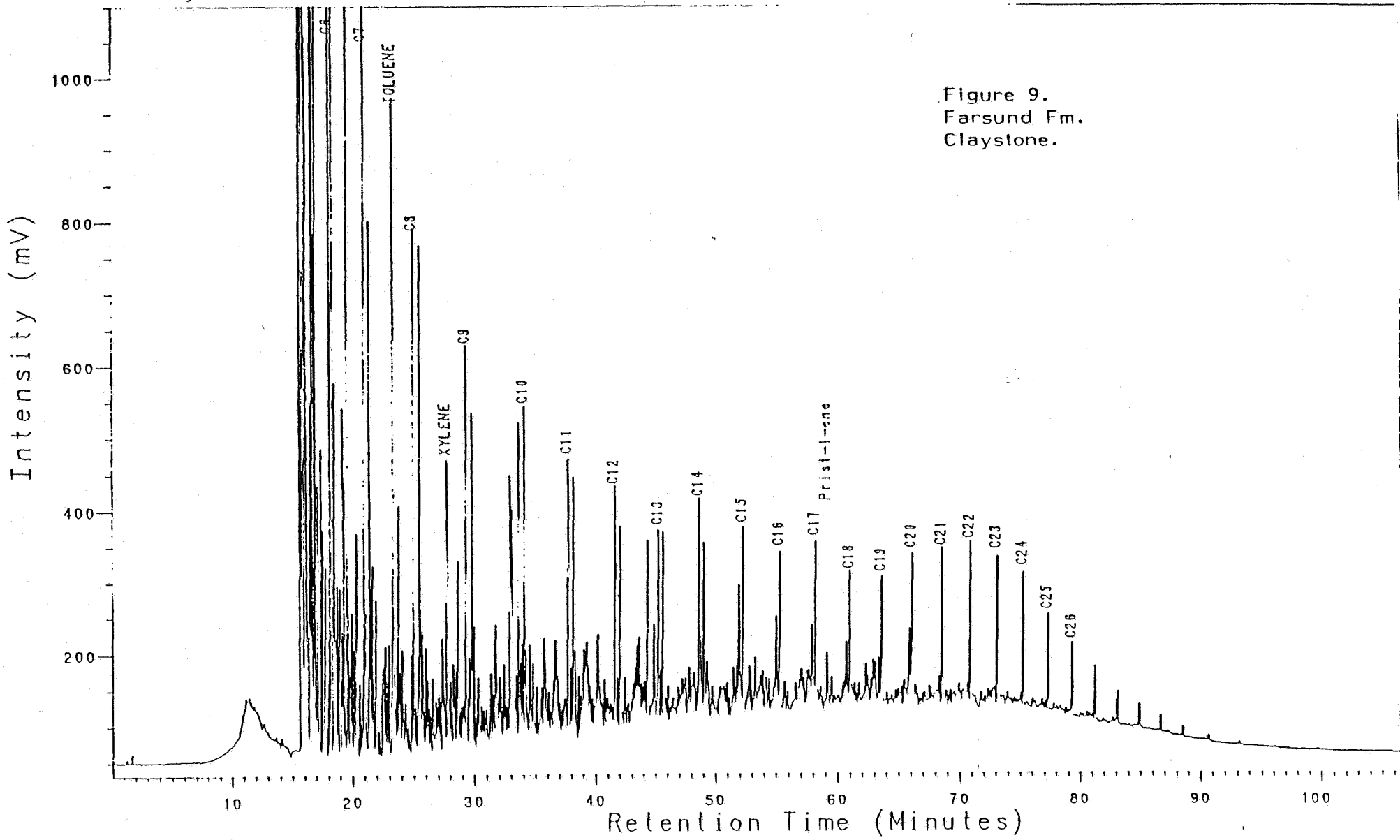


Figure 9.
Farsund Fm.
Claystone.

NOCS 2/6-2 4200m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100432L

23, 1, 1 2/6-2, 4250m, S2

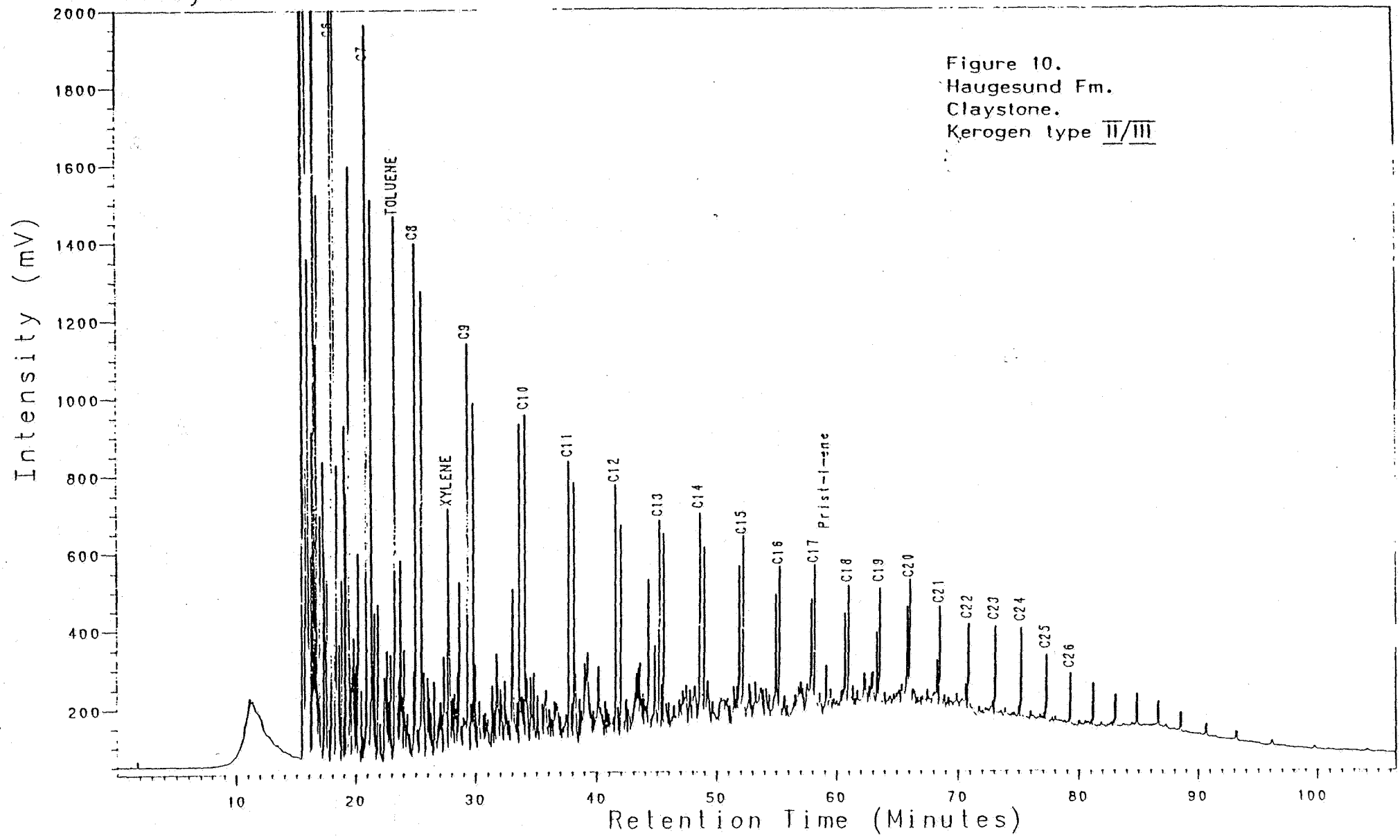


Figure 10.
Haugesund Fm.
Claystone.
Kerogen type II/III

NOCS 2/6-2 4250m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

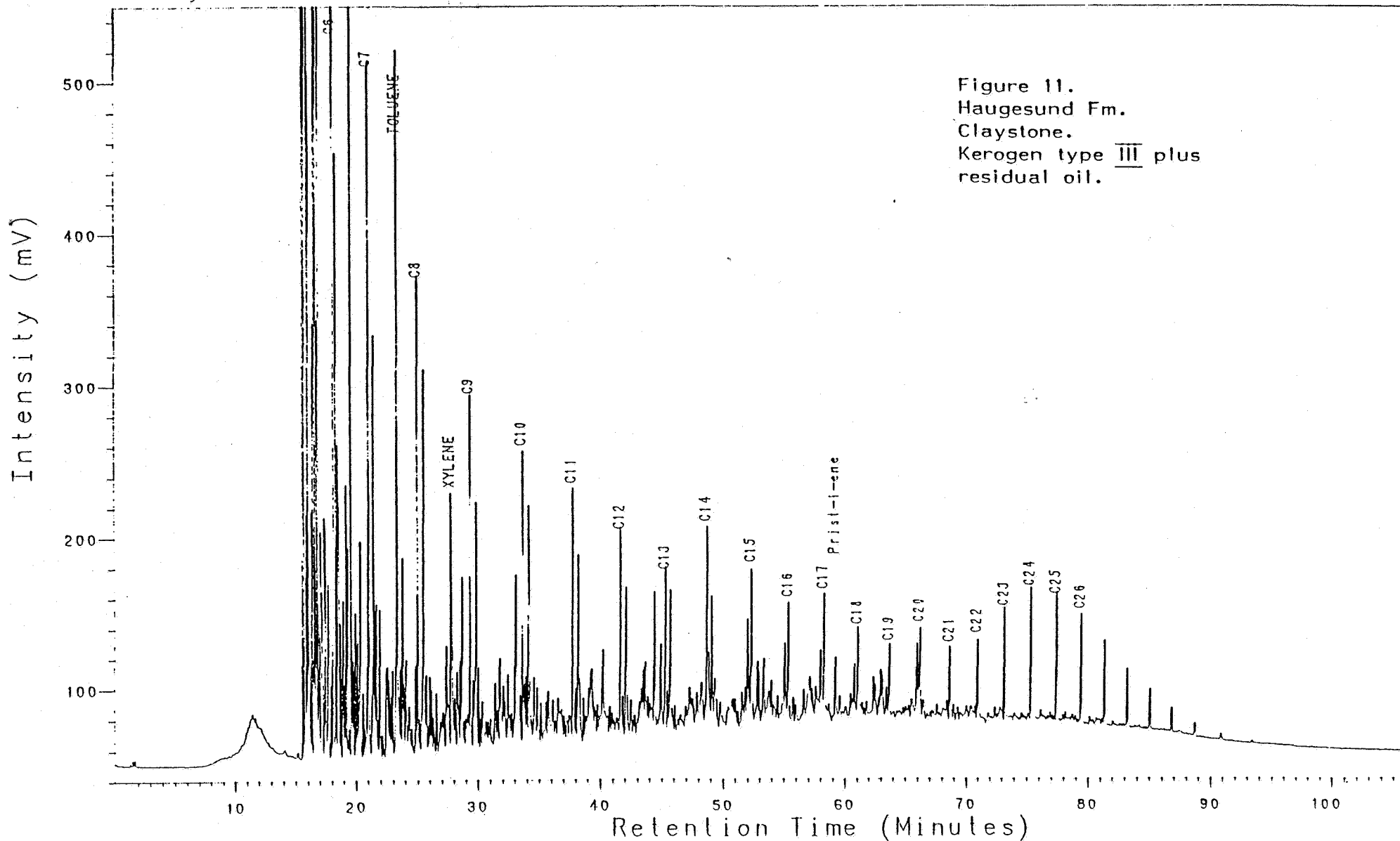


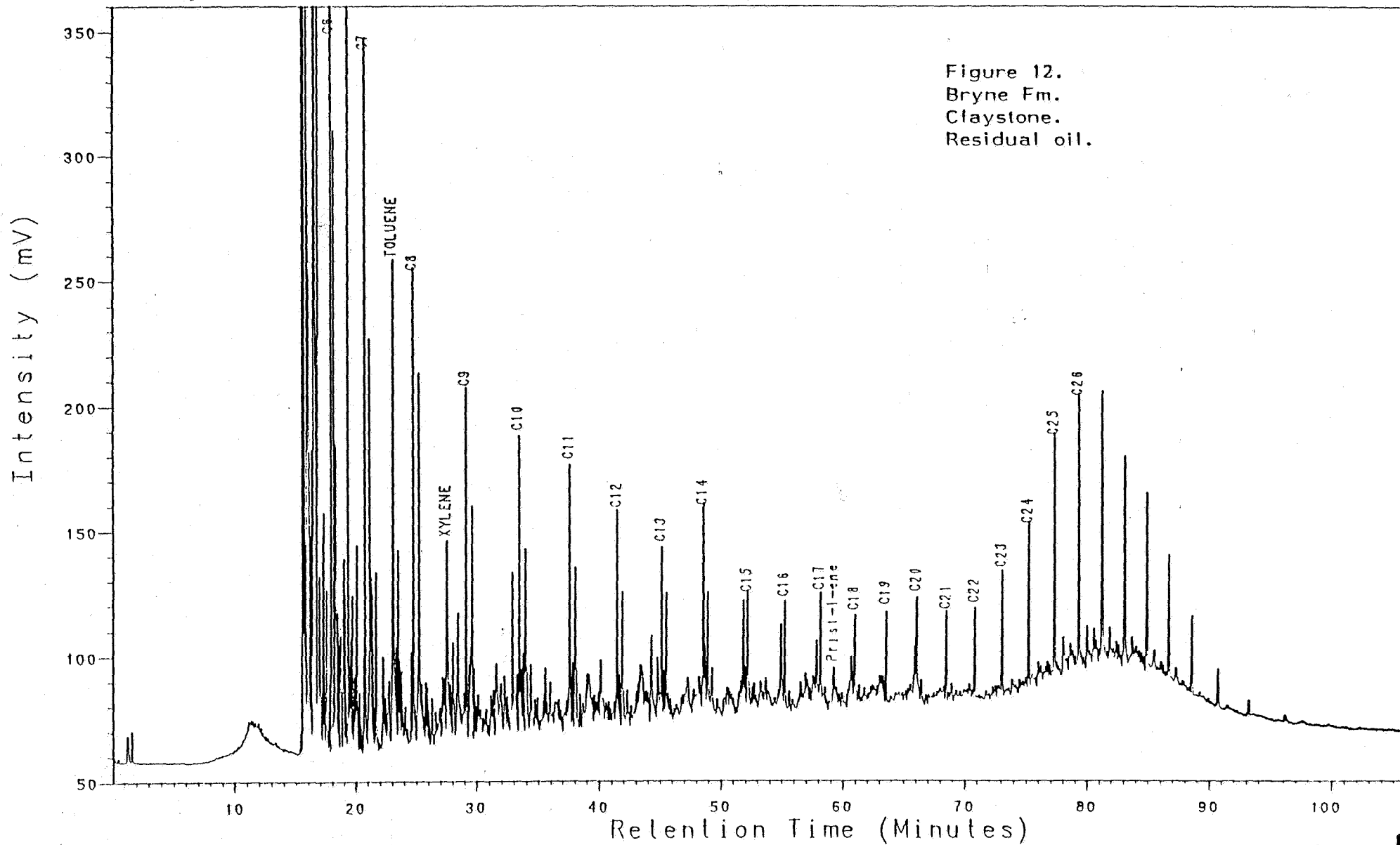
Figure 11.
Haugesund Fm.
Claystone.
Kerogen type III plus
residual oil.

NOCS 2/6-2 4374m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100961L

23, 1, 1

2/6-2, 4616m, S2



NOCS 2/6-2 4616m
PYROLYSIS GC (S2)
C1-C26 by red. m H2

Figure 13: Vitrinite Reflectance versus Depth
Well NOCS 2/6-2

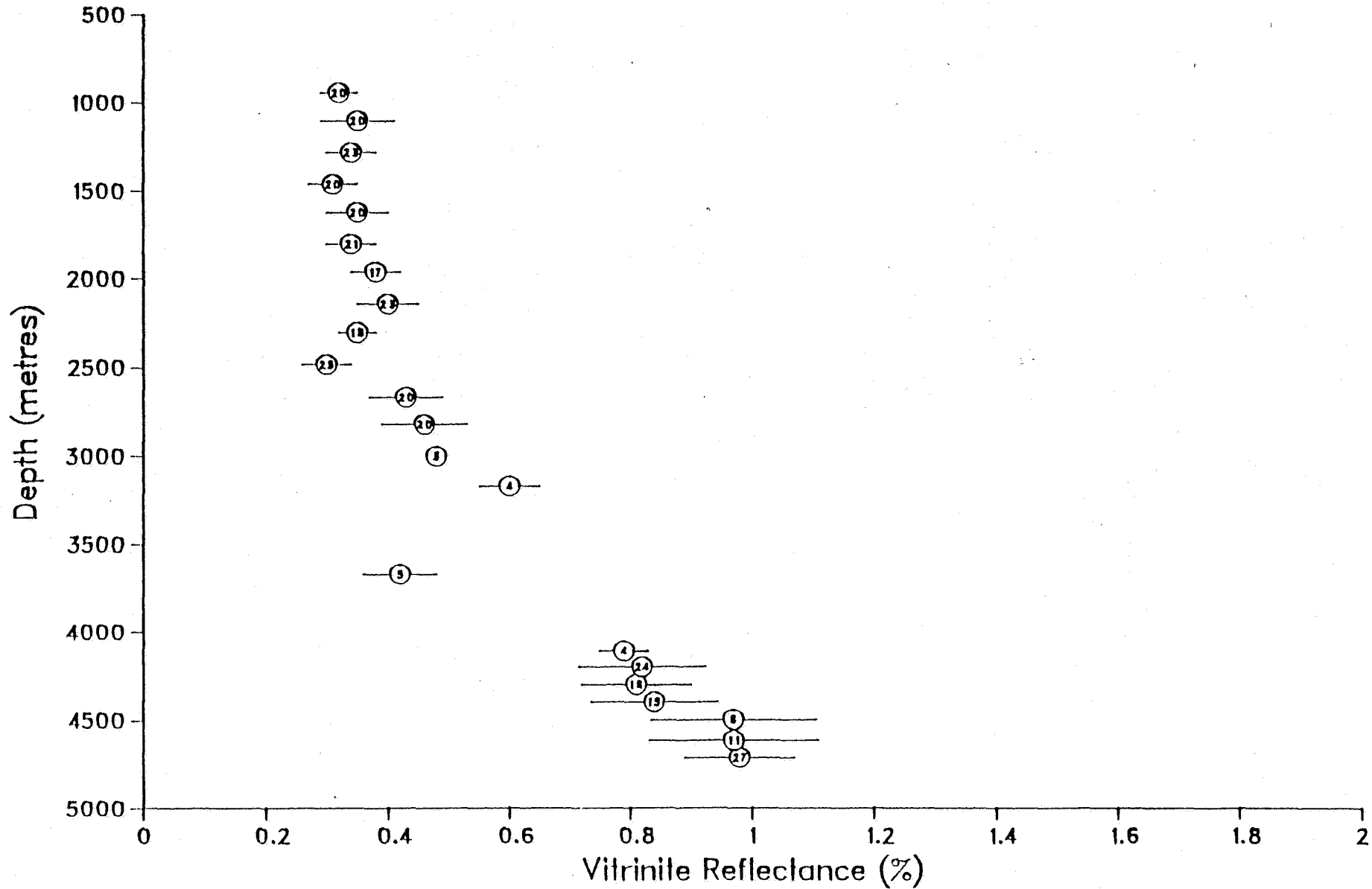


Figure 14: Kerogen Composition and Potential Hydrocarbon Products

Well NOCS 2/6-2

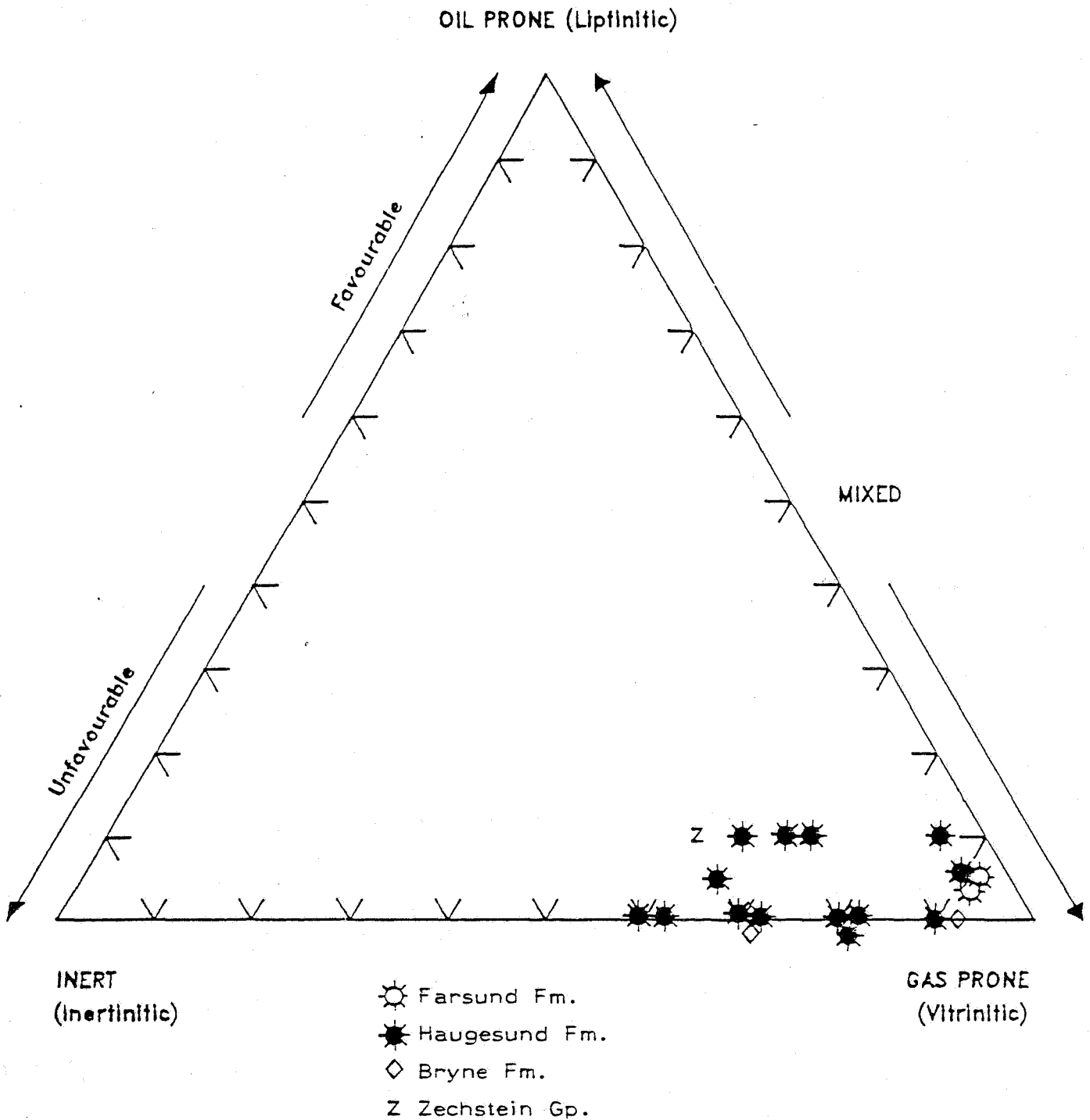


Figure 15. Plot of $\delta^{13}\text{C}$ in saturated fraction versus aromatic fraction for Well NOCS 2/6-2

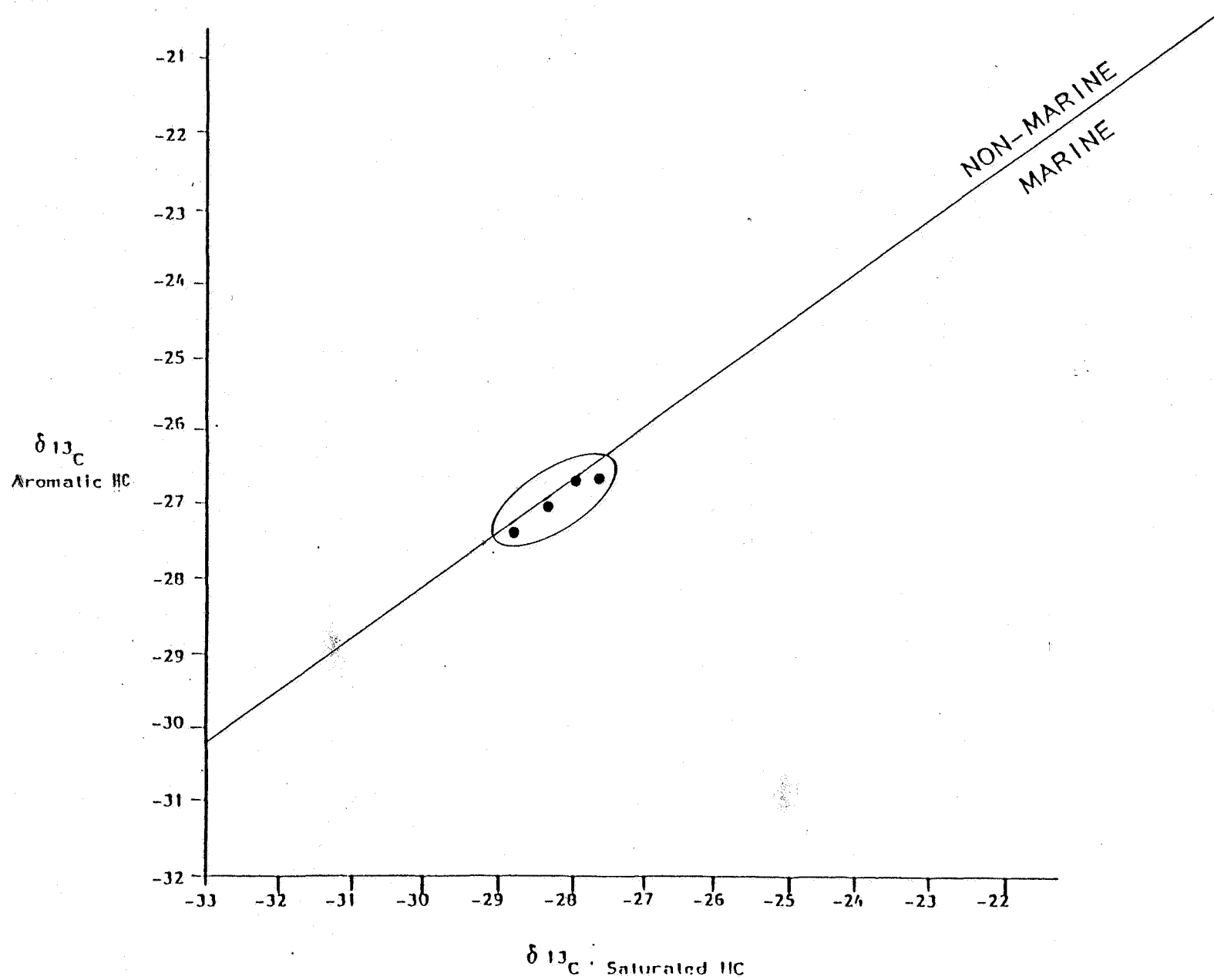


Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Prm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3877.15	ccp					0140
	0.12	100	Ca	: lt gy, chk		0140-1L
3882.00	ccp					0141
	0.22	100	Ca	: lt gy, chk		0141-1L
3886.00	ccp					0142
	0.07	100	Ca	: lt gy, chk		0142-1L
4000.00						0018
	0.32	80	Sh/Clst:	ol gy, lt gy to m gy		0018-1L
		5	Sh/Clst:	dsk y brn, m drk gy, calc		0018-2L
		5	Sh/Clst:	gy red		0018-3L
		5	Ca	: w		0018-4L
		5	Cont	: dd		0018-5L
4010.00						0019
		80	Sh/Clst:	ol gy, lt gy to m gy		0019-1L
		5	Sh/Clst:	dsk y brn, m drk gy, calc		0019-2L
		5	Sh/Clst:	gy red		0019-3L
		5	Ca	: w		0019-4L
		5	Cont	: dd		0019-5L
4020.00						0020
		90	Sh/Clst:	ol gy, lt gy to m gy		0020-1L
		10	Sh/Clst:	dsk y brn, m drk gy, calc		0020-2L
		tr	Sh/Clst:	gy red		0020-3L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4090.00				90 Sh/Clst: m gy to drk gy, calc 10 Sh/Clst: brn gy, dol		0027 0027-1L 0027-2L
4100.00		0.29		90 Sh/Clst: m gy to drk gy, calc 10 Sh/Clst: brn gy, dol		0028 0028-1L 0028-2L
4110.00		0.25 0.21 0.32		85 Sh/Clst: m gy to drk gy 10 Sh/Clst: brn gy, calc 5 Sh/Clst: gy blk, brn blk		0029 0029-1L 0029-3L 0029-2L
4120.00	cvd cvd	0.23		85 Sh/Clst: m gy to drk gy 10 Sh/Clst: brn gy, calc 5 Sh/Clst: gy blk, brn blk		0030 0030-1L 0030-3L 0030-2L
4130.00	cvd cvd	0.18 0.58		85 Sh/Clst: m gy to drk gy 10 Sh/Clst: brn gy, calc 5 Sh/Clst: gy blk, brn blk		0031 0031-1L 0031-3L 0031-2L
4140.00	cvd cvd	0.19		85 Sh/Clst: m gy to drk gy 10 Sh/Clst: brn gy, calc 5 Sh/Clst: gy blk, brn blk		0032 0032-1L 0032-3L 0032-2L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4150.00						0033
	cvd	0.27	85	Sh/Clst: m gy to drk gy		0033-1L
	cvd	0.20	10	Sh/Clst: brn gy, calc		0033-3L
			5	Sh/Clst: gy blk, brn blk		0033-2L
4160.00						0034
	cvd	0.26	85	Sh/Clst: m gy to drk gy		0034-1L
	cvd		10	Sh/Clst: brn gy, calc		0034-3L
		1.87	5	Sh/Clst: gy blk, brn blk		0034-2L
4170.00						0035
	cvd	0.27	85	Sh/Clst: m gy to drk gy		0035-1L
	cvd	0.17	10	Sh/Clst: brn gy, calc		0035-3L
			5	Sh/Clst: gy blk, brn blk		0035-2L
			tr	S/Sst : w		0035-4L
4180.00						0036
	cvd	0.10	85	Sh/Clst: m gy to drk gy		0036-1L
	cvd	0.25	10	Sh/Clst: brn gy, calc		0036-3L
			5	Sh/Clst: gy blk, brn blk		0036-2L
			tr	S/Sst : w		0036-4L
4190.00						0037
	cvd	0.29	85	Sh/Clst: m gy to drk gy		0037-1L
	cvd		10	Sh/Clst: brn gy, calc		0037-3L
		2.29	5	Sh/Clst: gy blk, brn blk		0037-2L
			tr	S/Sst : w		0037-4L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4200.00						0038
	cvd	0.29	75	Sh/Clst: m gy to drk gy		0038-1L
			10	Ca : w		0038-2L
		2.44	5	Sh/Clst: gy blk, brn blk		0038-3L
	cvd		5	Sh/Clst: brn gy		0038-4L
			5	Cont : Coal-ad		0038-5L
4210.00						0039
			40	Ca : w, gy pi		0039-1L
		0.36	40	Sh/Clst: lt gy to m gy		0039-2L
		2.64	20	Sh/Clst: blk, gy blk, brn blk		0039-3L
4220.00						0040
			60	Ca : w, gy pi		0040-1L
		0.46	20	Sh/Clst: lt gy to m gy		0040-2L
		2.62	20	Sh/Clst: blk, gy blk, brn blk		0040-3L
4220.00	ccp					0143
		2.73	100	Sh/Clst: blk, carb		0143-1L
4225.00	ccp					0144
		0.76	100	Sh/Clst: dsk y brn to drk ol gy, calc		0144-1L
4230.00						0041
			40	Ca : w, gy pi		0041-1L
		0.32	35	Sh/Clst: lt gy to m gy		0041-2L
		2.80	25	Sh/Clst: blk, gy blk, brn blk, calc, pyr, slt		0041-3L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4230.00	ccp					0145
		1.28	100	Sh/Clst: lt gy, drk gy, calc		0145-1L
4235.00	ccp					0146
		2.91	100	Sh/Clst: blk, carb		0146-1L
4240.00						0042
		2.78	40	Sh/Clst: gy blk, brn blk, calc, pyr, slt		0042-1L
			30	Sh/Clst: lt gy to m gy		0042-2L
			30	Ca : w, gy pi		0042-3L
4250.00						0043
	cvd					
		2.67	90	Sh/Clst: lt gy to m gy		0043-1L
			10	Sh/Clst: gy blk, brn blk		0043-2L
4260.00						0044
		2.43	70	Sh/Clst: brn blk		0044-1L
			10	Sh/Clst: lt gy to m gy		0044-2L
			10	Ca : w		0044-3L
			10	Cont : Coal-ad, dd, fib		0044-4L
4270.00						0045
		0.35	80	Sh/Clst: ol gy, lt gy to m gy, st		0045-1L
			10	Cont : tar-ad		0045-4L
		2.66	5	Sh/Clst: brn blk, st		0045-2L
			5	Ca : w, st		0045-3L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4274.00						0046
	3.19	50	Sh/Clst:	w, lt gy to m gy, calc		0046-1L
		40	Sh/Clst:	brn blk		0046-2L
		10	Cont	: Coal-ad, fib, tar-ad		0046-3L
4280.00						0047
	2.54	60	Sh/Clst:	brn blk		0047-1L
		30	Sh/Clst:	w, lt gy to m gy		0047-2L
		10	Ca	: w		0047-3L
4290.00						0048
	2.37	70	Sh/Clst:	brn blk, calc, pyr		0048-1L
		20	Ca	: w		0048-2L
		10	Sh/Clst:	lt gy to m gy		0048-3L
4300.00						0049
	2.31	70	Sh/Clst:	brn blk, calc, pyr		0049-1L
		10	Ca	: w		0049-2L
		10	Sh/Clst:	lt gy to m gy		0049-3L
		10	Cont	: Coal-ad, fib		0049-4L
4310.00						0050
	2.20	50	Sh/Clst:	brn blk, calc, pyr		0050-1L
		20	Sh/Clst:	lt gy to m gy		0050-2L
		20	Ca	: w		0050-3L
		10	Cont	: Coal-ad, fib		0050-4L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frn	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4320.00						0051
	2.80			50 Sh/Clst: brn blk, calc, pyr		0051-1L
				20 Sh/Clst: lt gy to m gy		0051-2L
				20 Ca : w		0051-3L
				10 Cont : Coal-ad, fib		0051-4L
4330.00						0052
	2.15			50 Sh/Clst: brn blk, calc, pyr		0052-1L
				20 Sh/Clst: lt gy to m gy		0052-2L
				20 Ca : w		0052-3L
				10 Cont : Coal-ad, fib		0052-4L
4336.00						0053
	2.26			40 Sh/Clst: lt gy to m gy, st		0053-1L
				30 Sh/Clst: gy blk, brn blk		0053-2L
				30 Ca : w, st		0053-3L
4342.00						0054
	2.61			60 Sh/Clst: gy blk, brn blk, carb, pyr		0054-1L
				20 Sh/Clst: ol gy, lt gy to m gy		0054-2L
				10 Ca : w, st		0054-3L
				10 Cont : Coal-ad, cem, prp, dd, fib		0054-4L
4350.00						0055
	2.18			40 Sh/Clst: gy blk, brn blk, carb, pyr		0055-1L
				30 Sh/Clst: w, ol gy, lt gy to m gy, calc		0055-2L
				20 Ca : w		0055-3L
				10 Cont : Coal-ad, cem, fib		0055-4L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4356.00						0056
	2.47	60	Sh/Clst:	gy blk, brn blk, carb, pyr		0056-1L
		20	Sh/Clst:	w, ol gy, lt gy to m gy, calc		0056-2L
		20	Ca	: w, calc		0056-3L
4370.00						0057
	1.04	60	Sh/Clst:	gy blk, brn blk, calc, pyr, slt, s		0057-1L
		30	Cont	: dd		0057-3L
		10	Ca	: dsk y brn, pyr, dol		0057-2L
4374.00						0058
	1.57	60	Sh/Clst:	gy blk, brn blk, calc, pyr, slt, s		0058-1L
		30	Cont	: dd		0058-3L
		10	Ca	: dsk y brn, pyr, dol		0058-2L
4380.00						0059
	4.31	60	Sh/Clst:	gy blk, brn blk, calc, pyr, slt, s		0059-1L
		30	Cont	: dd		0059-3L
		10	Ca	: dsk y brn, pyr, dol		0059-2L
4386.00						0060
	3.54	60	Sh/Clst:	gy blk, brn blk, calc, pyr, slt, s		0060-1L
		30	Cont	: dd		0060-3L
		10	Ca	: dsk y brn, pyr, dol		0060-2L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4389.00						0061
	3.22	50	Sh/Clst:	gy blk, brn blk		0061-1L
		40	Cont	: Coal-ad, prp, dd, fib		0061-3L
		10	Sh/Clst:	w, lt gy		0061-2L
4398.00						0062
	3.73	80	Sh/Clst:	gy blk, brn blk		0062-1L
		20	Cont	: Coal-ad, prp, dd, fib		0062-2L
4404.00						0063
	3.98	50	Sh/Clst:	gy blk, brn blk		0063-1L
		50	Cont	: cem, dd		0063-2L
4410.00						0064
	3.50	70	Sh/Clst:	gy blk, brn blk		0064-1L
		30	Cont	: cem, dd		0064-2L
4413.00					trb	0065
	2.84	40	Sh/Clst:	gy blk, brn blk		0065-1L
		30	Cont	: Coal-ad, cem, dd, fib		0065-4L
		20	Sh/Clst:	lt gy to m gy		0065-2L
		10	Ca	: w		0065-3L
4430.00					trb	0066
	3.52	80	Sh/Clst:	gy blk, brn blk		0066-1L
		20	Cont	: Coal-ad, cem, dd, fib		0066-3L
		tr	Ca	: w		0066-2L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4436.00					trb	0067
	3.54	80	Sh/Clst:	gy blk, brn blk		0067-1L
		20	Cont	: Coal-ad, cem, dd, fib		0067-3L
		tr	Ca	: w		0067-2L
4440.00					trb	0068
	3.93	80	Sh/Clst:	gy blk, brn blk		0068-1L
		20	Cont	: Coal-ad, cem, dd, fib		0068-3L
		tr	Ca	: w		0068-2L
4464.00						0069
	2.88	80	Sh/Clst:	gy blk, brn blk		0069-1L
		20	Cont	: Coal-ad, cem, dd, fib		0069-3L
		tr	Ca	: w		0069-2L
4468.00						0070
	3.58	80	Sh/Clst:	gy blk, brn blk		0070-1L
		20	Cont	: Coal-ad, cem, dd, fib		0070-3L
		tr	Ca	: w		0070-2L
4474.00						0071
	2.88	80	Sh/Clst:	gy blk, brn blk		0071-1L
		20	Cont	: Coal-ad, cem, dd, fib		0071-3L
		tr	Ca	: w		0071-2L
4478.00					trb	0072
	3.56	80	Sh/Clst:	gy blk, brn blk		0072-1L
		20	Cont	: Coal-ad, cem, dd, fib		0072-3L
		tr	Ca	: w		0072-2L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4482.00					trb	0073
	4.14	80	Sh/Clst:	gy blk, brn blk		0073-1L
		20	Cont	: Coal-ad, cem, dd, fib		0073-3L
		tr	Ca	: w		0073-2L
4486.00					trb	0074
	4.49	80	Sh/Clst:	gy blk, brn blk		0074-1L
		20	Cont	: Coal-ad, cem, dd, fib		0074-3L
		tr	Ca	: w		0074-2L
4490.00					trb	0075
	4.06	90	Sh/Clst:	gy blk, brn blk		0075-1L
		10	Cont	: Coal-ad, cem, dd, fib		0075-3L
		tr	Ca	: w		0075-2L
4494.00						0076
	4.02	90	Sh/Clst:	gy blk, brn blk		0076-1L
		10	Cont	: Coal-ad, cem, dd, fib		0076-3L
		tr	Ca	: w		0076-2L
4498.00						0077
	4.10	90	Sh/Clst:	gy blk, brn blk		0077-1L
		10	Cont	: Coal-ad, cem, dd, fib		0077-3L
		tr	Ca	: w		0077-2L
4506.00						0078
	5.69	90	Sh/Clst:	gy blk, brn blk		0078-1L
		10	Cont	: Coal-ad, cem, dd, fib		0078-3L
		tr	Ca	: w		0078-2L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4510.00						0079
	4.88	80	Sh/Clst:	gy blk, brn blk		0079-1L
		20	Cont	: Coal-ad, cem, dd, fib		0079-3L
		tr	Ca	: w		0079-2L
4516.00						0080
		90	Cont	: Coal-ad, tar-ad		0080-2L
		10	Sh/Clst:	gy blk, brn blk		0080-1L
4522.00					trb	0081
	3.95	90	Sh/Clst:	gy blk, brn blk		0081-1L
		10	Cont	: dd		0081-3L
		tr	Ca	: w		0081-2L
4528.00						0082
	2.54	60	Sh/Clst:	gy blk, brn blk		0082-1L
		40	Cont	: dd		0082-3L
		tr	Ca	: w		0082-2L
4532.00						0083
	2.38	80	Sh/Clst:	gy blk, brn blk		0083-1L
		20	Cont	: dd		0083-3L
		tr	Ca	: w		0083-2L
4536.00						0084
	2.77	80	Sh/Clst:	gy blk, brn blk		0084-1L
		20	Cont	: dd		0084-3L
		tr	Ca	: w		0084-2L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4540.00						0085
		2.72	50	Sh/Clst: gy blk, brn blk		0085-1L
			50	Cont : Coal-ad, tar-ad, dd		0085-2L
4544.00						0086
		2.66	50	Sh/Clst: gy blk, brn blk		0086-1L
			50	Cont : Coal-ad, tar-ad, dd		0086-2L
4550.00						0087
			70	Cont : Coal-ad, tar-ad, dd		0087-2L
		3.08	30	Sh/Clst: gy blk, brn blk		0087-1L
4570.00						0088
			90	Cont : Coal-ad, tar-ad, dd		0088-2L
			10	Sh/Clst: gy red		0088-1L
4575.00						0089
	cvd	3.35	60	Sh/Clst: gy blk, brn blk, slt, s		0089-1L
			30	Cont : Coal-ad, tar-ad, dd		0089-3L
			10	S/Sst : w, gy pi, f, crs		0089-2L
4580.00					trb	0090
	cvd	3.78	50	Sh/Clst: gy blk, brn blk, slt, s		0090-1L
			50	Cont : Coal-ad, dd		0090-2L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4590.00					trb	0091
	cvd	3.41	80	Cont : Coal-ad, dd		0091-2L
			20	Sh/Clst: gy blk, brn blk, slt, s		0091-1L
4598.00					trb	0092
		1.17	50	Sh/Clst: lt gy, sil, tuf		0092-1L
			40	Cont : Coal-ad, dd		0092-3L
	cvd		10	Sh/Clst: gy blk, brn blk		0092-2L
4602.00					trb	0093
			40	Cont : dd		0093-5L
	cvd	3.32	20	Sh/Clst: gy blk, brn blk		0093-1L
			20	S/Sst : gy, gy red, f		0093-2L
			10	Sh/Clst: gy red, slt, s, sil, tuf		0093-3L
			10	Sh/Clst: brn gy, wx		0093-4L
4606.00					trb	0094
		0.62	50	Sh/Clst: gy, gy red, slt, s, sil, tuf		0094-1L
			30	Cont : Coal-ad, dd		0094-5L
	cvd	2.72	10	Sh/Clst: gy blk, brn blk		0094-2L
			5	Sh/Clst: brn gy		0094-3L
			5	S/Sst : gy, gy red		0094-4L
4610.00					trb	0095
		0.95	50	Sh/Clst: gy, gy red, slt, s, sil, tuf		0095-1L
			40	Cont : Coal-ad, prp, dd		0095-4L
			5	S/Sst : gy, gy red		0095-2L
	cvd		5	Sh/Clst: gy blk, brn blk		0095-3L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4616.00						0096
	1.67		40	Sh/Clst: gy, gy red, m gy, slt, s, sil, tuf		0096-1L
			30	Cont : Coal-ad, prp, dd		0096-6L
			10	Sh/Clst: m gy, slt		0096-3L
			10	Sh/Clst: brn gy, wx		0096-4L
			5	S/Sst : w, gy red, f		0096-2L
	cvd		5	Sh/Clst: gy blk		0096-5L
4620.00						0097
			50	Cont : Coal-ad, cem, dd		0097-5L
			30	Sh/Clst: gy, gy red, m gy, slt, s, sil, tuf		0097-1L
			10	Sh/Clst: m gy, slt		0097-2L
			5	Sh/Clst: brn gy, wx		0097-3L
			5	S/Sst : w, gy red, f		0097-4L
4624.00						0098
			50	Cont : Coal-ad, cem, dd		0098-5L
			30	Sh/Clst: gy, gy red, m gy, slt, s, sil, tuf		0098-1L
			10	Sh/Clst: m gy, slt		0098-2L
			5	Sh/Clst: brn gy, wx		0098-3L
			5	S/Sst : w, gy red, f		0098-4L
4628.00						0099
			50	Cont : Coal-ad, cem, dd		0099-5L
			30	Sh/Clst: gy, gy red, m gy, slt, s, sil, tuf		0099-1L
			10	Sh/Clst: m gy, slt		0099-2L
			5	Sh/Clst: brn gy, wx		0099-3L
			5	S/Sst : w, gy red, f		0099-4L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4632.00						0100
	1.72		80	Cont : Coal-ad, prp, dd		0100-4L
			10	Sh/Clst: gy, gy red, slt, s, sil		0100-1L
			5	Sh/Clst: brn gy		0100-2L
			5	Sh/Clst: drk gy		0100-3L
4636.00						0101
	1.40		50	Cont : Coal-ad, prp, dd		0101-3L
			45	Sh/Clst: gy, gy red, slt, s, sil		0101-1L
			5	Sh/Clst: drk gy		0101-2L
4640.00						0102
	0.97		80	Cont : Coal-ad, prp, dd		0102-2L
			20	Sh/Clst: gy, gy red, slt, s		0102-1L
4644.00						0103
			90	Cont : Coal-ad, prp, dd		0103-2L
			10	Sh/Clst: gy, gy red, slt, s		0103-1L
4650.00						0104
			95	Cont : Coal-ad, prp, dd		0104-2L
			5	Sh/Clst: gy, gy red, slt, s		0104-1L
4656.00						0105
	1.75		90	Cont : Coal-ad, prp, dd		0105-2L
			10	Sh/Clst: gy, gy red, slt, s		0105-1L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4660.00						0106
			95	Cont : Coal-ad, prp, dd		0106-2L
			5	Sh/Clst: gy, gy red, slt, s		0106-1L
4666.00						0107
		1.74	95	Cont : Coal-ad, prp, dd		0107-2L
			5	Sh/Clst: gy, gy red, slt, s		0107-1L
4670.00						0108
	cvd	3.91	70	Cont : prp, dd		0108-2L
			30	Sh/Clst: drk gy, gy blk		0108-1L
4674.00						0109
			90	Cont : Coal-ad, prp, dd		0109-2L
			10	Sh/Clst: gy, gy red, slt, s		0109-1L
4678.00						0110
			90	Cont : Coal-ad, prp, dd		0110-2L
			10	Sh/Clst: gy, gy red, slt, s		0110-1L
4682.00						0111
			95	Cont : Coal-ad, prp, dd		0111-2L
			5	Sh/Clst: gy, gy red, slt, s		0111-1L
4686.00						0112
			90	Cont : Coal-ad, prp, dd		0112-2L
			10	Sh/Clst: gy, gy red, slt, s		0112-1L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4690.00						0113
				90 Cont : Coal-ad, prp, dd		0113-2L
				10 Sh/Clst: gy, gy red, slt, s		0113-1L
4696.00						0114
				100 Cont : Coal-ad, dd		0114-2L
4700.00						0115
				100 Cont : Coal-ad, dd		0115-2L
4710.00						0116
				100 Cont : Coal-ad, dd		0116-2L
				tr Sh/Clst		0116-1L
4714.00						0118
				60 Cont : Coal-ad, prp, dd		0118-3L
	1.14			20 Sh/Clst: gy red, mic, st		0118-1L
	3.57			20 Sh/Clst: m gy to drk gy, st, hd, sil		0118-2L
4718.00						0119
				100 Cont : Coal-ad, dd		0119-1L
4722.00						0120
				100 Cont : Coal-ad, dd		0120-1L

Table 1 : Lithology description for well NOCS 2/6-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4726.00						0121
			95	Cont : Coal-ad, cem, dd		0121-2L
			5	Other : w, evap		0121-1L
4730.00						0122
			95	Cont : Coal-ad, cem, dd		0122-2L
			5	Other : w, evap		0122-1L
4740.00						0123
			80	Cont : Coal-ad, cem, dd		0123-3L
			10	Other : w, evap		0123-1L
	cvd	4.35	10	Sh/Clst: m gy to drk gy, slt, s, mic		0123-2L
4750.00						0124
	cvd	1.32	40	Sh/Clst: gy blk, ol blk, slt, s, mic, evap		0124-1L
			30	Other : w, evap		0124-2L
			30	Cont		0124-3L
4760.00						0125
	cvd		70	Sh/Clst: v col		0125-1L
			10	Other : w, evap		0125-2L
	cvd	1.80	10	Sh/Clst: gy blk, ol blk, slt, s, mic, evap		0125-3L
	cvd		10	S/Sst : prp, dd		0125-4L

Table 2 : Rock-Eval table for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
3877.15	ccp Ca	: lt gy	-	0.02	0.58	0.03	0.12	17	483	-	-	344	0140-1L
3882.00	ccp Ca	: lt gy	-	0.01	0.70	0.01	0.22	5	318	-	-	302	0141-1L
3886.00	ccp Ca	: lt gy	0.04	0.10	0.81	0.12	0.07	143	1157	0.1	0.29	414	0142-1L
4000.00	cut Sh/Clst:	ol gy, lt gy to m gy	0.02	-	0.32	-	0.32	-	100	-	1.00	462	0018-1L
4040.00	cut Sh/Clst:	m gy to drk gy	-	-	0.23	-	0.24	-	96	-	-	296	0022-1L
4100.00	cut Sh/Clst:	brn gy	0.03	0.05	0.44	0.11	0.29	17	152	0.1	0.38	358	0028-2L
4110.00	cut Sh/Clst:	m gy to drk gy	0.01	-	0.33	-	0.25	-	132	-	1.00	428	0029-1L
4110.00	cut Sh/Clst:	gy blk, brn blk	0.01	-	0.21	-	0.32	-	66	-	1.00	431	0029-2L
4110.00	cut Sh/Clst:	brn gy	-	-	0.31	-	0.21	-	148	-	-	216	0029-3L
4120.00	cut Sh/Clst:	brn gy	-	0.01	0.33	0.03	0.23	4	143	-	-	305	0030-3L
4130.00	cut Sh/Clst:	gy blk, brn blk	0.09	0.15	0.19	0.79	0.58	26	33	0.2	0.38	397	0031-2L
4130.00	cut Sh/Clst:	brn gy	0.01	0.01	0.23	0.04	0.18	6	128	-	0.50	238	0031-3L
4140.00	cut Sh/Clst:	brn gy	-	-	0.28	-	0.19	-	147	-	-	239	0032-3L
4150.00	cut Sh/Clst:	m gy to drk gy	0.01	0.02	0.20	0.10	0.27	7	74	-	0.33	259	0033-1L
4150.00	cut Sh/Clst:	brn gy	0.01	0.01	0.32	0.03	0.20	5	160	-	0.50	252	0033-3L

Table 2 : Rock-Eval table for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4160.00	cut	Sh/Clst: m gy to drk gy	0.01	0.02	0.24	0.08	0.26	8	92	-	0.33	250	0034-1L
4160.00	cut	Sh/Clst: gy blk, brn blk	0.91	4.13	0.37	11.16	1.87	221	20	5.0	0.18	436	0034-2L
4170.00	cut	Sh/Clst: m gy to drk gy	0.01	0.03	0.22	0.14	0.27	11	81	-	0.25	251	0035-1L
4170.00	cut	Sh/Clst: brn gy	-	0.01	0.36	0.03	0.17	6	212	-	-	251	0035-3L
4180.00	cut	Sh/Clst: m gy to drk gy	-	-	0.10	-	0.10	-	100	-	-	-	0036-1L
4180.00	cut	Sh/Clst: brn gy	0.02	0.04	0.61	0.07	0.25	16	244	0.1	0.33	429	0036-3L
4190.00	cut	Sh/Clst: m gy to drk gy	0.05	0.04	0.26	0.15	0.29	14	90	0.1	0.56	339	0037-1L
4190.00	cut	Sh/Clst: gy blk, brn blk	1.94	5.96	0.20	29.80	2.29	260	9	7.9	0.25	437	0037-2L
4200.00	cut	Sh/Clst: m gy to drk gy	0.08	0.11	0.20	0.55	0.29	38	69	0.2	0.42	336	0038-1L
4200.00	cut	Sh/Clst: gy blk, brn blk	1.71	5.28	0.43	12.28	2.44	216	18	7.0	0.24	437	0038-3L
4210.00	cut	Sh/Clst: lt gy to m gy	0.17	0.15	0.29	0.52	0.36	42	81	0.3	0.53	342	0039-2L
4210.00	cut	Sh/Clst: blk, gy blk, brn blk	2.93	6.77	0.25	27.08	2.64	256	9	9.7	0.30	439	0039-3L
4220.00	cut	Sh/Clst: lt gy to m gy	0.18	0.21	0.42	0.50	0.46	46	91	0.4	0.46	350	0040-2L
4220.00	cut	Sh/Clst: blk, gy blk, brn blk	2.84	7.04	0.33	21.33	2.62	269	13	9.9	0.29	439	0040-3L
4220.00	ccp	Sh/Clst: blk	2.17	6.30	0.63	10.00	2.73	231	23	8.5	0.26	444	0143-1L

Table 2 : Rock-Eval table for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4225.00	ccp	Sh/Clst: dsk y brn to drk ol gy	1.08	1.01	0.25	4.04	0.76	133	33	2.1	0.52	426	0144-1L
4230.00	cut	Sh/Clst: lt gy to m gy	0.10	0.11	0.22	0.50	0.32	34	69	0.2	0.48	351	0041-2L
4230.00	cut	Sh/Clst: blk, gy blk, brn blk	2.81	8.03	0.14	57.36	2.80	287	5	10.8	0.26	437	0041-3L
4230.00	ccp	Sh/Clst: lt gy, drk gy	2.84	2.94	0.46	6.39	1.28	230	36	5.8	0.49	435	0145-1L
4235.00	ccp	Sh/Clst: blk	1.34	5.68	0.68	8.35	2.91	195	23	7.0	0.19	447	0146-1L
4240.00	cut	Sh/Clst: gy blk, brn blk	2.57	7.64	0.17	44.94	2.78	275	6	10.2	0.25	437	0042-1L
4250.00	cut	Sh/Clst: gy blk, brn blk	2.16	6.55	0.23	28.48	2.67	245	9	8.7	0.25	439	0043-2L
4260.00	cut	Sh/Clst: brn blk	2.07	6.87	0.11	62.45	2.43	283	5	8.9	0.23	438	0044-1L
4270.00	cut	Sh/Clst: ol gy, lt gy to m gy	0.08	0.01	0.26	0.04	0.35	3	74	0.1	0.89	399	0045-1L
4270.00	cut	Sh/Clst: brn blk	2.27	6.51	0.28	23.25	2.66	245	11	8.8	0.26	435	0045-2L
4274.00	cut	Sh/Clst: brn blk	2.71	8.56	0.19	45.05	3.19	268	6	11.3	0.24	444	0046-2L
4280.00	cut	Sh/Clst: brn blk	2.38	6.77	0.15	45.13	2.54	267	6	9.2	0.26	439	0047-1L
4290.00	cut	Sh/Clst: brn blk	2.34	5.91	0.11	53.73	2.37	249	5	8.3	0.28	439	0048-1L
4300.00	cut	Sh/Clst: brn blk	2.34	5.79	0.15	38.60	2.31	251	6	8.1	0.29	437	0049-1L
4310.00	cut	Sh/Clst: brn blk	2.02	5.35	0.16	33.44	2.20	243	7	7.4	0.27	436	0050-1L

Table 2 : Rock-Eval table for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4320.00	cut	Sh/Clst: brn blk	2.79	7.85	0.20	39.25	2.80	280	7	10.6	0.26	438	0051-1L
4330.00	cut	Sh/Clst: brn blk	1.98	4.93	0.21	23.48	2.15	229	10	6.9	0.29	437	0052-1L
4336.00	cut	Sh/Clst: gy blk, brn blk	1.99	5.53	0.19	29.11	2.26	245	8	7.5	0.26	439	0053-2L
4342.00	cut	Sh/Clst: gy blk, brn blk	2.60	7.02	0.19	36.95	2.61	269	7	9.6	0.27	437	0054-1L
4350.00	cut	Sh/Clst: gy blk, brn blk	2.50	5.19	0.23	22.57	2.18	238	11	7.7	0.33	438	0055-1L
4356.00	cut	Sh/Clst: gy blk, brn blk	2.48	6.25	0.27	23.15	2.47	253	11	8.7	0.28	437	0056-1L
4370.00	cut	Sh/Clst: gy blk, brn blk	0.90	1.38	0.27	5.11	1.04	133	26	2.3	0.39	432	0057-1L
4374.00	cut	Sh/Clst: gy blk, brn blk	1.57	2.26	0.36	6.28	1.57	144	23	3.8	0.41	436	0058-1L
4380.00	cut	Sh/Clst: gy blk, brn blk	4.87	7.65	0.62	12.34	4.31	177	14	12.5	0.39	431	0059-1L
4386.00	cut	Sh/Clst: gy blk, brn blk	3.49	4.51	0.58	7.78	3.54	127	16	8.0	0.44	434	0060-1L
4389.00	cut	Sh/Clst: gy blk, brn blk	3.80	6.33	0.27	23.44	3.22	197	8	10.1	0.38	436	0061-1L
4398.00	cut	Sh/Clst: gy blk, brn blk	3.76	5.84	0.72	8.11	3.73	157	19	9.6	0.39	434	0062-1L
4404.00	cut	Sh/Clst: gy blk, brn blk	4.67	6.06	0.76	7.97	3.98	152	19	10.7	0.44	436	0063-1L
4410.00	cut	Sh/Clst: gy blk, brn blk	4.00	6.38	0.12	53.17	3.50	182	3	10.4	0.39	437	0064-1L
4413.00	cut	Sh/Clst: gy blk, brn blk	4.20	7.38	0.26	28.38	2.84	260	9	11.6	0.36	437	0065-1L

Table 2 : Rock-Eval table for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4430.00	cut	Sh/Clst: gy blk, brn blk	3.82	4.64	0.62	7.48	3.52	132	18	8.5	0.45	437	0066-1L
4436.00	cut	Sh/Clst: gy blk, brn blk	3.66	4.99	0.35	14.26	3.54	141	10	8.6	0.42	435	0067-1L
4440.00	cut	Sh/Clst: gy blk, brn blk	5.45	7.95	0.36	22.08	3.93	202	9	13.4	0.41	436	0068-1L
4464.00	cut	Sh/Clst: gy blk, brn blk	3.10	5.07	0.25	20.28	2.88	176	9	8.2	0.38	436	0069-1L
4468.00	cut	Sh/Clst: gy blk, brn blk	3.94	6.50	0.33	19.70	3.58	182	9	10.4	0.38	439	0070-1L
4474.00	cut	Sh/Clst: gy blk, brn blk	2.73	4.84	0.30	16.13	2.88	168	10	7.6	0.36	436	0071-1L
4478.00	cut	Sh/Clst: gy blk, brn blk	4.15	4.87	0.33	14.76	3.56	137	9	9.0	0.46	438	0072-1L
4482.00	cut	Sh/Clst: gy blk, brn blk	4.04	4.94	0.59	8.37	4.14	119	14	9.0	0.45	434	0073-1L
4486.00	cut	Sh/Clst: gy blk, brn blk	3.74	4.50	0.34	13.24	4.49	100	8	8.2	0.45	438	0074-1L
4490.00	cut	Sh/Clst: gy blk, brn blk	2.97	3.67	0.59	6.22	4.06	90	15	6.6	0.45	437	0075-1L
4494.00	cut	Sh/Clst: gy blk, brn blk	3.45	3.45	0.44	7.84	4.02	86	11	6.9	0.50	439	0076-1L
4498.00	cut	Sh/Clst: gy blk, brn blk	3.04	2.36	0.57	4.14	4.10	58	14	5.4	0.56	434	0077-1L
4506.00	cut	Sh/Clst: gy blk, brn blk	4.67	6.34	0.56	11.32	5.69	111	10	11.0	0.42	440	0078-1L
4510.00	cut	Sh/Clst: gy blk, brn blk	4.42	6.01	0.60	10.02	4.88	123	12	10.4	0.42	437	0079-1L
4522.00	cut	Sh/Clst: gy blk, brn blk	3.11	4.53	0.51	8.88	3.95	115	13	7.6	0.41	438	0081-1L

Table 2 : Rock-Eval table for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4528.00	cut	Sh/Clst: gy blk, brn blk	2.48	3.28	0.43	7.63	2.54	129	17	5.8	0.43	438	0082-1L
4532.00	cut	Sh/Clst: gy blk, brn blk	2.70	3.63	0.27	13.44	2.38	153	11	6.3	0.43	440	0083-1L
4536.00	cut	Sh/Clst: gy blk, brn blk	3.55	4.39	0.31	14.16	2.77	158	11	7.9	0.45	438	0084-1L
4540.00	cut	Sh/Clst: gy blk, brn blk	3.47	4.06	0.34	11.94	2.72	149	13	7.5	0.46	439	0085-1L
4544.00	cut	Sh/Clst: gy blk, brn blk	3.17	3.60	0.36	10.00	2.66	135	14	6.8	0.47	438	0086-1L
4550.00	cut	Sh/Clst: gy blk, brn blk	4.33	6.50	0.35	18.57	3.08	211	11	10.8	0.40	438	0087-1L
4575.00	cut	Sh/Clst: gy blk, brn blk	5.15	6.01	0.26	23.12	3.35	179	8	11.2	0.46	440	0089-1L
4580.00	cut	Sh/Clst: gy blk, brn blk	5.99	7.06	0.32	22.06	3.78	187	8	13.1	0.46	441	0090-1L
4590.00	cut	Sh/Clst: gy blk, brn blk	4.66	5.27	0.29	18.17	3.41	155	9	9.9	0.47	441	0091-1L
4598.00	cut	Sh/Clst: lt gy	1.26	1.36	0.51	2.67	1.17	116	44	2.6	0.48	404	0092-1L
4602.00	cut	Sh/Clst: gy blk, brn blk	5.46	5.40	0.25	21.60	3.32	163	8	10.9	0.50	441	0093-1L
4606.00	cut	Sh/Clst: gy, gy red	1.22	0.37	0.16	2.31	0.62	60	26	1.6	0.77	-	0094-1L
4606.00	cut	Sh/Clst: gy blk, brn blk	3.21	3.19	0.41	7.78	2.72	117	15	6.4	0.50	445	0094-2L
4610.00	cut	Sh/Clst: gy, gy red	2.22	1.27	0.44	2.89	0.95	134	46	3.5	0.64	354	0095-1L
4616.00	cut	Sh/Clst: gy, gy red, m gy	3.15	2.74	0.23	11.91	1.67	164	14	5.9	0.53	437	0096-1L

Table 2 : Rock-Eval table for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4632.00	cut	Sh/Clst: gy, gy red	4.56	2.35	0.55	4.27	1.72	137	32	6.9	0.66	357	0100-1L
4636.00	cut	Sh/Clst: gy, gy red	3.81	2.06	0.21	9.81	1.40	147	15	5.9	0.65	349	0101-1L
4640.00	cut	Sh/Clst: gy, gy red	2.72	1.44	0.45	3.20	0.97	148	46	4.2	0.65	347	0102-1L
4656.00	cut	Sh/Clst: gy, gy red	3.51	2.22	0.22	10.09	1.75	127	13	5.7	0.61	393	0105-1L
4666.00	cut	Sh/Clst: gy, gy red	4.36	2.65	0.26	10.19	1.74	152	15	7.0	0.62	387	0107-1L
4670.00	cut	Sh/Clst: drk gy, gy blk	7.33	8.86	0.38	23.32	3.91	227	10	16.2	0.45	437	0108-1L
4714.00	cut	Sh/Clst: gy red	4.41	3.57	0.29	12.31	1.14	313	25	8.0	0.55	368	0118-1L
4714.00	cut	Sh/Clst: m gy to drk gy	5.18	6.61	0.36	18.36	3.57	185	10	11.8	0.44	441	0118-2L
4740.00	cut	Sh/Clst: m gy to drk gy	6.50	7.83	0.82	9.55	4.35	180	19	14.3	0.45	439	0123-2L
4750.00	cut	Sh/Clst: gy blk, ol blk	3.49	1.56	0.28	5.57	1.32	118	21	5.1	0.69	431	0124-1L
4760.00	cut	Sh/Clst: gy blk, ol blk	3.07	2.39	0.40	5.98	1.80	133	22	5.5	0.56	436	0125-3L

Table 3 a: Weight of EOM and Chromatographic Fraction for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	Rock Extracted (g)	EOM (mg)	Sat (mg)	Aro (mg)	Asph (mg)	NSO (mg)	HC (mg)	Non-HC (mg)	TOC(e) (%)	Sample
4200.00	com	Composite sample - see table 3 e	1.2	6.7	4.2	0.4	0.6	1.5	4.6	2.1	1.89	0126-0B
4220.00	ccp	Sh/Clst: blk	11.4	56.9	31.2	11.7	1.6	12.4	42.9	14.0	3.04	0143-1L
4225.00	ccp	Sh/Clst: dsk y brn to drk ol gy	8.2	33.9	18.4	8.3	1.0	6.2	26.7	7.2	0.47	0144-1L
4230.00	com	Composite sample - see table 3 e	0.9	6.6	4.3	1.0	0.3	1.0	5.3	1.3	2.68	0127-0B
4230.00	ccp	Sh/Clst: lt gy, drk gy	10.7	83.1	58.2	17.6	3.4	3.9	75.8	7.3	0.94	0145-1L
4235.00	ccp	Sh/Clst: blk	10.2	53.7	29.1	9.9	1.9	12.9	39.0	14.7	2.57	0146-1L
4270.00	com	Composite sample - see table 3 e	1.7	8.9	2.9	1.9	0.4	3.7	4.8	4.1	2.58	0128-0B
4300.00	com	Composite sample - see table 3 e	3.9	25.7	7.7	2.8	0.9	14.3	10.5	15.2	3.03	0129-0B
4330.00	com	Composite sample - see table 3 e	1.3	8.7	2.4	0.5	0.5	5.3	2.9	5.8	3.21	0130-0B
4356.00	com	Composite sample - see table 3 e	0.8	5.0	0.1	1.1	1.1	2.7	1.2	3.8	2.80	0131-0B
4398.00	com	Composite sample - see table 3 e	6.6	16.0	0.1	1.0	0.6	14.3	1.1	14.9	2.44	0132-0B
4430.00	com	Composite sample - see table 3 e	1.6	16.7	6.5	3.1	0.4	6.7	9.6	7.1	3.51	0133-0B
4474.00	com	Composite sample - see table 3 e	1.0	8.9	2.8	1.2	0.5	4.4	4.0	4.9	4.31	0134-0B
4482.00	com	Composite sample - see table 3 e	1.0	13.8	3.1	1.7	0.5	8.5	4.8	9.0	5.22	0135-0B

Depth unit of measure: m

Depth	Typ	Lithology	Rock Extracted (g)	EOM (mg)	Sat (mg)	Aro (mg)	Asph (mg)	NSO (mg)	HC (mg)	Non-HC (mg)	TOC(e) (%)	Sample
4528.00	com	Composite sample - see table 3 e	0.9	10.2	4.6	1.4	0.6	3.6	6.0	4.2	5.39	0136-0B
4544.00	com	Composite sample - see table 3 e	0.9	7.5	2.6	1.1	0.2	3.6	3.7	3.8	3.11	0137-0B
4602.00	com	Composite sample - see table 3 e	2.5	32.5	11.0	4.3	0.3	16.9	15.3	17.2	3.77	0138-0B
4666.00	com	Composite sample - see table 3 e	0.8	8.4	3.2	1.1	0.2	3.9	4.3	4.1	3.77	0139-0B

Table 3 b: Concentration of EOM and Chromatographic Fraction (wt ppm rock) for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
4200.00	com	Composite sample - see table 3 e	5583	3499	333	500	1250	3833	1749	0126-0B
4220.00	ccp	Sh/Clst: blk	4991	2736	1024	141	1088	3761	1229	0143-1L
4225.00	ccp	Sh/Clst: dsk y brn to drk ol gy	4129	2237	1009	127	753	3247	881	0144-1L
4230.00	com	Composite sample - see table 3 e	7764	5058	1176	352	1176	6235	1529	0127-0B
4230.00	ccp	Sh/Clst: lt gy, drk gy	7737	5417	1641	316	362	7058	678	0145-1L
4235.00	ccp	Sh/Clst: blk	5269	2853	971	183	1261	3825	1444	0146-1L
4270.00	com	Composite sample - see table 3 e	5144	1676	1098	231	2138	2774	2369	0128-0B
4300.00	com	Composite sample - see table 3 e	6606	1979	719	231	3676	2699	3907	0129-0B
4330.00	com	Composite sample - see table 3 e	6796	1875	390	390	4140	2265	4531	0130-0B
4356.00	com	Composite sample - see table 3 e	6410	128	1410	1410	3461	1538	4871	0131-0B
4398.00	com	Composite sample - see table 3 e	2420	15	151	90	2163	166	2254	0132-0B
4430.00	com	Composite sample - see table 3 e	10182	3963	1890	243	4085	5853	4329	0133-0B
4474.00	com	Composite sample - see table 3 e	9175	2886	1237	515	4536	4123	5051	0134-0B
4482.00	com	Composite sample - see table 3 e	13269	2980	1634	480	8173	4615	8653	0135-0B

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
4528.00	com	Composite sample - see table 3 e	11590	5227	1590	681	4090	6818	4772	0136-0B
4544.00	com	Composite sample - see table 3 e	7978	2765	1170	212	3829	3936	4042	0137-0B
4602.00	com	Composite sample - see table 3 e	13104	4435	1733	120	6814	6169	6935	0138-0B
4666.00	com	Composite sample - see table 3 e	11052	4210	1447	263	5131	5657	5394	0139-0B

Table 3 c: Concentration of EOM and Chromatographic Fraction (mg/g TOC(e)) for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
4200.00	com	Composite sample - see table 3 e	295.41	185.19	17.64	26.46	66.14	202.82	92.59	0126-0B
4220.00	ccp	Sh/Clst: blk	164.19	90.03	33.70	4.65	35.81	123.73	40.45	0143-1L
4225.00	ccp	Sh/Clst: dsk y brn to drk ol gy	878.53	476.07	214.84	27.21	160.42	690.91	187.63	0144-1L
4230.00	com	Composite sample - see table 3 e	289.73	188.76	43.90	13.17	43.90	232.66	57.07	0127-0B
4230.00	ccp	Sh/Clst: lt gy, drk gy	823.13	576.29	174.63	33.68	38.53	750.92	72.21	0145-1L
4235.00	ccp	Sh/Clst: blk	205.05	111.04	37.80	7.14	49.07	148.85	56.21	0146-1L
4270.00	com	Composite sample - see table 3 e	199.40	64.97	42.57	8.96	82.90	107.54	91.86	0128-0B
4300.00	com	Composite sample - see table 3 e	218.04	65.33	23.76	7.64	121.32	89.08	128.96	0129-0B
4330.00	com	Composite sample - see table 3 e	211.74	58.41	12.17	12.17	128.99	70.58	141.16	0130-0B
4356.00	com	Composite sample - see table 3 e	228.94	4.58	50.37	50.37	123.63	54.95	173.99	0131-0B
4398.00	com	Composite sample - see table 3 e	99.20	0.62	6.20	3.72	88.66	6.82	92.38	0132-0B
4430.00	com	Composite sample - see table 3 e	290.11	112.92	53.85	6.95	116.39	166.77	123.34	0133-0B
4474.00	com	Composite sample - see table 3 e	212.88	66.97	28.70	11.96	105.25	95.68	117.21	0134-0B
4482.00	com	Composite sample - see table 3 e	254.20	57.10	31.31	9.21	156.57	88.42	165.78	0135-0B

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
4528.00	com	Composite sample - see table 3 e	215.04	96.98	29.52	12.65	75.90	126.50	88.55	0136-0B
4544.00	com	Composite sample - see table 3 e	256.55	88.94	37.63	6.84	123.14	126.56	129.99	0137-0B
4602.00	com	Composite sample - see table 3 e	347.61	117.65	45.99	3.21	180.76	163.64	183.97	0138-0B
4666.00	com	Composite sample - see table 3 e	293.17	111.69	38.39	6.98	136.12	150.08	143.10	0139-0B

Table 3 d: Composition of material extracted from the rock (%) for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	Sat	Aro	Asph	NSO	HC	Non-HC	Sat	HC	Sample
			EOM	EOM	EOM	EOM	EOM	EOM	Aro	Non-HC	
4200.00	com	Composite sample - see table 3 e	62.69	5.97	8.96	22.39	68.66	31.34	1050.00	219.05	0126-0B
4220.00	ccp	Sh/Clst: blk	54.83	20.53	2.83	21.81	75.36	24.64	267.12	305.85	0143-1L
4225.00	ccp	Sh/Clst: dsk y brn to drk ol gy	54.19	24.45	3.10	18.26	78.64	21.36	221.59	368.23	0144-1L
4230.00	com	Composite sample - see table 3 e	65.15	15.15	4.55	15.15	80.30	19.70	430.00	407.69	0127-0B
4230.00	ccp	Sh/Clst: lt gy, drk gy	70.01	21.22	4.09	4.68	91.23	8.77	330.01	1039.92	0145-1L
4235.00	ccp	Sh/Clst: blk	54.15	18.44	3.48	23.93	72.59	27.41	293.74	264.81	0146-1L
4270.00	com	Composite sample - see table 3 e	32.58	21.35	4.49	41.57	53.93	46.07	152.63	117.07	0128-0B
4300.00	com	Composite sample - see table 3 e	29.96	10.89	3.50	55.64	40.86	59.14	275.00	69.08	0129-0B
4330.00	com	Composite sample - see table 3 e	27.59	5.75	5.75	60.92	33.33	66.67	480.00	50.00	0130-0B
4356.00	com	Composite sample - see table 3 e	2.00	22.00	22.00	54.00	24.00	76.00	9.09	31.58	0131-0B
4398.00	com	Composite sample - see table 3 e	0.63	6.25	3.75	89.38	6.88	93.13	10.00	7.38	0132-0B
4430.00	com	Composite sample - see table 3 e	38.92	18.56	2.40	40.12	57.49	42.51	209.68	135.21	0133-0B
4474.00	com	Composite sample - see table 3 e	31.46	13.48	5.62	49.44	44.94	55.06	233.33	81.63	0134-0B
4482.00	com	Composite sample - see table 3 e	22.46	12.32	3.62	61.59	34.78	65.22	182.35	53.33	0135-0B

Table 3 d: Composition of material extracted from the rock (%) for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	Sat	Aro	Asph	NSO	HC	Non-HC	Sat	HC	Sample
			EOM	EOM	EOM	EOM	EOM	EOM	EOM	Aro	
4528.00	com	Composite sample - see table 3 e	45.10	13.73	5.88	35.29	58.82	41.18	328.57	142.86	0136-0B
4544.00	com	Composite sample - see table 3 e	34.67	14.67	2.67	48.00	49.33	50.67	236.36	97.37	0137-0B
4602.00	com	Composite sample - see table 3 e	33.85	13.23	0.92	52.00	47.08	52.92	255.81	88.95	0138-0B
4666.00	com	Composite sample - see table 3 e	38.10	13.10	2.38	46.43	51.19	48.81	290.91	104.88	0139-0B

Depth unit of measure: m

NOTE: Depths shown in tables 3 a to d correspond to the composite samples' lower depth.

Upper depth	Lower depth	Typ	Sample	Depth	Typ	Lithology	Sample
4160.00	4200.00	com	0126-0B is composed of:	4160.00	cut	Sh/Clst: gy blk, brn blk	0034-2L
				4190.00	cut	Sh/Clst: gy blk, brn blk	0037-2L
				4200.00	cut	Sh/Clst: gy blk, brn blk	0038-3L
4210.00	4230.00	com	0127-0B is composed of:	4210.00	cut	Sh/Clst: blk, gy blk, brn blk	0039-3L
				4220.00	cut	Sh/Clst: blk, gy blk, brn blk	0040-3L
				4230.00	cut	Sh/Clst: blk, gy blk, brn blk, calc, pyr, silt	0041-3L
4240.00	4270.00	com	0128-0B is composed of:	4240.00	cut	Sh/Clst: gy blk, brn blk, calc, pyr, silt	0042-1L
				4250.00	cut	Sh/Clst: gy blk, brn blk	0043-2L
				4260.00	cut	Sh/Clst: brn blk	0044-1L
				4270.00	cut	Sh/Clst: brn blk, st	0045-2L
4280.00	4300.00	com	0129-0B is composed of:	4280.00	cut	Sh/Clst: brn blk	0047-1L
				4290.00	cut	Sh/Clst: brn blk, calc, pyr	0048-1L
				4300.00	cut	Sh/Clst: brn blk, calc, pyr	0049-1L
4310.00	4330.00	com	0130-0B is composed of:	4310.00	cut	Sh/Clst: brn blk, calc, pyr	0050-1L
				4320.00	cut	Sh/Clst: brn blk, calc, pyr	0051-1L
				4330.00	cut	Sh/Clst: brn blk, calc, pyr	0052-1L

Depth unit of measure: m

NOTE: Depths shown in tables 3 a to d correspond to the composite samples' lower depth.

Upper depth	Lower depth	Typ	Sample	Depth	Typ	Lithology	Sample
4336.00	4356.00	com	0131-0B is composed of:	4336.00	cut	Sh/Clst: gy blk, brn blk	0053-2L
				4342.00	cut	Sh/Clst: gy blk, brn blk, carb, pyr	0054-1L
				4350.00	cut	Sh/Clst: gy blk, brn blk, carb, pyr	0055-1L
				4356.00	cut	Sh/Clst: gy blk, brn blk, carb, pyr	0056-1L
4380.00	4398.00	com	0132-0B is composed of:	4380.00	cut	Sh/Clst: gy blk, brn blk, calc, pyr, slt, s	0059-1L
				4386.00	cut	Sh/Clst: gy blk, brn blk, calc, pyr, slt, s	0060-1L
				4389.00	cut	Sh/Clst: gy blk, brn blk	0061-1L
				4398.00	cut	Sh/Clst: gy blk, brn blk	0062-1L
4404.00	4430.00	com	0133-0B is composed of:	4404.00	cut	Sh/Clst: gy blk, brn blk	0063-1L
				4410.00	cut	Sh/Clst: gy blk, brn blk	0064-1L
				4413.00	cut	Sh/Clst: gy blk, brn blk	0065-1L
				4430.00	cut	Sh/Clst: gy blk, brn blk	0066-1L
4436.00	4474.00	com	0134-0B is composed of:	4436.00	cut	Sh/Clst: gy blk, brn blk	0067-1L
				4440.00	cut	Sh/Clst: gy blk, brn blk	0068-1L
				4464.00	cut	Sh/Clst: gy blk, brn blk	0069-1L
				4468.00	cut	Sh/Clst: gy blk, brn blk	0070-1L
				4474.00	cut	Sh/Clst: gy blk, brn blk	0071-1L

Depth unit of measure: m

NOTE: Depths shown in tables 3 a to d correspond to the composite samples' lower depth.

Upper depth	Lower depth	Typ	Sample	Depth	Typ	Lithology	Sample
4478.00	4482.00	com	0135-0B is composed of:	4478.00	cut	Sh/Clst: gy blk, brn blk	0072-1L
				4482.00	cut	Sh/Clst: gy blk, brn blk	0073-1L
4506.00	4528.00	com	0136-0B is composed of:	4506.00	cut	Sh/Clst: gy blk, brn blk	0078-1L
				4510.00	cut	Sh/Clst: gy blk, brn blk	0079-1L
				4522.00	cut	Sh/Clst: gy blk, brn blk	0081-1L
				4528.00	cut	Sh/Clst: gy blk, brn blk	0082-1L
4532.00	4544.00	com	0137-0B is composed of:	4532.00	cut	Sh/Clst: gy blk, brn blk	0083-1L
				4536.00	cut	Sh/Clst: gy blk, brn blk	0084-1L
				4540.00	cut	Sh/Clst: gy blk, brn blk	0085-1L
				4544.00	cut	Sh/Clst: gy blk, brn blk	0086-1L
4575.00	4602.00	com	0138-0B is composed of:	4575.00	cut	Sh/Clst: gy blk, brn blk, slt, s	0089-1L
				4580.00	cut	Sh/Clst: gy blk, brn blk, slt, s	0090-1L
				4590.00	cut	Sh/Clst: gy blk, brn blk, slt, s	0091-1L
				4602.00	cut	Sh/Clst: gy blk, brn blk	0093-1L
4616.00	4666.00	com	0139-0B is composed of:	4616.00	cut	Sh/Clst: gy, gy red, m gy, slt, s, sil, tuf	0096-1L
				4636.00	cut	Sh/Clst: gy, gy red, slt, s, sil	0101-1L
				4656.00	cut	Sh/Clst: gy, gy red, slt, s	0105-1L
				4666.00	cut	Sh/Clst: gy, gy red, slt, s	0107-1L

Table 4 : Saturated Hydrocarbon Ratios for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	Pristane	Pristane	Pristane + Phytane	Phytane	CPI	Sample
			nC17	Phytane	nC17 + nC18	nC18		
4200.00	com	bulk	0.66	-	0.63	0.61	1.13	0126-0B
4220.00	ccp	Sh/Clst: blk	0.58	1.56	0.55	0.51	1.08	0143-1L
4225.00	ccp	Sh/Clst: dsk y brn to drk ol gy	0.51	0.77	0.51	0.52	1.06	0144-1L
4230.00	com	bulk	0.50	-	0.48	0.45	1.06	0127-0B
4230.00	ccp	Sh/Clst: lt gy, drk gy	0.56	1.20	0.55	0.54	1.05	0145-1L
4235.00	ccp	Sh/Clst: blk	0.50	1.35	0.47	0.44	1.04	0146-1L
4270.00	com	bulk	0.58	-	0.57	0.55	1.11	0128-0B
4300.00	com	bulk	0.56	-	0.53	0.50	1.16	0129-0B
4330.00	com	bulk	0.63	-	0.60	0.57	1.12	0130-0B
4356.00	com	bulk	0.53	-	0.51	0.50	1.07	0131-0B
4398.00	com	bulk	0.50	-	0.48	0.46	1.16	0132-0B
4430.00	com	bulk	0.54	-	0.52	0.50	1.12	0133-0B
4474.00	com	bulk	0.46	-	0.44	0.42	1.11	0134-0B
4482.00	com	bulk	0.52	-	0.50	0.48	1.07	0135-0B

Table 4 : Saturated Hydrocarbon Ratios for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	Pristane	Pristane	Pristane + Phytane	Phytane	CPI	Sample
			nC17	Phytane	nC17 + nC18	nC18		
4528.00	com	bulk	0.42	-	0.40	0.38	1.06	0136-0B
4544.00	com	bulk	0.54	-	0.53	0.50	1.12	0137-0B
4602.00	com	bulk	0.56	-	0.54	0.52	1.11	0138-0B
4666.00	com	bulk	0.65	-	0.62	0.59	1.12	0139-0B

Table 5 : Aromatic Hydrocarbon Ratios for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	MNR	DMNR	BPhR	2/1MP	MP11	MP12	Rc	DBT/P	4/1MDBT	(3+2) /1MDBT	Sample
4200.00	com	bulk	-	2.12	-	0.80	0.79	0.72	0.87	0.23	2.05	0.98	0126-0B
4220.00	ccp	Sh/Clst: blk	0.97	1.51	0.12	0.72	0.54	0.59	0.72	0.19	-	-	0143-1L
4225.00	ccp	Sh/Clst: dsk y brn to drk ol gy	0.48	1.12	-	1.01	0.72	0.94	0.83	-	-	-	0144-1L
4230.00	com	bulk	-	-	-	0.86	0.82	0.78	0.89	0.22	5.29	1.12	0127-0B
4230.00	ccp	Sh/Clst: lt gy, drk gy	0.70	1.30	0.05	0.64	0.54	0.58	0.72	-	-	-	0145-1L
4235.00	ccp	Sh/Clst: blk	0.90	1.51	0.11	0.62	0.50	0.54	0.70	0.04	9.61	-	0146-1L
4270.00	com	bulk	0.61	1.91	0.07	0.77	0.73	0.68	0.84	0.18	6.10	1.08	0128-0B
4300.00	com	bulk	0.66	1.82	0.06	0.81	0.74	0.72	0.84	0.20	10.95	1.27	0129-0B
4330.00	com	bulk	0.67	1.81	0.06	0.84	0.74	0.74	0.84	0.21	13.38	1.30	0130-0B
4430.00	com	bulk	0.90	2.31	0.09	0.84	0.81	0.77	0.89	0.20	6.35	1.30	0133-0B
4474.00	com	bulk	0.80	2.41	0.08	0.89	0.74	0.76	0.84	0.17	9.33	1.33	0134-0B
4482.00	com	bulk	0.76	2.35	0.06	0.92	0.78	0.79	0.87	0.14	7.64	1.36	0135-0B
4528.00	com	bulk	1.04	2.61	0.10	0.93	0.75	0.78	0.85	0.17	9.39	1.37	0136-0B
4544.00	com	bulk	0.89	2.99	0.08	1.02	0.81	0.82	0.89	0.18	7.70	1.52	0137-0B
4602.00	com	bulk	-	2.12	-	0.90	0.87	0.84	0.92	0.18	1.42	0.21	0138-0B

Table 5 : Aromatic Hydrocarbon Ratios for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	MNR	DMNR	BPhR	2/1MP	MP11	MPI2	Rc	DBT/P	4/1MDBT	(3+2) /1MDBT	Sample
4666.00	com	bulk	-	-	-	0.88	0.92	0.80	0.95	0.18	-	-	0139-0B

Table 6 : Thermal Maturity Data for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	T _{max} (°C)	Sample
940.00	cut bulk	0.32	20	0.03	3+4	-	-	0001-0B
1100.00	cut bulk	0.35	20	0.06	3+4	-	-	0002-0B
1280.00	cut bulk	0.34	23	0.04	4	-	-	0003-0B
1460.00	cut bulk	0.31	20	0.04	4	-	-	0004-0B
1620.00	cut bulk	0.35	20	0.05	3+4	-	-	0005-0B
1800.00	cut bulk	0.34	21	0.04	3+4	-	-	0006-0B
1960.00	cut bulk	0.38	17	0.04	3+4	-	-	0007-0B
2140.00	cut bulk	0.40	23	0.05	3+4	-	-	0008-0B
2300.00	cut bulk	0.35	18	0.03	3+4	-	-	0009-0B
2480.00	cut bulk	0.30	25	0.04	3+4	-	-	0010-0B
2666.00	cut bulk	0.43	20	0.06	0	-	-	0011-0B
2820.00	cut bulk	0.46	20	0.07	4	-	-	0012-0B
3000.00	cut bulk	0.48	3	0.01	4+5	-	-	0013-0B
3170.00	cut bulk	0.60	4	0.05	5	-	-	0014-0B

Table 6 : Thermal Maturity Data for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	T _{max} (°C)	Sample
3340.00	cut bulk	NDP	-	-	0	-	-	0015-0B
3500.00	cut bulk	NDP	-	-	0	-	-	0016-0B
3670.00	cut bulk	0.42	5	0.06	5	-	-	0017-0B
4020.00	cut bulk	NDP	-	-	0	-	-	0020-0B
4110.00	cut bulk	0.79	4	0.04	-	-	-	0029-0B
4190.00	cut Sh/Clst: gy blk, brn blk	-	-	-	-	6?	437	0037-2L
4200.00	cut bulk	0.82	24	0.10	-	-	-	0038-0B
4230.00	cut Sh/Clst: blk, gy blk, brn blk	-	-	-	-	6?	437	0041-3L
4260.00	cut Sh/Clst: brn blk	-	-	-	-	6?	438	0044-1L
4300.00	cut bulk	0.81	16	0.09	-	-	-	0049-0B
4320.00	cut Sh/Clst: brn blk	-	-	-	-	6?	438	0051-1L
4356.00	cut Sh/Clst: gy blk, brn blk	-	-	-	-	6? 6.5?	437	0056-1L
4370.00	cut Sh/Clst: gy blk, brn blk	-	-	-	-	NDP	432	0057-1L
4398.00	cut bulk	0.84	15	0.10	-	-	-	0062-0B

Table 6 : Thermal Maturity Data for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	T _{max} (°C)	Sample
4410.00	cut Sh/Clst: gy blk, brn blk	-	-	-	-	NDP	437	0064-1L
4413.00	cut Sh/Clst: gy blk, brn blk	-	-	-	-	NDP (7.5-8)	437	0065-1L
4430.00	cut Sh/Clst: gy blk, brn blk	-	-	-	-	NDP (8?)	437	0066-1L
4440.00	cut Sh/Clst: gy blk, brn blk	-	-	-	-	7?	436	0068-1L
4474.00	cut Sh/Clst: gy blk, brn blk	-	-	-	-	5 - 8	436	0071-1L
4482.00	cut Sh/Clst: gy blk, brn blk	-	-	-	-	NDP	434	0073-1L
4494.00	cut Sh/Clst: gy blk, brn blk	-	-	-	-	NDP	439	0076-1L
4498.00	cut bulk	0.97	6	0.14	-	-	-	0077-0B
4498.00	cut Sh/Clst: gy blk, brn blk	-	-	-	-	NDP	434	0077-1L
4536.00	cut Sh/Clst: gy blk, brn blk	-	-	-	-	NDP	438	0084-1L
4550.00	cut Sh/Clst: gy blk, brn blk	-	-	-	-	NDP	438	0087-1L
4616.00	cut bulk	0.97	11	0.14	-	-	-	0096-0B
4616.00	cut Sh/Clst: gy, gy red, m gy	-	-	-	-	NDP	437	0096-1L
4670.00	cut Sh/Clst: drk gy, gy blk	-	-	-	-	NDP	437	0108-1L

Table 6 : Thermal Maturity Data for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	T _{max} (°C)	Sample
4714.00	cut bulk	0.98	27	0.09	-	-	-	0118-0B
4714.00	cut Sh/Clst: gy red	-	-	-	-	NDP	368	0118-1L
4740.00	cut Sh/Clst: m gy to drk gy	-	-	-	-	NDP	439	0123-2L

Table 7 : Visual Kerogen Composition Data for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	LIP T %	Amorphous	Lipid	Sapropelic	Cu	Resin	Algal	Dinofl	Acrit	Bit L	INERT %	Fusins	Semifus	Inert	Micr	Scler	Bit I	VITR %	Tellin	Collin	Vit D	Amor V	Bit V	Sample
4190.00	cut	Sh/Clst: gy blk, brn blk	5	*	*								5	*	*					90		*	*			0037-2L
4230.00	cut	Sh/Clst: blk, gy blk, brn blk	5	*	*								5	*	*					90		*	*			0041-3L
4260.00	cut	Sh/Clst: brn blk	5	*	*								5	*	*					90		*	*			0044-1L
4320.00	cut	Sh/Clst: brn blk	10	**	*								5	*	*					85	?	*	*	*		0051-1L
4356.00	cut	Sh/Clst: gy blk, brn blk	10	*	**	*	?						20	**	*					70		*	**			0056-1L
4370.00	cut	Sh/Clst: gy blk, brn blk	TR	*									20	*	*					80		*	**			0057-1L
4410.00	cut	Sh/Clst: gy blk, brn blk	TR?										20		*					80		*	**			0064-1L
4413.00	cut	Sh/Clst: gy blk, brn blk	10	**	*								25	*	*					65		*	*	**		0065-1L
4430.00	cut	Sh/Clst: gy blk, brn blk	TR		*								40		*					60		*				0066-1L
4440.00	cut	Sh/Clst: gy blk, brn blk	5	*	*								30	*	*					65		*	*			0068-1L
4474.00	cut	Sh/Clst: gy blk, brn blk	10	*	*								20		*					70		*	**			0071-1L
4482.00	cut	Sh/Clst: gy blk, brn blk	TR?	*									30?	?	*	*				70?		*	*			0073-1L

Table 7 : Visual Kerogen Composition Data for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	L	A	L	S	C	D			I	S	I	M	S	V	C	V	A	Sample
			%	L	t	l	l	n	e	l	t	L	%	n	s	t	n	o	I	
4494.00	cut	Sh/Clst: gy blk, brn blk	TR?								30?		*		70?		*	**		0076-1L
4498.00	cut	Sh/Clst: gy blk, brn blk	TR?								40?		*		60?		*	**		0077-1L
4536.00	cut	Sh/Clst: gy blk, brn blk	TR?	*							20	?	*		80		*	*		0084-1L
4550.00	cut	Sh/Clst: gy blk, brn blk	TR?		*						10?		*		90?		*	*		0087-1L
4616.00	cut	Sh/Clst: gy, gy red, m gy	TR	*							10		*	*	90		*	**		0096-1L
4670.00	cut	Sh/Clst: drk gy, gy blk	TR?	*							30	?	*	*	70		*	*	*	0108-1L
4714.00	cut	Sh/Clst: gy red	NDP								NDP				NDP					0118-1L
4740.00	cut	Sh/Clst: m gy to drk gy	10?	*			?				30?		*	*	60?		*	*		0123-2L

Table 8 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
4130.00	cut	Sh/Clst: gy blk, brn blk	7.99	34.34	52.11	5.57	0.15	0031-2L
4160.00	cut	Sh/Clst: gy blk, brn blk	3.44	17.20	41.11	38.26	4.13	0034-2L
4190.00	cut	Sh/Clst: gy blk, brn blk	3.10	15.62	38.50	42.78	5.96	0037-2L
4200.00	cut	Sh/Clst: m gy to drk gy	3.59	33.37	52.00	11.04	0.11	0038-1L
4200.00	cut	Sh/Clst: gy blk, brn blk	3.25	14.95	40.38	41.42	5.28	0038-3L
4220.00	cut	Sh/Clst: blk, gy blk, brn blk	2.90	14.04	34.24	48.82	7.04	0040-3L
4220.00	ccp	Sh/Clst: blk	2.93	17.06	47.21	32.80	6.30	0143-1L
4225.00	ccp	Sh/Clst: dsk y brn to drk ol gy	0.05	19.73	41.02	39.21	1.01	0144-1L
4230.00	cut	Sh/Clst: blk, gy blk, brn blk	2.86	14.27	34.81	48.07	8.03	0041-3L
4230.00	ccp	Sh/Clst: lt gy, drk gy	2.80	14.07	39.59	43.54	2.94	0145-1L
4235.00	ccp	Sh/Clst: blk	4.79	14.45	45.29	35.47	5.68	0146-1L
4250.00	cut	Sh/Clst: gy blk, brn blk	3.20	14.75	36.72	45.34	6.55	0043-2L
4260.00	cut	Sh/Clst: brn blk	3.27	14.60	39.70	42.43	6.87	0044-1L
4270.00	cut	Sh/Clst: brn blk	3.19	14.00	37.89	44.93	6.51	0045-2L

Table 8 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
4280.00	cut	Sh/Clst: brn blk	2.99	14.71	35.98	46.32	6.77	0047-1L
4300.00	cut	Sh/Clst: brn blk	3.04	14.83	39.51	42.62	5.79	0049-1L
4320.00	cut	Sh/Clst: brn blk	2.72	13.68	34.87	48.73	7.85	0051-1L
4330.00	cut	Sh/Clst: brn blk	2.92	14.70	38.81	43.57	4.93	0052-1L
4336.00	cut	Sh/Clst: gy blk, brn blk	3.07	14.94	37.67	44.33	5.53	0053-2L
4342.00	cut	Sh/Clst: gy blk, brn blk	3.03	11.84	39.71	45.43	7.02	0054-1L
4356.00	cut	Sh/Clst: gy blk, brn blk	4.33	14.23	38.09	43.36	6.25	0056-1L
4374.00	cut	Sh/Clst: gy blk, brn blk	2.94	16.58	40.48	40.00	2.26	0058-1L
4380.00	cut	Sh/Clst: gy blk, brn blk	3.30	14.90	38.60	43.21	7.65	0059-1L
4389.00	cut	Sh/Clst: gy blk, brn blk	2.86	13.63	38.71	44.80	6.33	0061-1L
4398.00	cut	Sh/Clst: gy blk, brn blk	3.46	16.10	40.98	39.46	5.84	0062-1L
4410.00	cut	Sh/Clst: gy blk, brn blk	3.05	15.77	36.59	44.59	6.38	0064-1L
4413.00	cut	Sh/Clst: gy blk, brn blk	2.69	13.76	36.33	47.21	7.38	0065-1L
4430.00	cut	Sh/Clst: gy blk, brn blk	3.06	16.19	34.49	46.26	4.64	0066-1L

Table 8 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
4440.00	cut	Sh/Clst: gy blk, brn blk	3.72	16.77	44.14	35.37	7.95	0068-1L
4468.00	cut	Sh/Clst: gy blk, brn blk	2.80	14.88	35.55	46.77	6.50	0070-1L
4478.00	cut	Sh/Clst: gy blk, brn blk	4.28	17.58	33.59	44.55	4.87	0072-1L
4486.00	cut	Sh/Clst: gy blk, brn blk	4.71	16.82	32.11	46.36	4.50	0074-1L
4494.00	cut	Sh/Clst: gy blk, brn blk	3.46	16.15	32.50	47.88	3.45	0076-1L
4506.00	cut	Sh/Clst: gy blk, brn blk	4.10	17.34	36.56	42.00	6.34	0078-1L
4522.00	cut	Sh/Clst: gy blk, brn blk	3.25	15.01	33.29	48.45	4.53	0081-1L
4532.00	cut	Sh/Clst: gy blk, brn blk	3.02	15.68	39.59	41.71	3.63	0083-1L
4540.00	cut	Sh/Clst: gy blk, brn blk	2.76	14.04	35.54	47.66	4.06	0085-1L
4550.00	cut	Sh/Clst: gy blk, brn blk	2.27	12.84	33.18	51.71	6.50	0087-1L
4580.00	cut	Sh/Clst: gy blk, brn blk	2.36	12.57	31.63	53.45	7.06	0090-1L
4602.00	cut	Sh/Clst: gy blk, brn blk	2.32	13.27	33.10	51.31	5.40	0093-1L
4616.00	cut	Sh/Clst: gy, gy red, m gy	2.24	13.78	34.23	49.76	2.74	0096-1L
4656.00	cut	Sh/Clst: gy, gy red	2.69	15.02	35.67	46.62	2.22	0105-1L

Table 8 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
4670.00	cut	Sh/Clst: drk gy, gy blk	2.68	15.27	32.66	49.40	8.86	0108-1L
4714.00	cut	Sh/Clst: gy red	3.06	16.32	33.90	46.72	3.57	0118-1L
4714.00	cut	Sh/Clst: m gy to drk gy	3.14	15.54	32.10	49.22	6.61	0118-2L
4760.00	cut	Sh/Clst: gy blk, ol blk	3.18	18.06	43.95	34.80	2.39	0125-3L

Table 9: Variation in Triterpane Distribution for Well NOCS 2/6-2

Depth unit of measure: m

Depth	Lithology	B		C/E	C/C+E	X/E	Z/E	Z/C	Z/Z+E	Q/E	E/E+F	C+D		J1		Sample
		B/A	B/B+A									B+E+F	C+D+E+F	D+F/C+E	J1+J2%	
4200.00	Sh/Clst	0.50	0.34	0.18	0.51	0.34	0.22	0.10	0.20	0.09	0.33	0.88	0.34	0.14	47.31	126-0
4300.00	Sh/Clst	1.06	0.51	0.16	0.40	0.29	0.23	0.08	0.21	0.08	0.10	0.91	0.29	0.10	61.00	129-0
4430.00	Sh/Clst	2.28	0.70	0.23	0.66	0.40	0.17	0.11	0.17	0.10	0.30	0.84	0.41	0.22	56.35	133-0
4528.00	Sh/Clst	1.14	0.53	0.26	0.73	0.42	0.42	0.13	0.17	0.11	0.30	0.86	0.43	0.17	54.95	136-0
4666.00	Sh/Clst	1.08	0.52	0.25	0.57	0.36	0.20	0.11	0.20	0.10	0.25	0.90	0.37	0.12	50.60	139-0

Table 10: Variation in Sterane Distribution for Well NOCS 2/6-2

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Sample
4200.00	Sh/Clst	0.84	52.17	78.30	1.20	0.78	0.62	0.52	126-0
4300.00	Sh/Clst	0.85	58.21	74.91	1.33	0.72	0.36	0.27	129-0
4430.00	Sh/Clst	0.59	39.74	69.98	1.13	0.75	0.38	0.31	133-0
4528.00	Sh/Clst	0.80	57.66	73.90	1.33	0.71	0.47	0.39	136-0
4666.00	Sh/Clst	0.80	44.32	74.86	1.45	0.77	0.45	0.37	139-0

Ratio1: $a / a + j$

Ratio2: $q / q + t * 100\%$

Ratio3: $2(r + s) / (q + t + 2(r + s)) * 100\%$

Ratio4: $a + b + c + d / h + k + l + n$

Ratio5: $r + s / r + s + q$

Ratio6: $u + v / u + v + q + r + s + t$

Ratio7: $u + v / u + v + i + m + n + q + r + s + t$

Table 11: Aromatisation of Steranes for Well NOCS 2/6-2

Depth unit of measure: m

<u>Depth</u>	<u>Lithology</u>	<u>Ratio1</u>	<u>Ratio2</u>	<u>Sample</u>
4200.00	Sh/Clst	0.52	0.71	126-0
4300.00	Sh/Clst	0.53	0.71	129-0
4430.00	Sh/Clst	0.54	0.74	133-0
4528.00	Sh/Clst	0.75	0.46	136-0
4666.00	Sh/Clst	0.31	0.82	139-0

$$\text{Ratio1: } \frac{\text{C1+D1+E1+F1+G1+H1+I1}}{\text{C1+D1+E1+F1+G1+H1+I1} + \text{c1+d1+e1+f1+g1}}$$

$$\text{Ratio2: } \text{g1} / \text{g1} + \text{I1}$$

Table 12: Variation in Triaromatic Sterane Distribution for Well NOCS 2/6-2

Depth unit of measure: m

<u>Depth</u>	<u>Lithology</u>	<u>Ratio1</u>	<u>Ratio2</u>	<u>Ratio3</u>	<u>Ratio4</u>	<u>Ratio5</u>	<u>Sample</u>
4200.00	Sh/Clst	0.71	0.68	0.49	0.48	0.62	126-0
4300.00	Sh/Clst	0.71	0.68	0.48	0.46	0.62	129-0
4430.00	Sh/Clst	0.65	0.62	0.41	0.38	0.53	133-0
4528.00	Sh/Clst	0.86	0.85	0.65	0.62	0.76	136-0
4666.00	Sh/Clst	0.80	0.81	0.56	0.52	0.67	139-0

Ratio1: $al / al + gl$

Ratio2: $bl / bl + gl$

Ratio3: $al + bl / al + bl + cl + dl + el + fl + gl$

Ratio4: $al / al + el + fl + gl$

Ratio5: $al / al + dl$

Table 13: Variation in Monoaromatic Sterane Distribution for Well NOCS 2/6-2

Depth unit of measure: m

<u>Depth</u>	<u>Lithology</u>	<u>Ratio1</u>	<u>Ratio2</u>	<u>Ratio3</u>	<u>Ratio4</u>	<u>Sample</u>
4200.00	Sh/Clst	0.53	0.39	0.35	0.24	126-0
4300.00	Sh/Clst	0.53	0.36	0.37	0.24	129-0
4430.00	Sh/Clst	0.57	0.41	0.36	0.26	133-0
4528.00	Sh/Clst	0.55	0.46	0.41	0.30	136-0
4666.00	Sh/Clst	0.62	0.50	0.43	0.34	139-0

Ratio1: Al / Al + El
 Ratio2: Bl / Bl + El

Ratio3: Al / Al + El + Gl
 Ratio4: Al+Bl / Al+Bl+Cl+Dl+El+Fl+Gl+Hl+Il

Table 14 : Tabulation of carbon isotope data for EOM/EOM - fractions or Oils for well NOCS 2/6-2

Depth unit of measure: m

Depth	Typ	Lithology	EOM/Oil	Saturated	Aromatic	NSO	Asphaltenes	Kerogen	Sample
4200.00	com	Composite sample	-	-28.64	-	-	-	-	0126-0
4300.00	com	Composite sample	-	-28.85	-27.47	-28.60	-	-	0129-0
4430.00	com	Composite sample	-	-28.28	-26.97	-27.83	-	-	0133-0
4482.00	com	Composite sample	-	-27.72	-26.68	-31.11	-26.67	-	0135-0
4528.00	com	Composite sample	-	-29.13	-	-	-	-	0136-0
4602.00	com	Composite sample	-	-27.94	-26.62	-27.31	-27.26	-	0138-0
4666.00	com	Composite sample	-	-35.44	-	-	-	-	0139-0

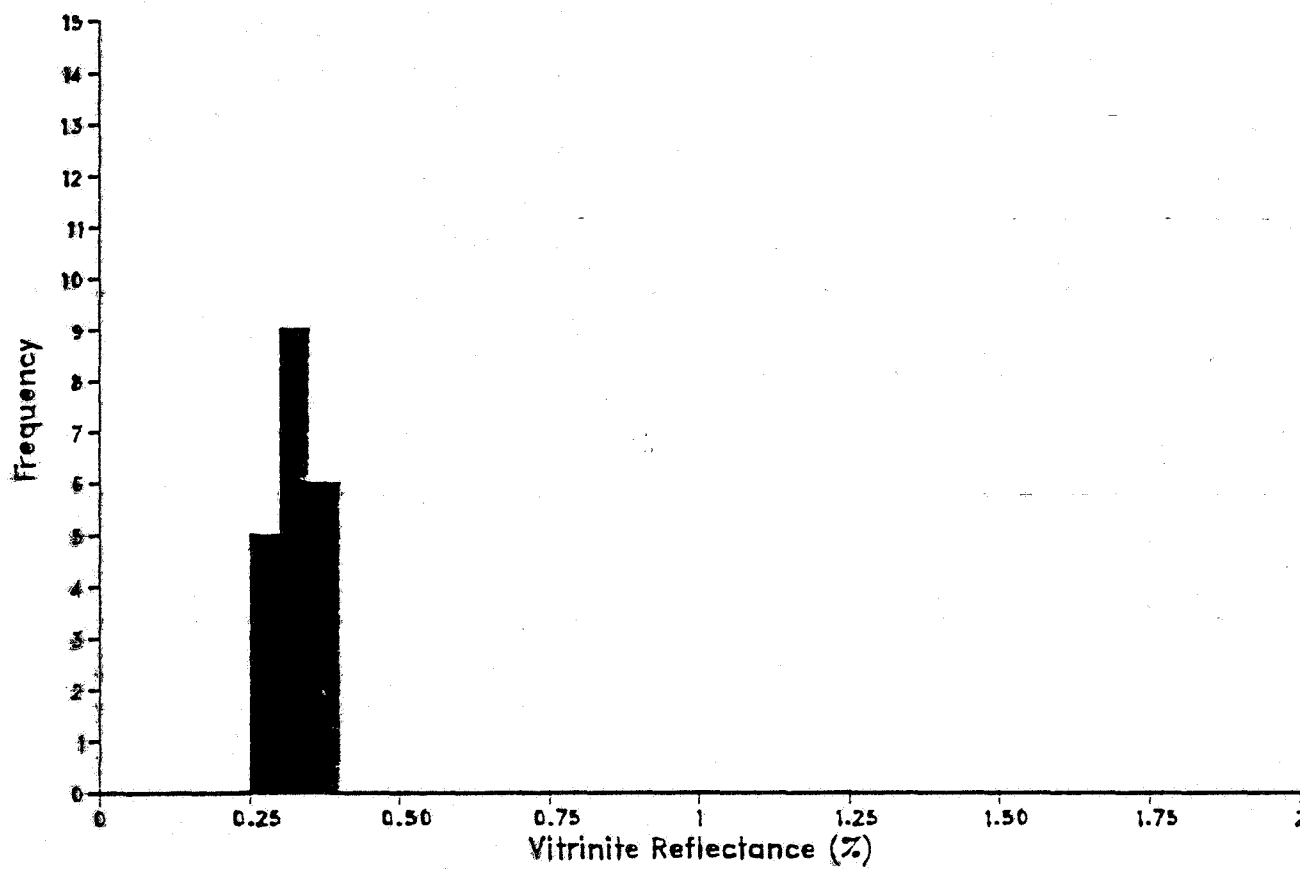
APPENDIX 2

VITRINITE REFLECTANCE
HISTOGRAMS

Vitrinite Reflectance Histogram

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A/S

Well: NOCS 2/6-2
Depth: 940.00(m)
Sample: 1- 0b

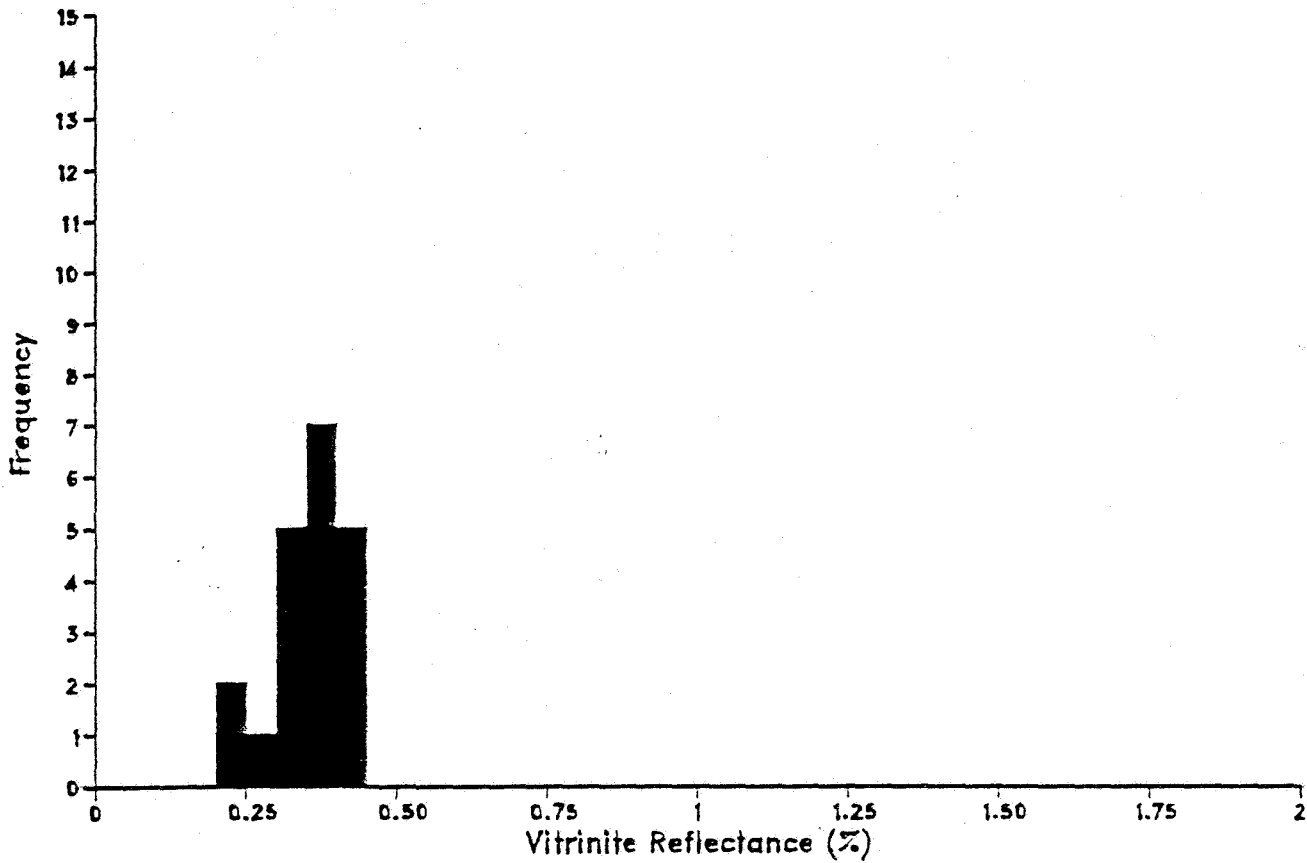


Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.250 to 0.400):	0.32	0.03	20

Readings:									
0.260	0.280	0.290	0.290	0.290	0.300	0.300	0.300	0.300	0.310
0.310	0.320	0.320	0.340	0.350	0.350	0.350	0.360	0.360	0.370

Vitrinite Reflectance Histogram

Well: NOCS 2/6-2
Depth: 1100.00(m)
Sample: 2-0b

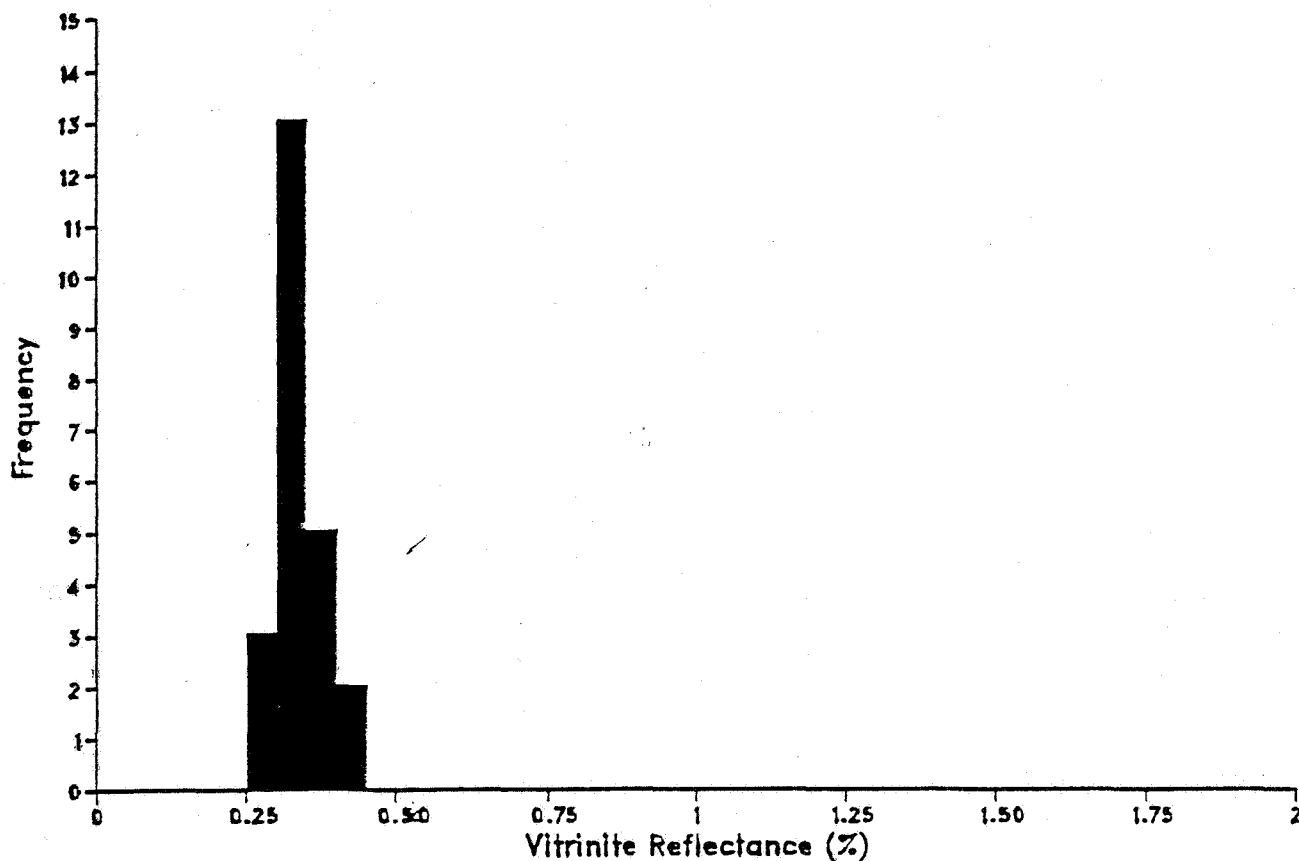


Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.200 to 0.450):	0.35	0.06	20

Readings:									
0.240	0.240	0.260	0.310	0.320	0.330	0.330	0.340	0.370	0.370
0.380	0.380	0.380	0.390	0.390	0.400	0.400	0.410	0.410	0.440

Vitrinite Reflectance Histogram

Well: NOCS 2/6-2
Depth: 1280.00(m)
Sample: 3-0b

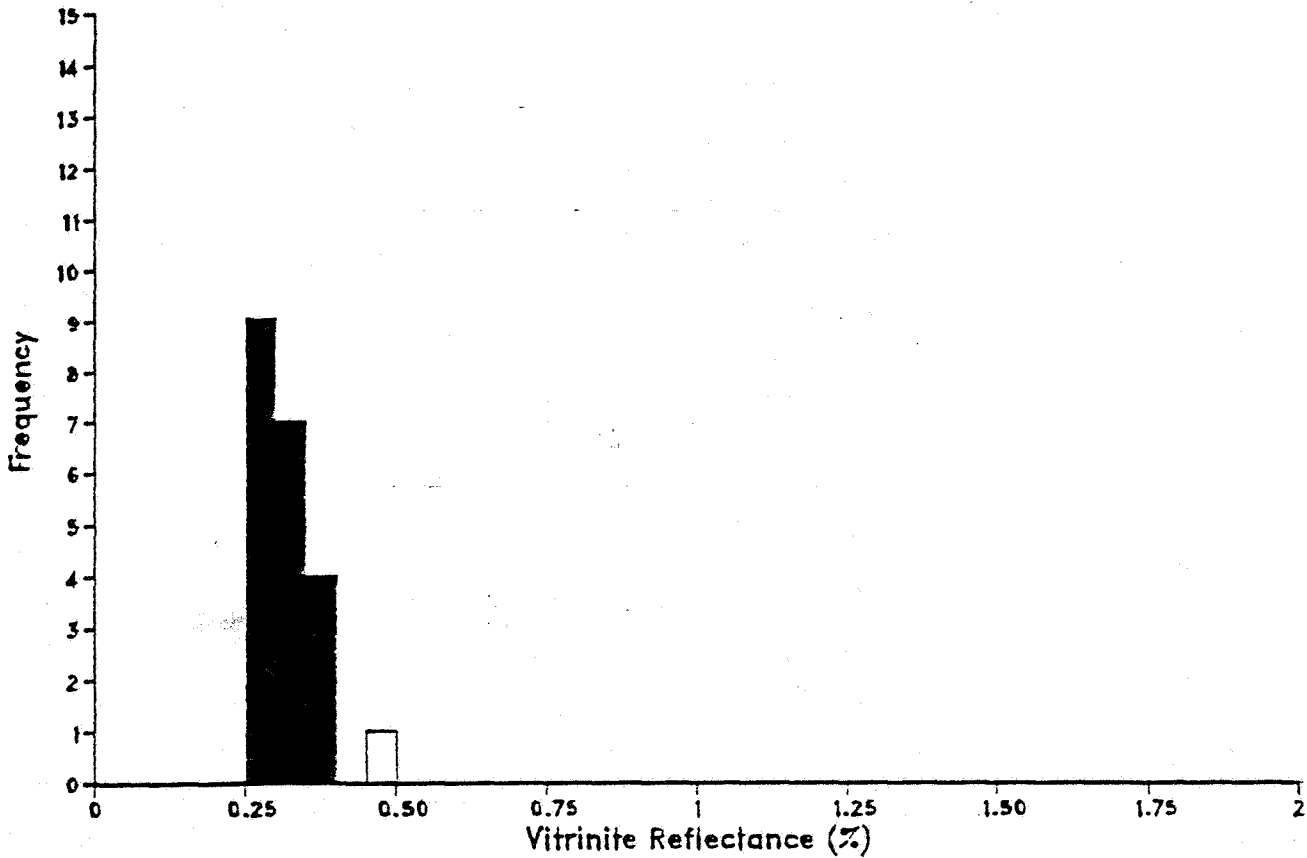


Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.250 to 0.450):	0.34	0.04	23

Readings:									
0.270	0.270	0.290	0.310	0.310	0.310	0.320	0.320	0.330	0.330
0.340	0.340	0.340	0.340	0.340	0.340	0.360	0.360	0.370	0.370
0.390	0.400	0.400							

Vitrinite Reflectance Histogram

Well: NOCS 2/6-2
Depth: 1460.00(m)
Sample: 4-0b

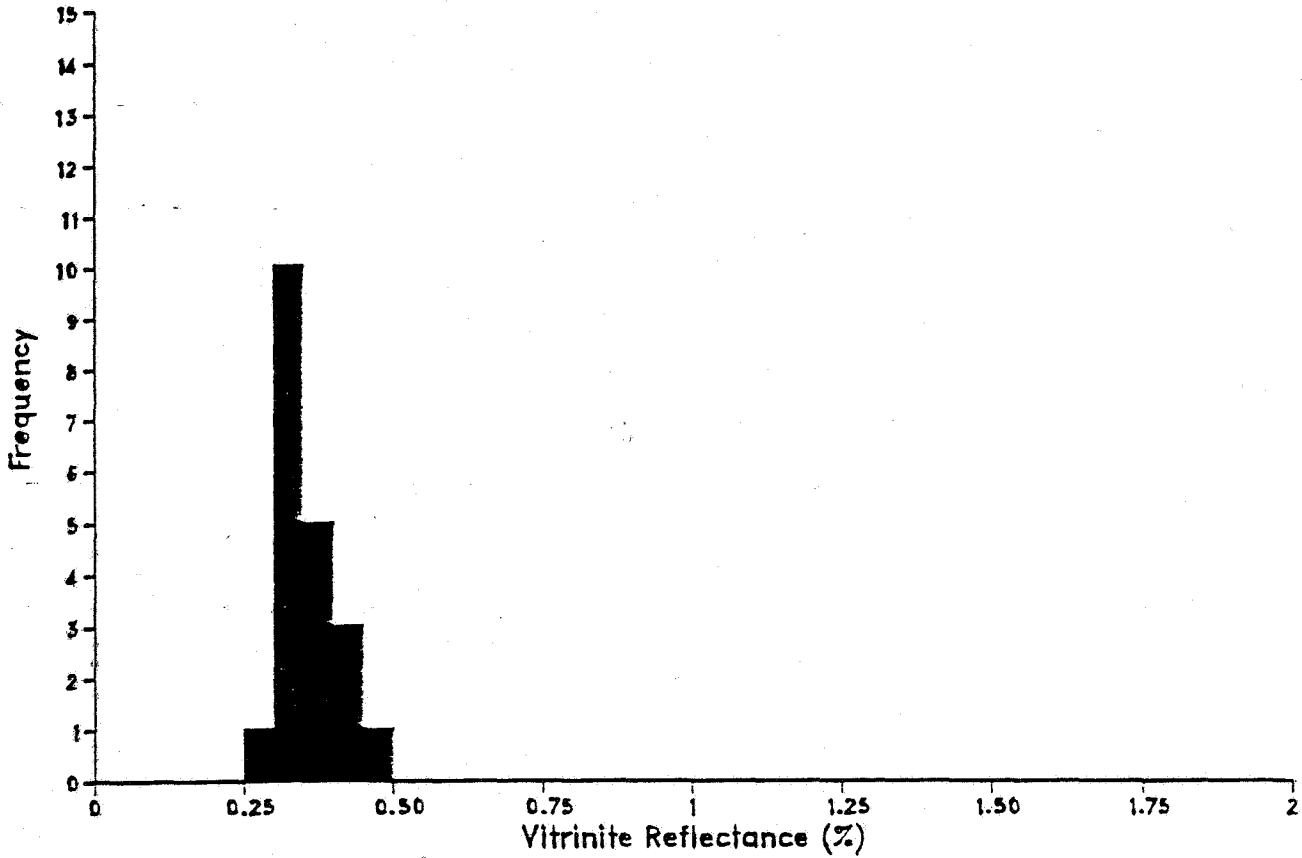


Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.250 to 0.400):	0.31	0.04	20
Population Two (from 0.450 to 0.500):	0.49	0.00	1

Readings:									
0.250	0.270	0.280	0.280	0.280	0.290	0.290	0.290	0.290	0.310
0.310	0.310	0.310	0.310	0.330	0.330	0.350	0.360	0.360	0.390
0.490									

Vitrinite Reflectance Histogram

Well: NOCS 2/6-2
Depth: 1620.00(m)
Sample: 5-0b

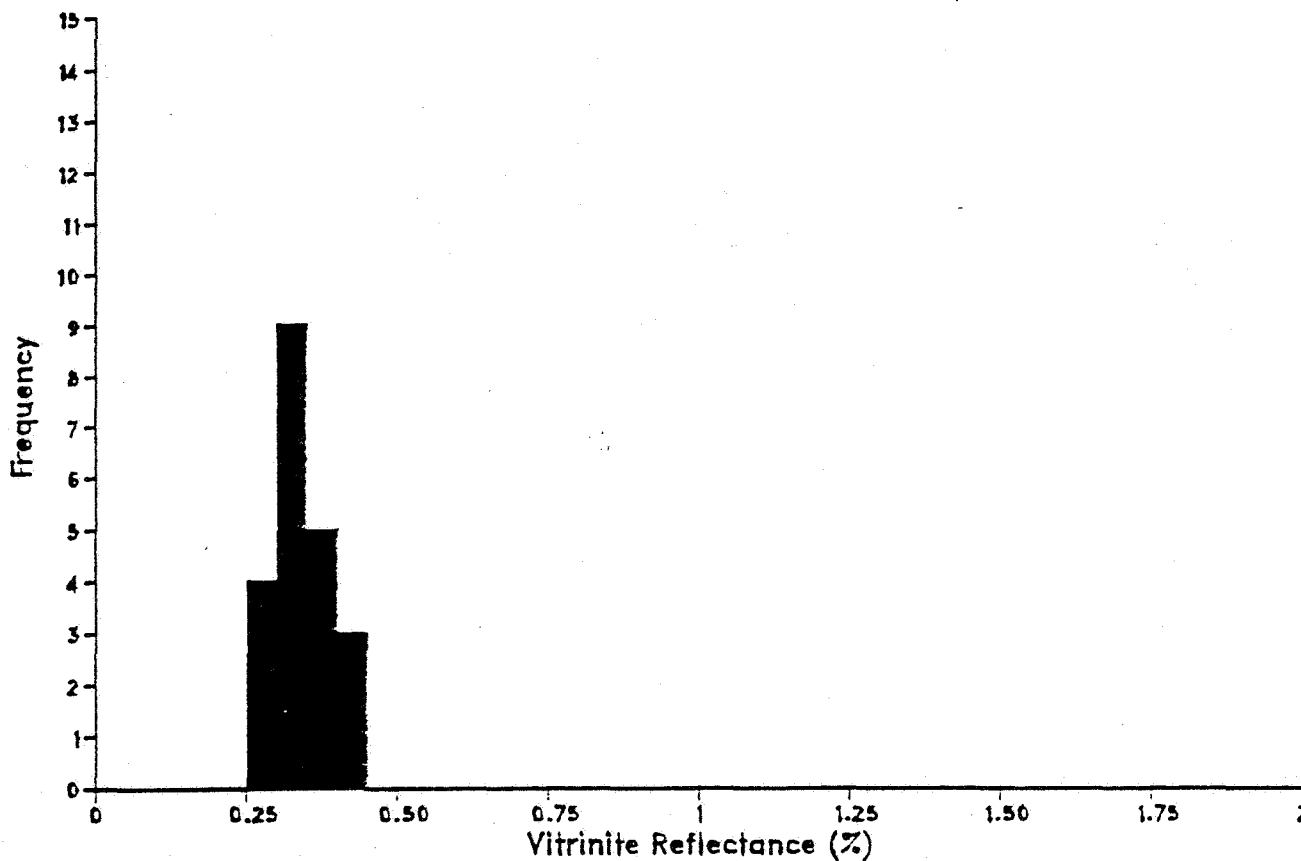


Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.250 to 0.500):	0.35	0.05	20

Readings:									
0.280	0.300	0.310	0.310	0.320	0.320	0.320	0.320	0.330	0.330
0.340	0.350	0.350	0.360	0.360	0.370	0.400	0.420	0.430	0.460

Vitrinite Reflectance Histogram

Well: NOCS 2/6-2
Depth: 1800.00(m)
Sample: 6-0b



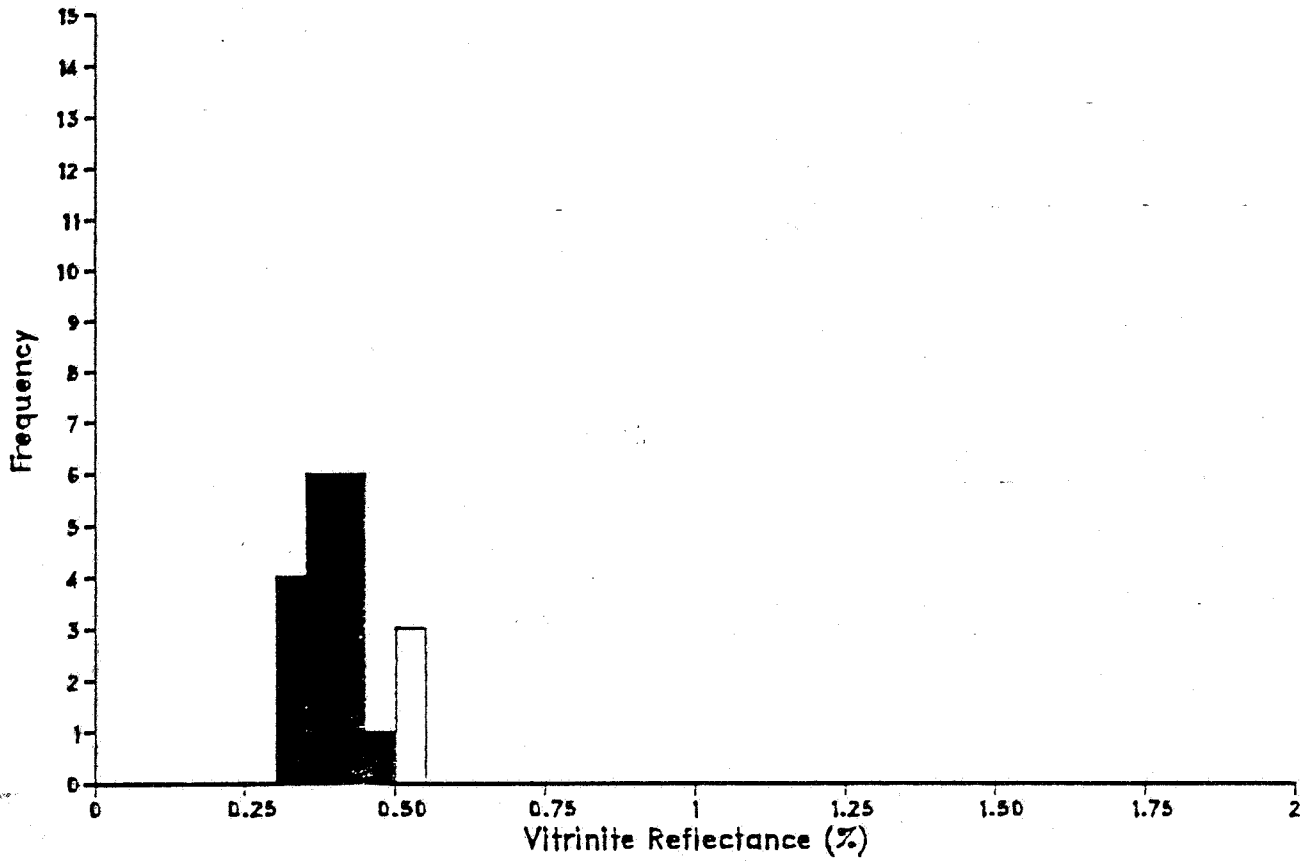
Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.250 to 0.450):	0.34	0.04	21

Readings:									
0.270	0.280	0.280	0.290	0.310	0.310	0.320	0.320	0.330	0.330
0.330	0.330	0.340	0.350	0.370	0.370	0.370	0.370	0.410	0.420
0.420									

Vitrinite Reflectance Histogram

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A/S

Well: NOCS 2/6-2
 Depth: 1960.00(m)
 Sample: 7-0b

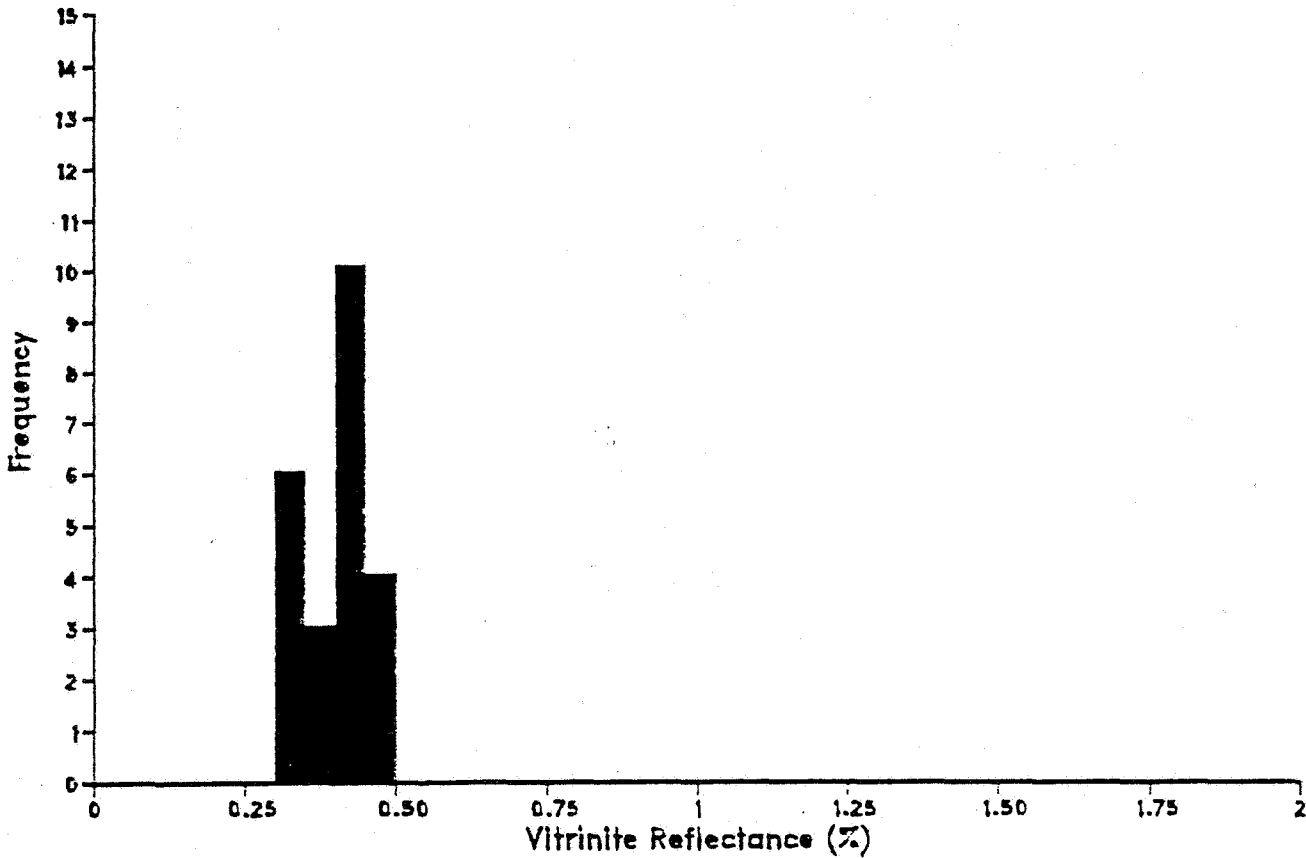


Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.300 to 0.499):	0.38	0.04	17
Population Two (from 0.500 to 0.550):	0.52	0.02	3

Readings:									
0.300	0.330	0.330	0.340	0.370	0.370	0.380	0.380	0.390	0.390
0.400	0.400	0.400	0.410	0.430	0.430	0.470	0.500	0.520	0.530

Vitrinite Reflectance Histogram

Well: NOCS 2/6-2
Depth: 2140.00(m)
Sample: 8-0b

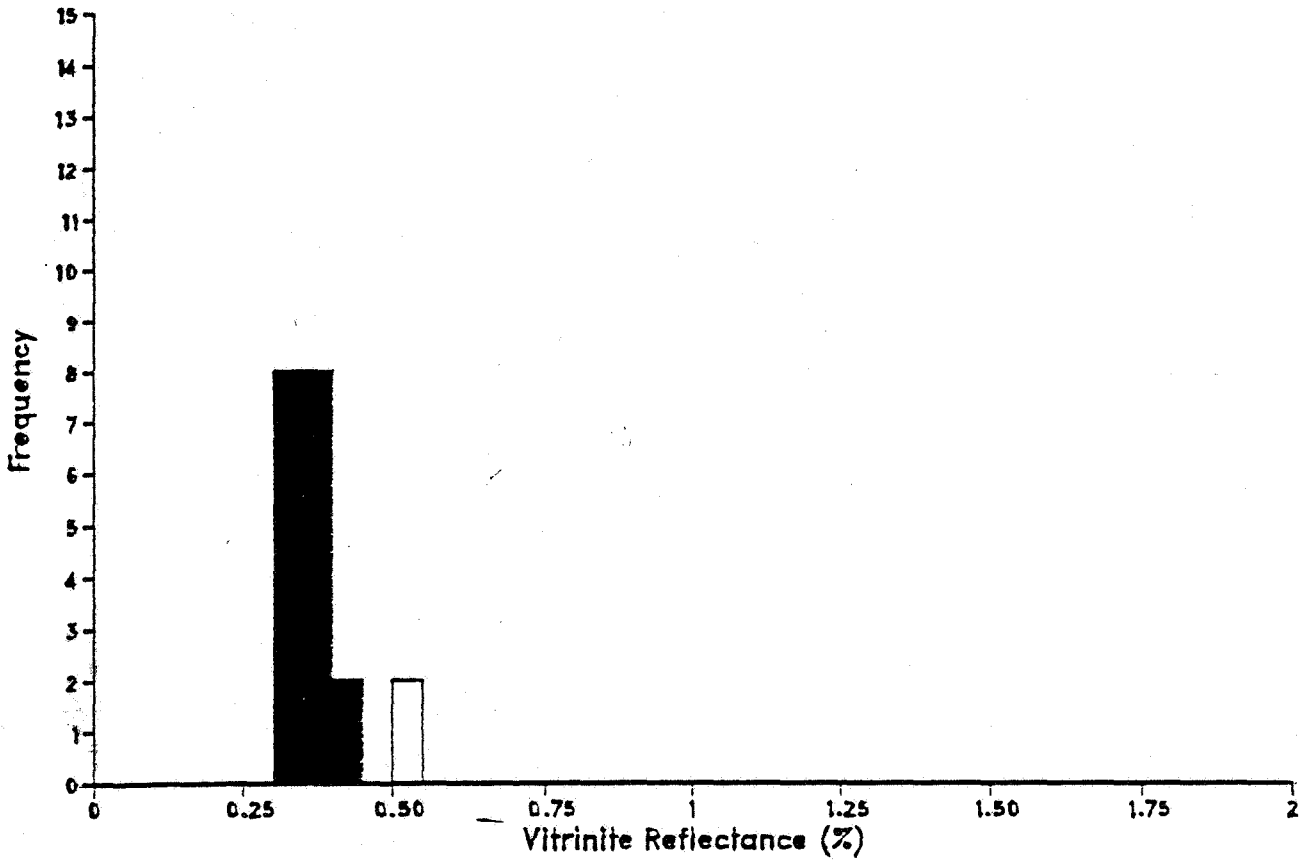


Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.300 to 0.500):	0.40	0.05	23

Readings:									
0.310	0.320	0.320	0.320	0.330	0.340	0.370	0.380	0.390	0.400
0.400	0.410	0.410	0.410	0.410	0.420	0.420	0.420	0.440	0.460
0.470	0.470	0.490							

Vitrinite Reflectance Histogram

Well: NOCS 2/6-2
Depth: 2300.00(m)
Sample: 9-0b



Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.300 to 0.450):	0.35	0.03	18
Population Two (from 0.500 to 0.550):	0.53	0.02	2

Readings:									
0.300	0.310	0.320	0.320	0.340	0.340	0.340	0.340	0.350	0.360
0.360	0.360	0.360	0.370	0.380	0.390	0.400	0.410	0.510	0.540

Vitrinite Reflectance Histogram

GEOLAB NOR

Well: NOCS 2/6-2
 Depth: 2480.00(m)
 Sample: 10-0b

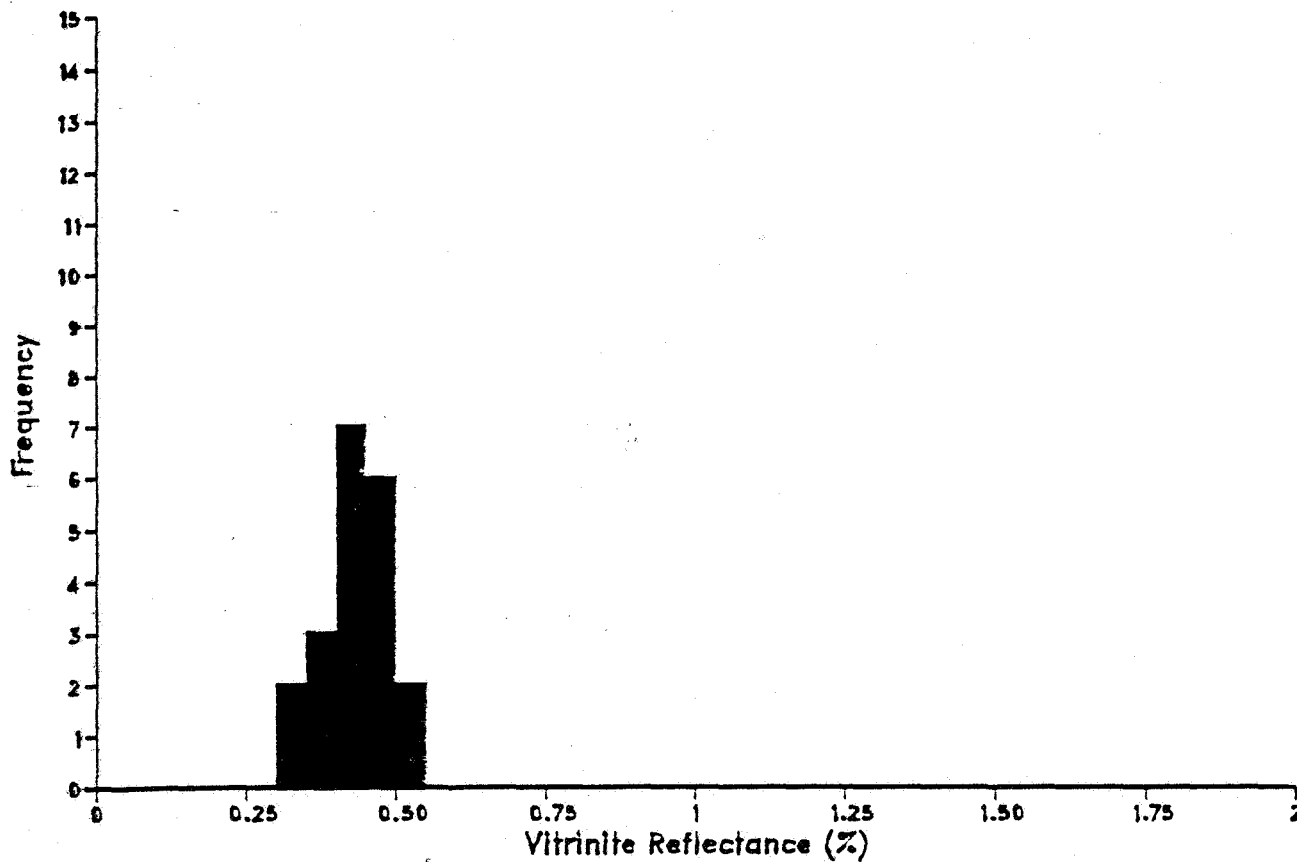


Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.250 to 0.400):	0.30	0.04	25

Readings:									
0.250	0.250	0.260	0.270	0.270	0.270	0.270	0.270	0.270	0.280
0.280	0.280	0.290	0.300	0.310	0.310	0.320	0.320	0.330	0.330
0.340	0.340	0.340	0.360	0.380					

Vitrinite Reflectance Histogram

Well: NOCS 2/6-2
Depth: 2666.00(m)
Sample: 11- 0b

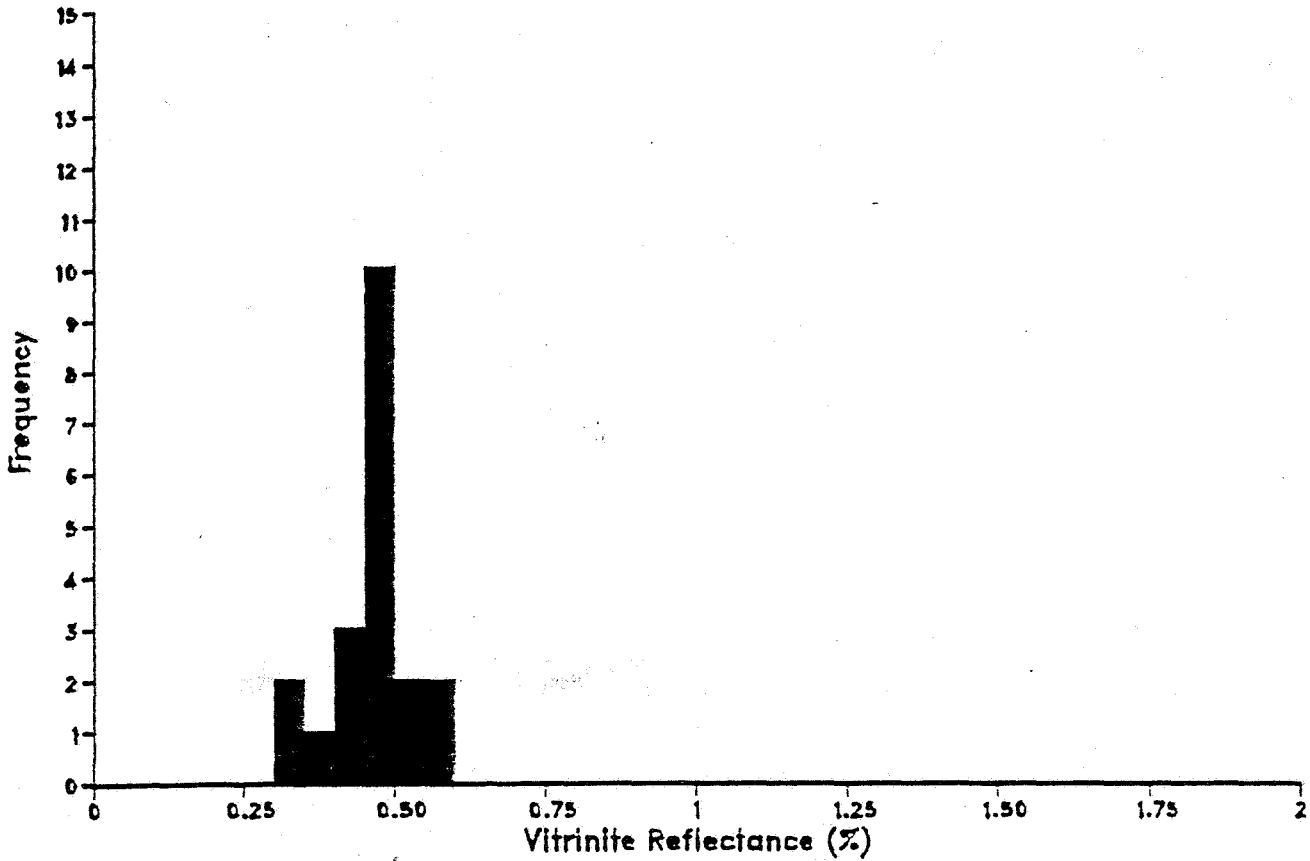


Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.300 to 0.550):	0.43	0.06	20

Readings:									
0.320	0.330	0.360	0.370	0.380	0.400	0.410	0.410	0.430	0.440
0.440	0.440	0.460	0.460	0.470	0.480	0.480	0.490	0.500	0.540

Vitrinite Reflectance Histogram

Well: NOCS 2/6-2
Depth: 2820.00(m)
Sample: 12-0b



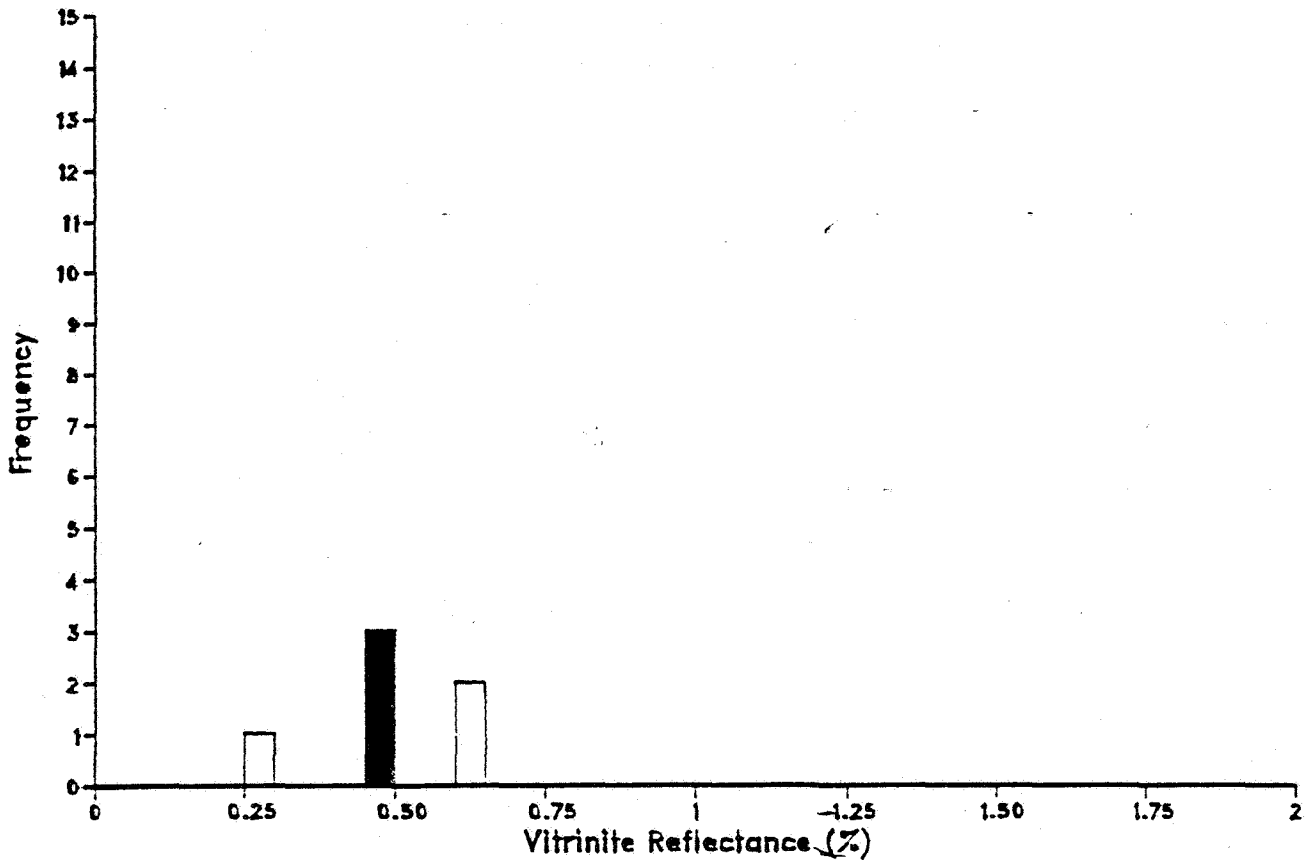
Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.300 to 0.600):	0.46	0.07	20

Readings:									
0.320	0.340	0.350	0.400	0.420	0.440	0.450	0.450	0.460	0.460
0.470	0.470	0.480	0.480	0.480	0.480	0.520	0.520	0.560	0.560

Vitrinite Reflectance Histogram

GEOLAB NOR

Well: NOCS 2/6-2
 Depth: 3000.00(m)
 Sample: 13-0b

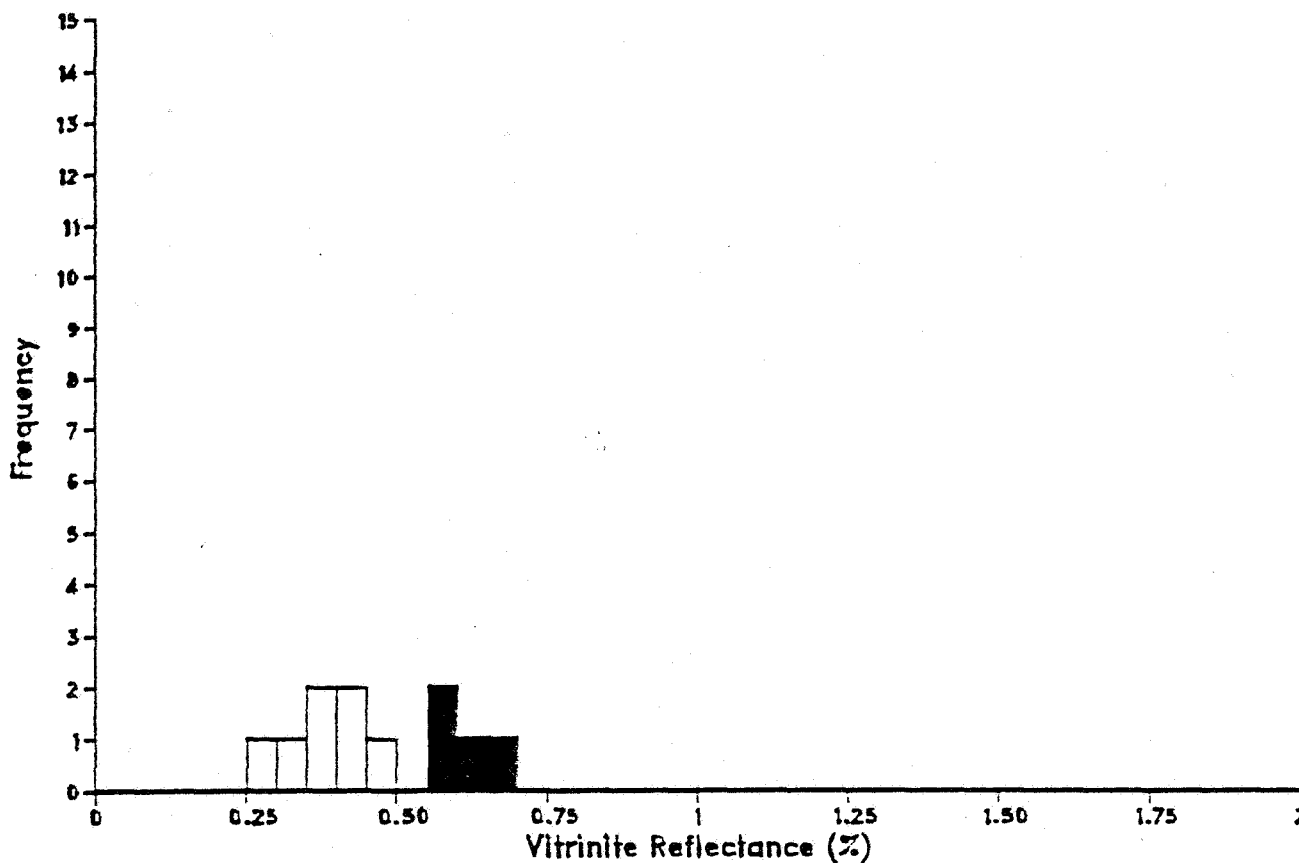


Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.450 to 0.500):	0.48	0.01	3
Population Two (from 0.250 to 0.300):	0.28	0.00	1
Population Three (from 0.600 to 0.650):	0.62	0.01	2

Readings:
0.280 0.470 0.470 0.490 0.610 0.630

Vitrinite Reflectance Histogram

Well: NOCS 2/6-2
Depth: 3170.00(m)
Sample: 14-0b



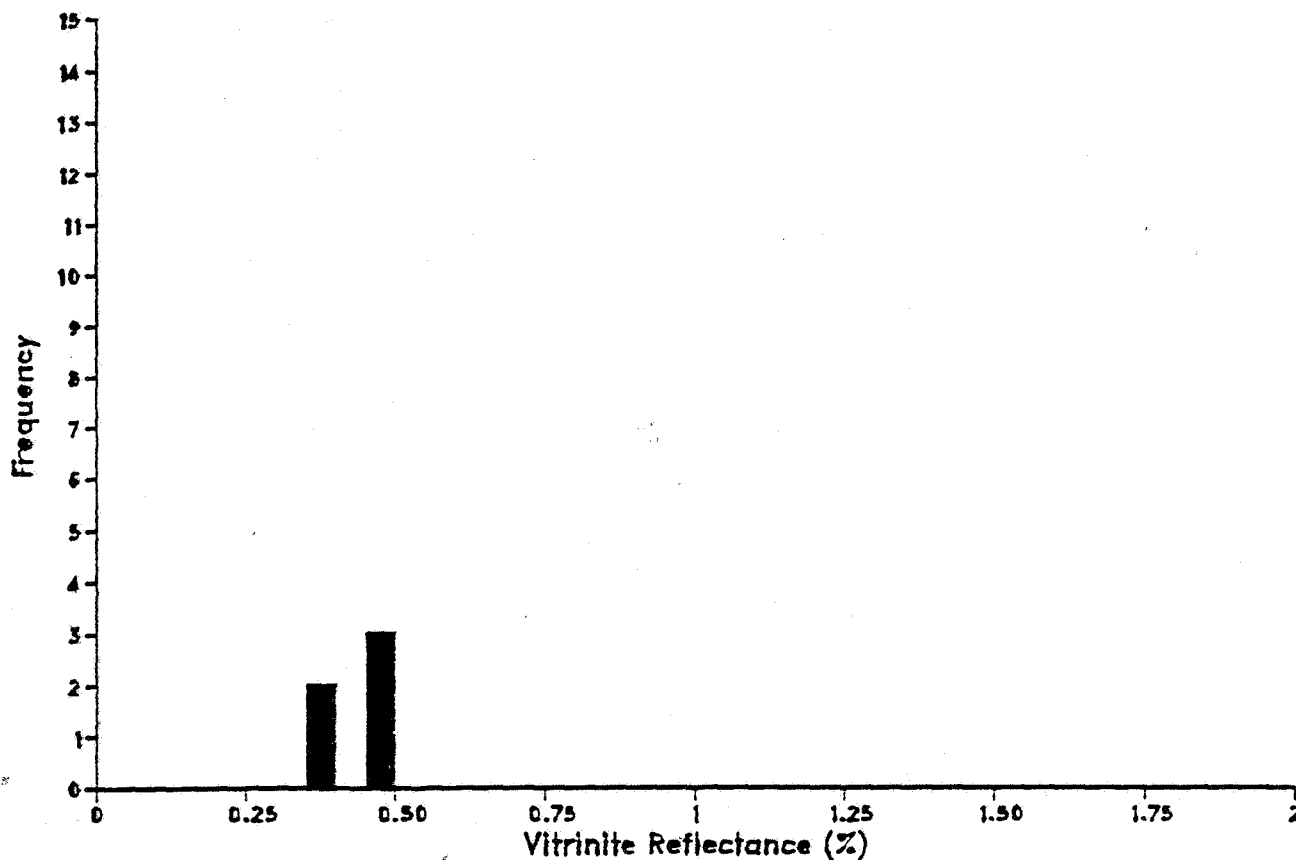
Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.550 to 0.700):	0.60	0.05	4
Population Two (from 0.250 to 0.500):	0.37	0.06	7

Readings:
0.260 0.340 0.350 0.370 0.410 0.410 0.460 0.550 0.570 0.600
0.660

Vitrinite Reflectance Histogram

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S.

Well: NOCS 2/6-2
Depth: 3670.00(m)
Sample: T7-0b



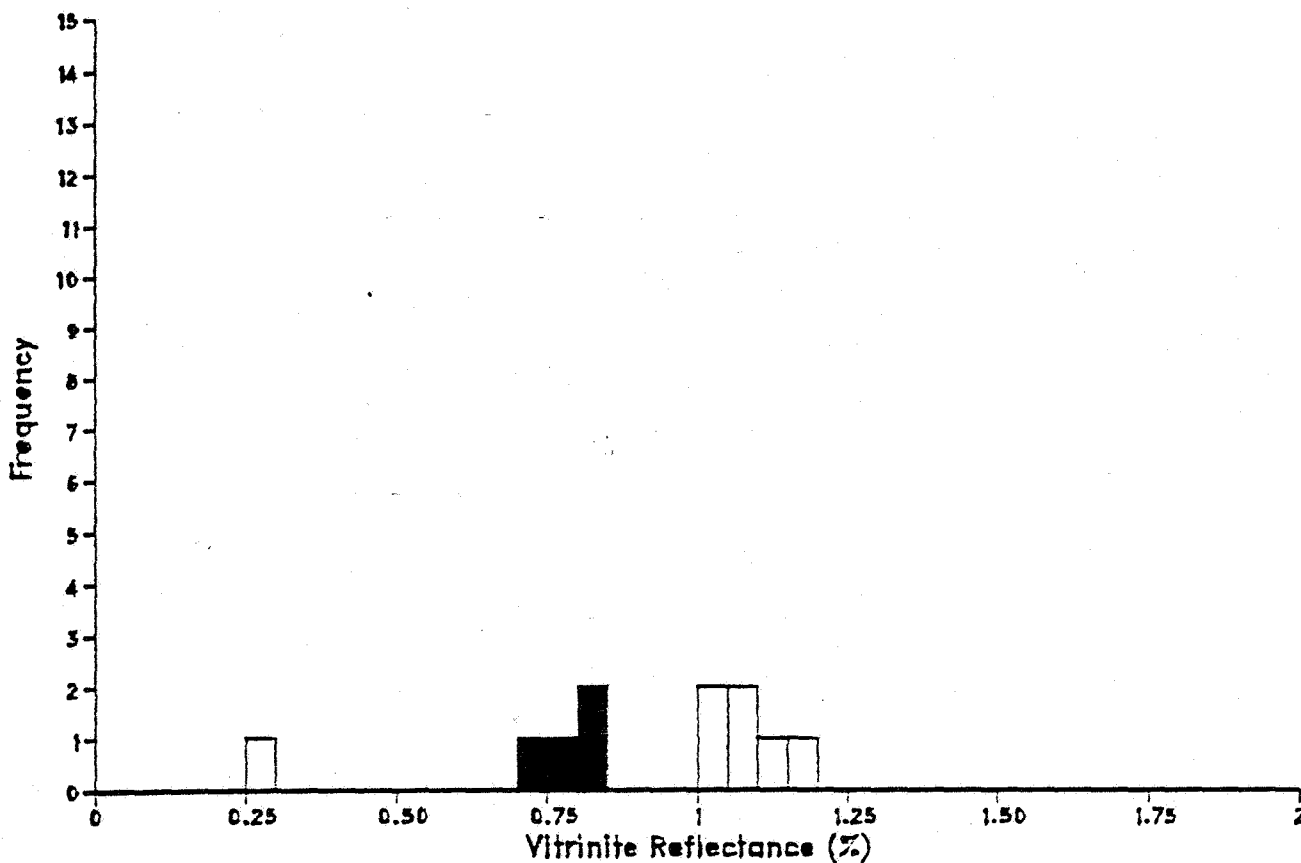
Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.350 to 0.500):	0.42	0.06	5

Readings:
0.360 0.360 0.450 0.460 0.480

Vitrinite Reflectance Histogram

GEOLAB NOR
GEOLAB NOR - LABORATORIES OF NORWAY A.S.

Well: NOCS 276-2
 Depth: 4110.00(m)
 Sample: 29-0b



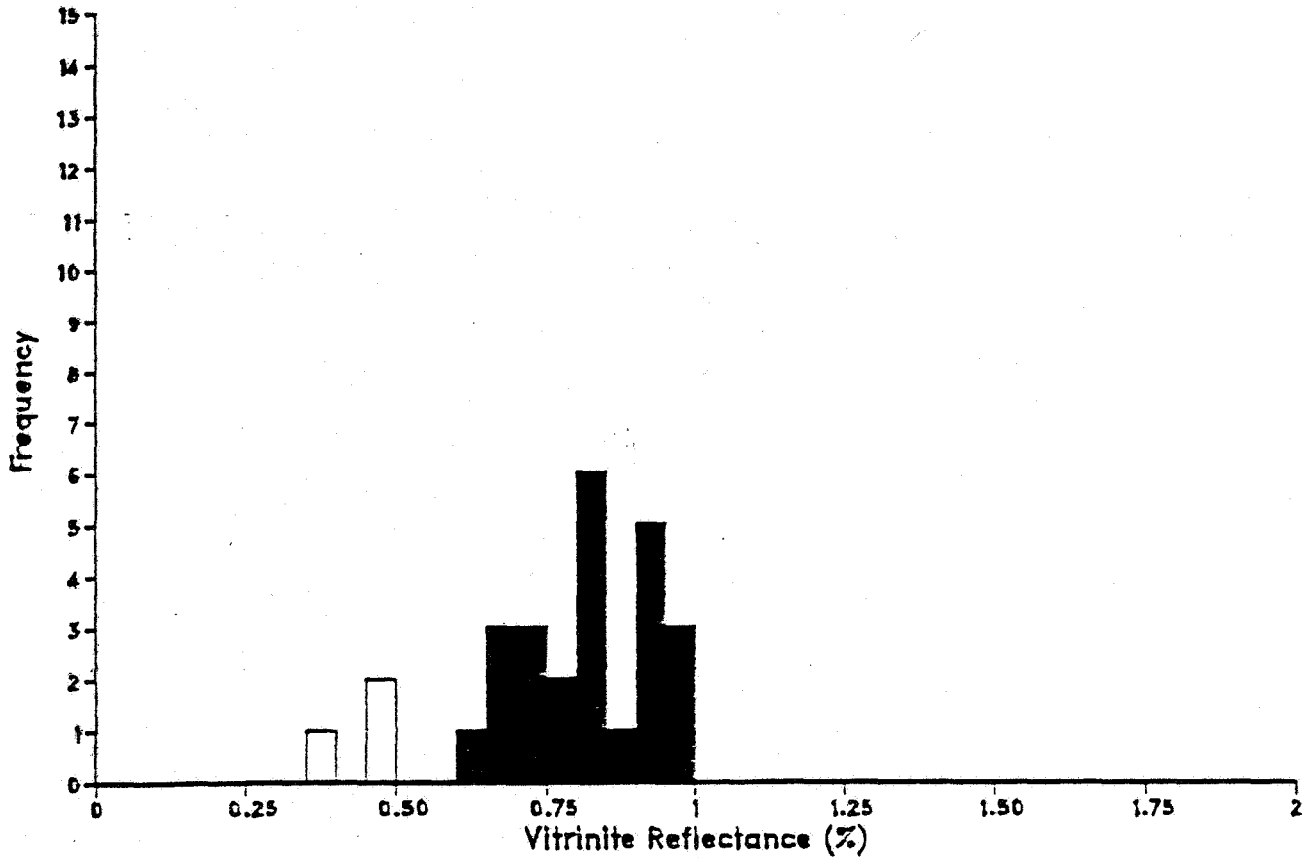
Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.700 to 0.849):	0.79	0.04	4
Population Two (from 0.250 to 0.300):	0.28	0.00	1
Population Three (from 1.000 to 1.200):	1.09	0.06	6

Readings:
0.278 0.740 0.792 0.801 0.839 1.025 1.030 1.085 1.090 1.142 1.160

Vitrinite Reflectance Histogram

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A/S

Well: NOCS 2/6-2
Depth: 4200.00(m)
Sample: 38-0b



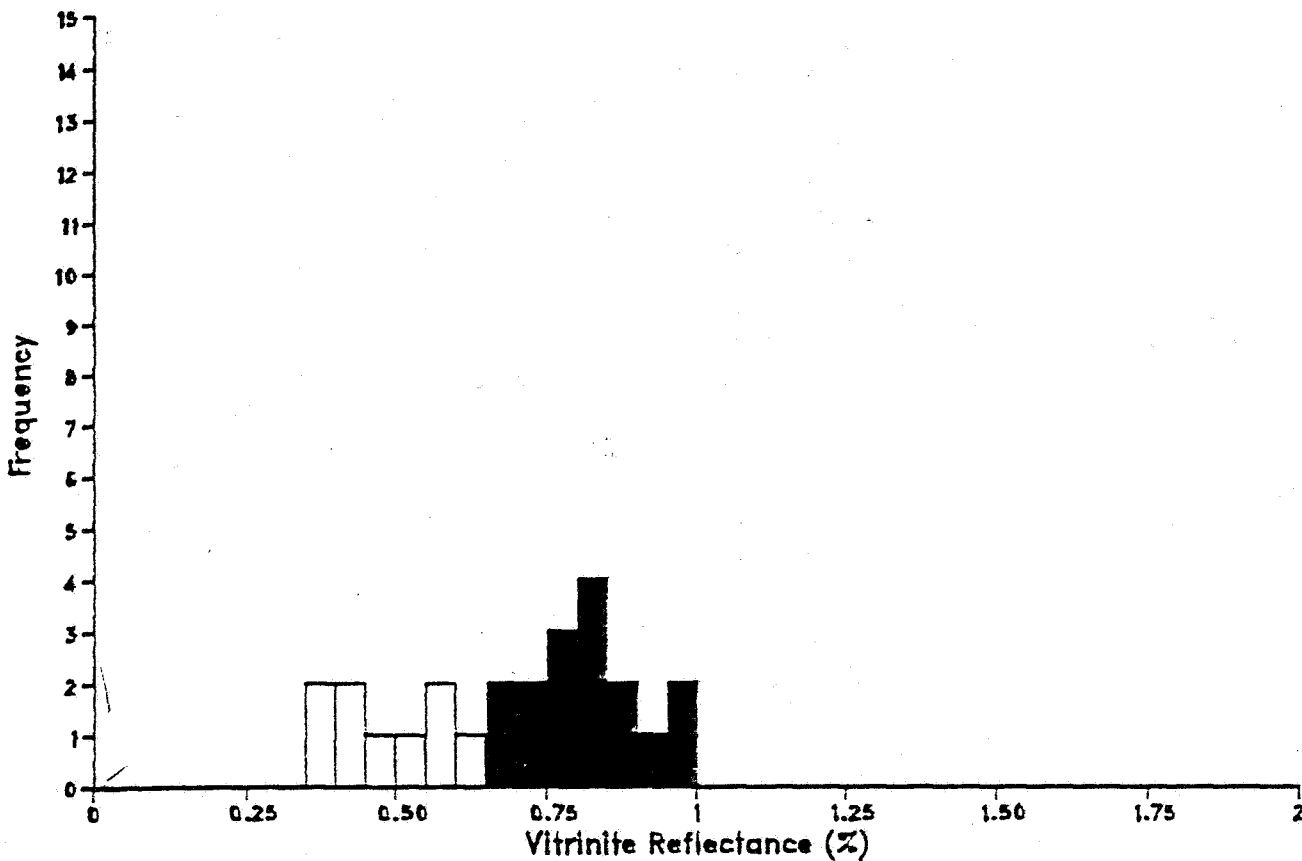
Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.600 to 1.000):	0.82	0.10	24
Population Two (from 0.350 to 0.500):	0.45	0.06	3

Readings:									
0.384	0.475	0.485	0.644	0.653	0.663	0.694	0.731	0.732	0.741
0.757	0.799	0.804	0.812	0.814	0.819	0.820	0.827	0.891	0.904
0.909	0.912	0.924	0.924	0.953	0.993	0.998			

Vitrinite Reflectance Histogram

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S.

Well: NOCS 2/6-2
Depth: 4300.00(m)
Sample: 49- 0b



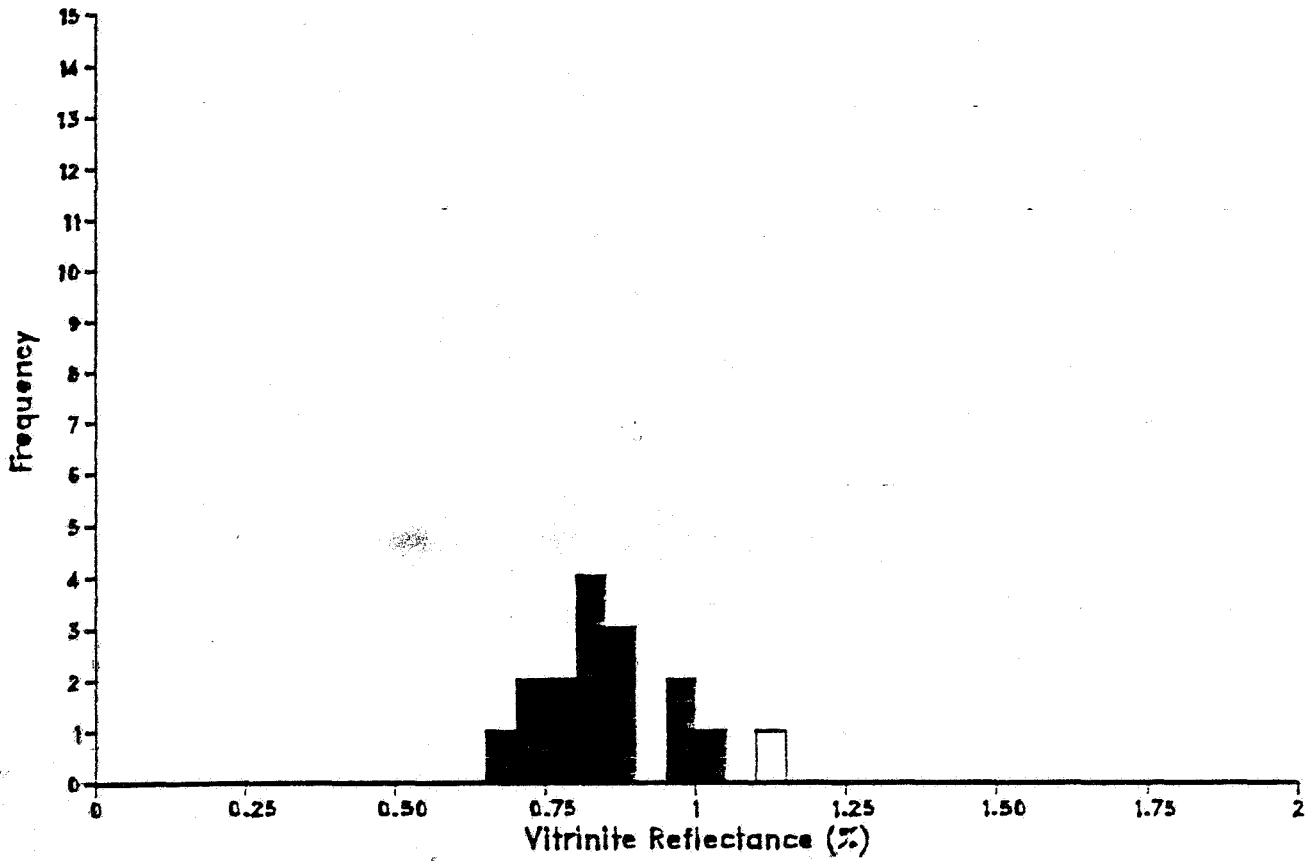
Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.650 to 1.000):	0.81	0.09	16
Population Two (from 0.350 to 0.649):	0.49	0.08	9

Readings:									
0.388	0.392	0.443	0.448	0.492	0.501	0.553	0.565	0.613	0.679
0.688	0.708	0.730	0.753	0.782	0.796	0.807	0.817	0.842	0.844
0.855	0.864	0.931	0.951	0.979					

Vitrinite Reflectance Histogram

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S.

Well: NOCS 2/6-2
Depth: 4398.00(m)
Sample: 62-0b



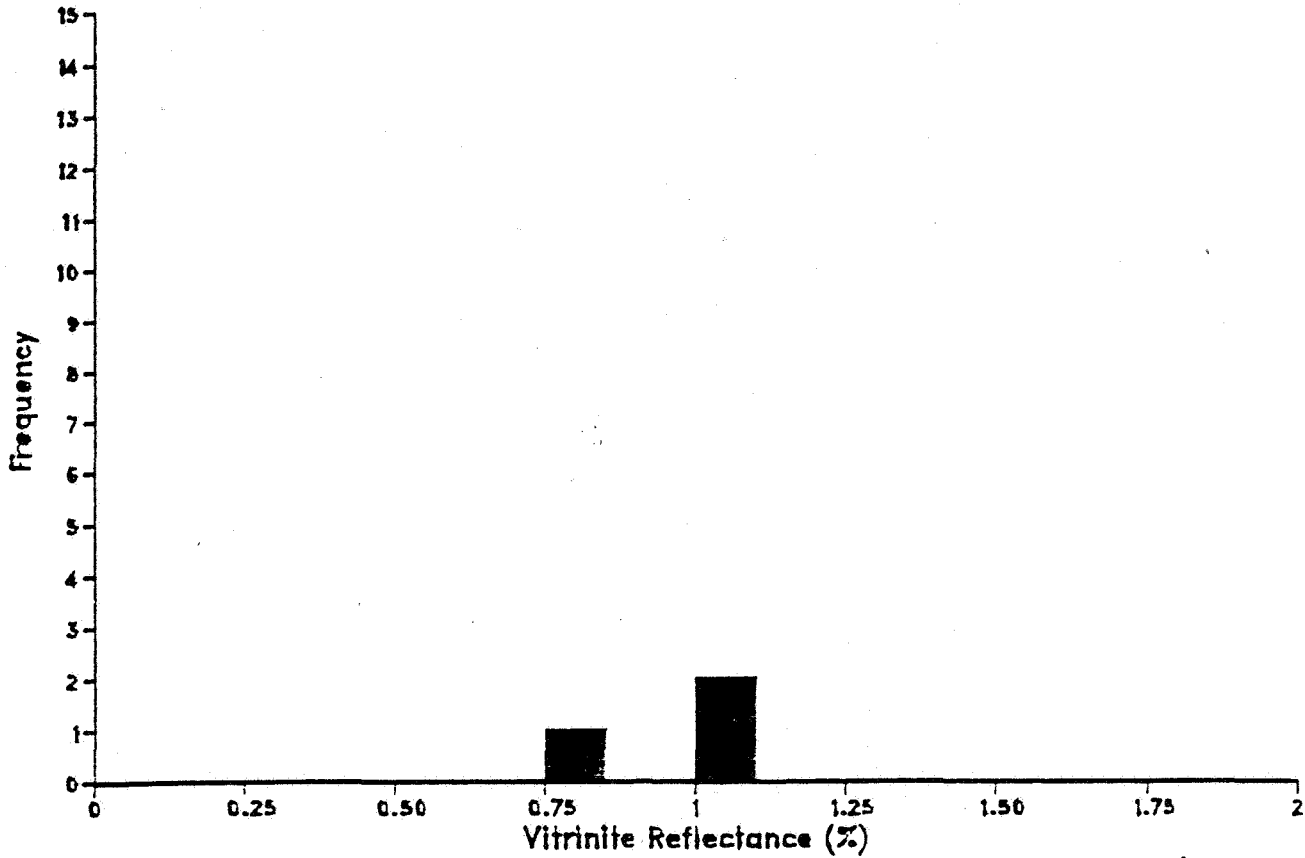
Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.650 to 1.050):	0.84	0.10	15
Population Two (from 1.100 to 1.150):	1.12	0.00	1

Readings:									
0.658	0.718	0.746	0.750	0.793	0.803	0.814	0.821	0.835	0.877
0.884	0.898	0.956	0.981	1.049	1.120				

Vitrinite Reflectance Histogram

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A/S

Well: NOCS 2/6-2
Depth: 4498.00(m)
Sample: 77-0b



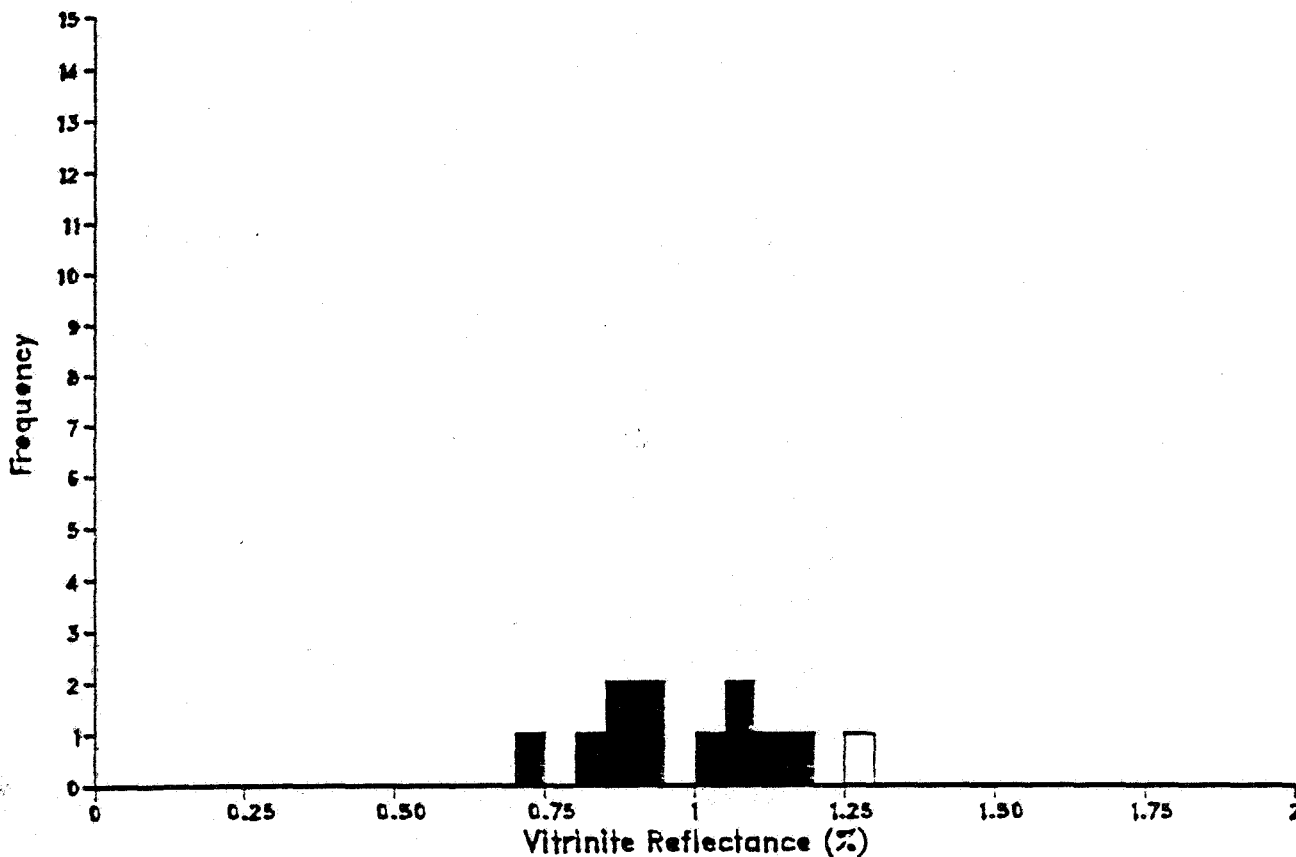
Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.750 to 1.100):	0.97	0.14	6

Readings:
0.557 0.774 0.813 1.017 1.049 1.051 1.087

Vitrinite Reflectance Histogram

GEOLAB NOR

Well: NOCS 276-2
 Depth: 4616.00(m)
 Sample: 96-0b

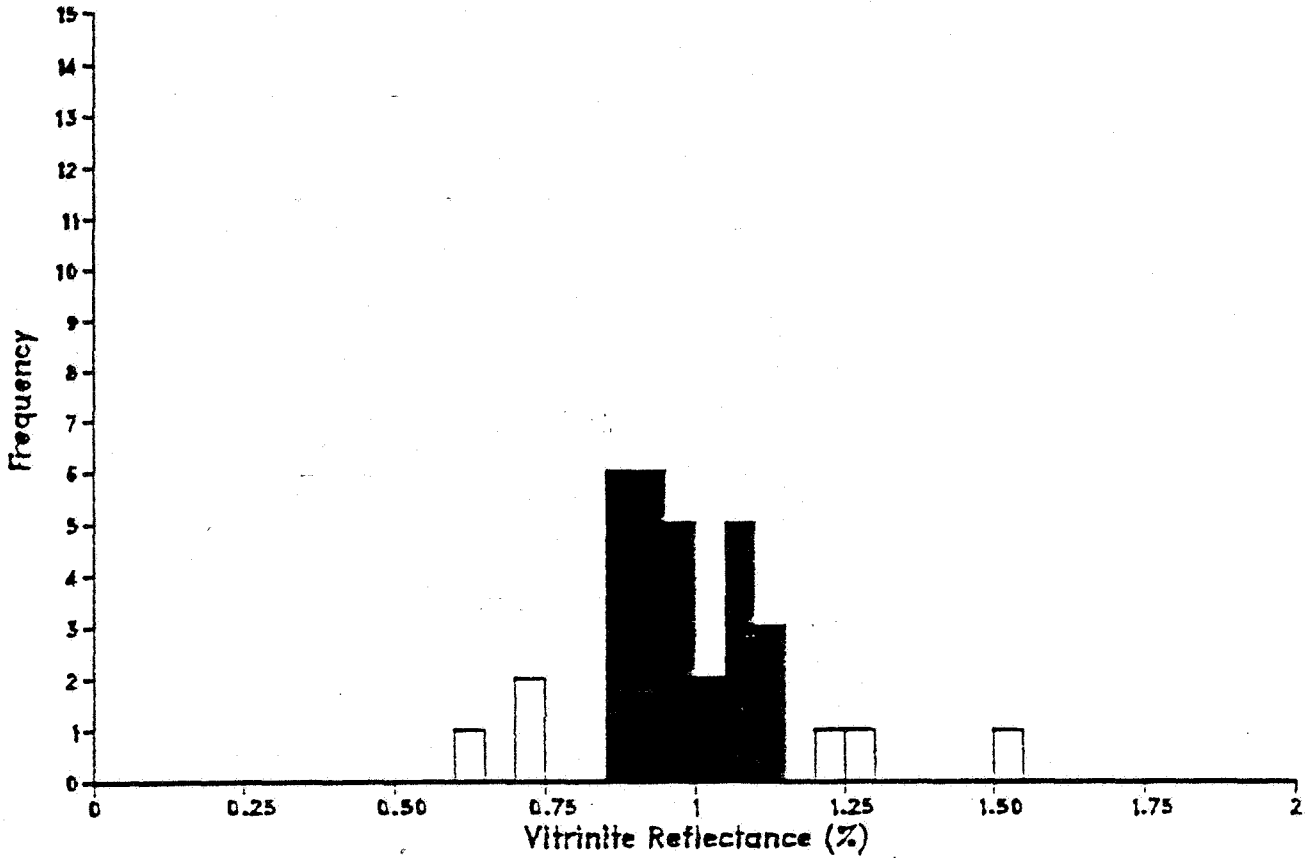


Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.700 to 1.200):	0.97	0.14	11
Population Two (from 1.250 to 1.300):	1.29	0.00	1

Readings:									
0.709	0.843	0.859	0.888	0.924	0.938	1.027	1.065	1.069	1.130
1.169	1.292								

Vitrinite Reflectance Histogram

Well: NOCS 2/6-2
Depth: 474.00(m)
Sample: 118-0b

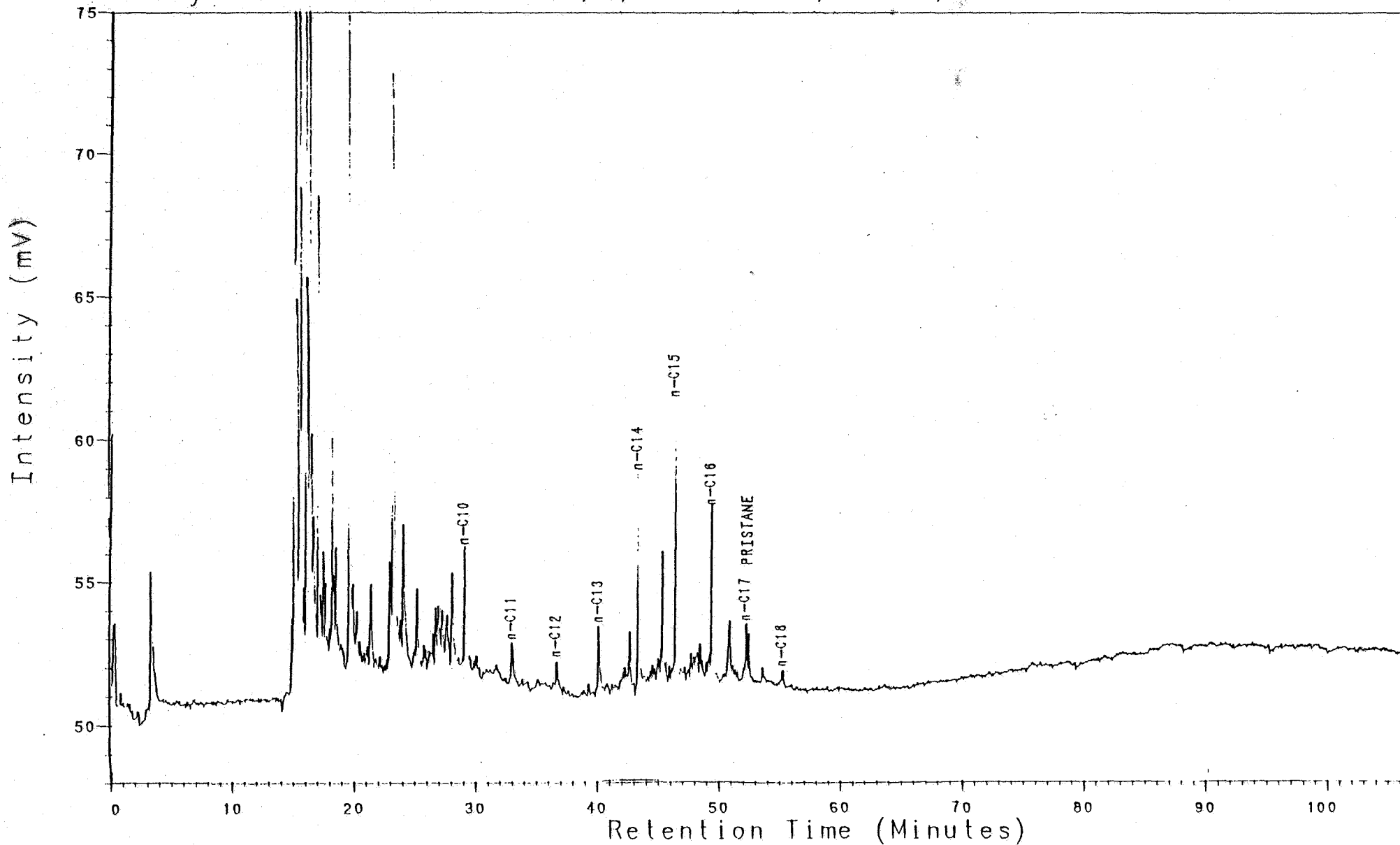


Statistics:	Mean	St.Dev.	n
Indigenous Population (from 0.850 to 1.150):	0.98	0.09	27
Population Two (from 0.600 to 0.750):	0.70	0.07	3
Population Three (from 1.200 to 1.550):	1.35	0.15	3

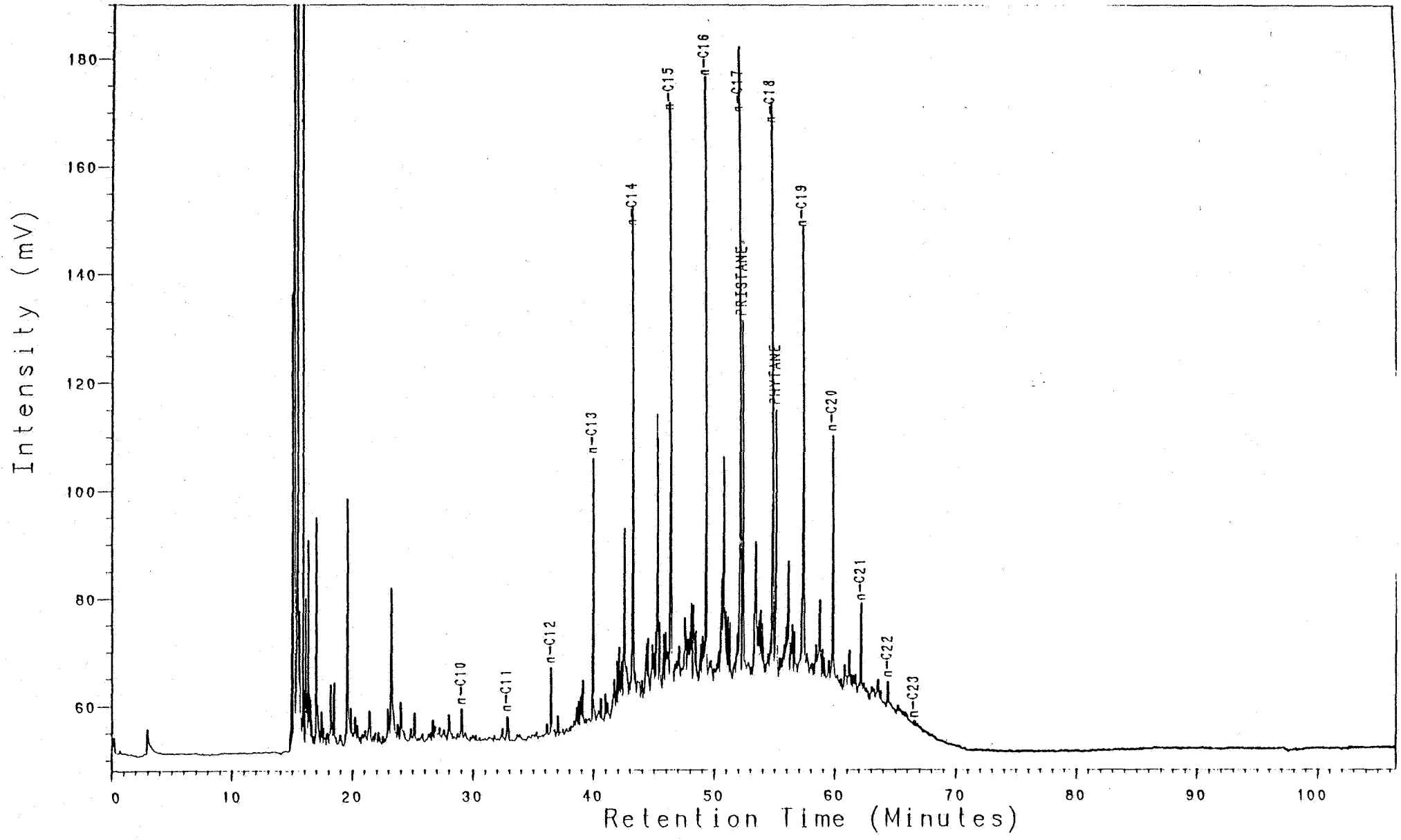
Readings:									
0.618	0.725	0.744	0.862	0.868	0.875	0.876	0.880	0.899	0.901
0.911	0.924	0.935	0.940	0.945	0.971	0.977	0.986	0.995	0.999
1.004	1.022	1.065	1.066	1.070	1.087	1.090	1.138	1.142	1.144
1.246	1.283	1.518							

APPENDIX 3

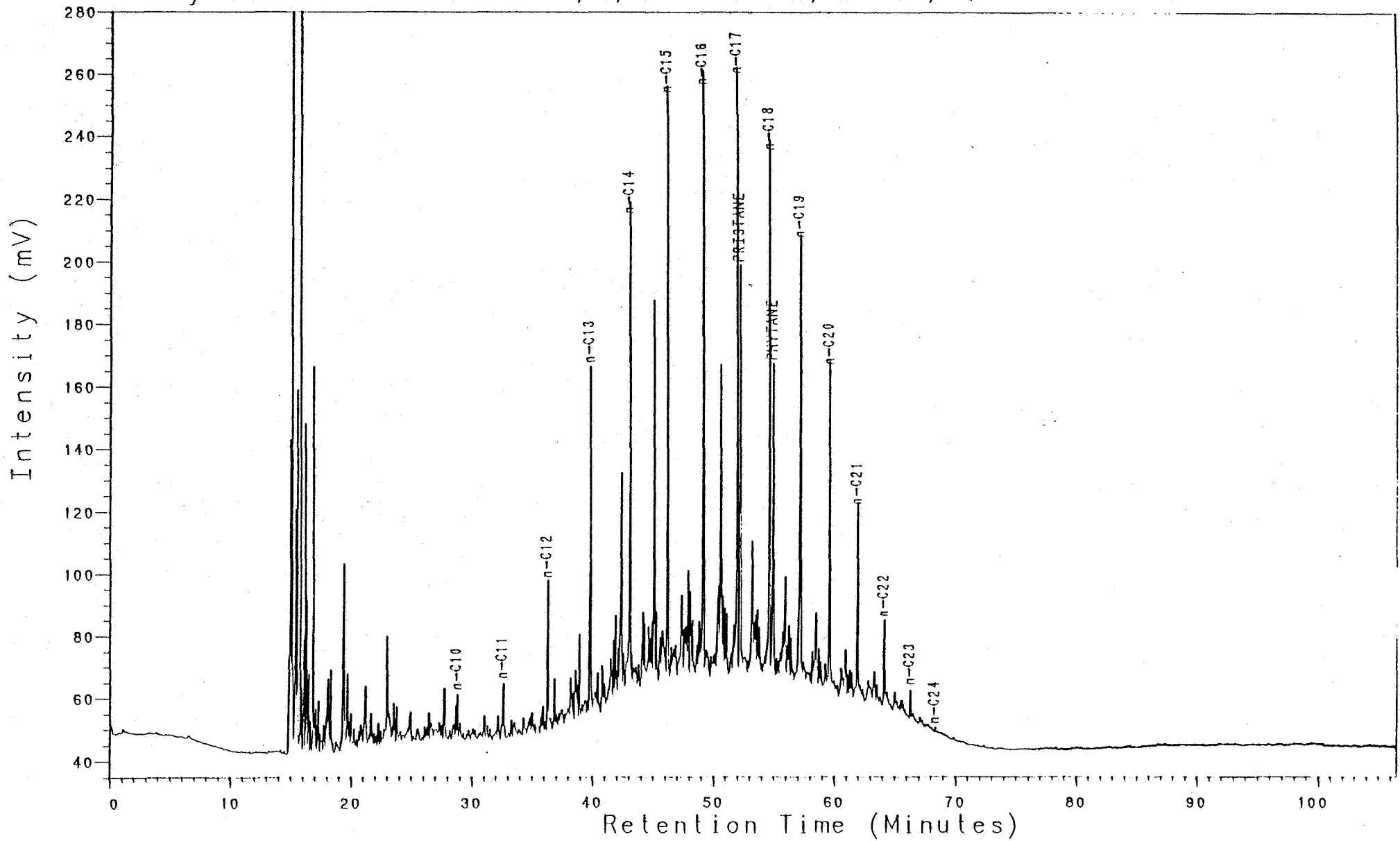
THERMAL EXTRACTION
AND
PYROLYSIS GAS CHROMATOGRAMS



NOCS 2/6-2 4130m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

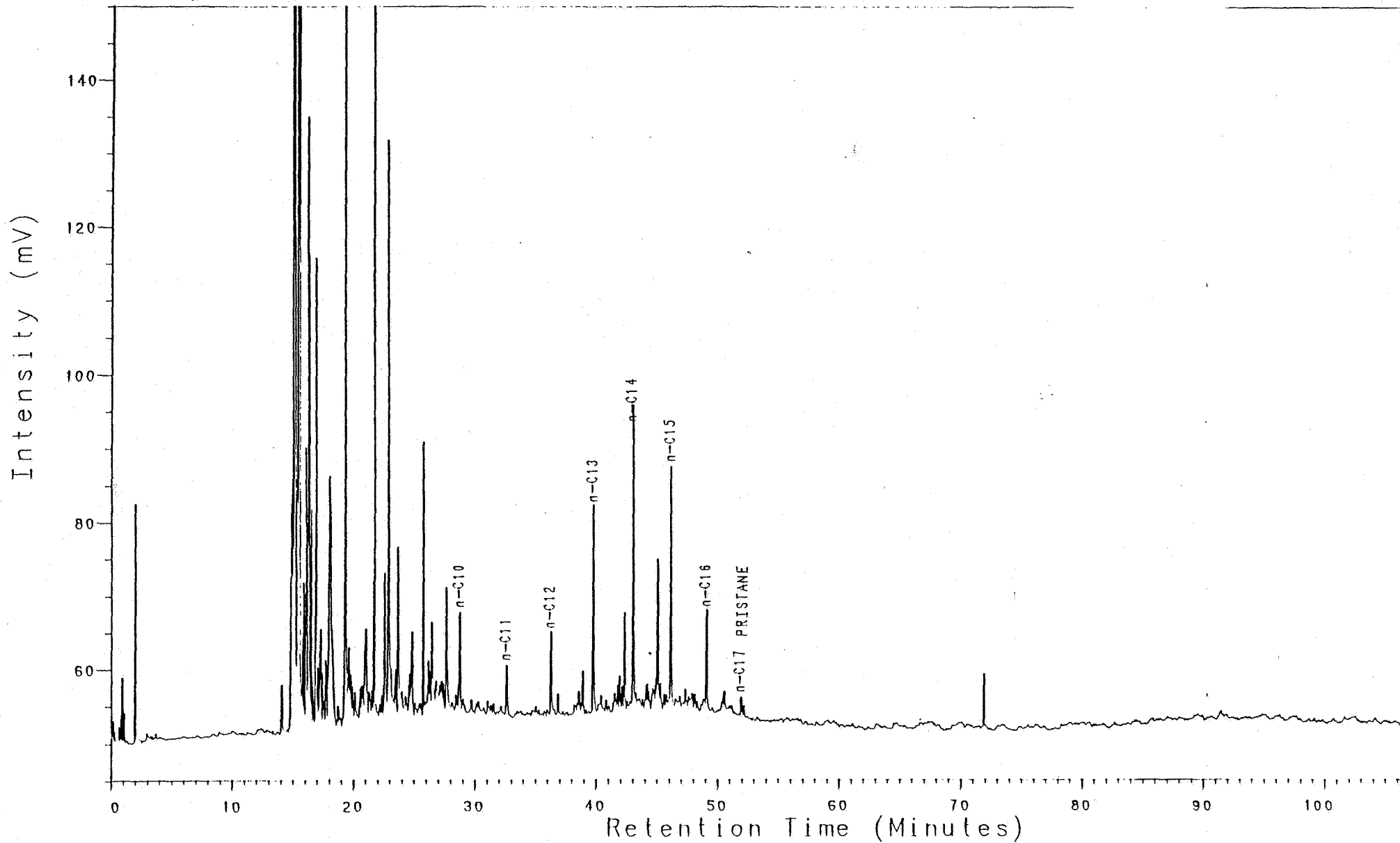


NOCS 2/6-2 4160m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

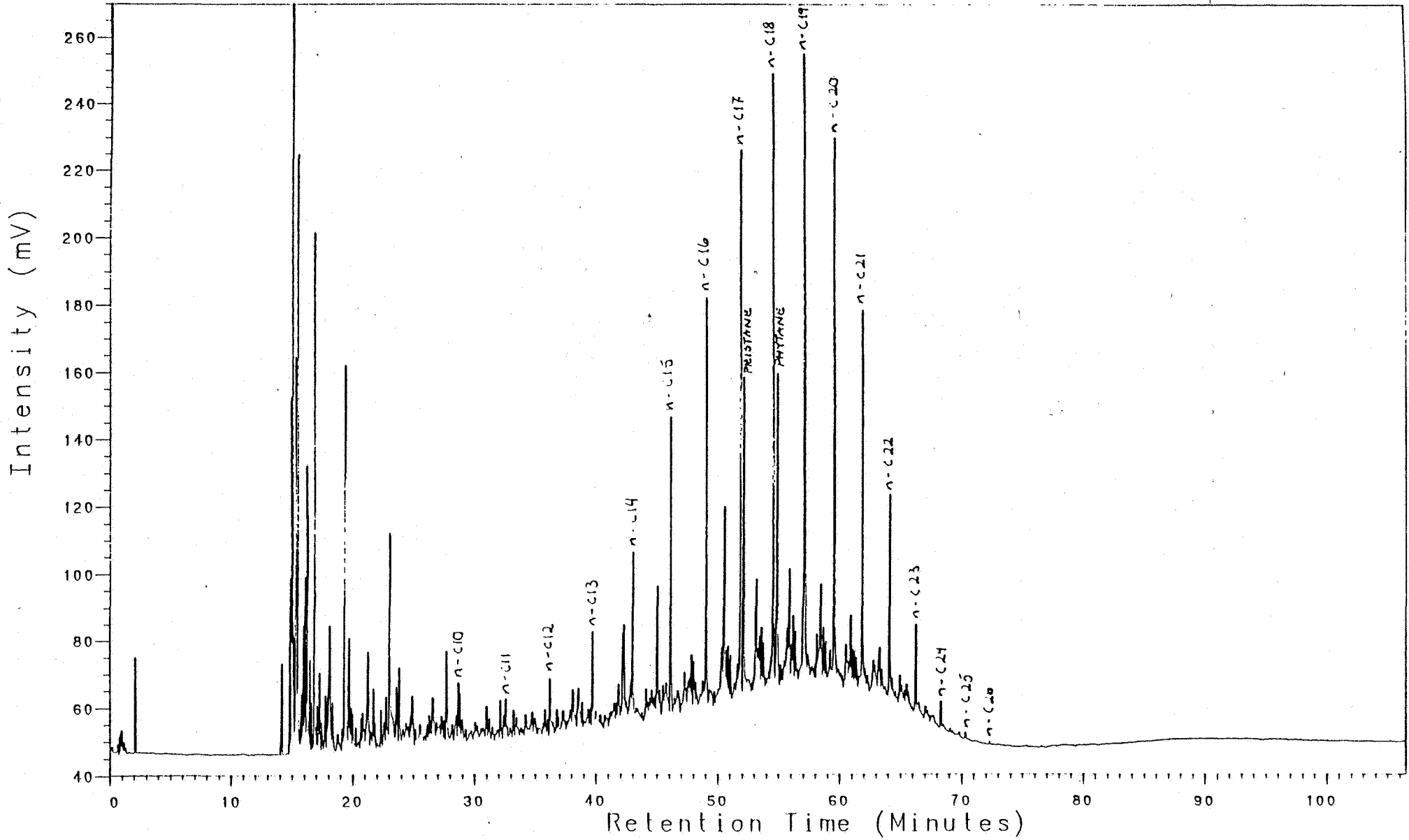


NOCS 2/6-2 4190m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100381L 24, 1, 1 2/6-2, 4200m, S1



NOCS 2/6-2 4200m
THERMAL EXTRACTION GC (S1)
CLST:m gy to drk gy

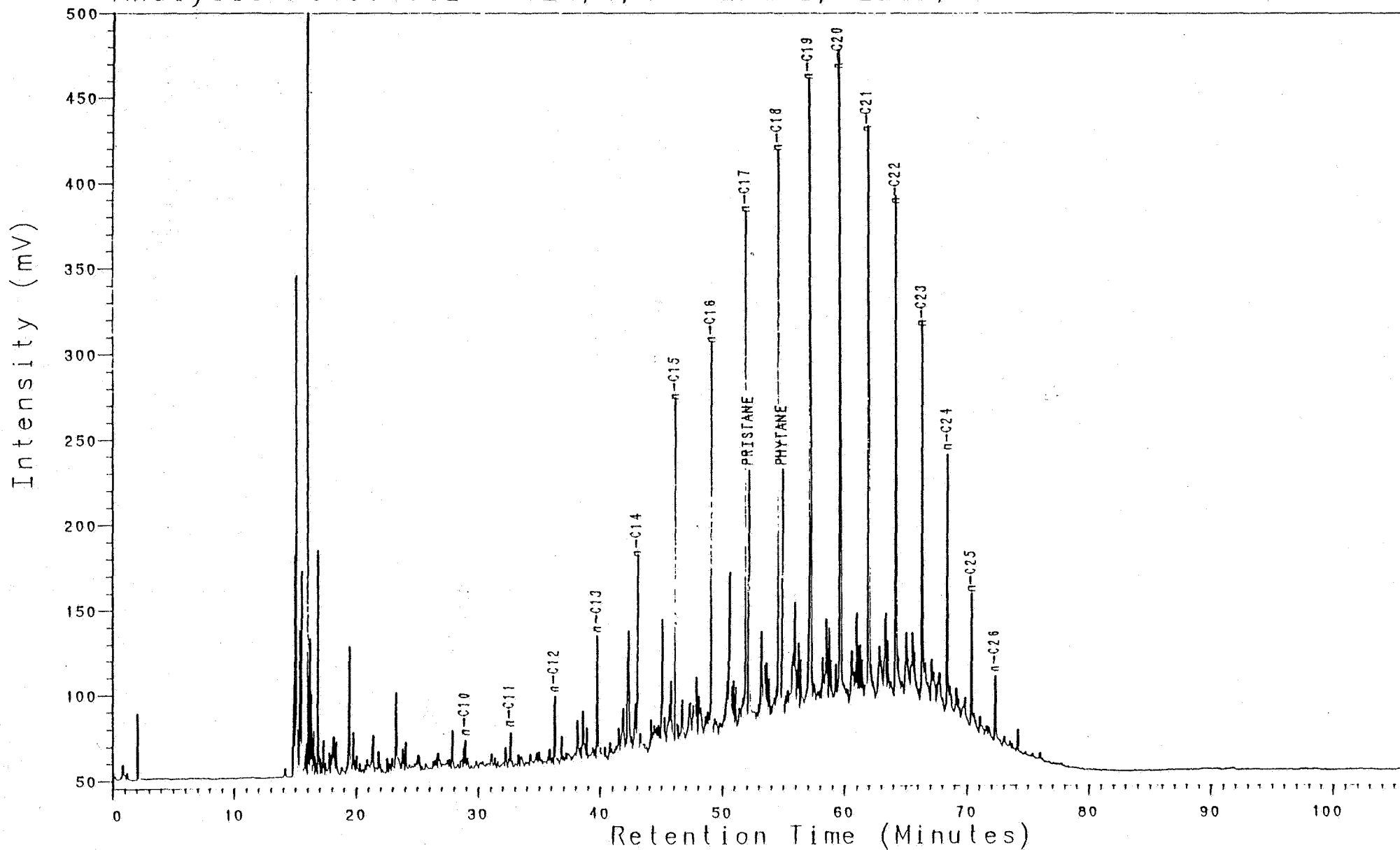


NOCS 2/6-2 4200m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

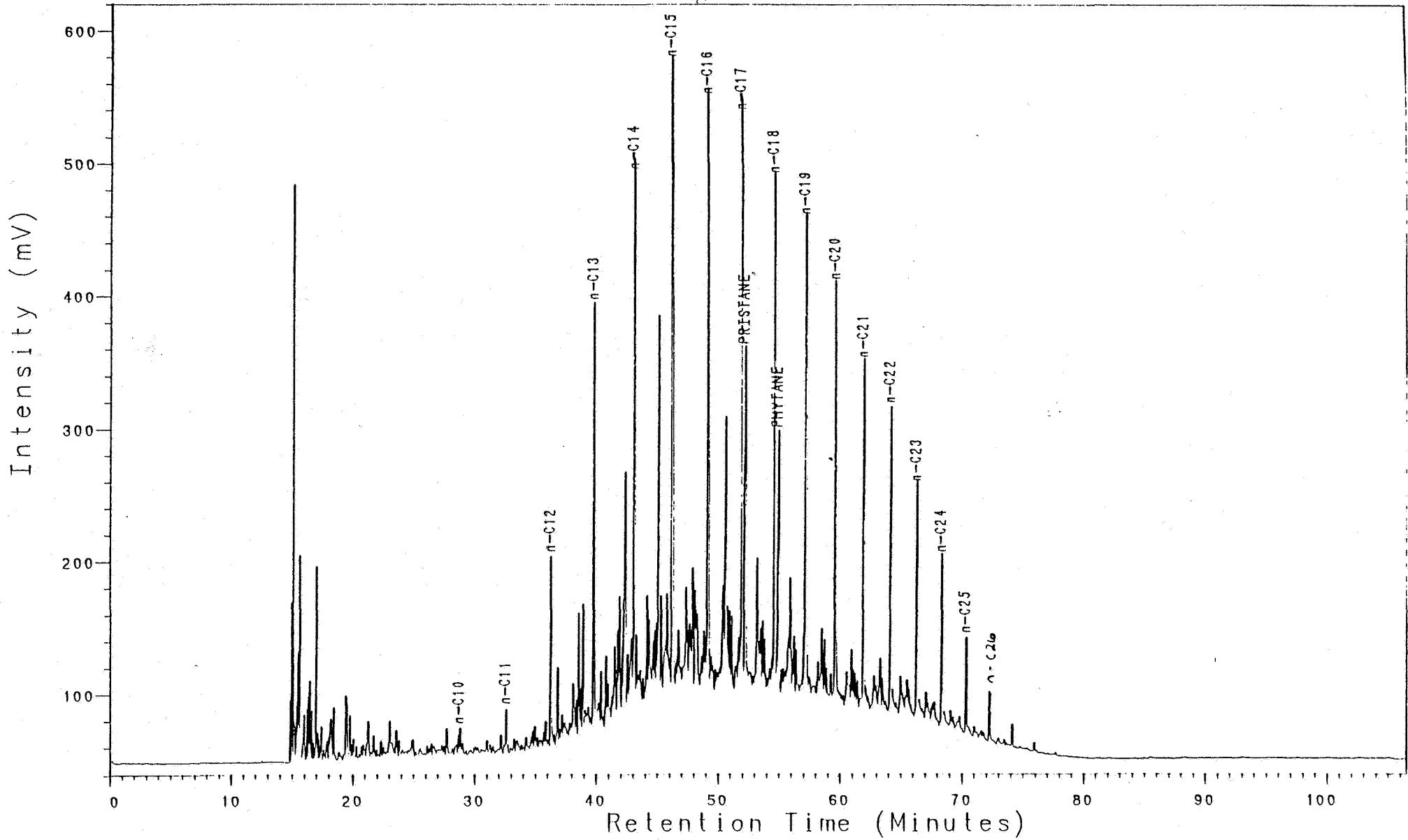
Analysis PC100403L

24, 1, 1

2/6-2, 4220m, S1



NOC5 2/6-2 4220m
THERMAL EXTRACTION GC (S1)
CLST:blk, gy blk, brn blk

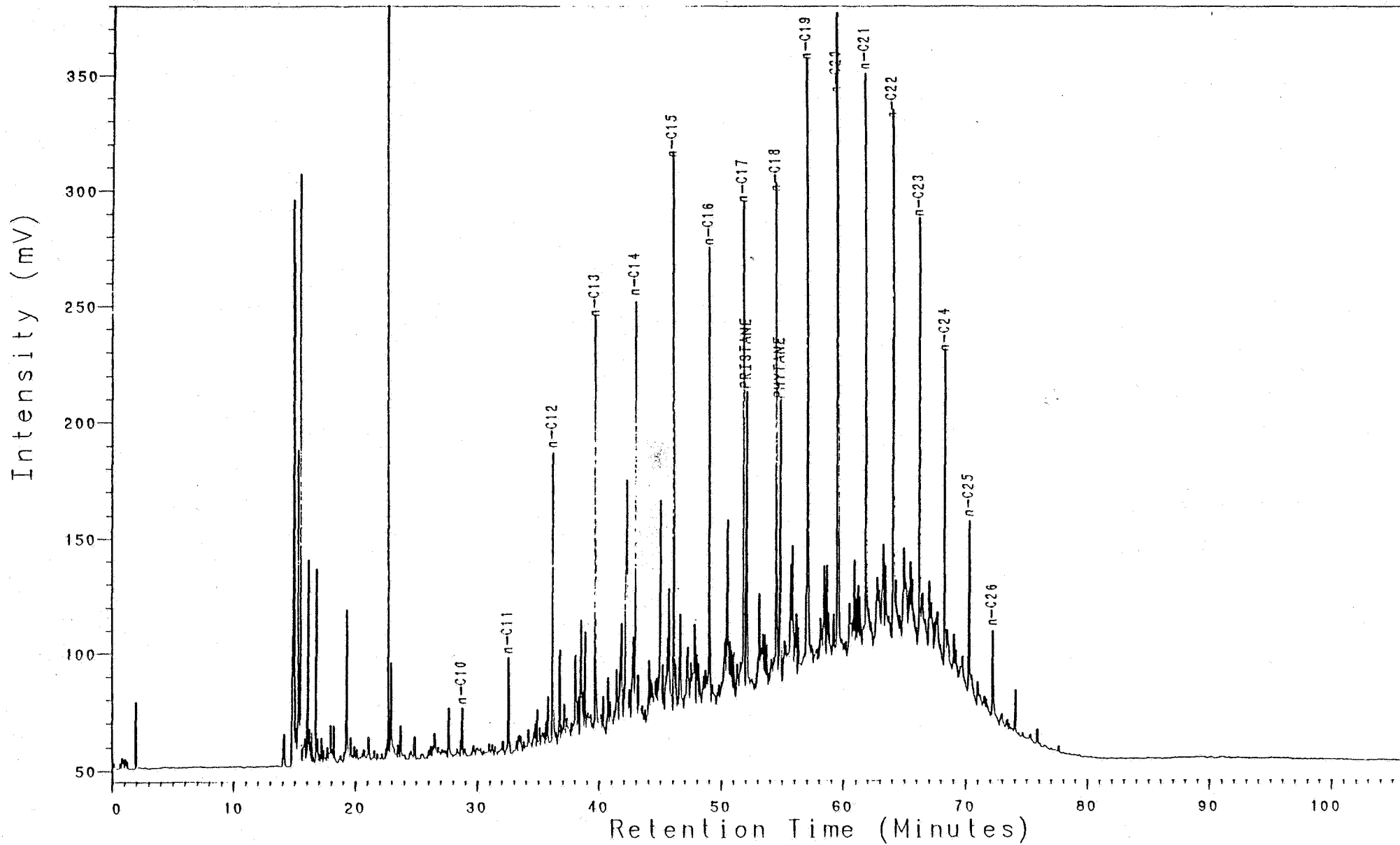


NOCS 2/6-2 4230m
THERMAL EXTRACTION GC (S1)
CLST:blk, gy blk, brn blk

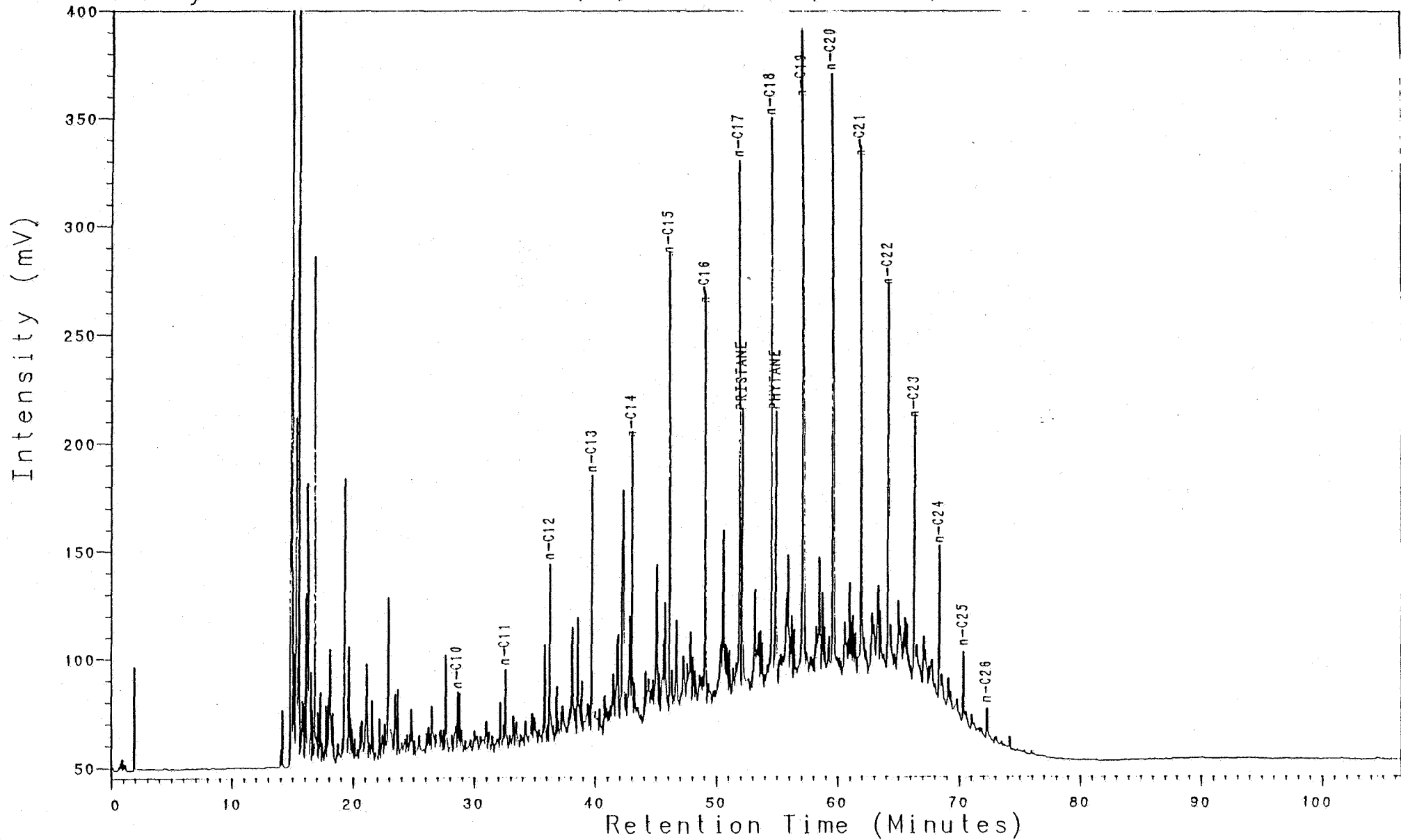
Analysis PC100432L

24, 1, 1

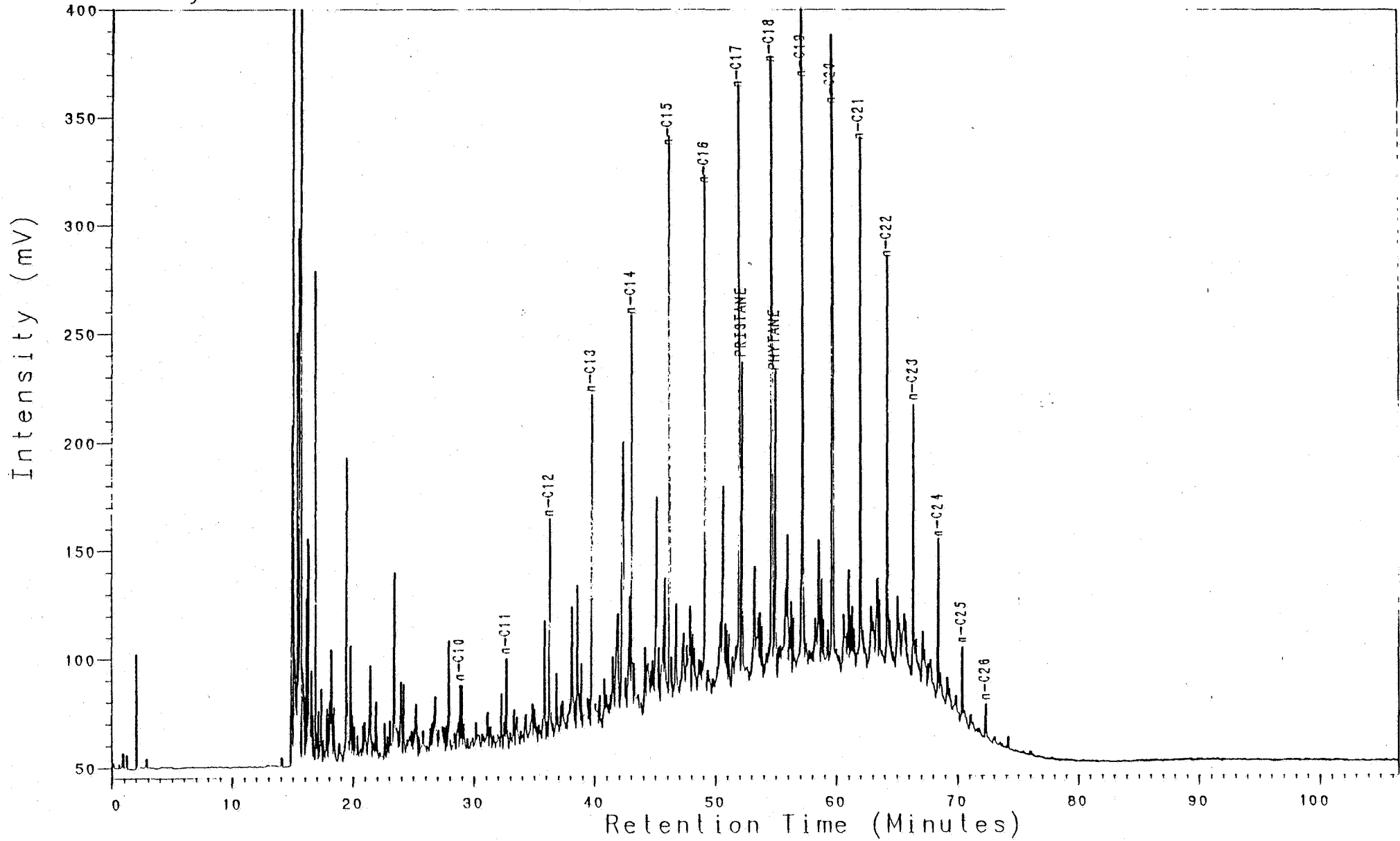
2/6-2, 4250m, S1



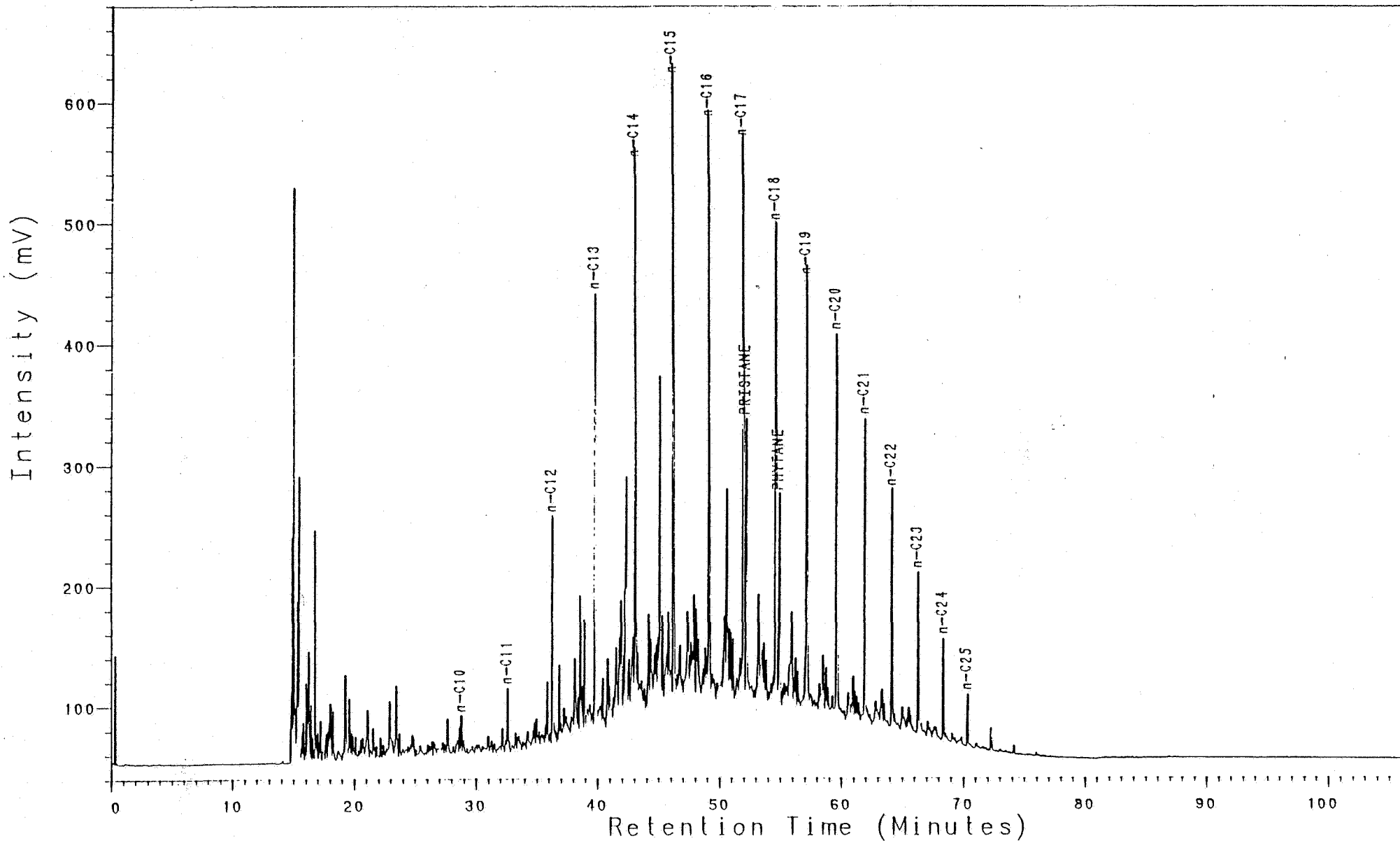
NOCS 2/6-2 4250m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk



NOCS 2/6-2 4260m
THERMAL EXTRACTION GC (S1)
CLST:brn blk



NOCS 2/6-2 4270m
THERMAL EXTRACTION GC (S1)
CLST:brn blk

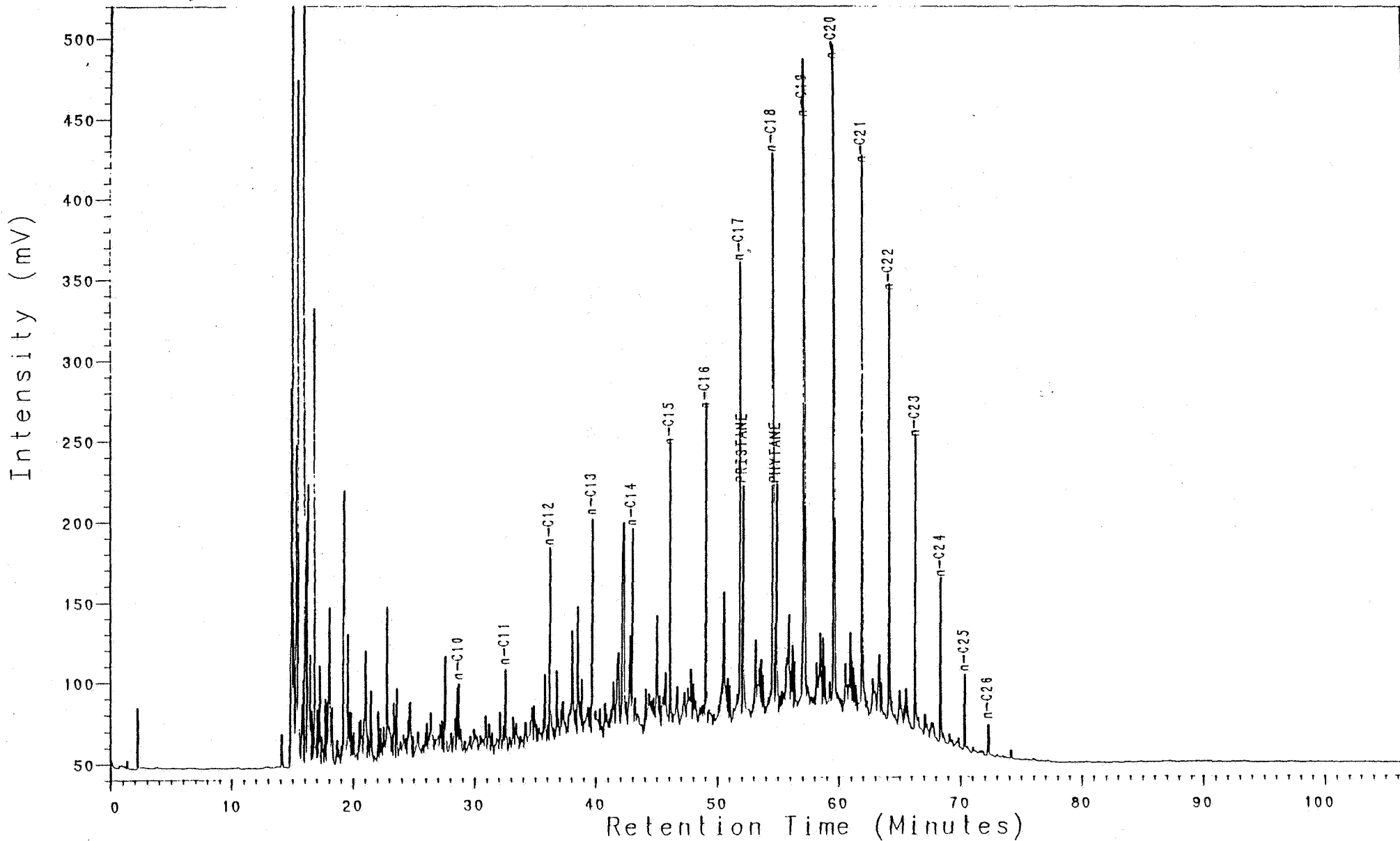


NOCS 2/6-2 4280m
THERMAL EXTRACTION GC (S1)
CLST:brn blk

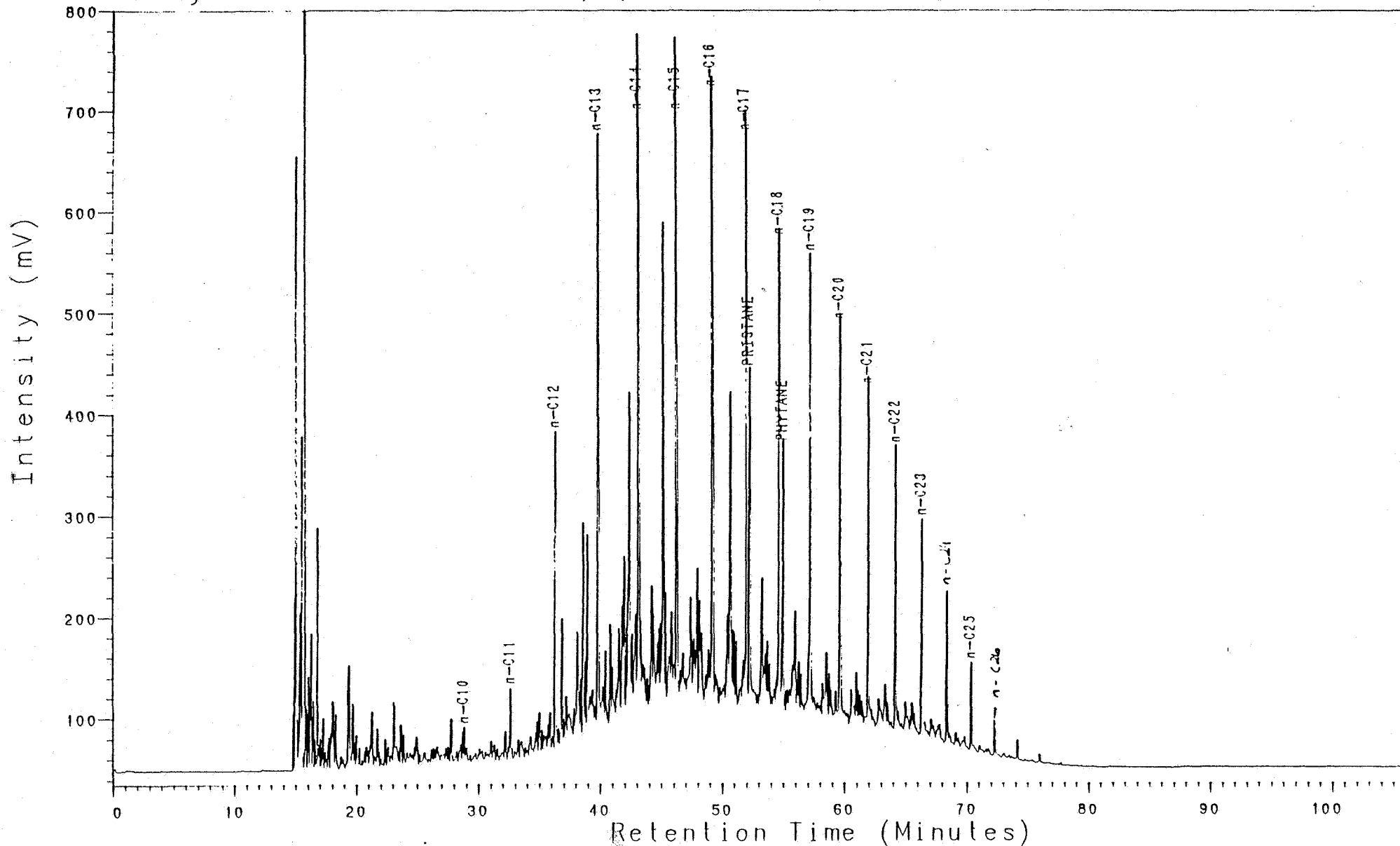
Analysis PC100491L

24, 1, 1

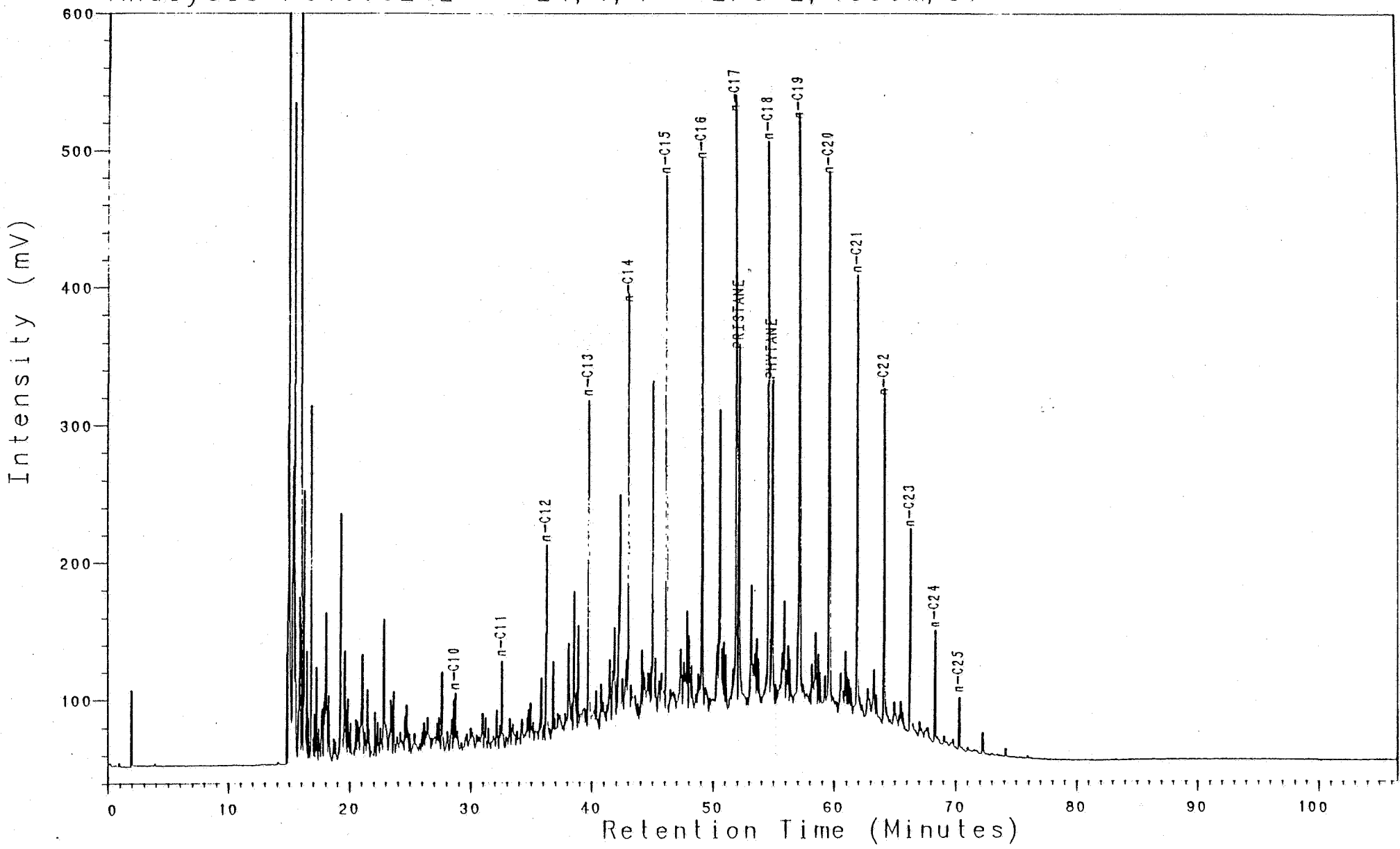
2/6-2, 4300m, S1



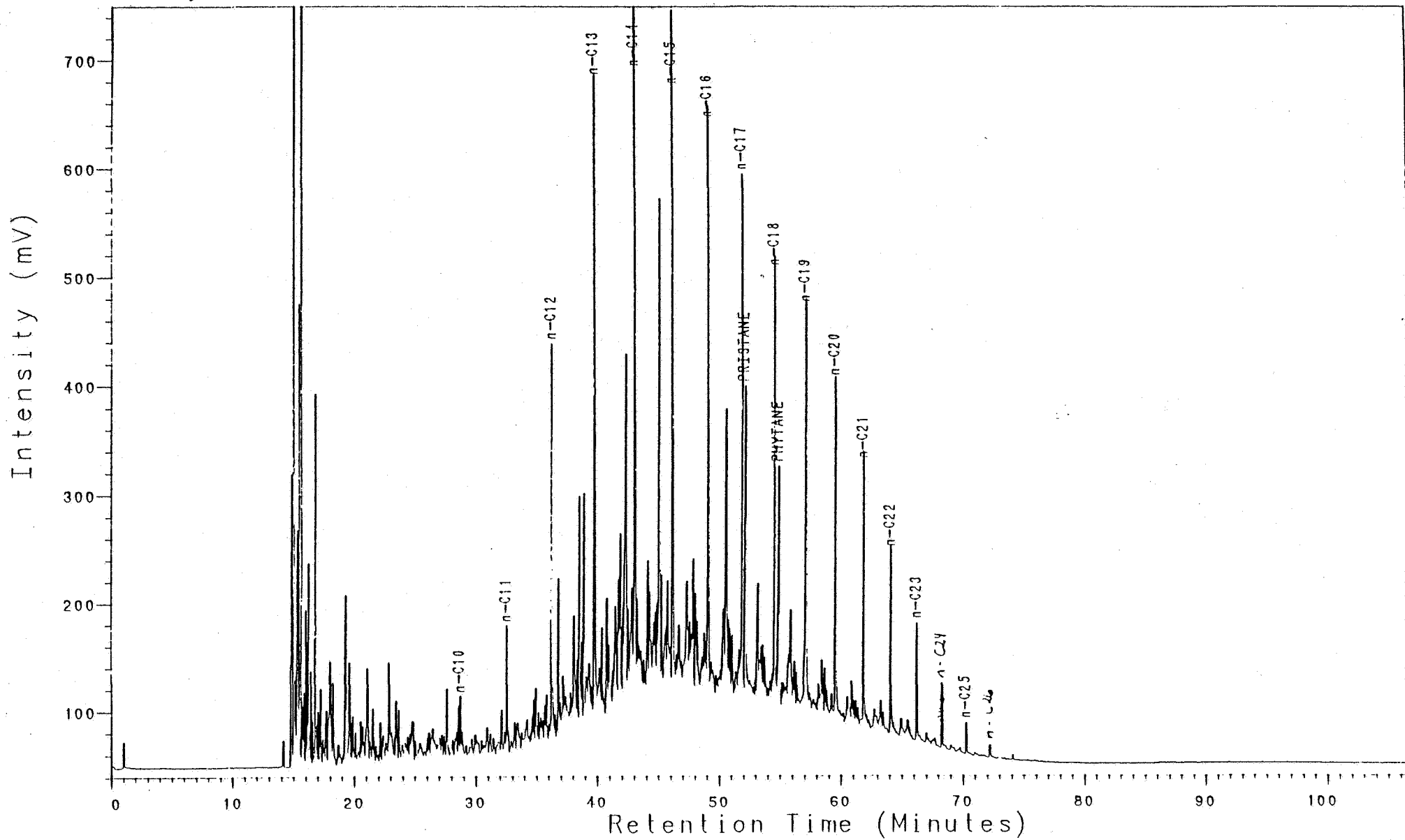
NOCS 2/6-2 4300m
THERMAL EXTRACTION GC (S1)
CLST:brn blk



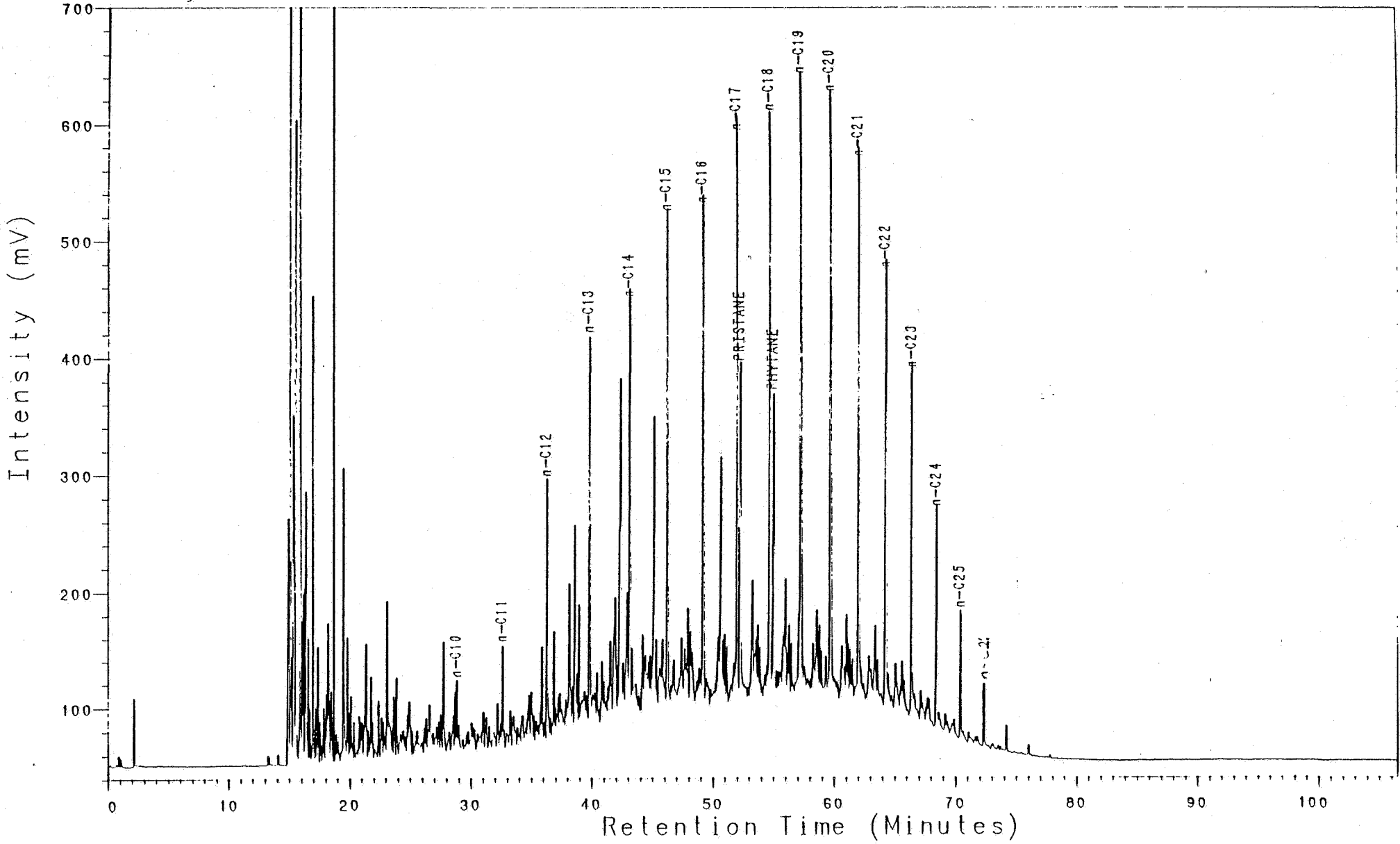
NOCS 2/6-2 4320m
THERMAL EXTRACTION GC (S1)
CLST:brn blk



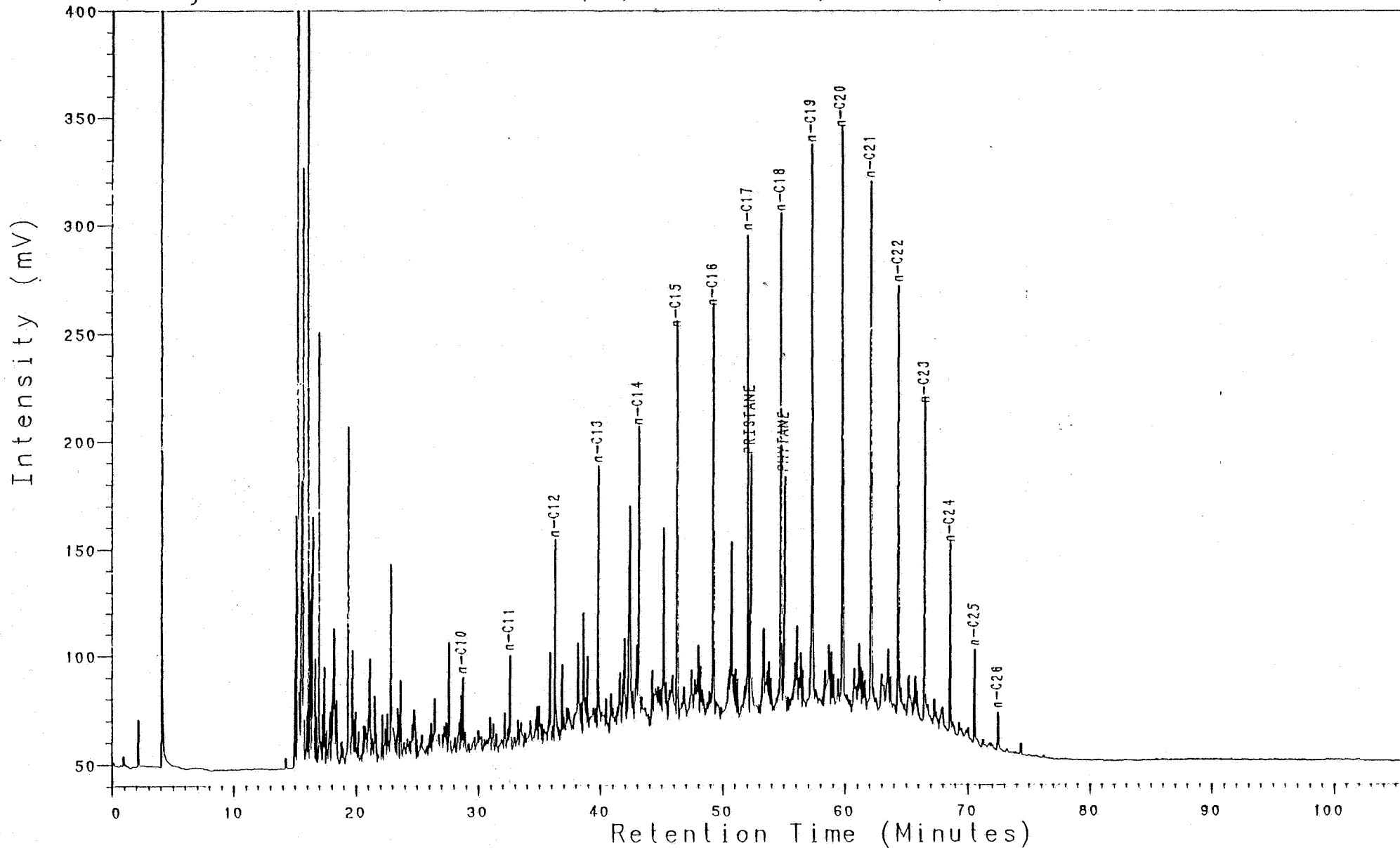
NOCS 2/6-2 4330m
THERMAL EXTRACTION GC (S1)
CLST:brn blk



NOCS 2/6-2 4336m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk



NOCS 2/6-2 4342m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

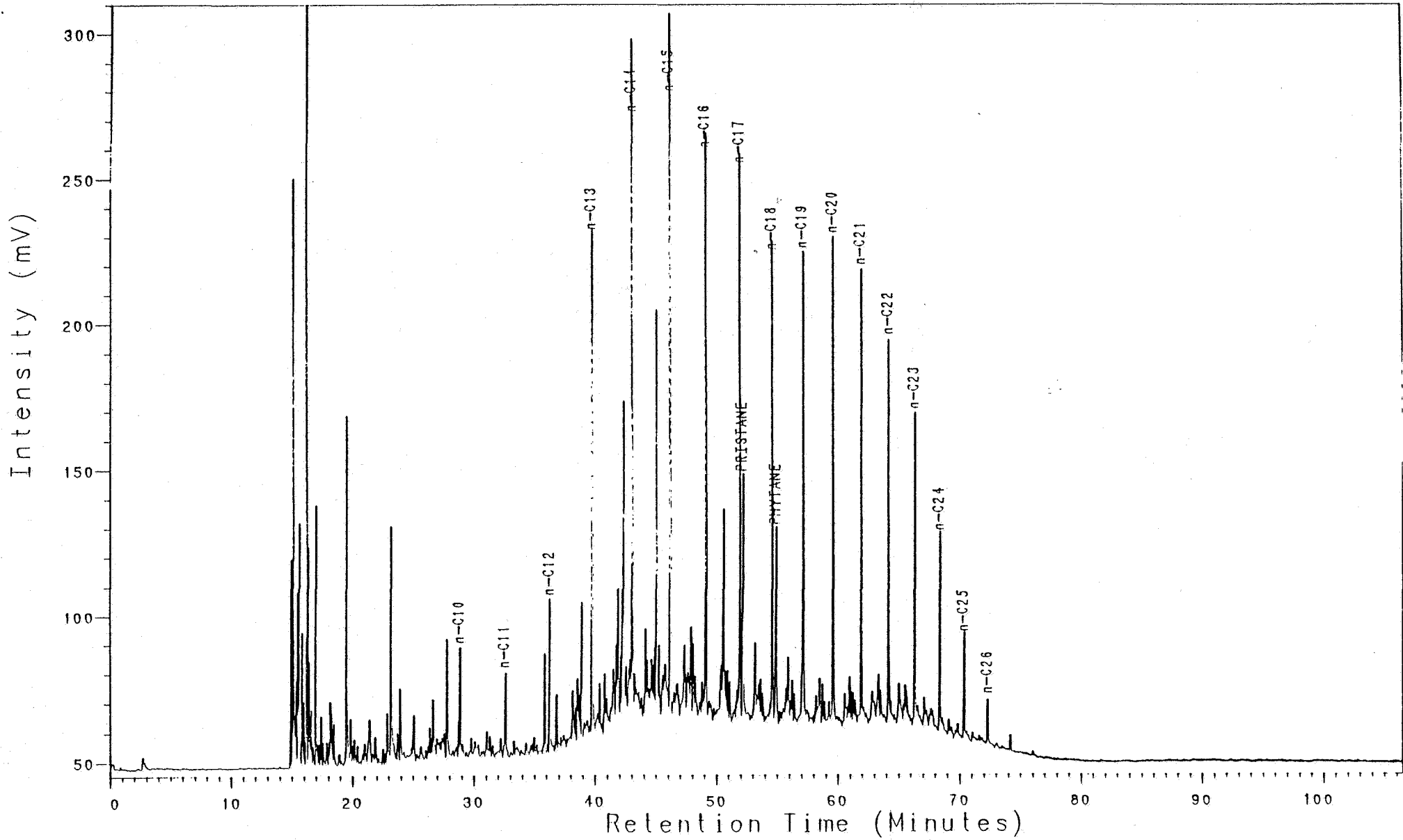


NOCS 2/6-2 4356m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

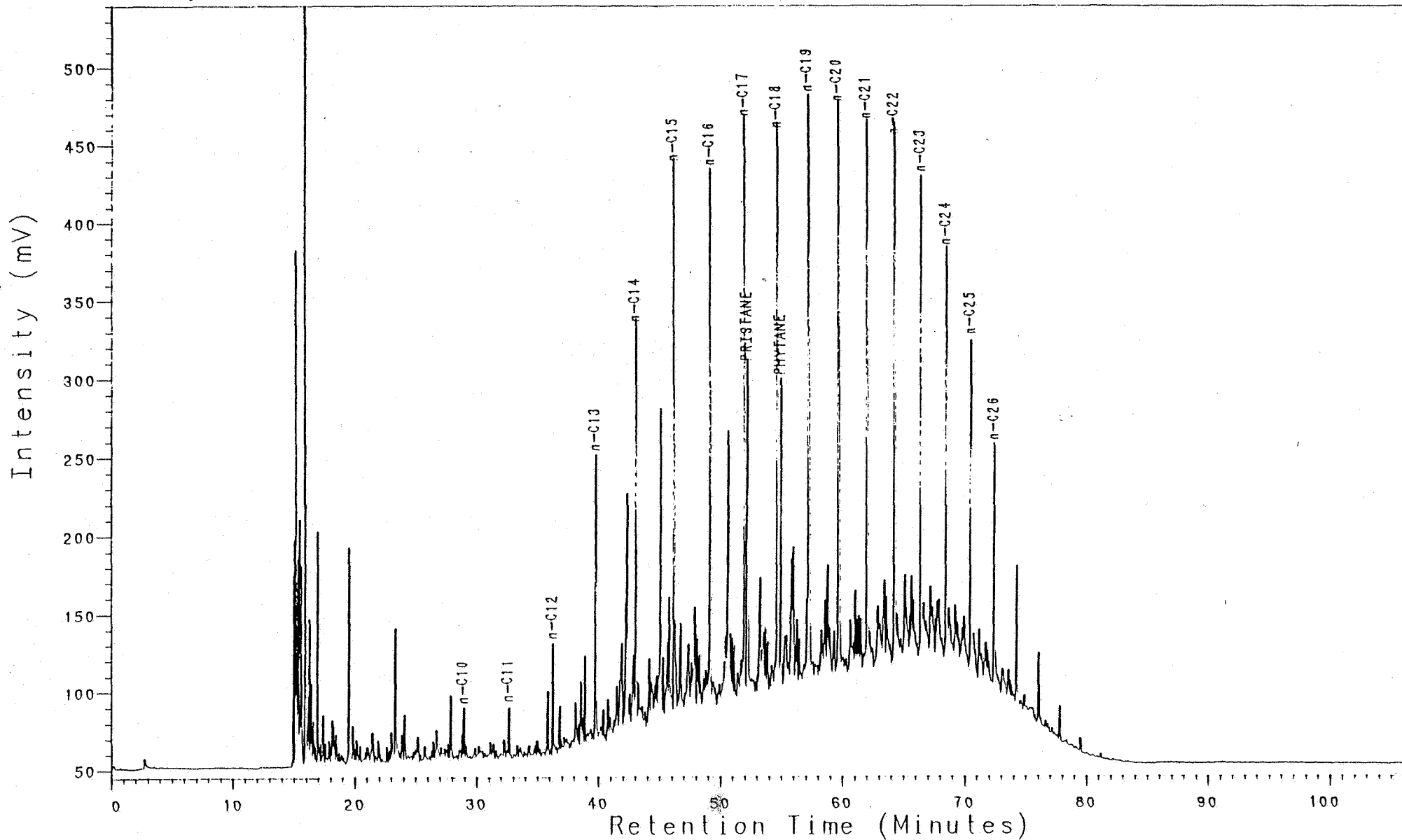
Analysis PC100581L

24, 1, 1

2/6-2, 4374m, S1

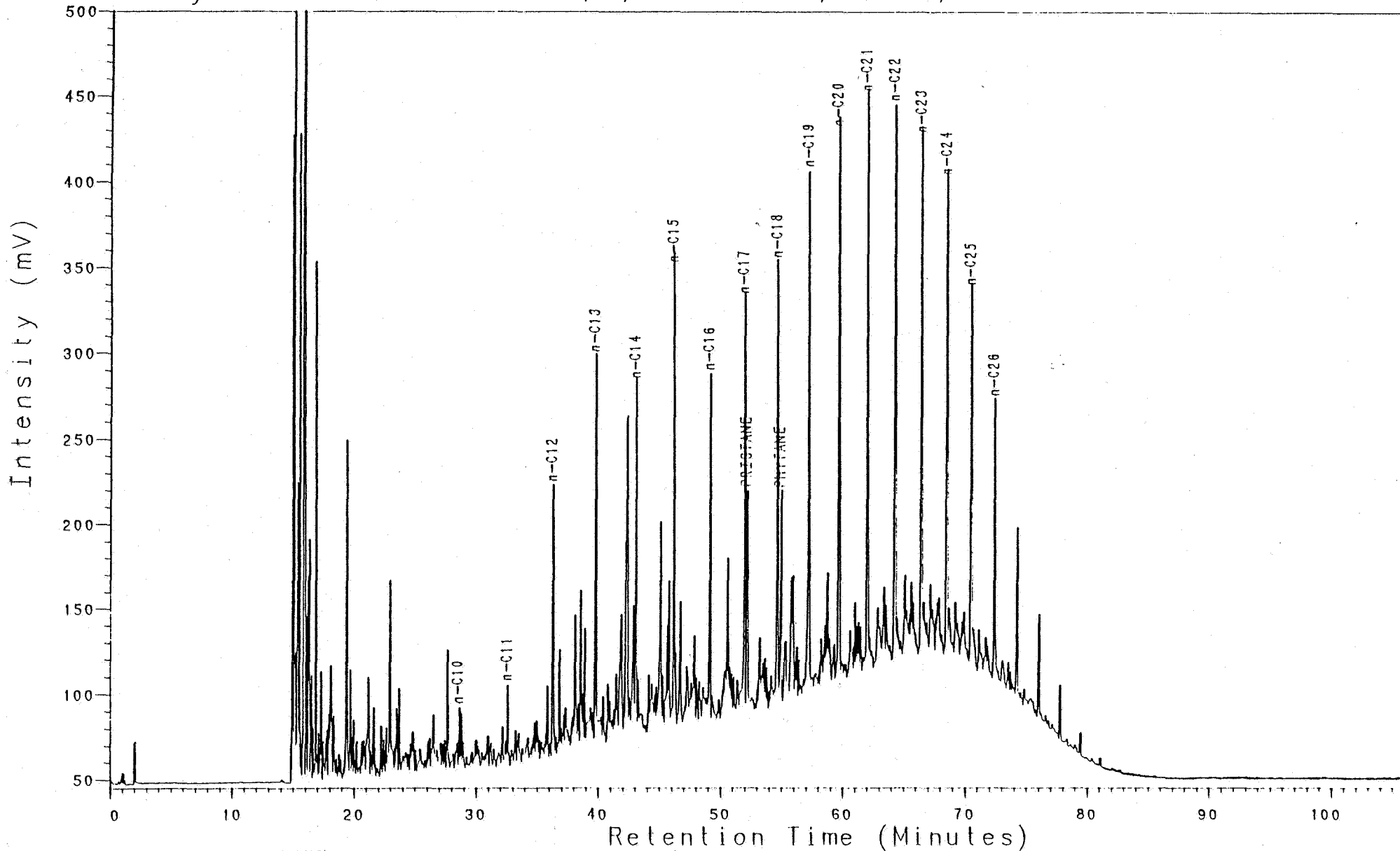


NOCS 2/6-2 4374m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk



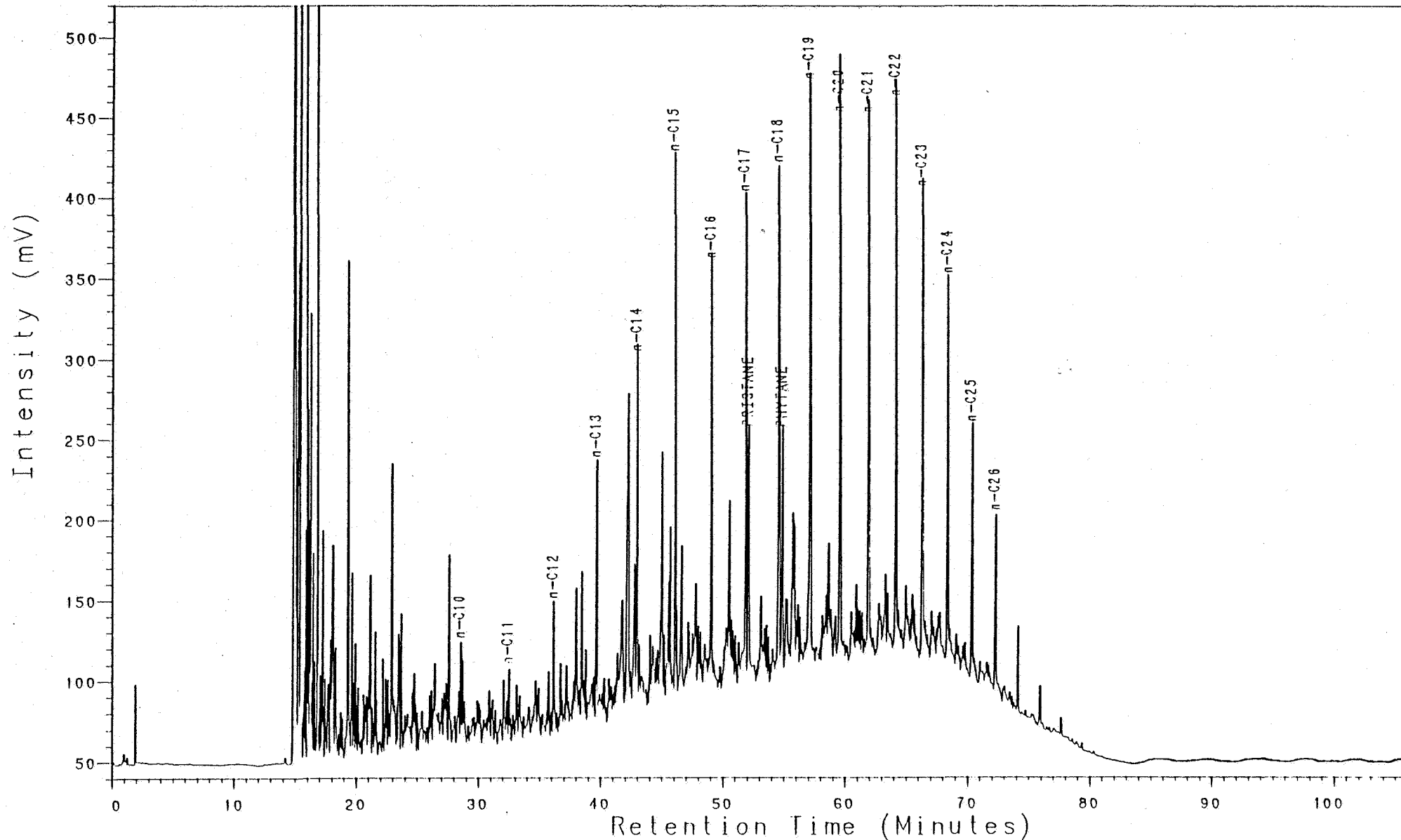
NOCS 2/6-2 4380m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100611L 24, 1, 1 2/6-2, 4389m, S1



NOCS 2/6-2 4389m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

-nalysis PC100621L 24, 1, 1 2/6-2, 4398m, S1

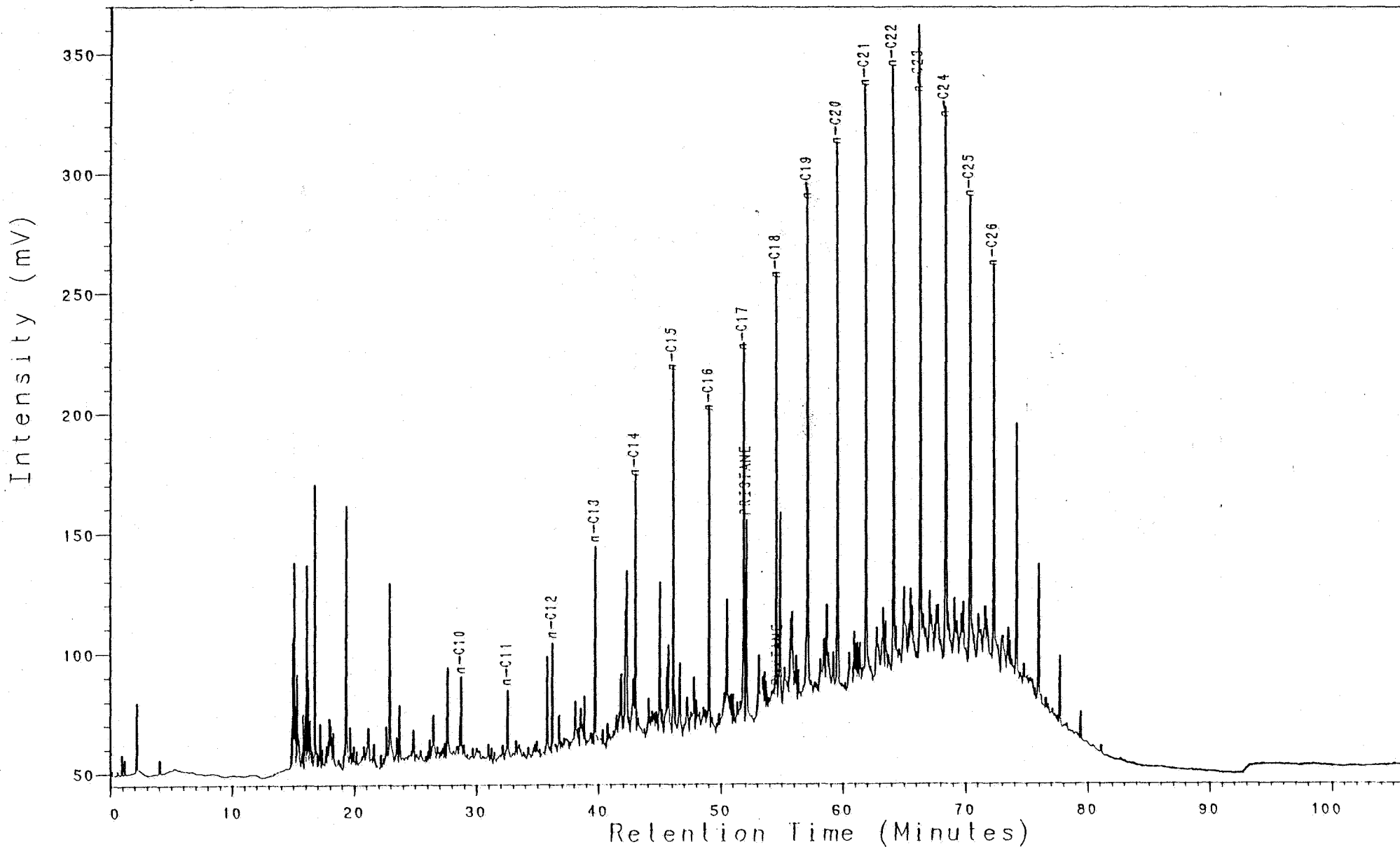


NOCS 2/6-2 4398m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100641L

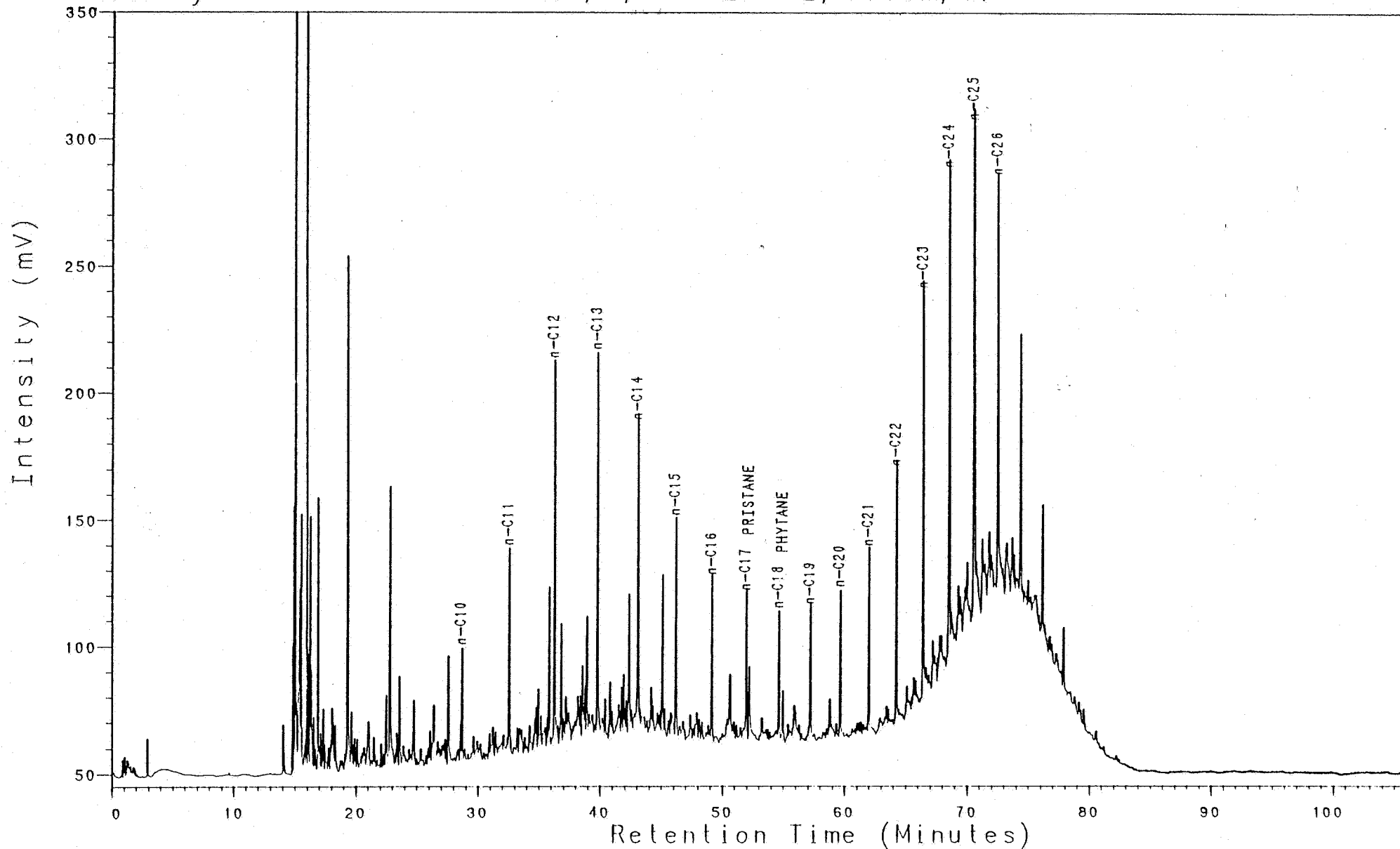
24, 1, 1

2/6-2, 4410m, S1



NOCS 2/6-2 4410m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100651L 24, 1, 1 2/6-2, 4413m, S1

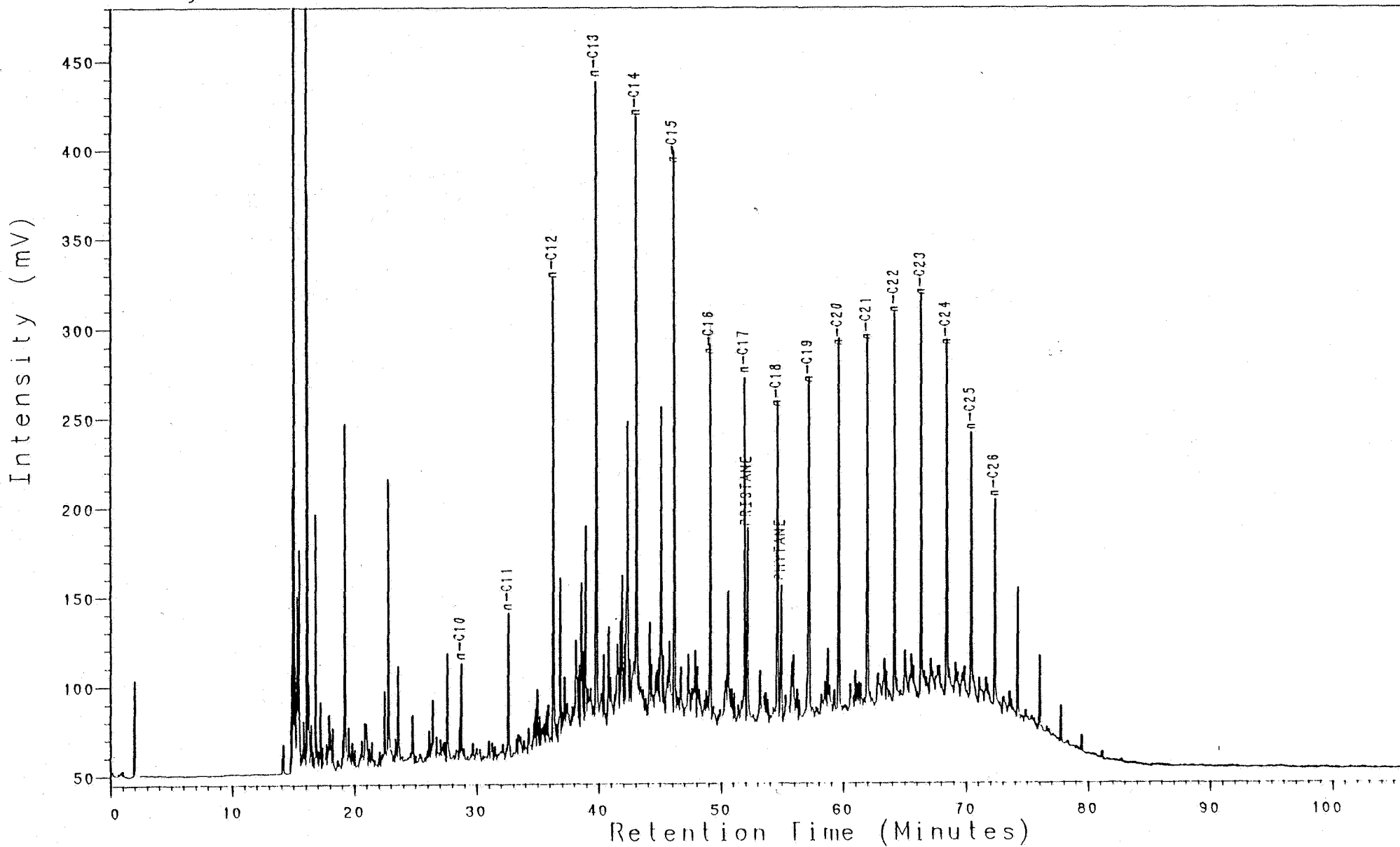


NOCS 2/6-2 4413m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100661L

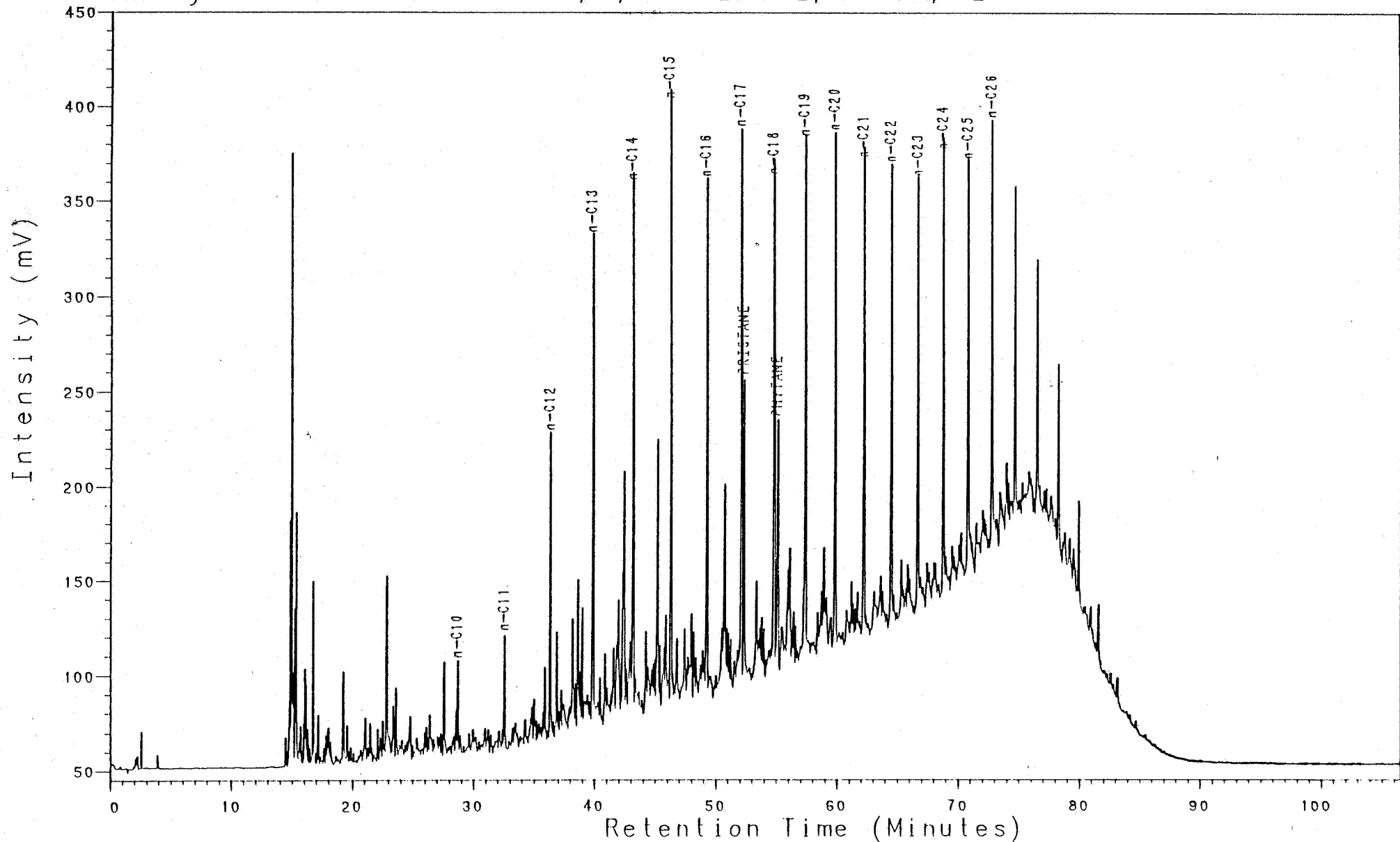
24, 1, 1

2/6-2, 4430m, S1



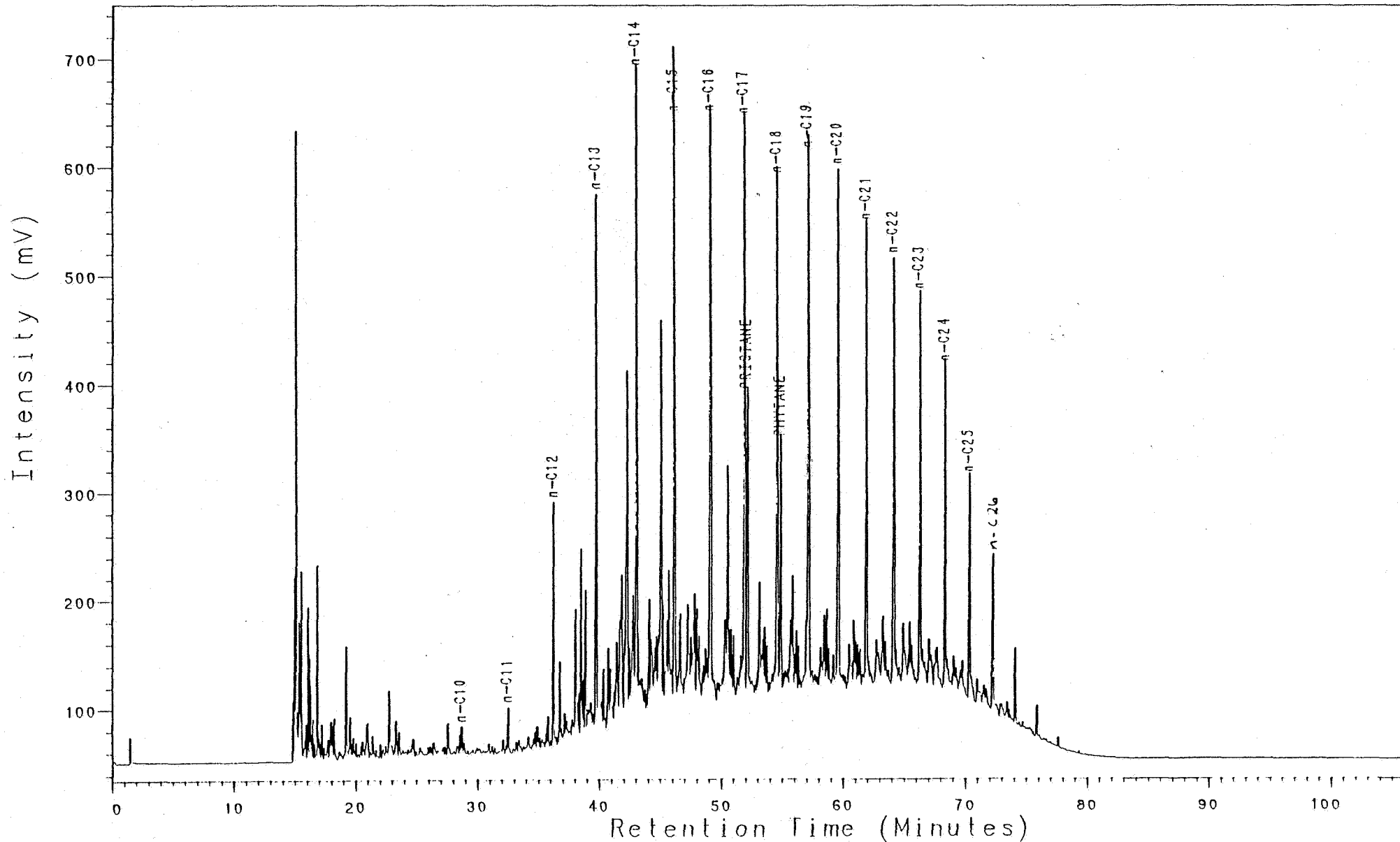
NOCS 2/6-2 4430m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100681L 24, 1, 1 2/6-2, 4440m, S2



NOCS 2/6-2 4440m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100701L 24, 1, 1 2/6-2, 4468m, S1

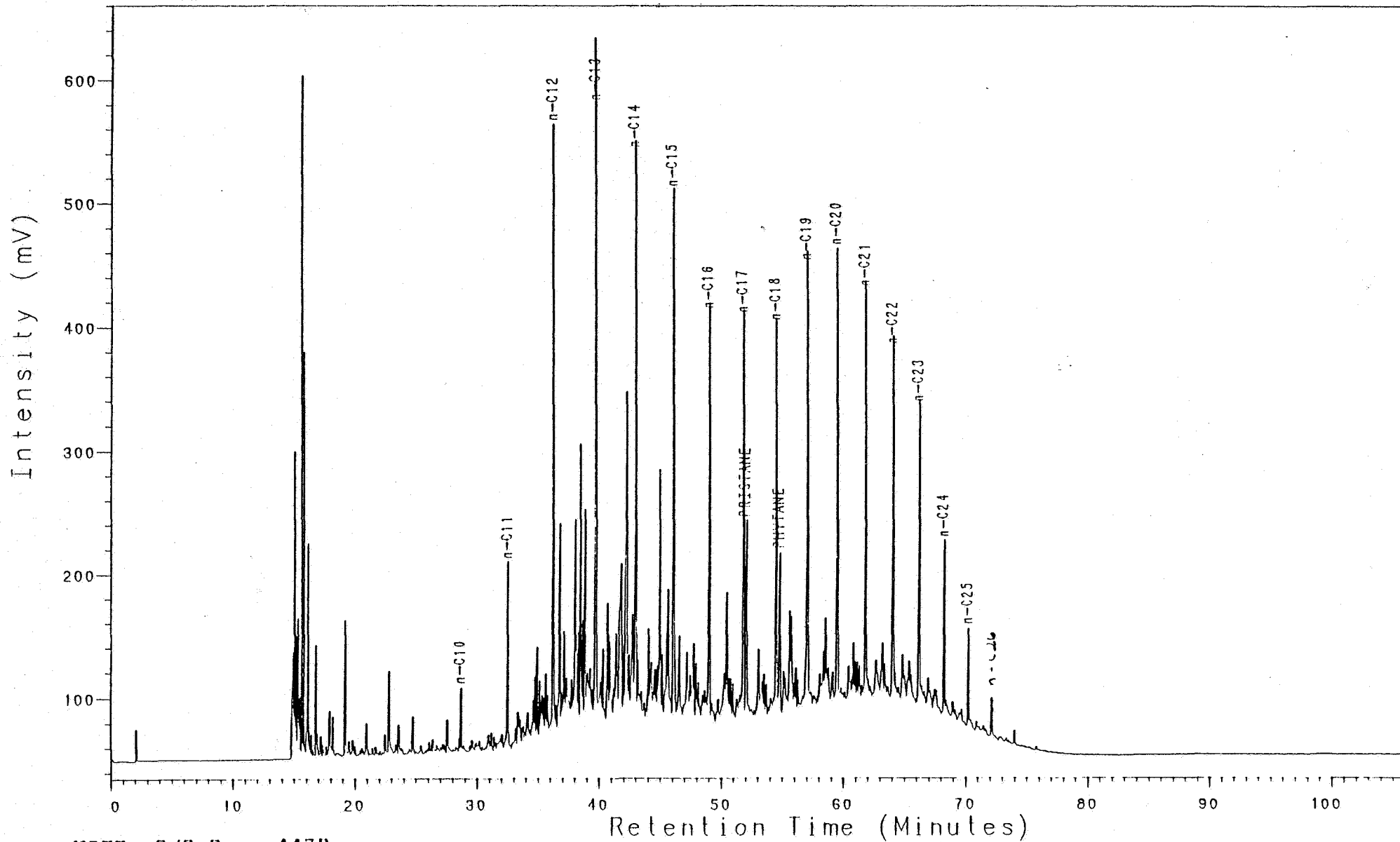


NOCS 2/6-2 4468m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100721L

24, 1, 1

2/6-2, 4478m, S1

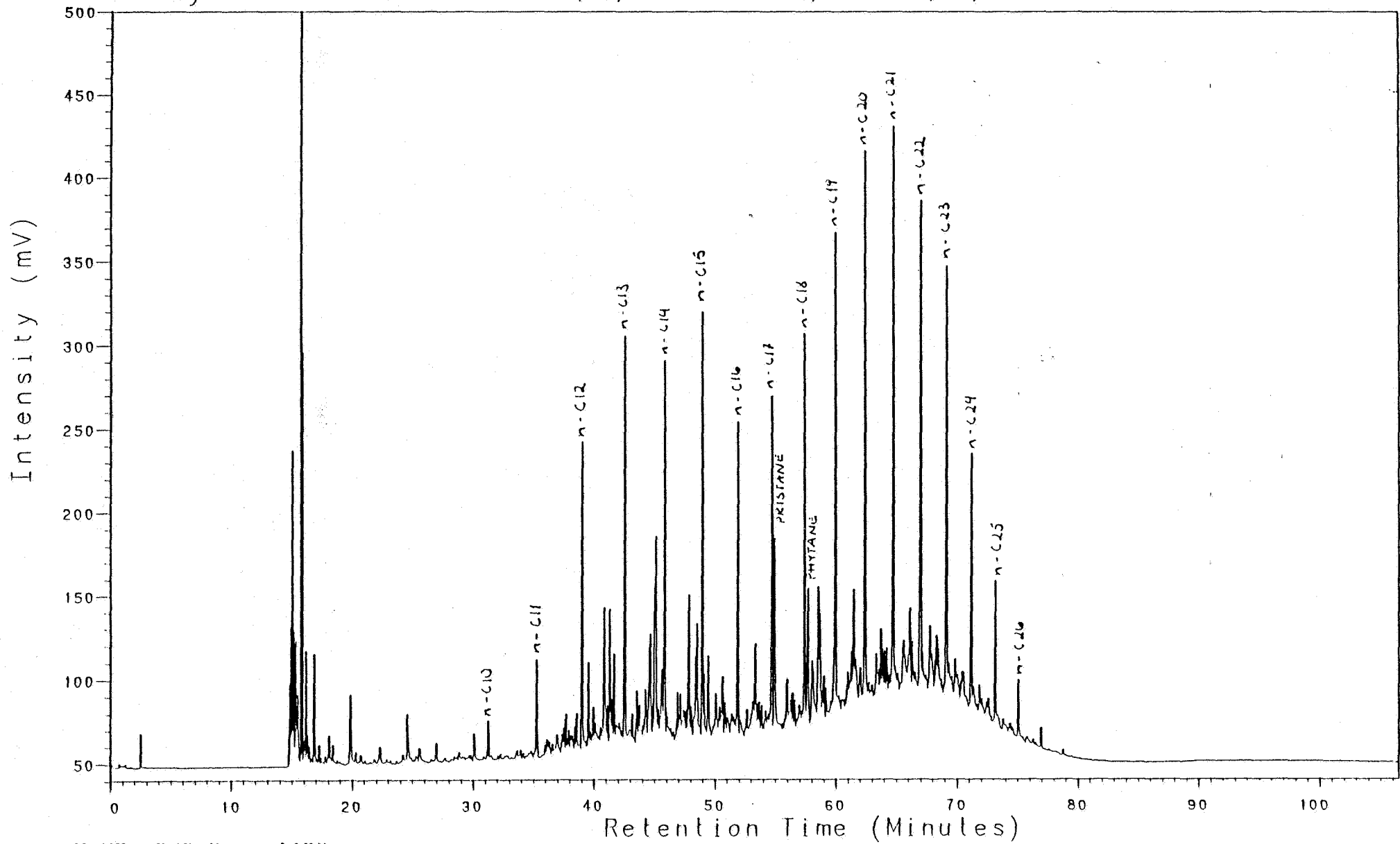


NOCS 2/6-2 4478m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100741L

24, 1, 1

2/6-2, 4486m, S1

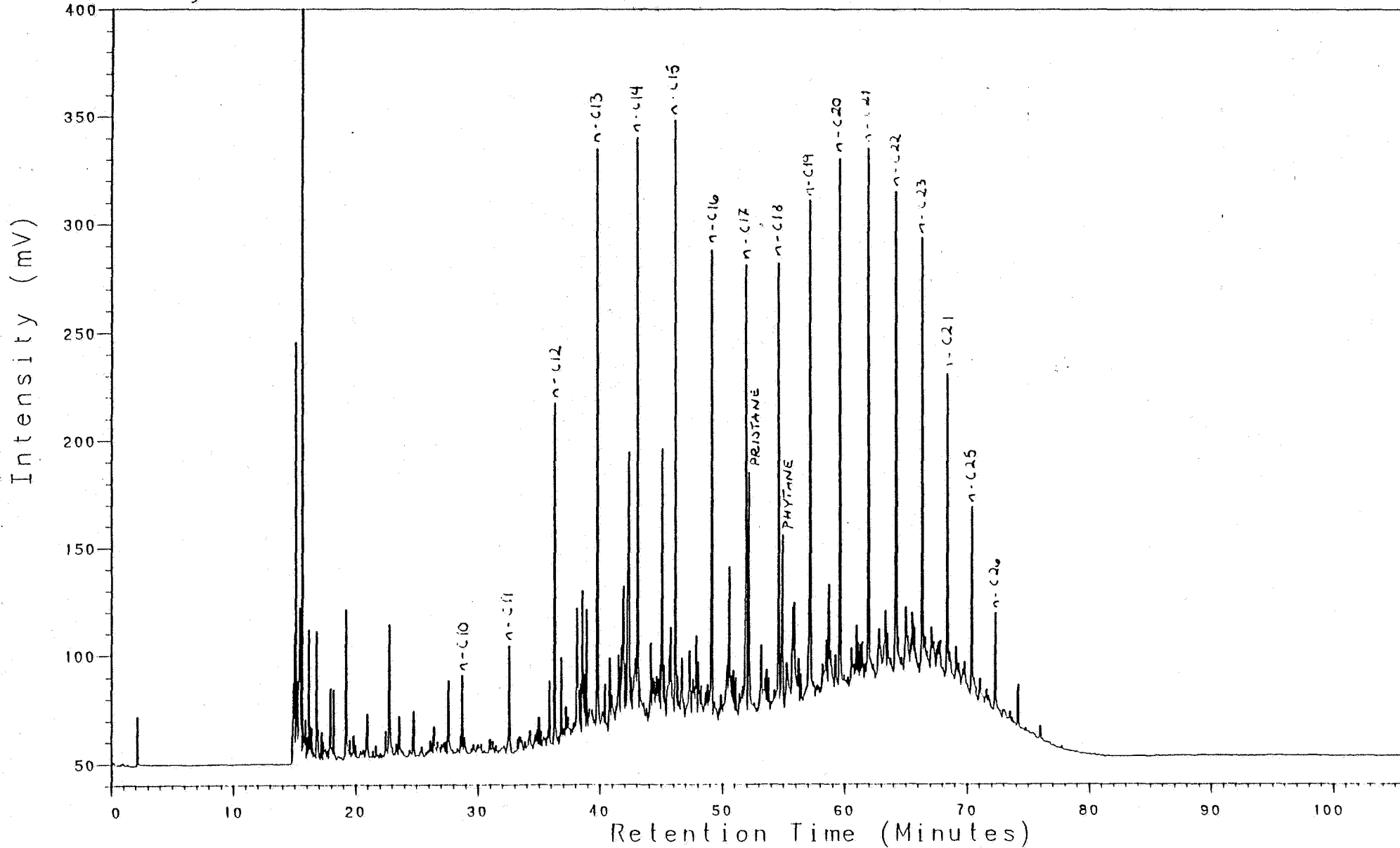


NOCS 2/6-2 4486m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100781L

24, 1, 1

2/6-2, 4494m, S1

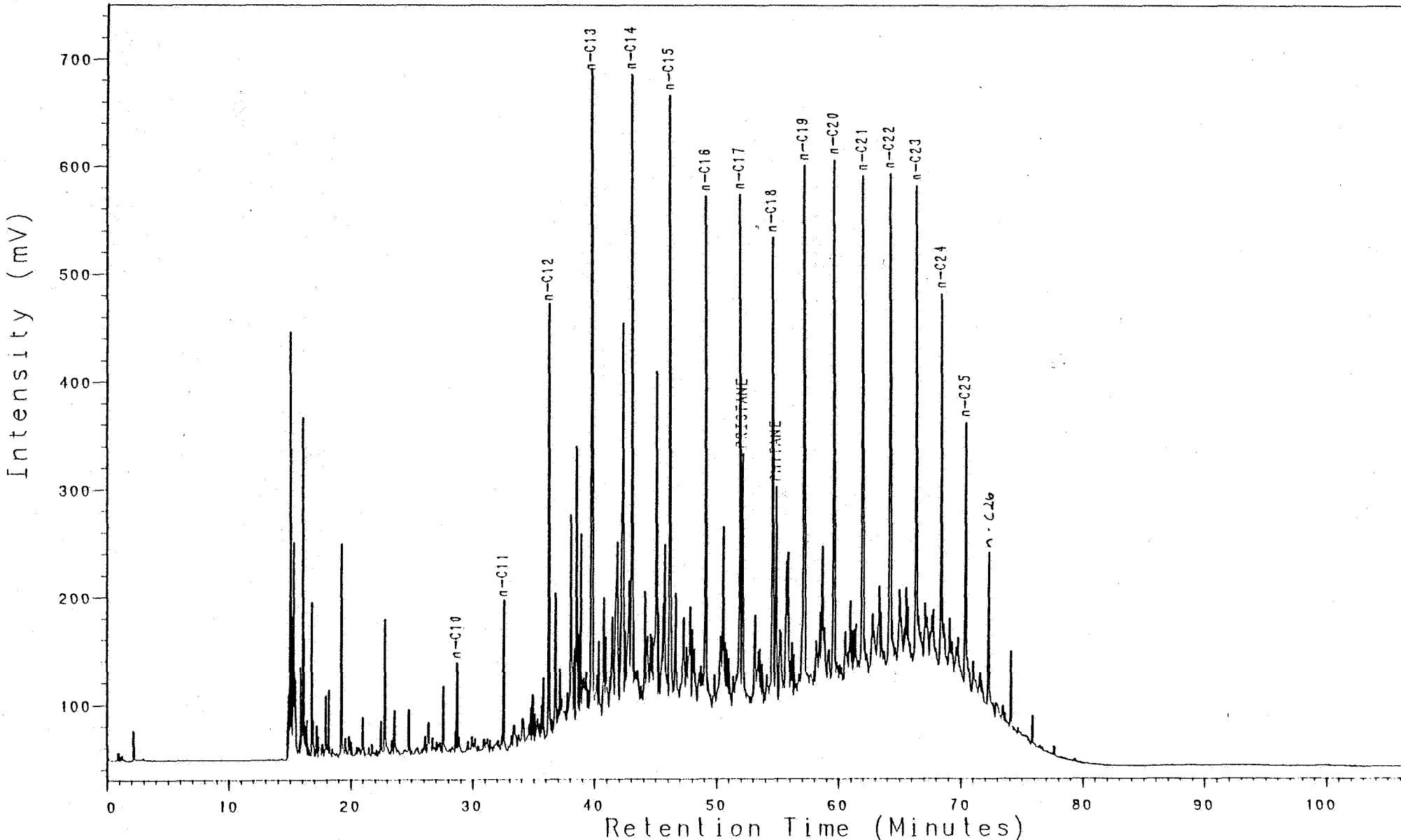


NOCS 2/6-2 4494m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100781L

24, 1, 1

2/6-2, 4506m, S1

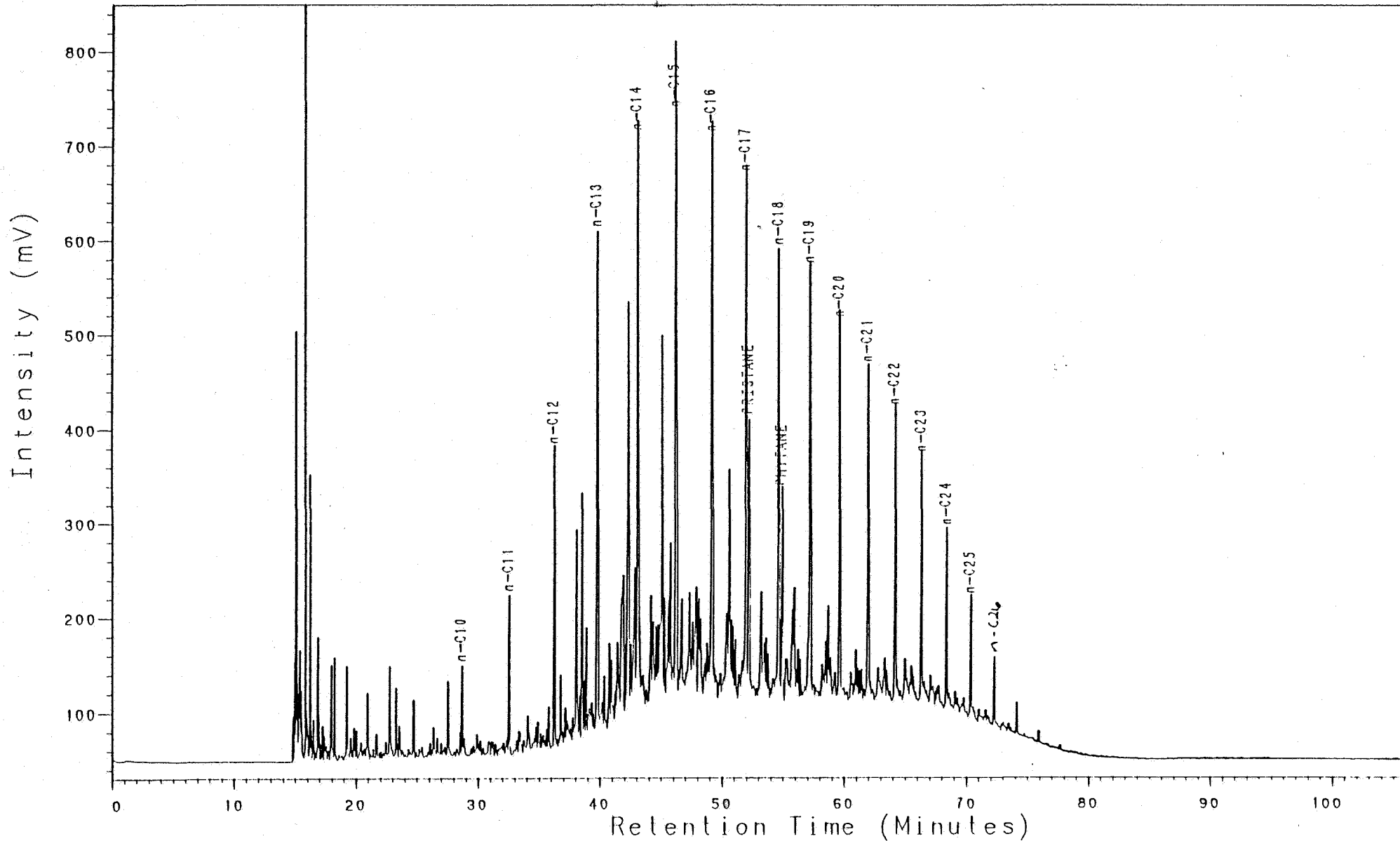


NOCS 2/6-2 4506m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100811L

24, 1, 1

2/6-2, 4522m, S1

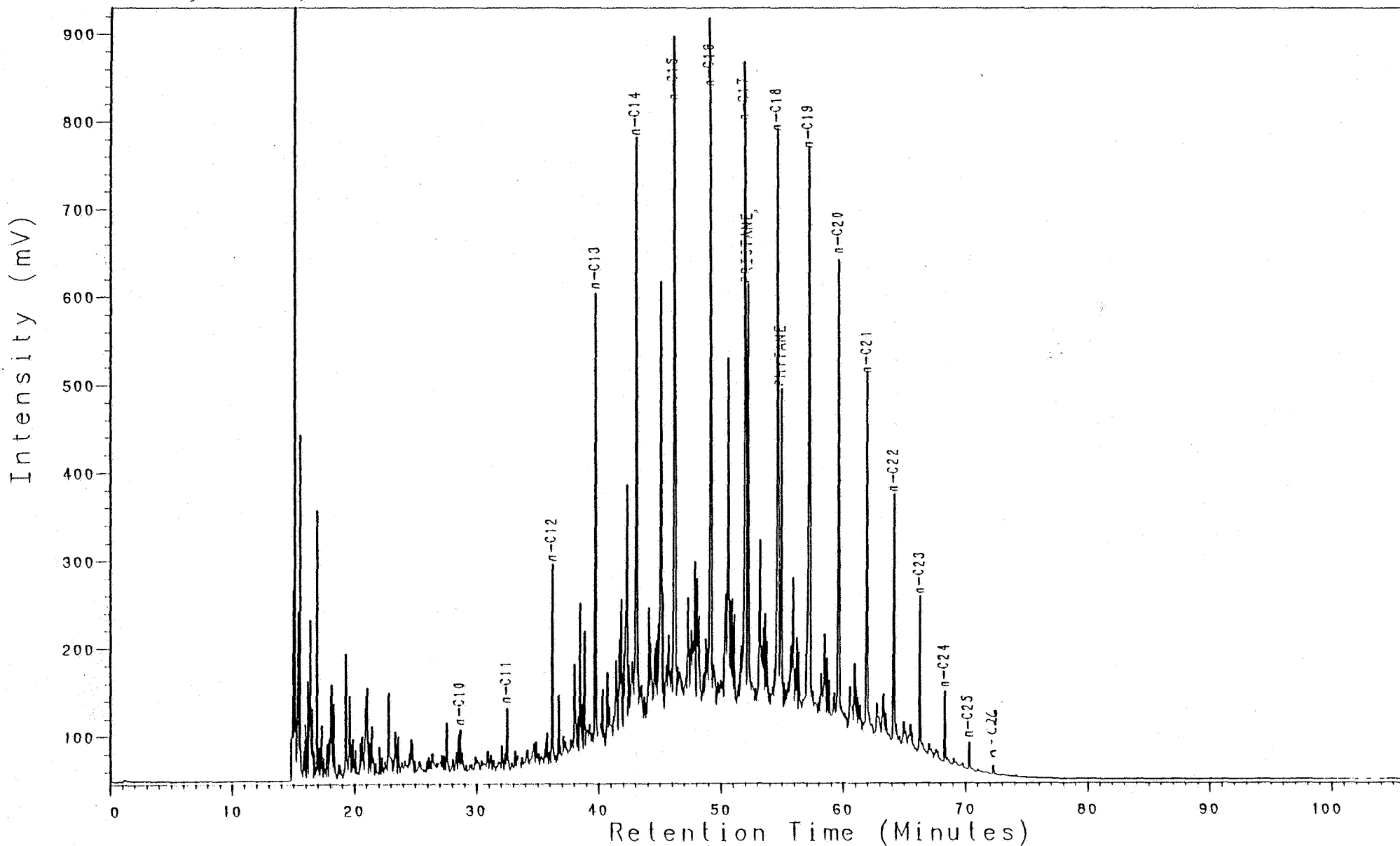


NOCS 2/6-2 4522m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

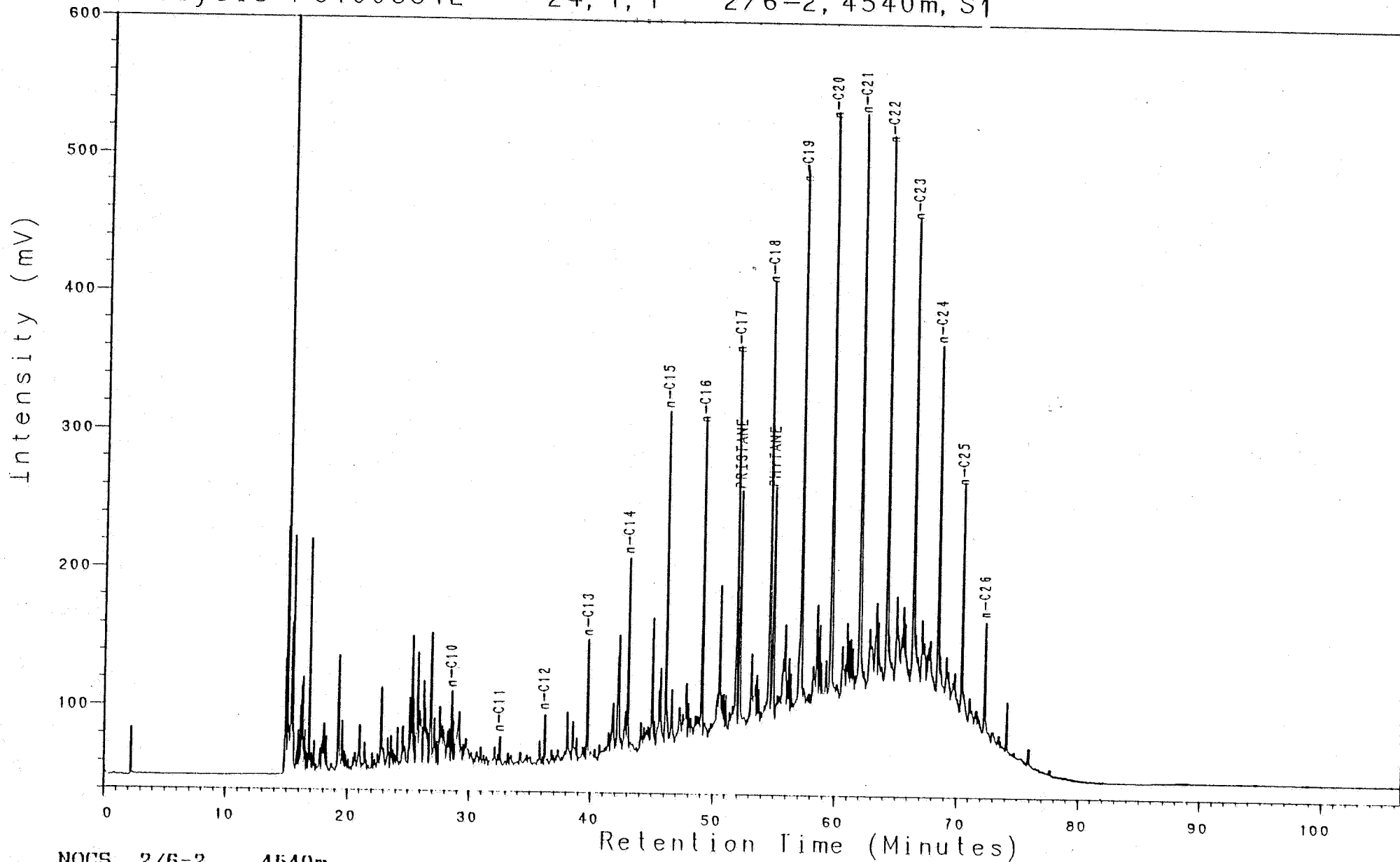
Analysis PC100831L

24, 1, 1

2/6-2, 4532m, S1



NOCS 2/6-2 4532m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

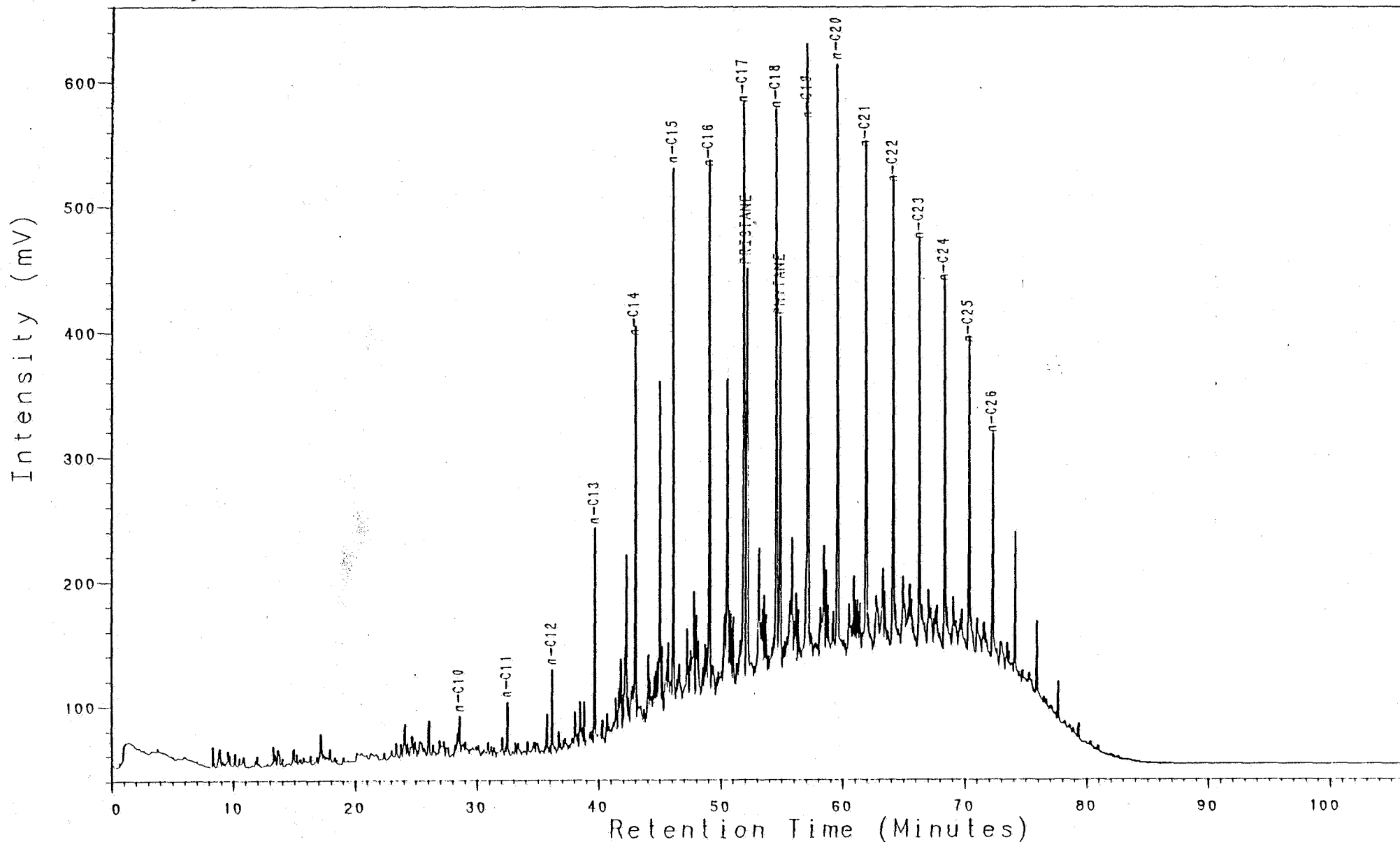


NOCS 2/6-2 4540m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100871L

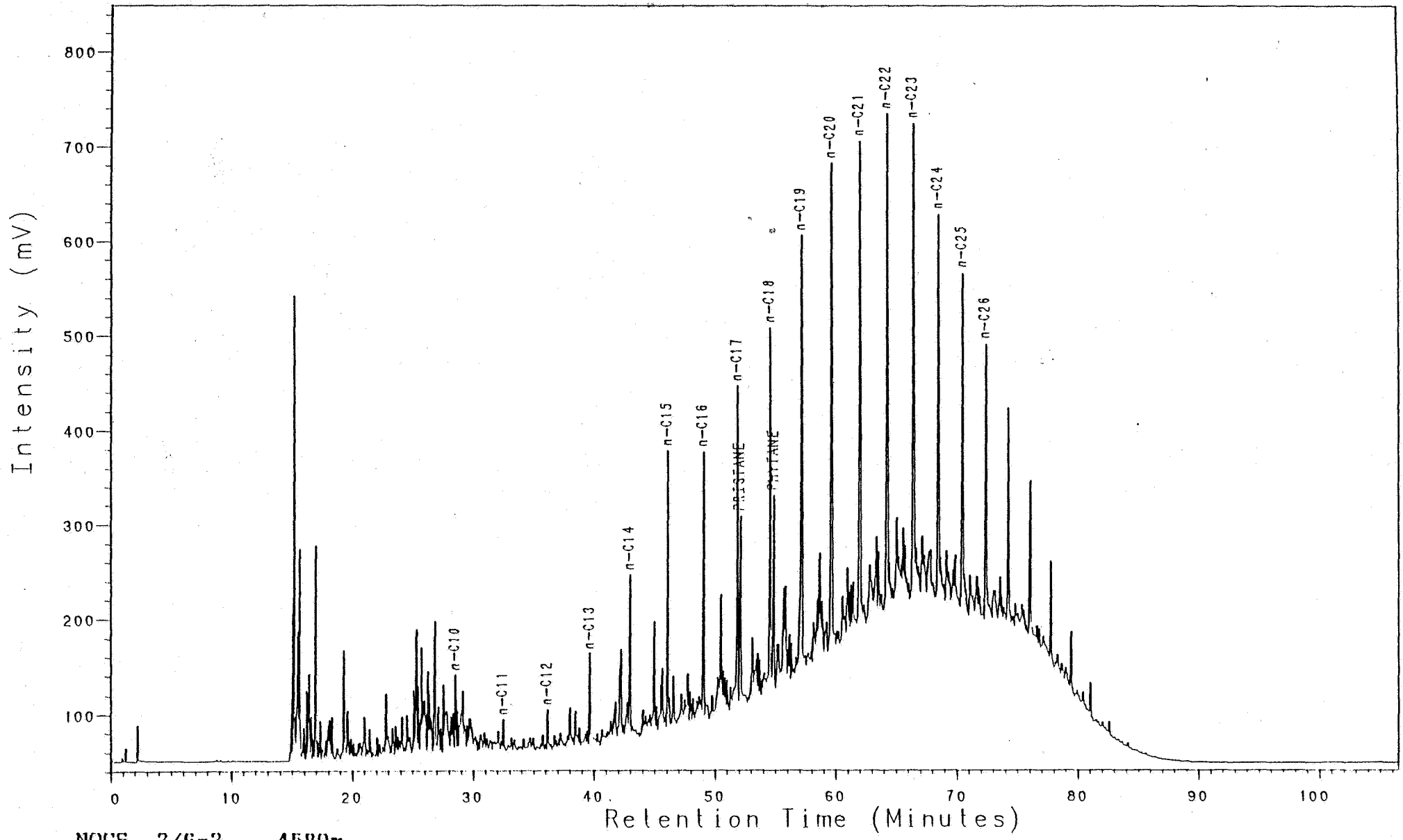
24, 1, 1

2/6-2, 4550m, S1



NOCS 2/6-2 4550m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100901L 24, 1, 1 2/6-2, 4580m, S1

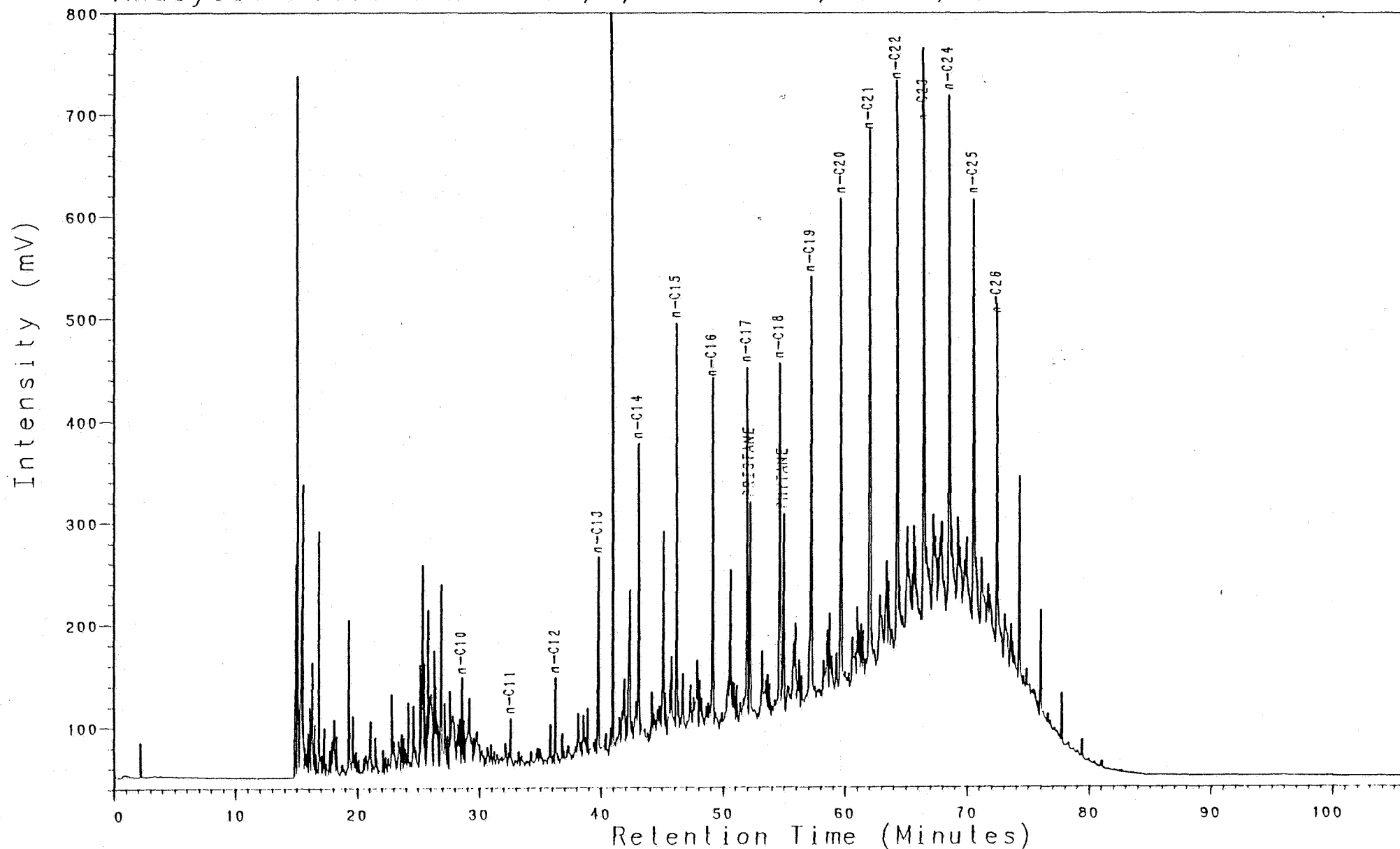


NOCS 2/6-2 4580m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100931L

24, 1, 1

2/6-2, 4602m, S1

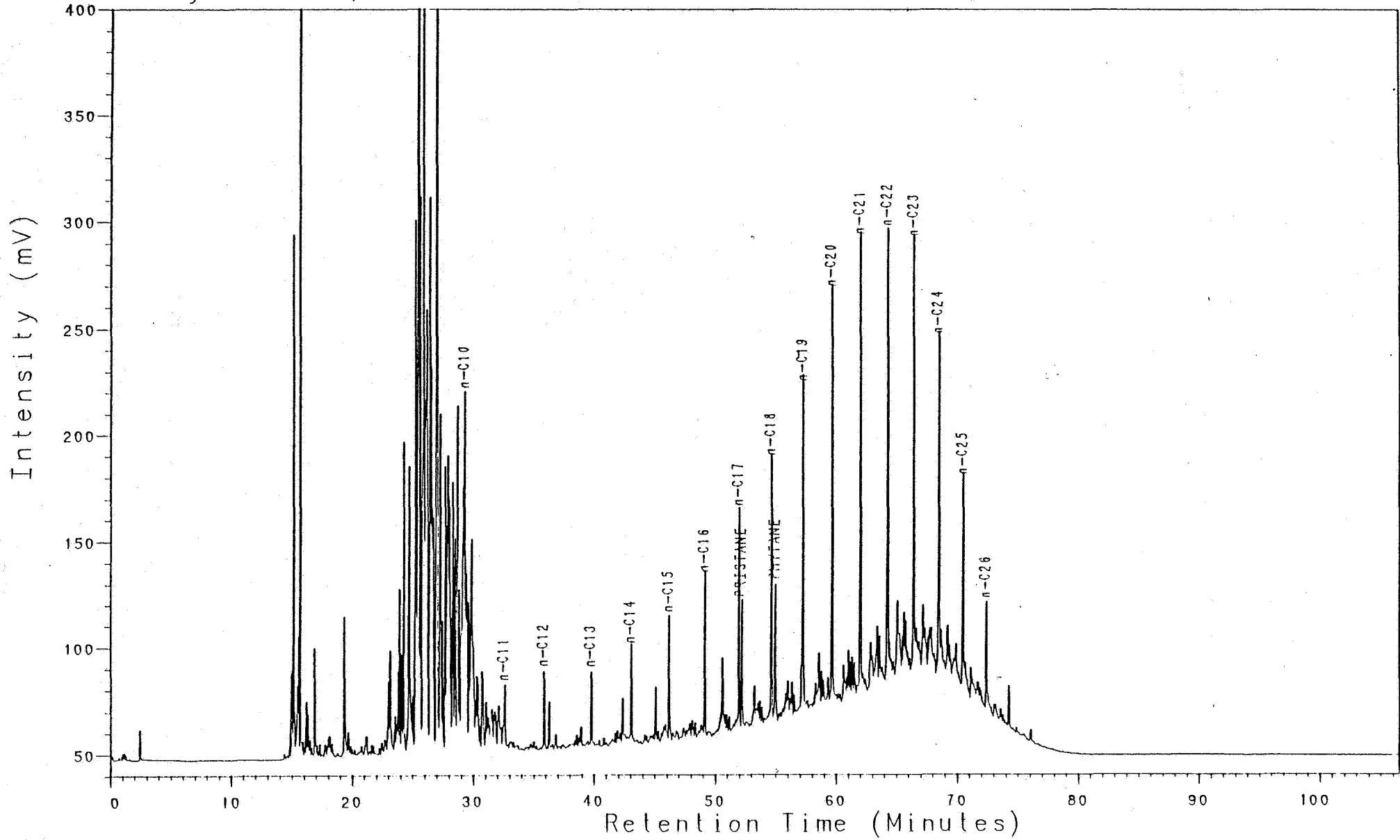


NOCS 2/6-2 4602m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, brn blk

Analysis PC100961L

24, 1, 1

2/6-2, 4616m, S1

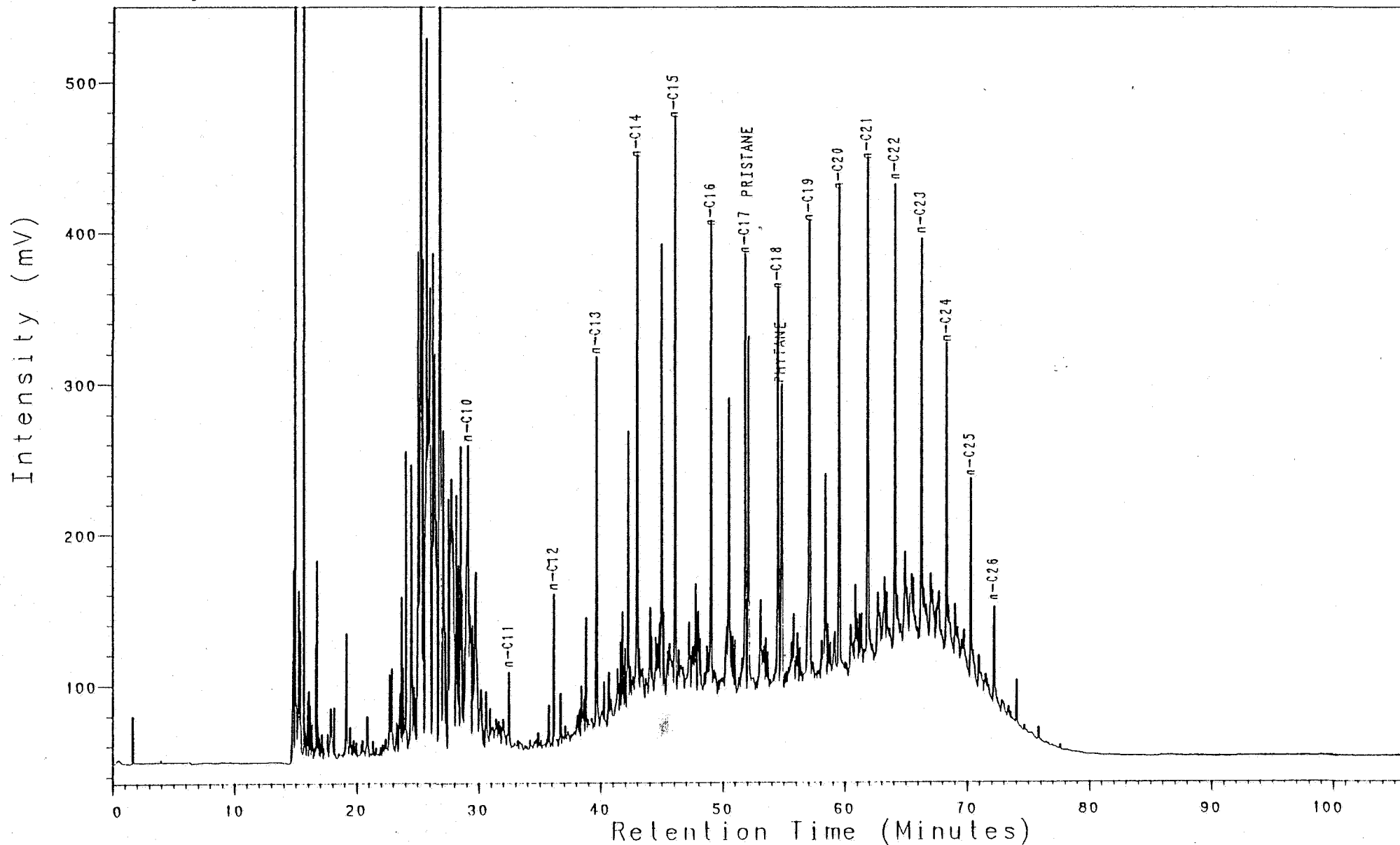


NOCS 2/6-2 4616m
THERMAL EXTRACTION GC (S1)
CLST:gy, gy red, m gy

Analysis PC101051L

24, 1, 1

2/6-2, 4656m, S1

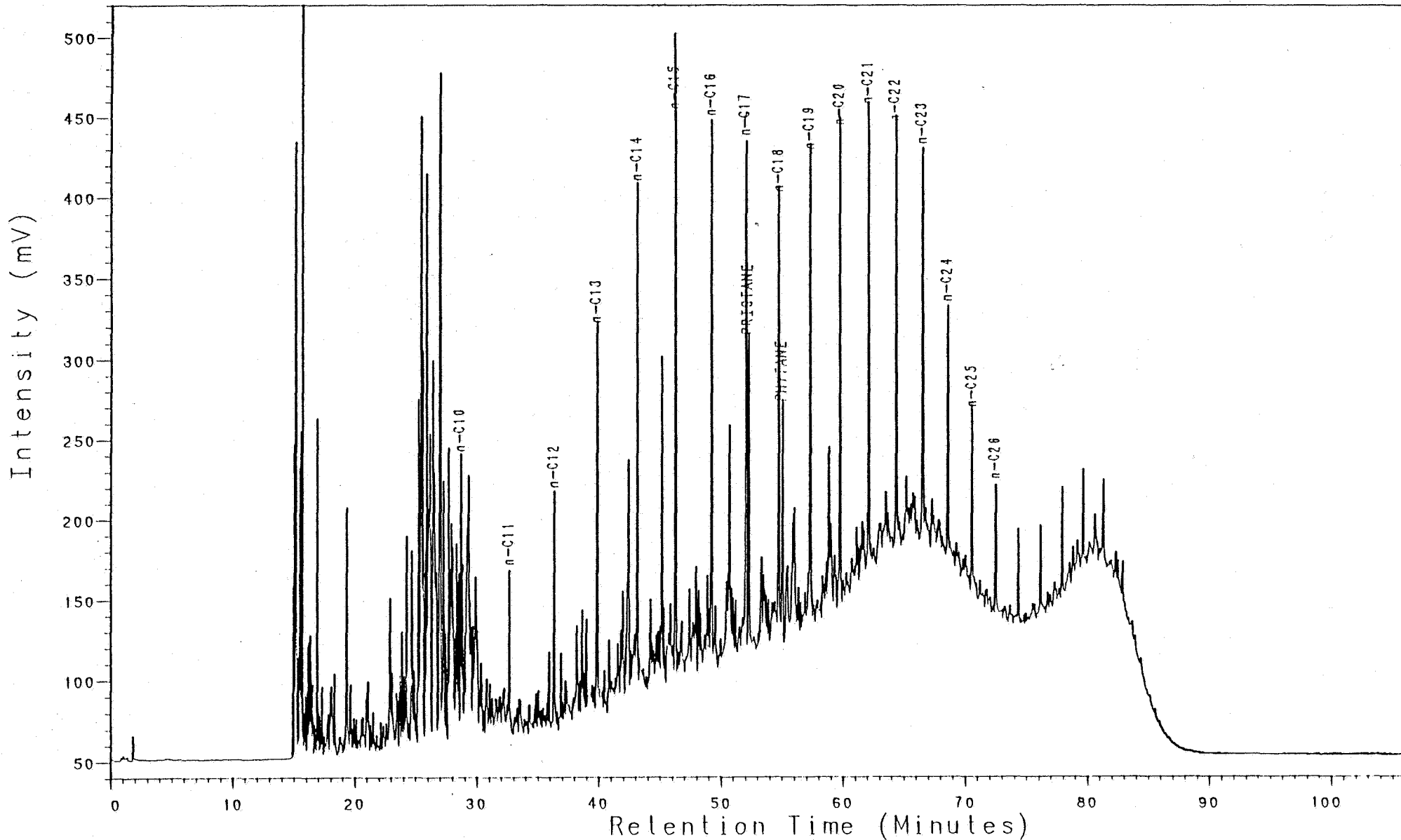


NOCS 2/6-2 4656m
THERMAL EXTRACTION GC (S1)
CLST:gy, gy red

Analysis PC101081L

24, 1, 1

2/6-2, 4670 m, S1

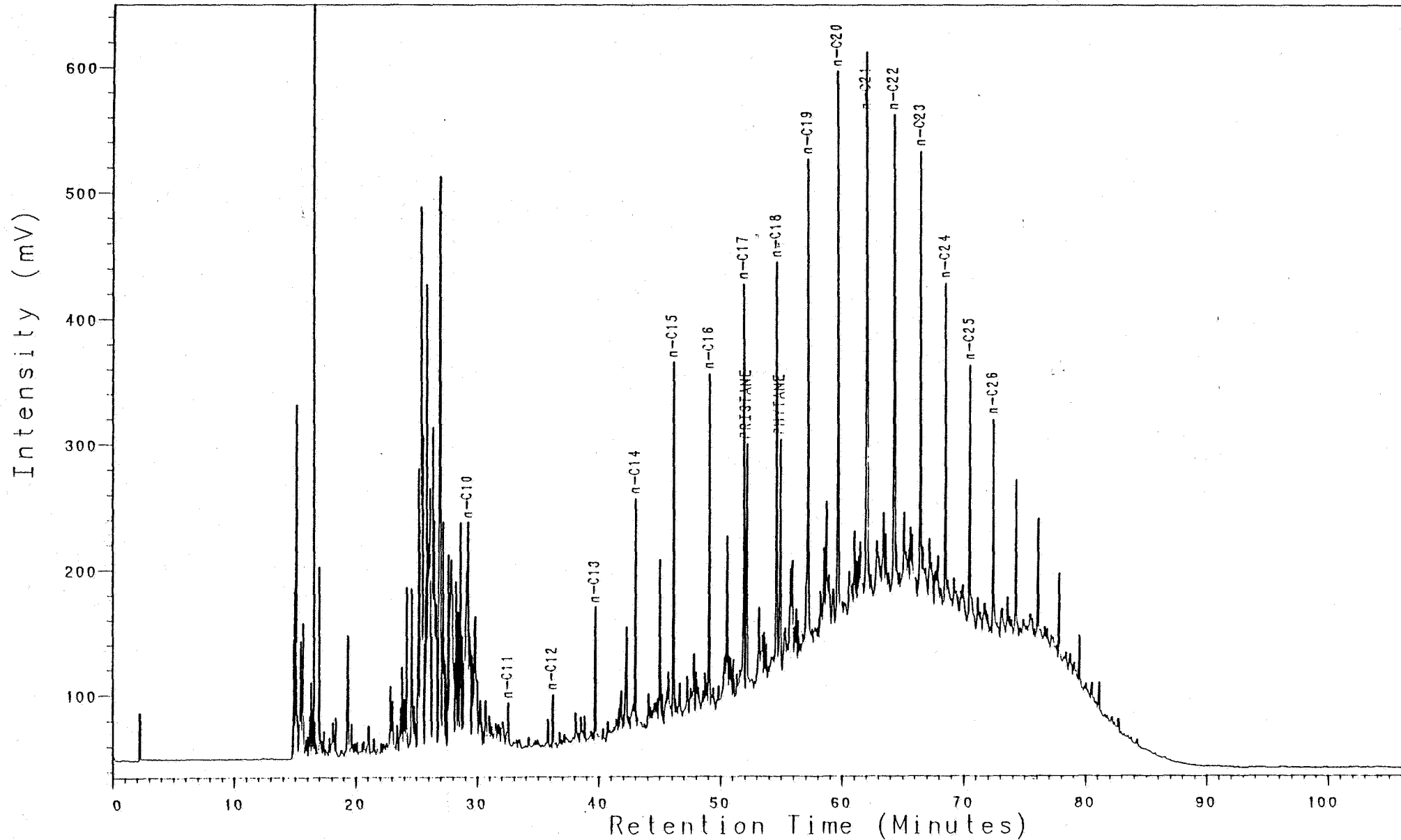


NOCS 2/6-2 4670m
THERMAL EXTRACTION GC (S1)
CLST:drk gy, gy blk

Analysis PC101181L

24, 1, 1

2/6-2, 4714m, S1

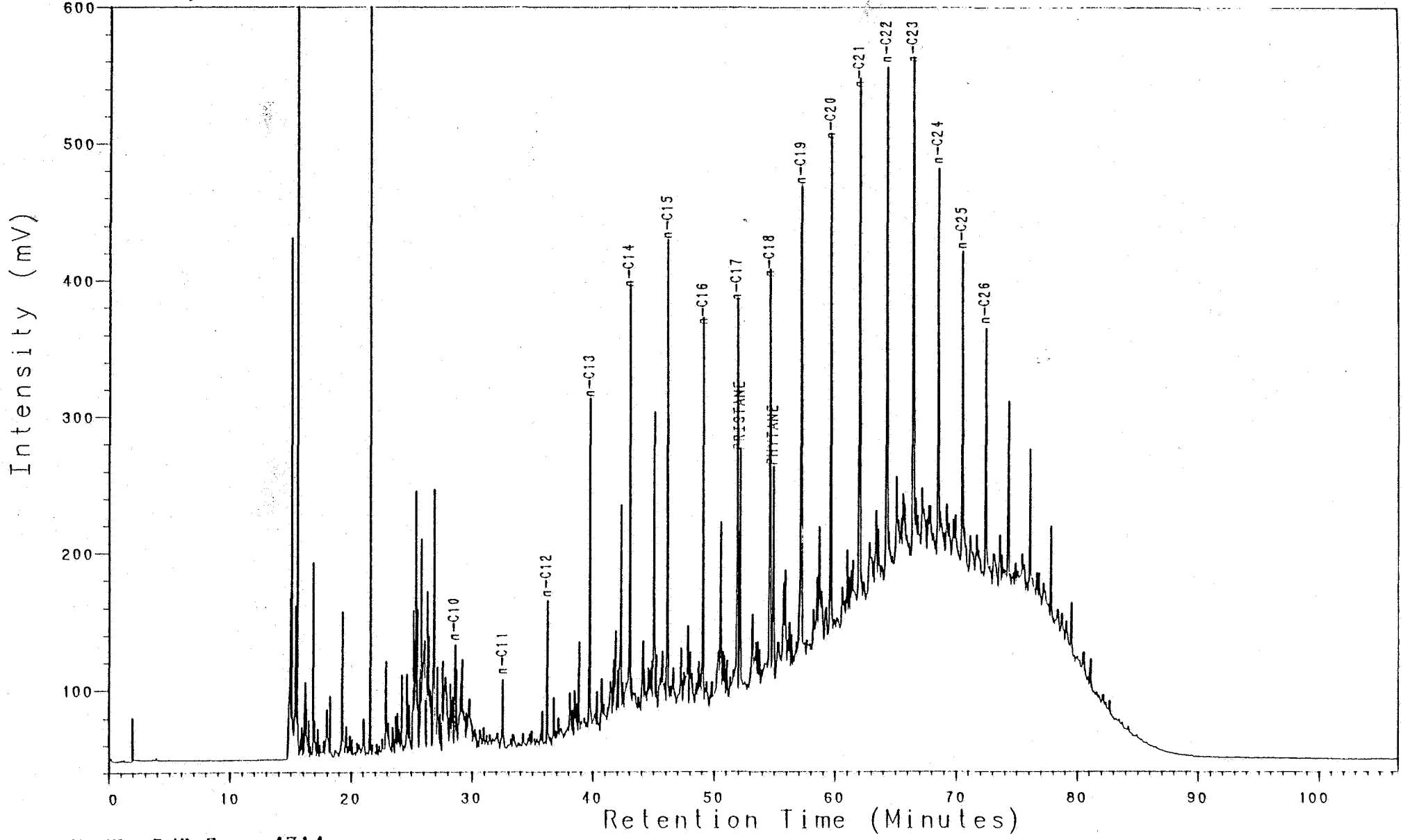


NOCS 2/6-2 4714m
THERMAL EXTRACTION GC (S1)
CLST:gy red

Analysis PC101182L

24, 1, 1

2/6-2, 4714m, S1

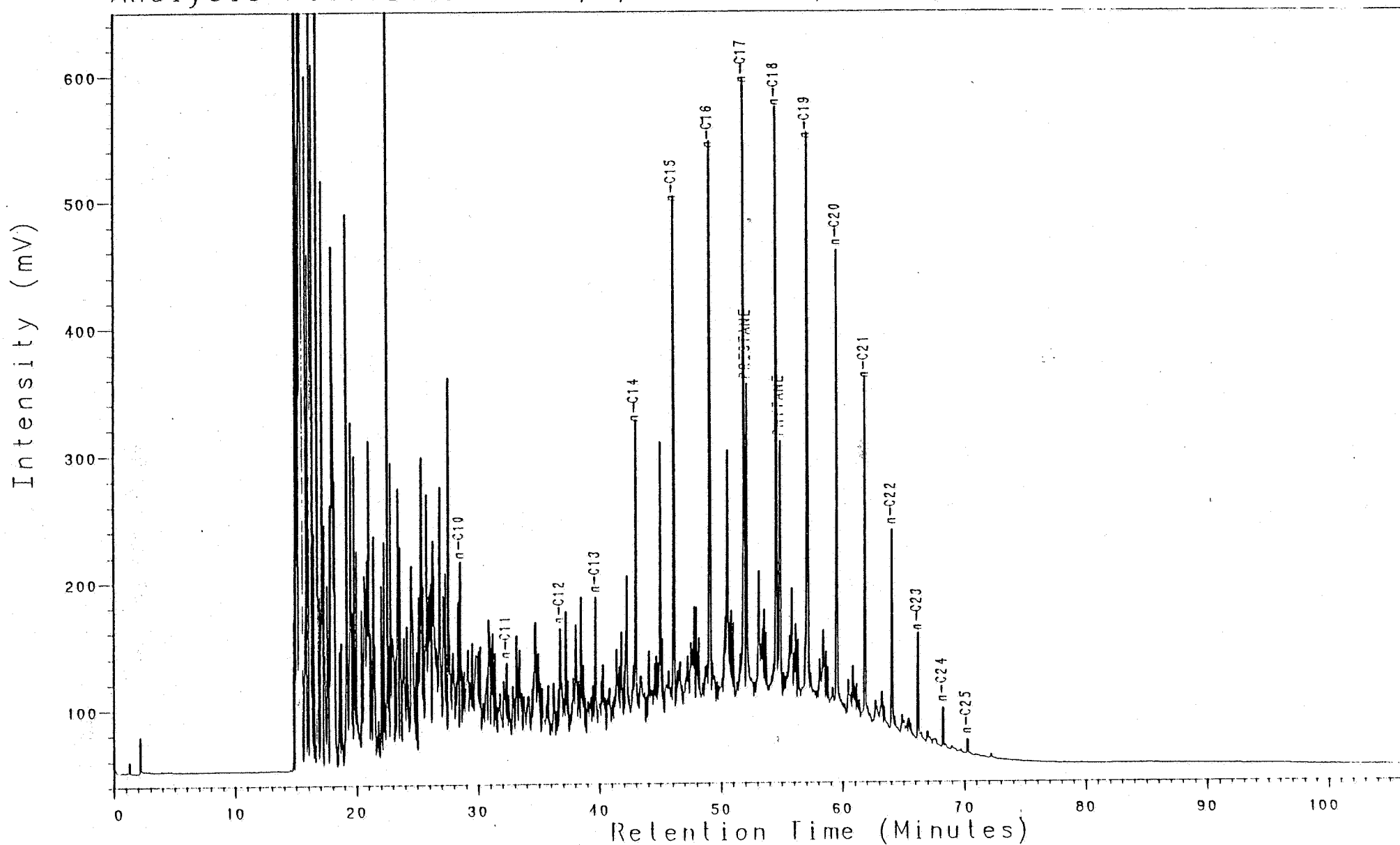


NOCS 2/6-2 4714m
THERMAL EXTRACTION GC (S1)
CLST:m gy to drk gy

Analysis PC101253L

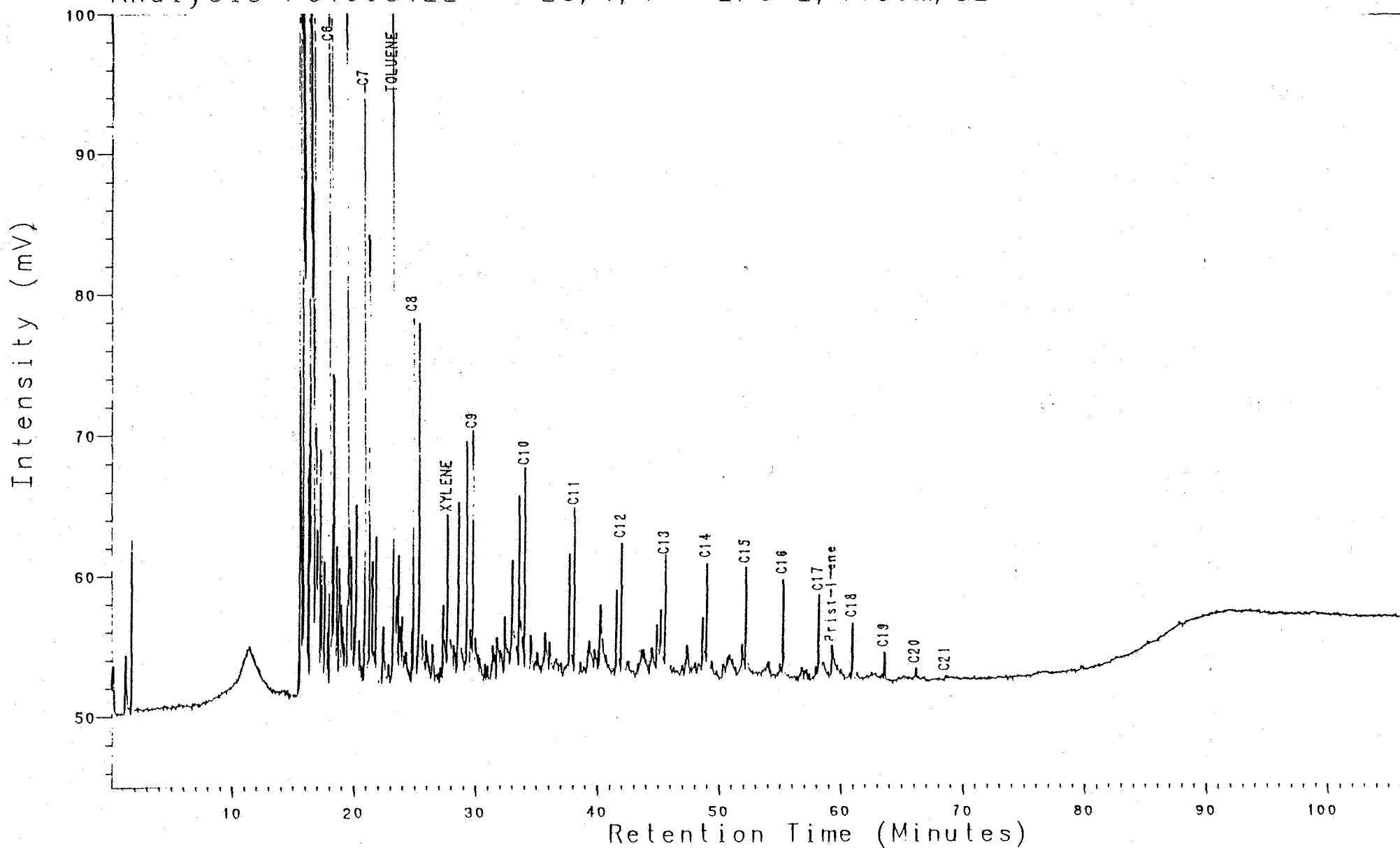
24, 1, 1

2/6-2, 4760m, S1

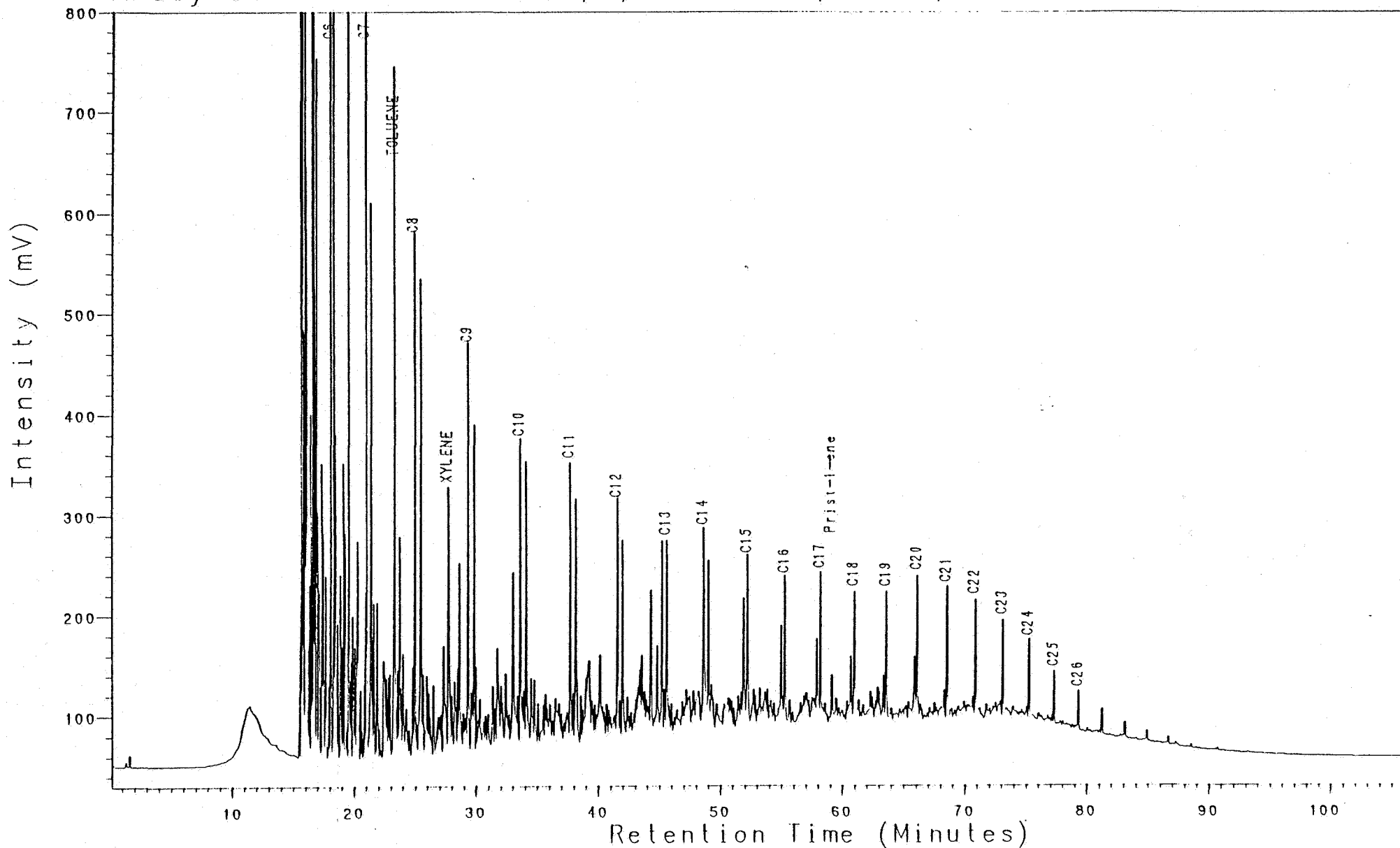


NOCS 2/6-2 4760m
THERMAL EXTRACTION GC (S1)
CLST:gy blk, ol blk

Analysis PC100312L 23, 1, 1 2/6-2, 4130m, S2



NOCS 2/6-2 4130m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

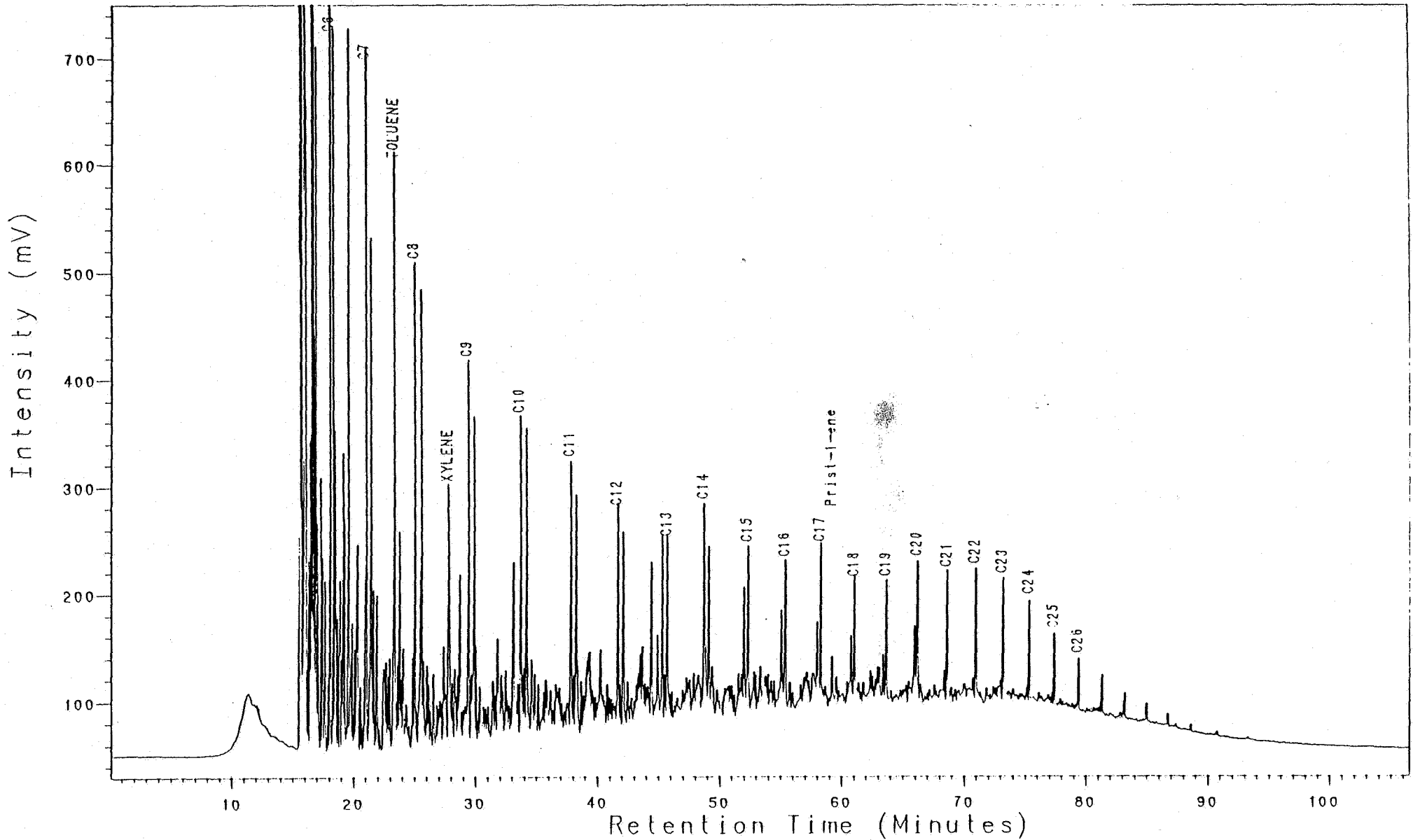


NOCS 2/6-2 4160m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

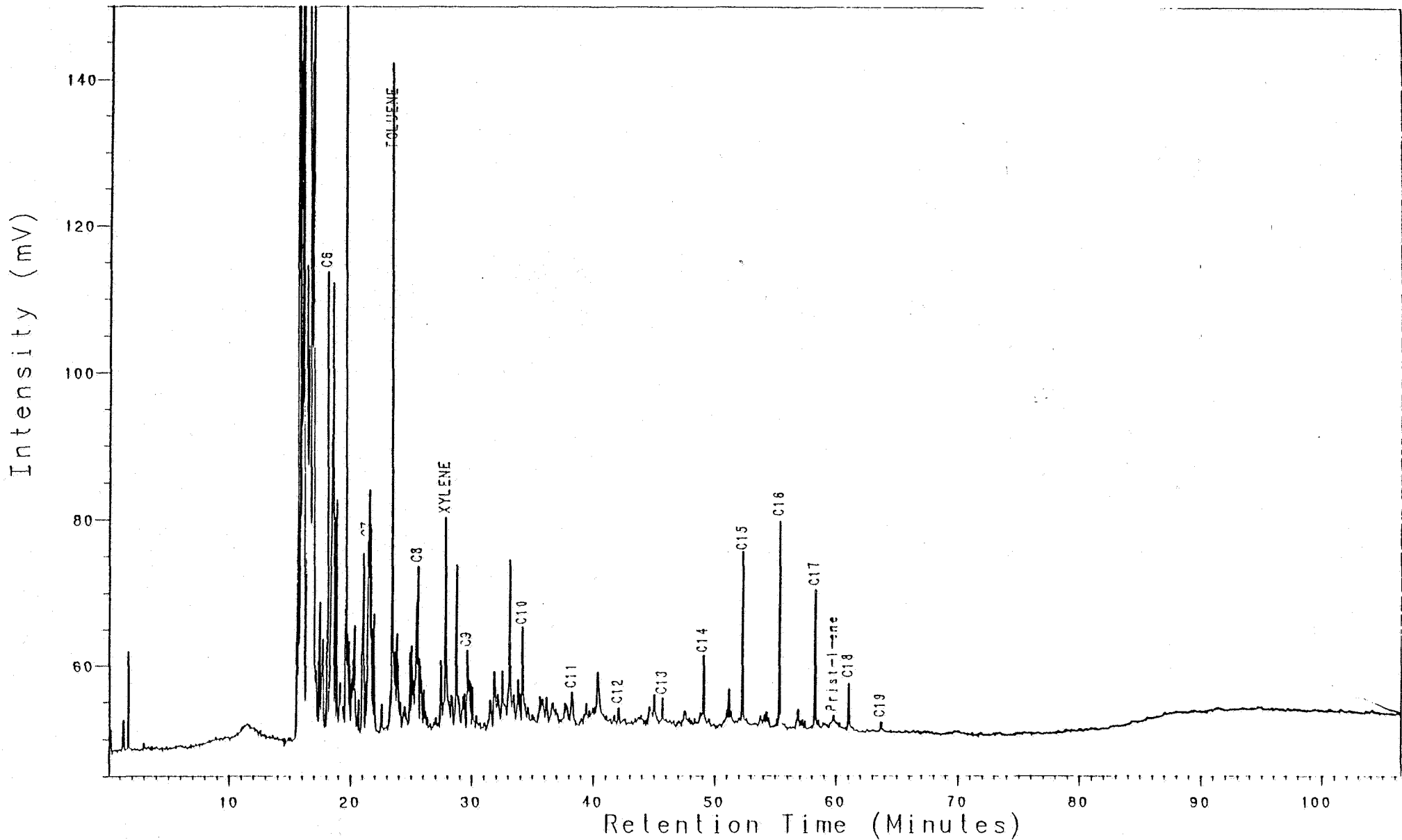
Analysis PC100372L

23, 1, 1

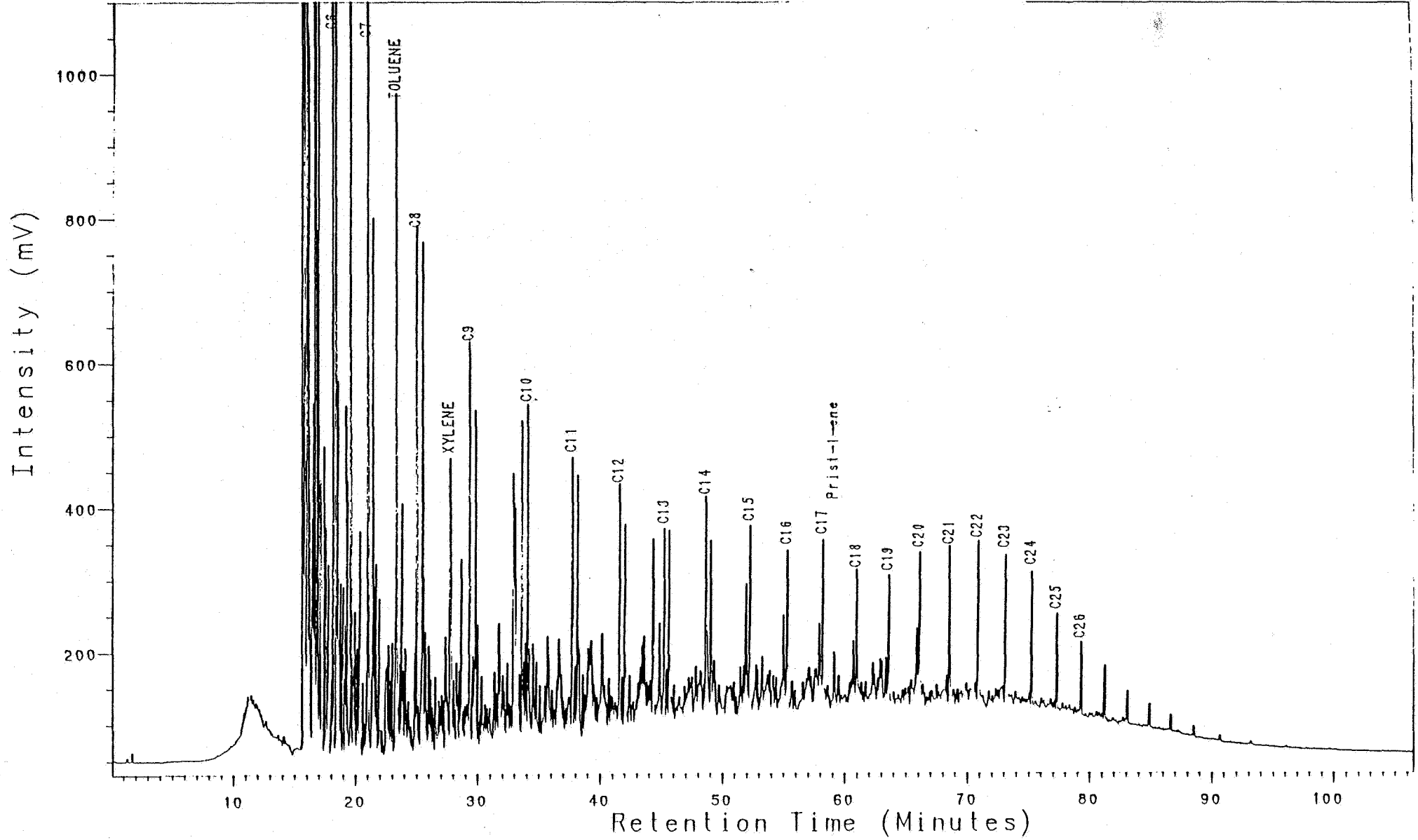
2/6-2, 4190m, S2



NOCS 2/6-2 4190m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk



NOCS 2/6-2 4200m
PYROLYSIS GC (S2)
CLST:m gy to drk gy

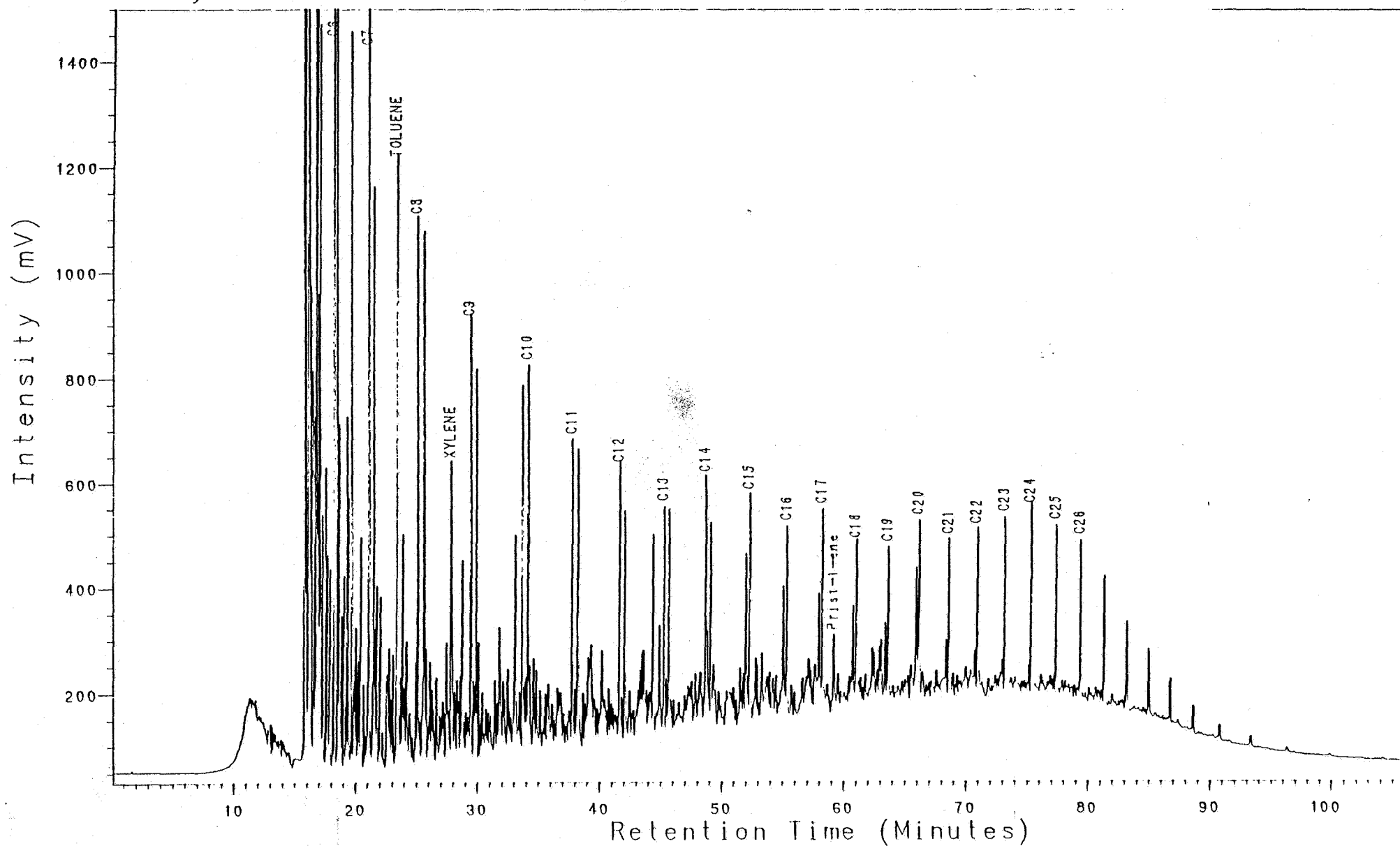


NOCS 2/6-2 4200m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100403L

23, 1, 1

2/6-2, 4220m, S2

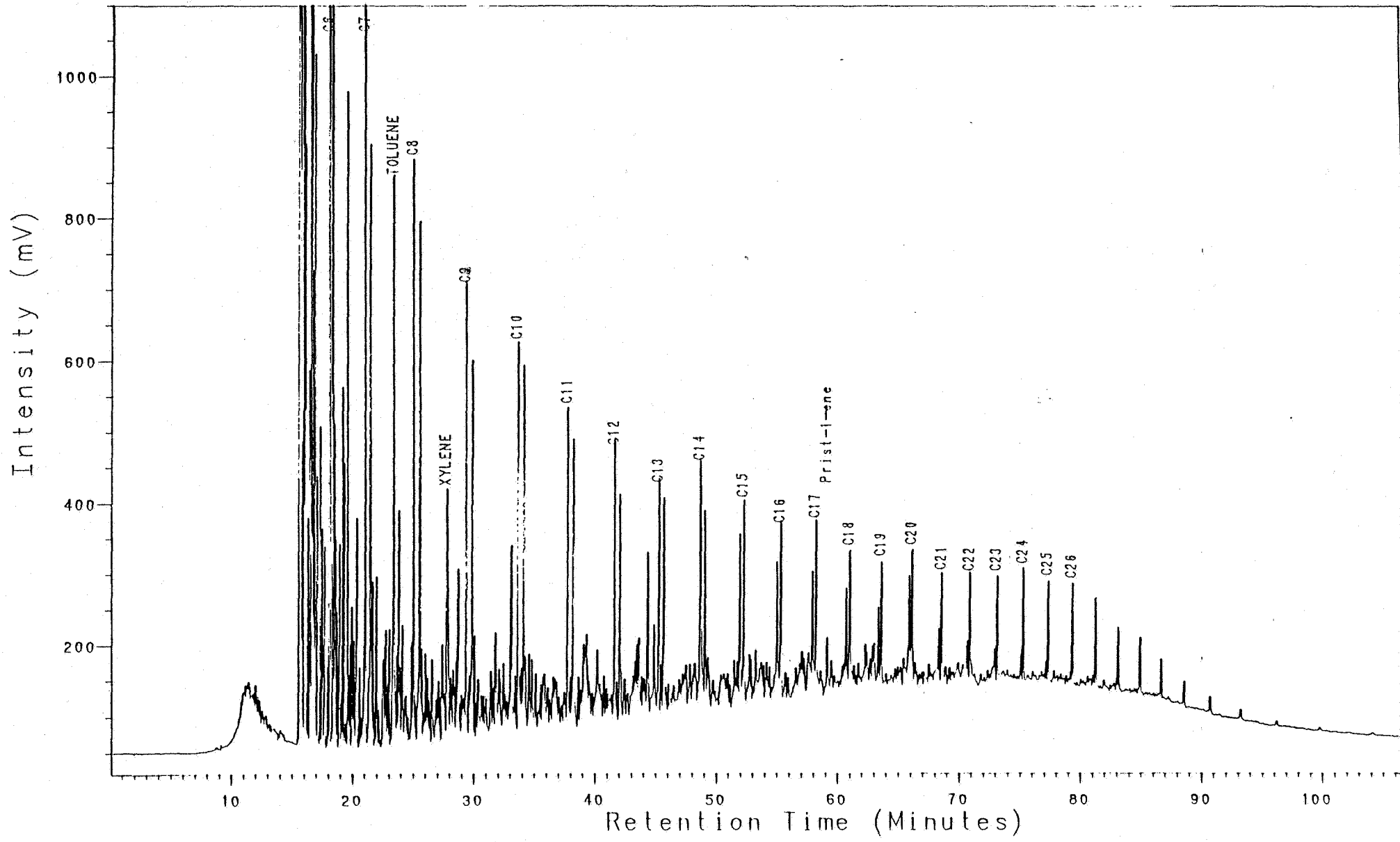


NOCS 2/6-2 4220m
PYROLYSIS GC (S2)
CLST:blk, gy blk, brn blk

Analysis PC100413L

23, 1, 1

2/6-2, 4230m, S2

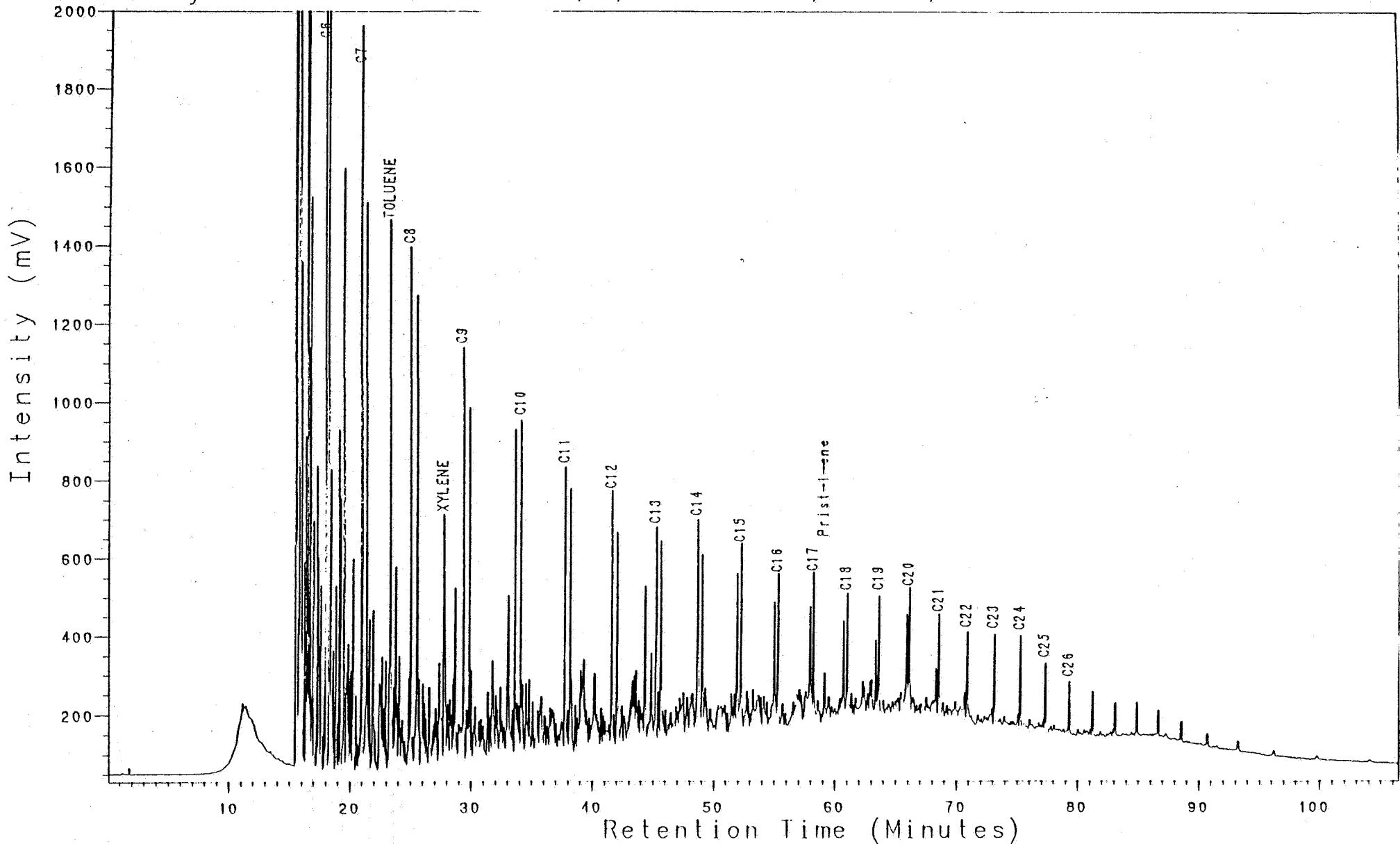


NOCS 2/6-2 4230m
PYROLYSIS GC (S2)
CLST:blk, gy blk, brn blk

Analysis PC100432L

23, 1, 1

2/6-2, 4250m, S2

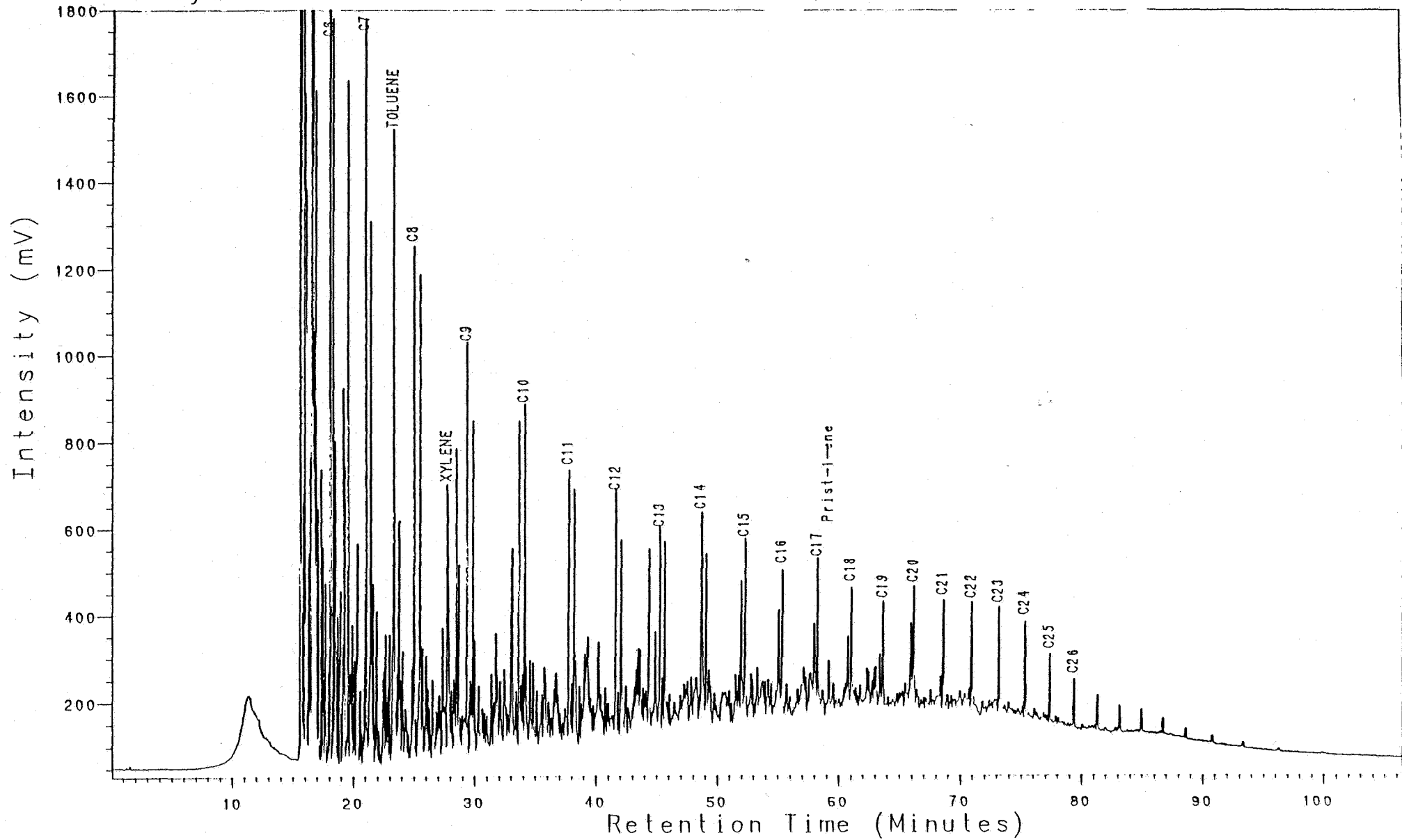


NOCS 2/6-2 4250m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100441L

23, 1, 1

2/6-2, 4260m, S2

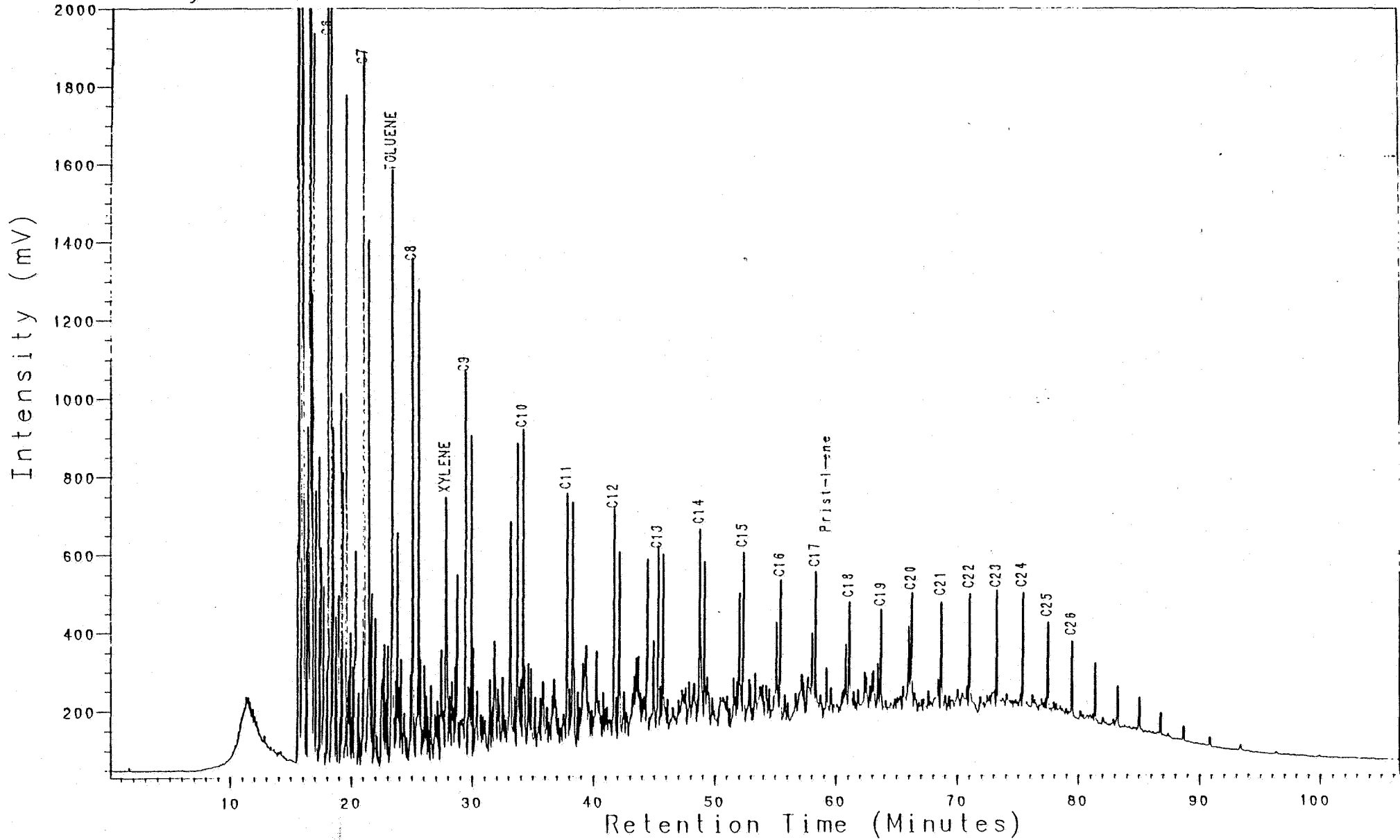


NOCS 2/6-2 4260m
PYROLYSIS GC (S2)
CLST:brn blk

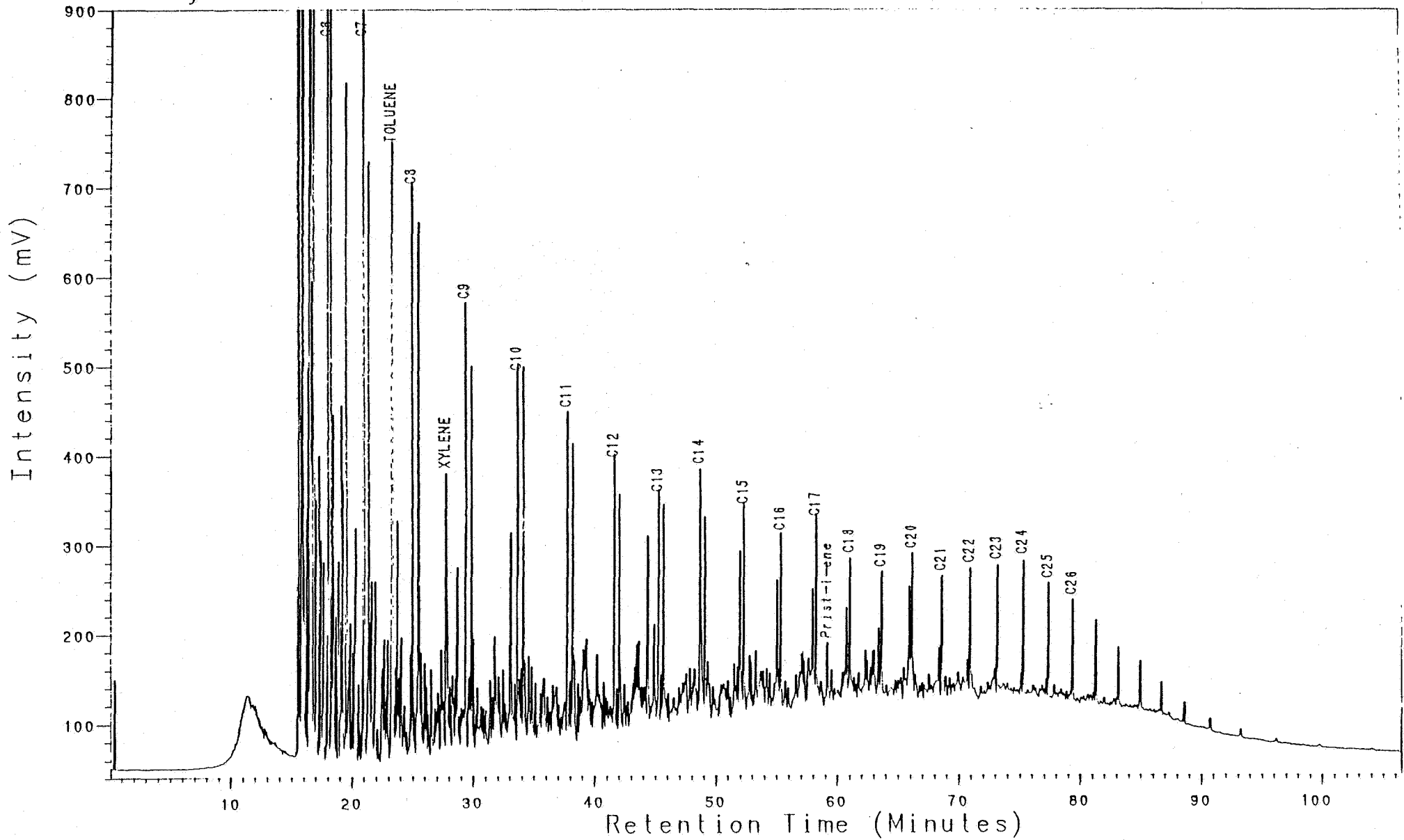
Analysis PC100452L

23, 1, 1

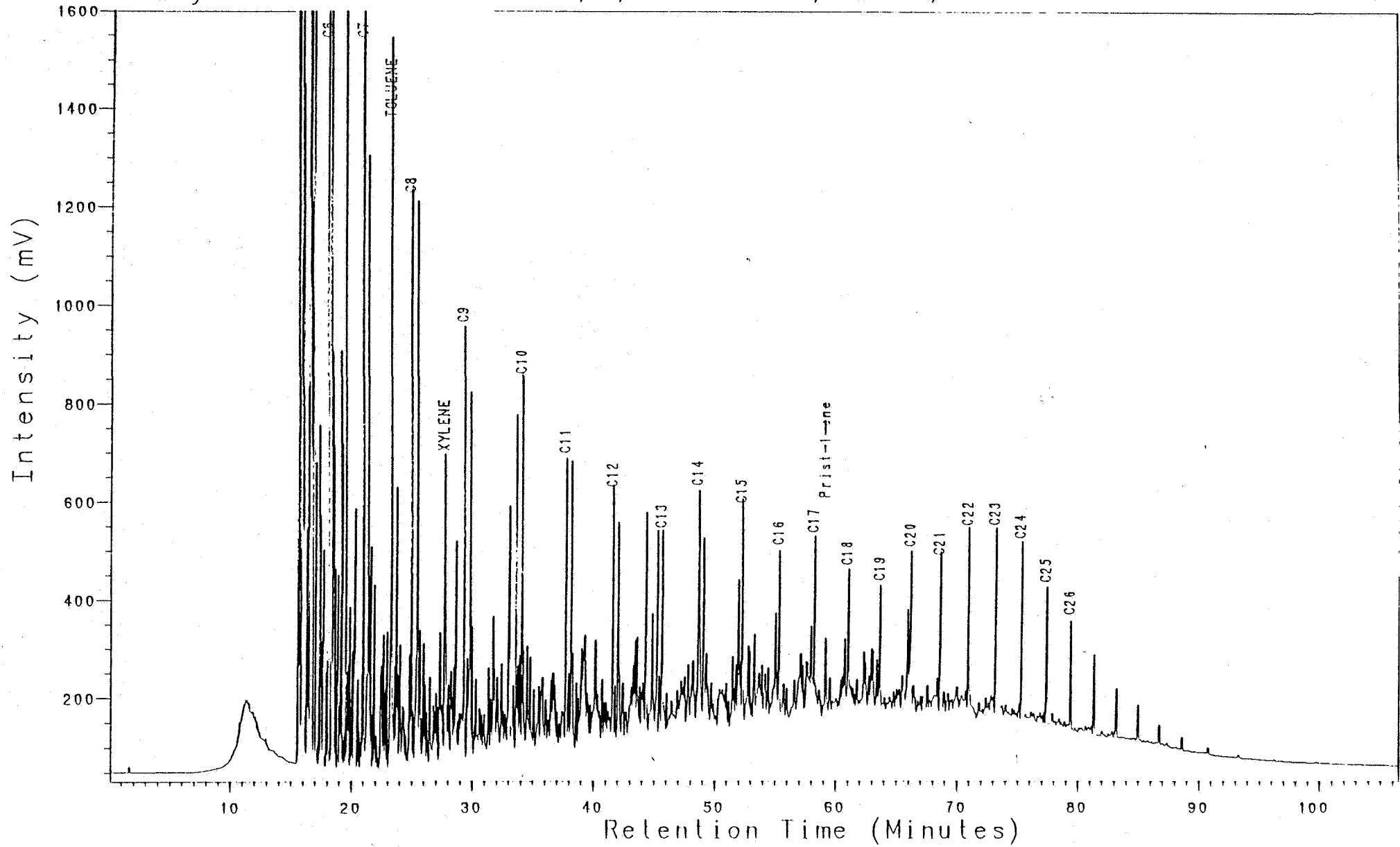
2/6-2, 4270m, S2



NOCS 2/6-2 4270m
PYROLYSIS GC (S2)
CLST:brn blk



NOCS 2/6-2 4280m
PYROLYSIS GC (S2)
CLST:brn blk

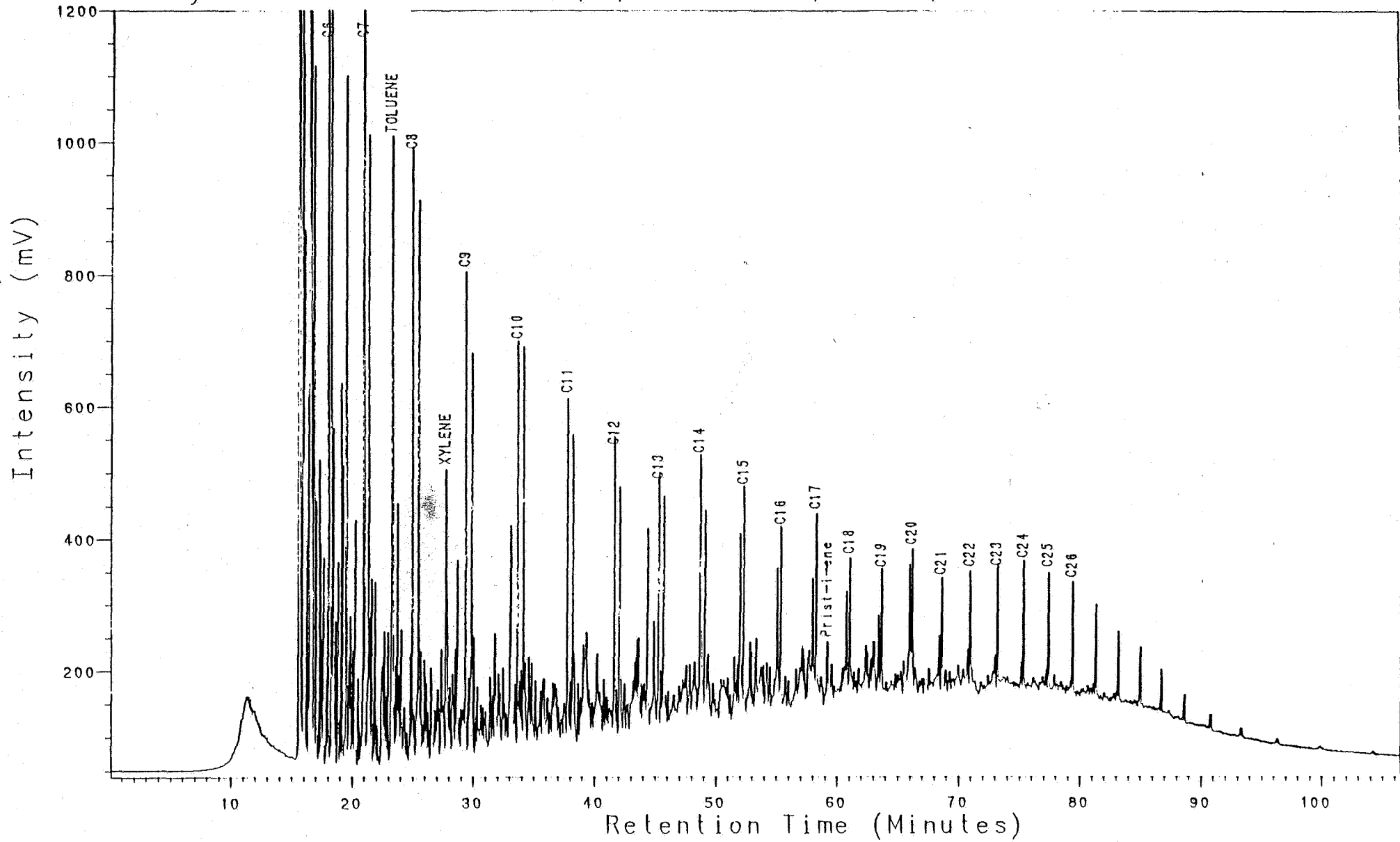


NOCS 2/6-2 4300m
PYROLYSIS GC (S2)
CLST:brn blk

Analysis PC100511L

23, 1, 1

2/6-2, 4320m, S2

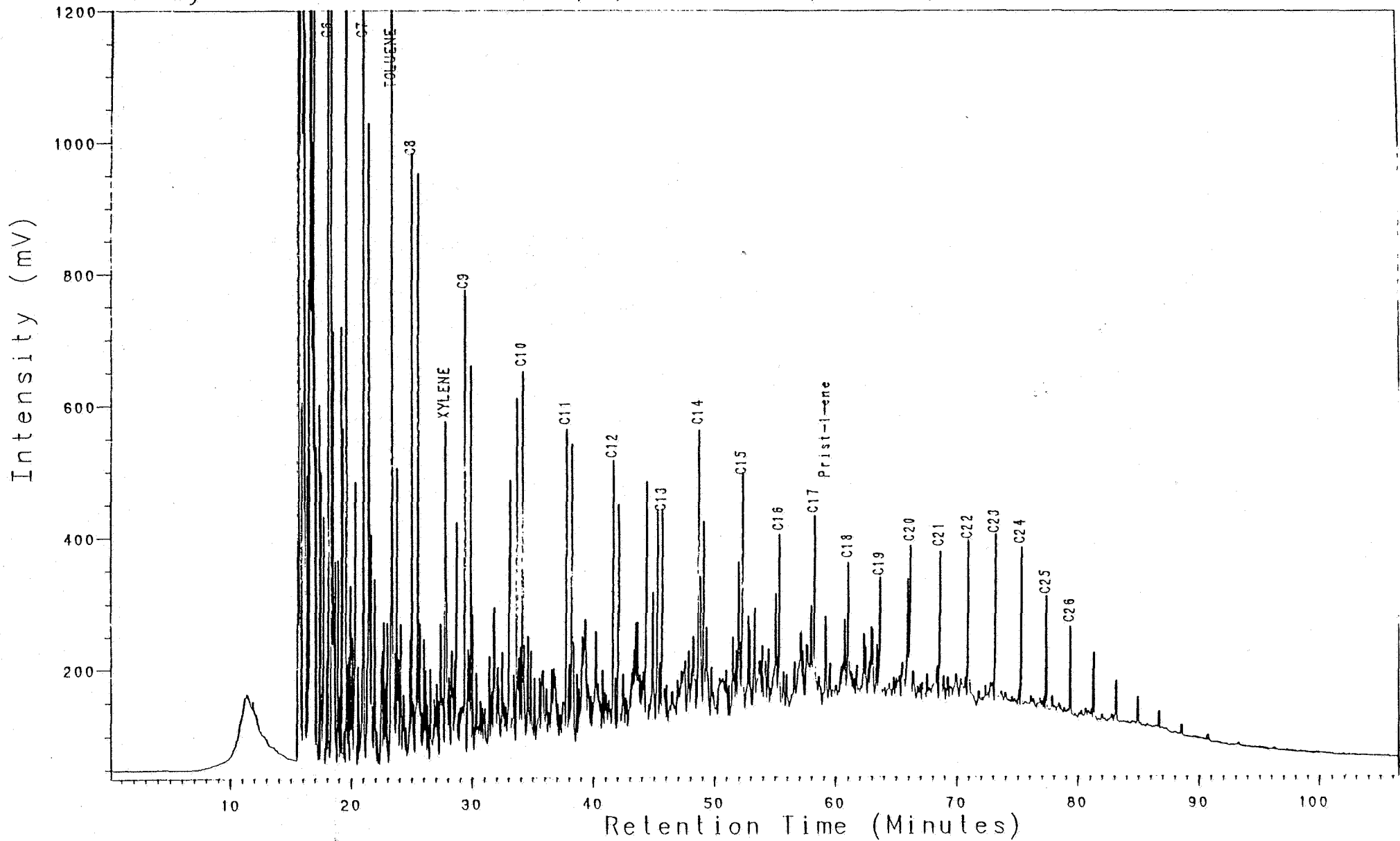


NOCS 2/6-2 4320m
PYROLYSIS GC (S2)
CLST:brn blk

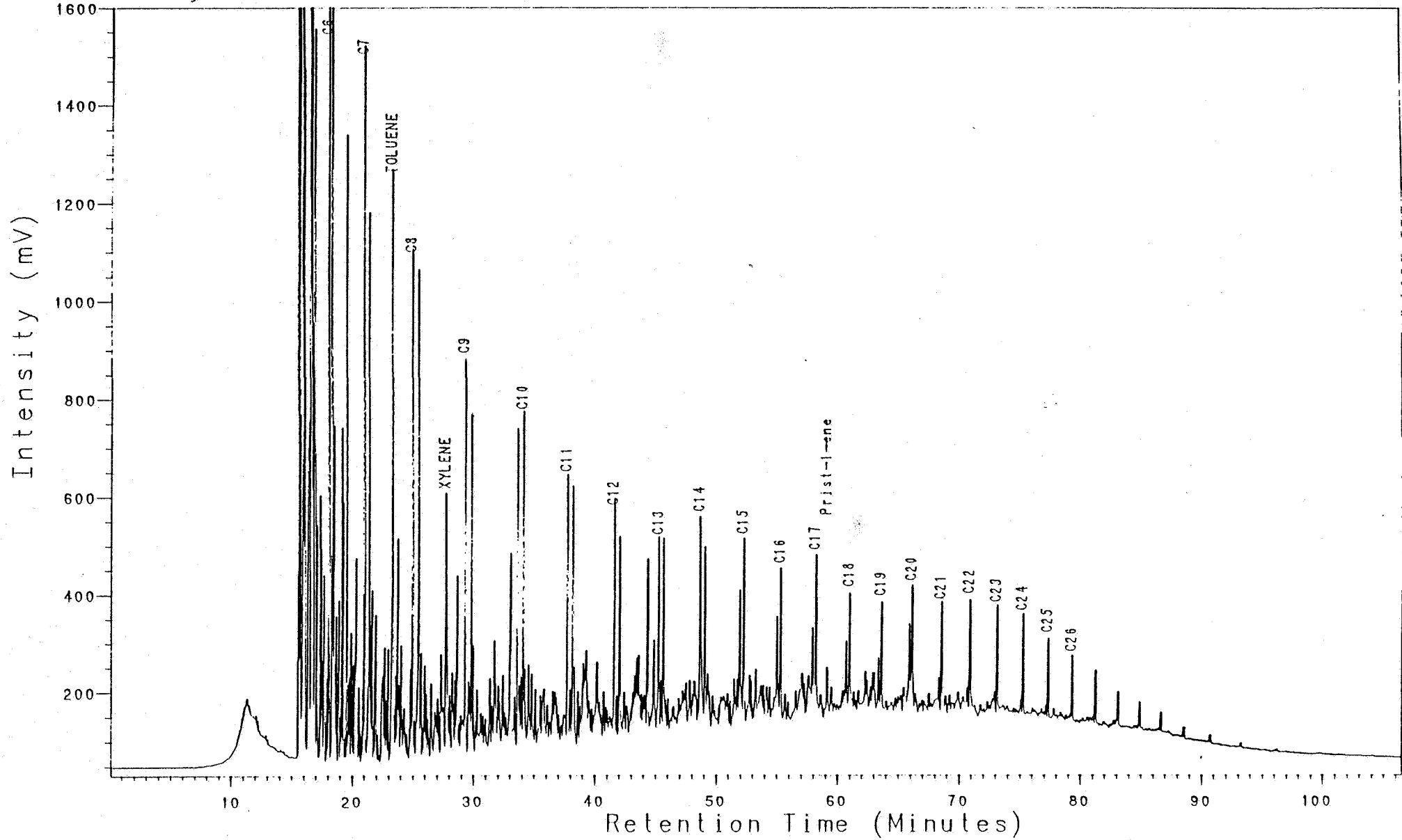
Analysis PC100521L

23, 1, 1

2/6-2, 4330m, S2



NOCS 2/6-2 4330m
PYROLYSIS GC (S2)
CLST:brn blk

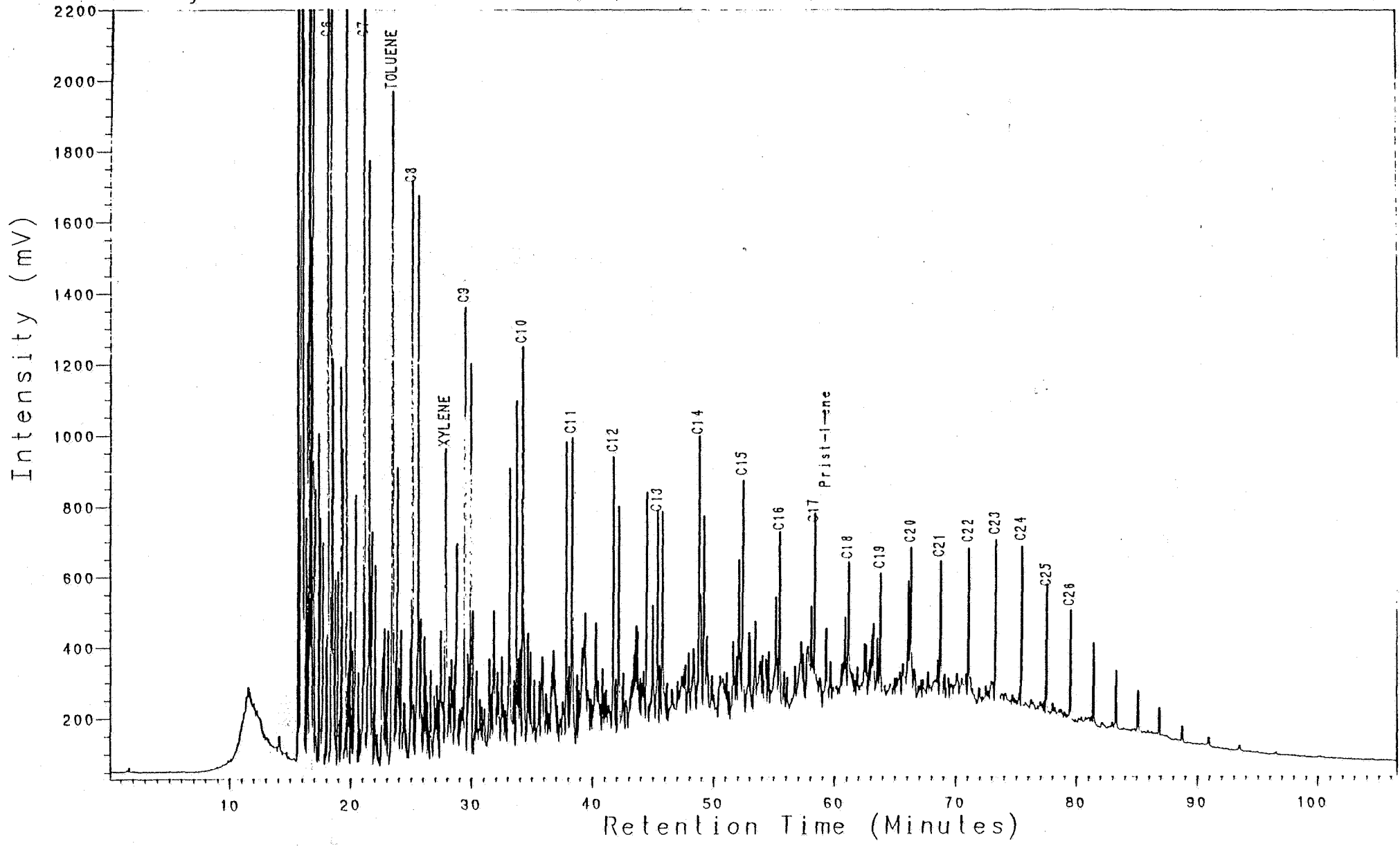


NOCS 2/6-2 4336m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

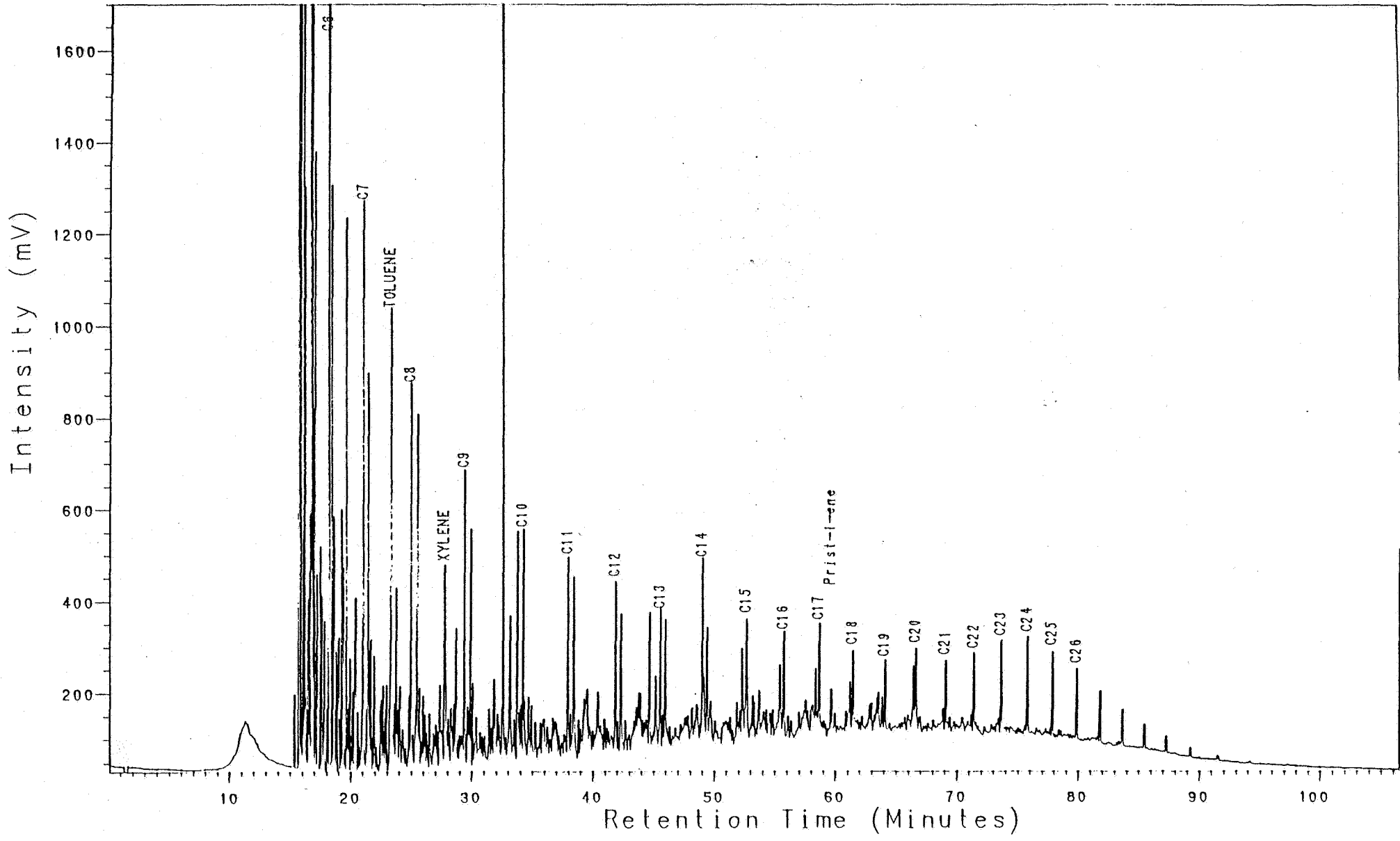
Analysis PC100541L

23, 1, 1

2/6-2, 4342m, S2



NOCS 2/6-2 4342m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

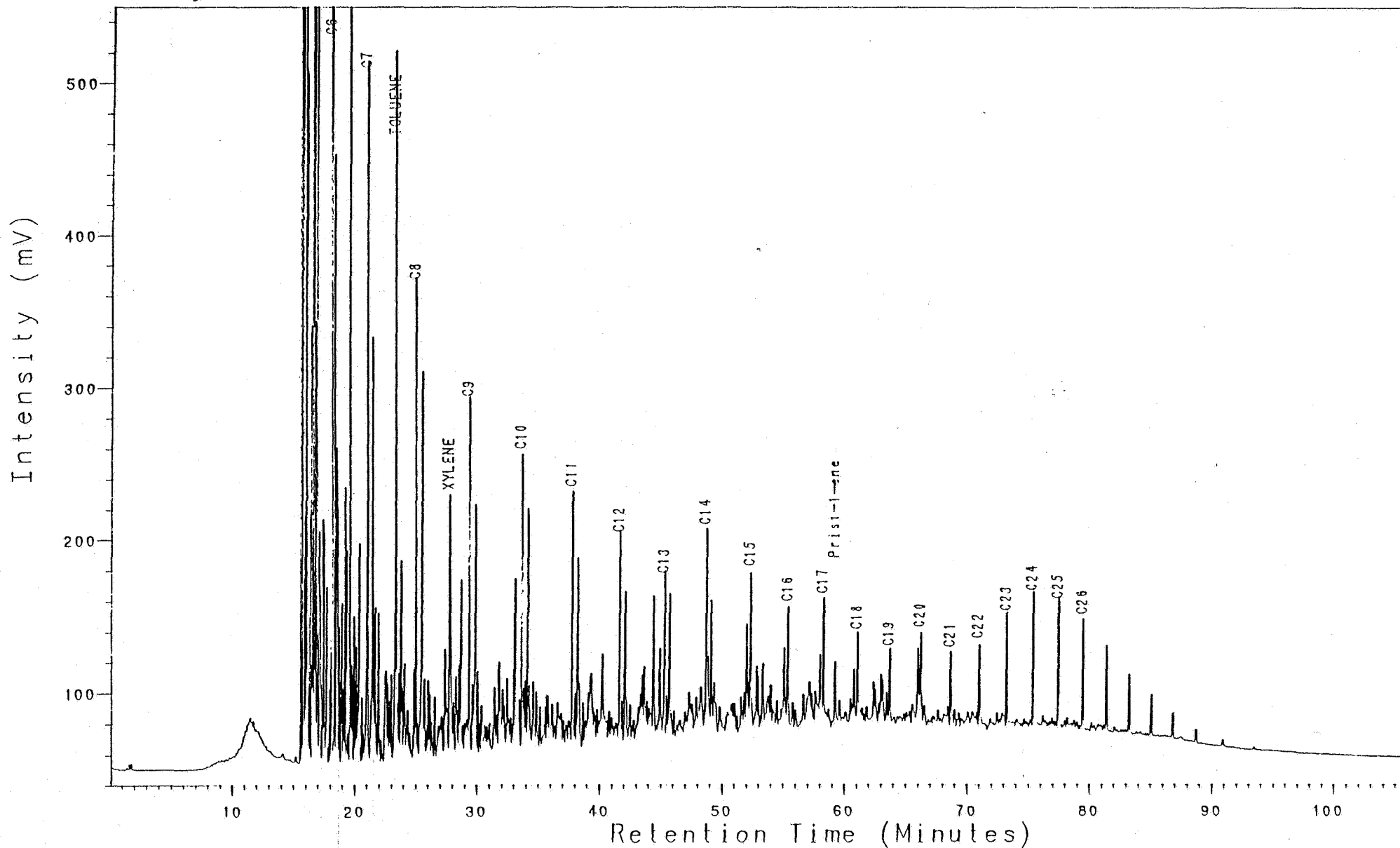


NOCS 2/6-2 4356m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100581L

23, 1, 1

2/6-2, 4374m, S2

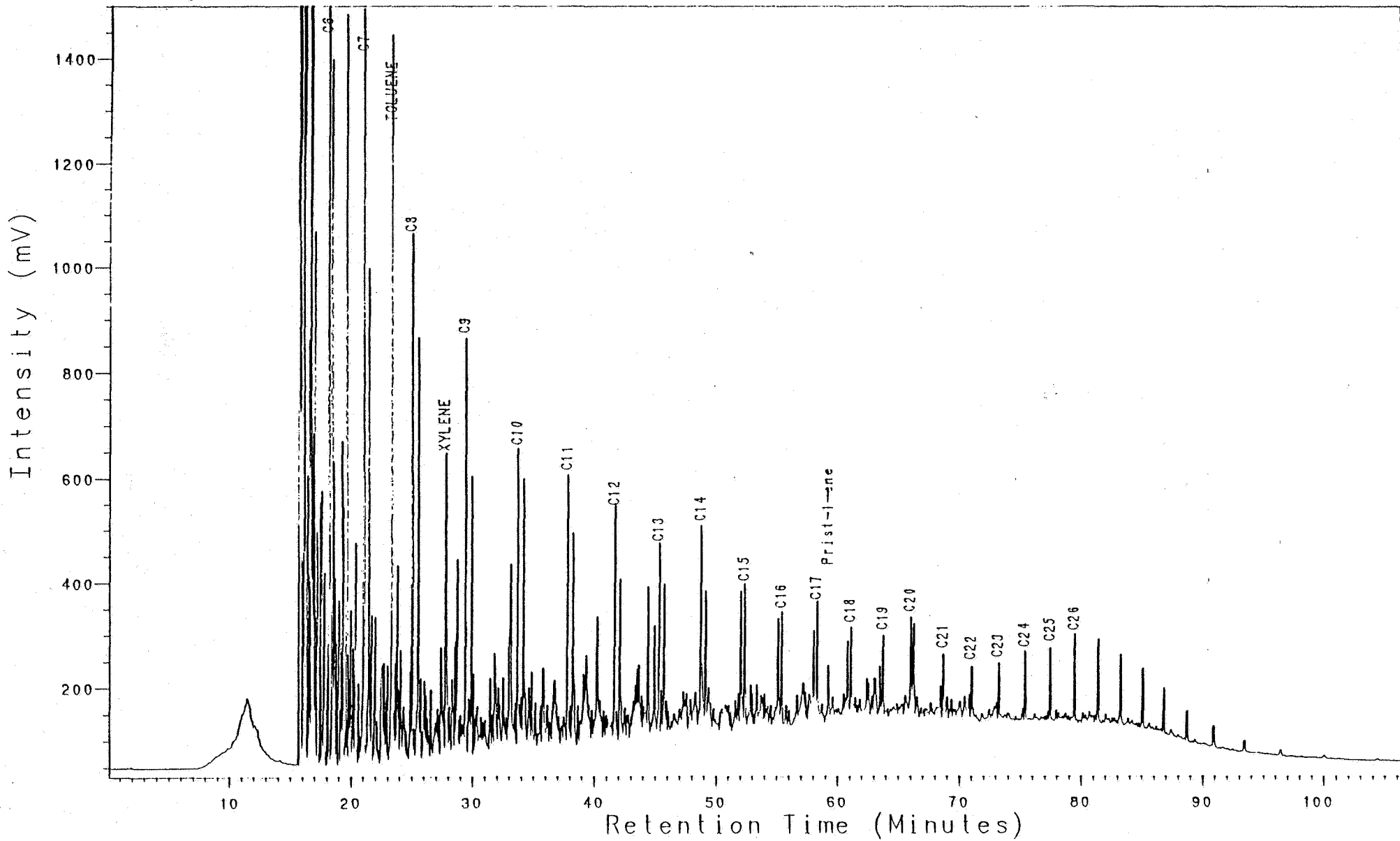


NOCS 2/6-2 4374m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100591L

23, 1, 1

2/6-2, 4380m, S2

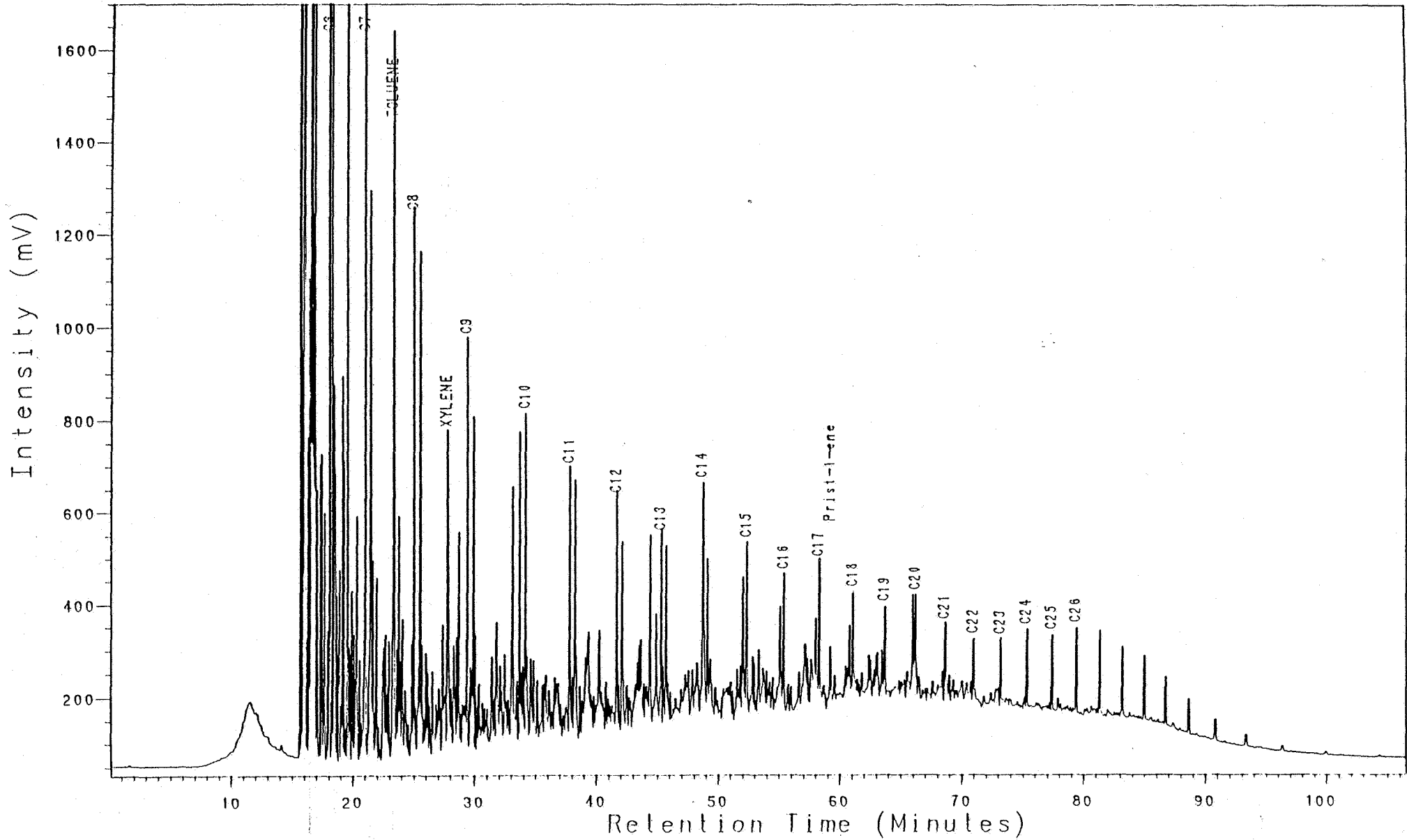


NOCS 2/6-2 4380m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100611L

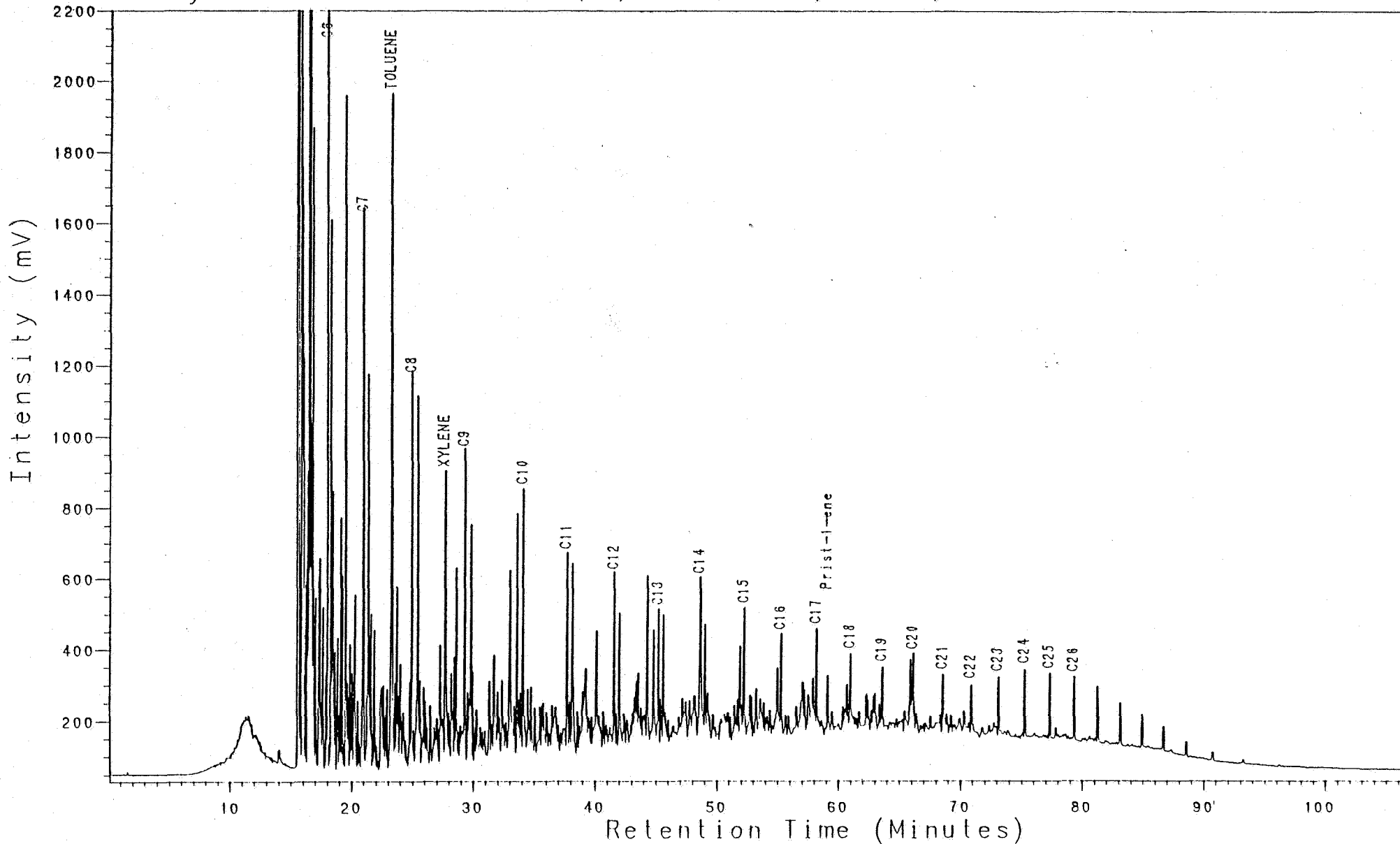
23, 1, 1

2/6-2, 4389m, S2



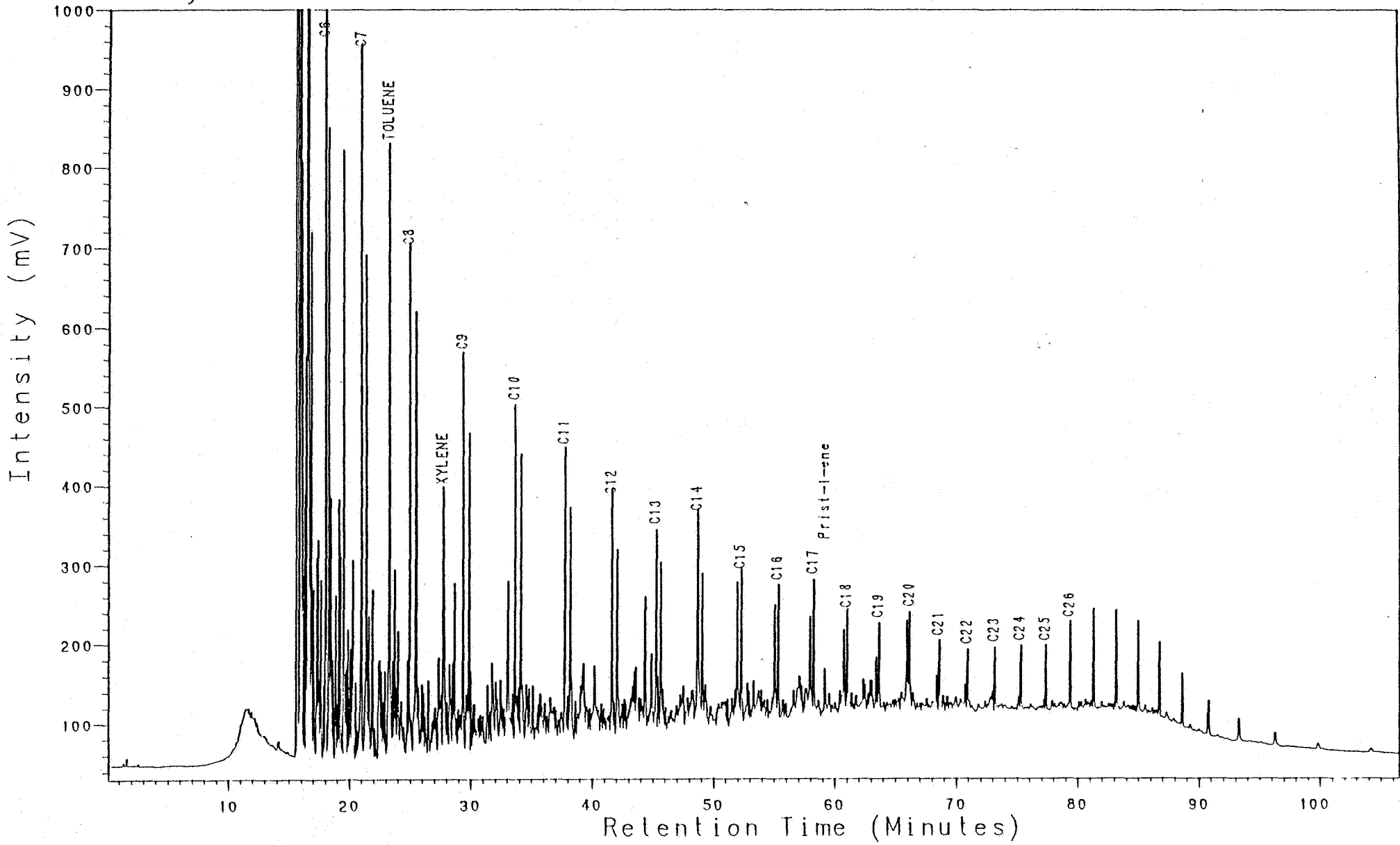
NOCS 2/6-2 4389m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100621L 23, 1, 1 2/6-2, 4398m, S2



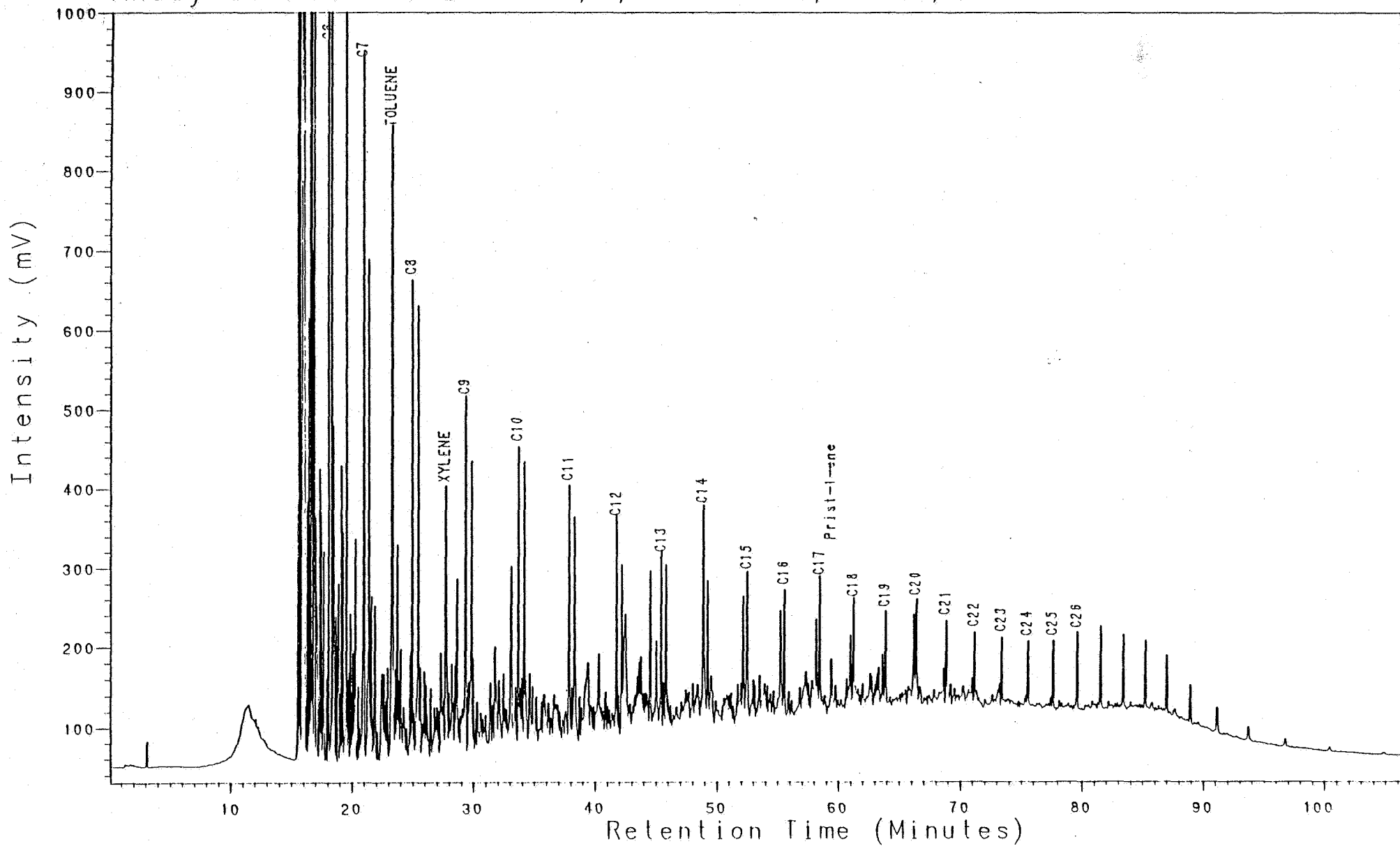
NOCS 2/6-2 4398m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

analysis PC100641L 23, 1, 1 2/6-2, 4410m, S2



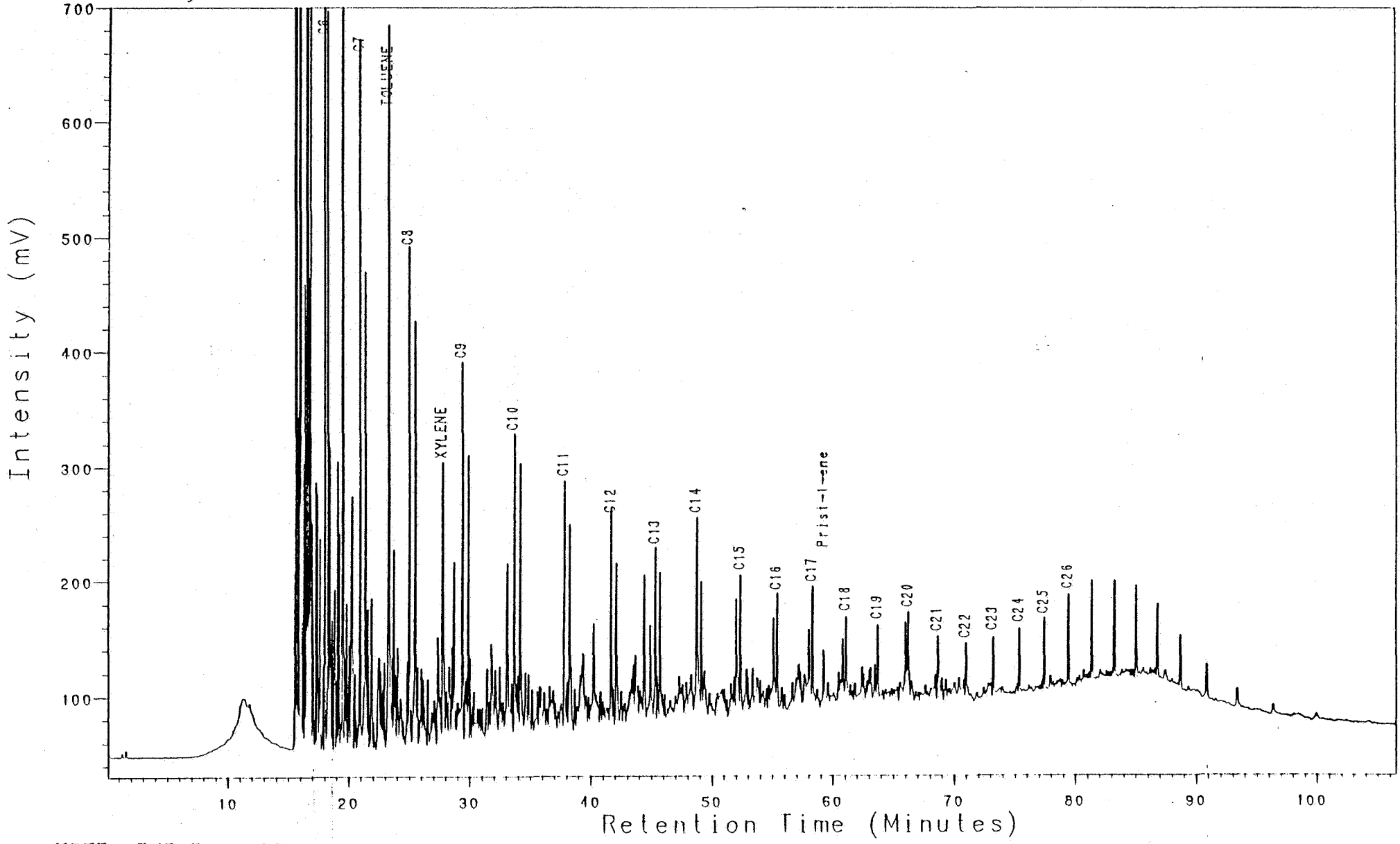
NOCS 2/6-2 4410m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100651L 23, 1, 1 2/6-2, 4413m, S2



NOCS 2/6-2 4413m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100661L 23, 1, 1 2/6-2, 4430m, S2

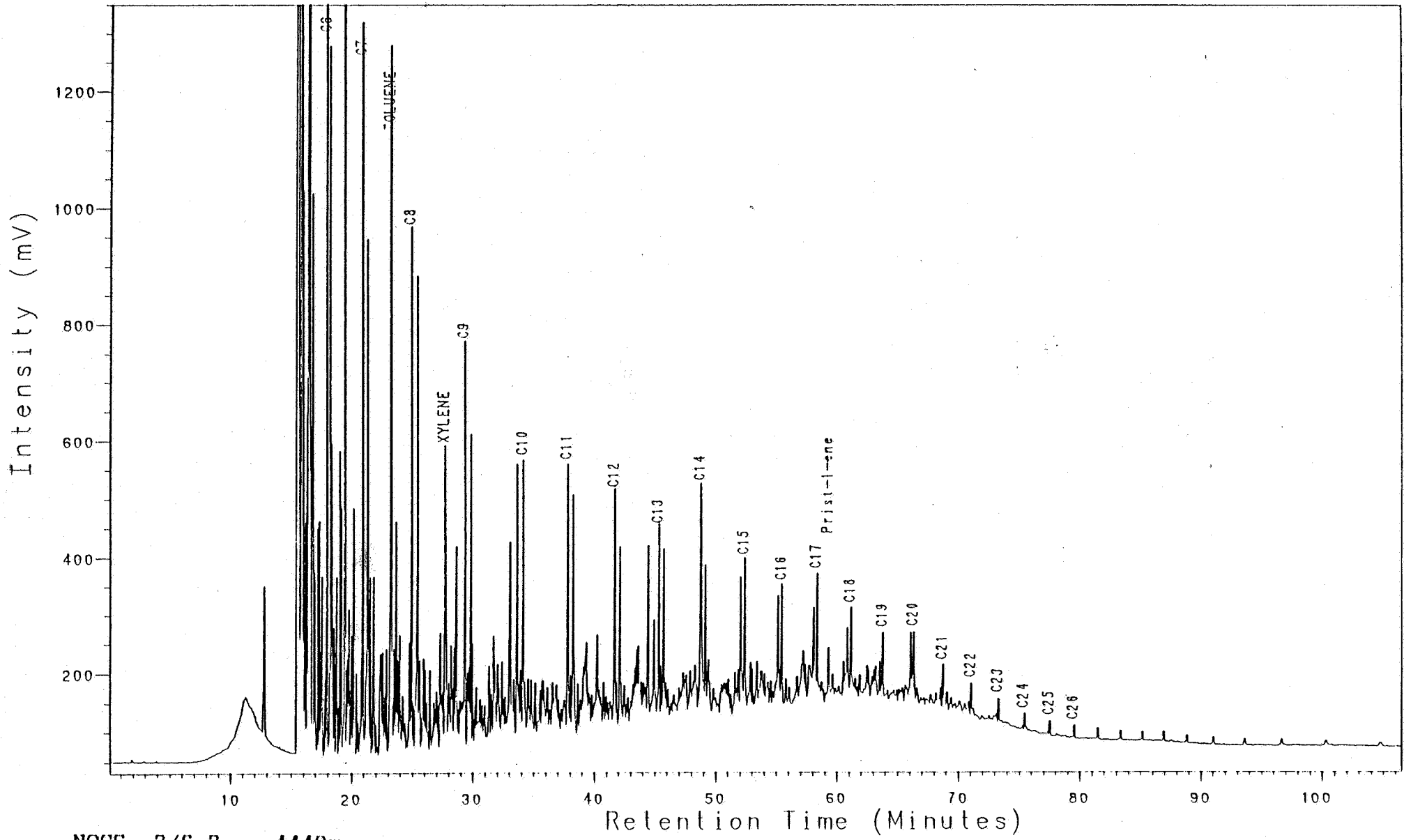


NOCS 2/6-2 4430m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100681L

23, 1, 1

2/6-2, 4440m, S2

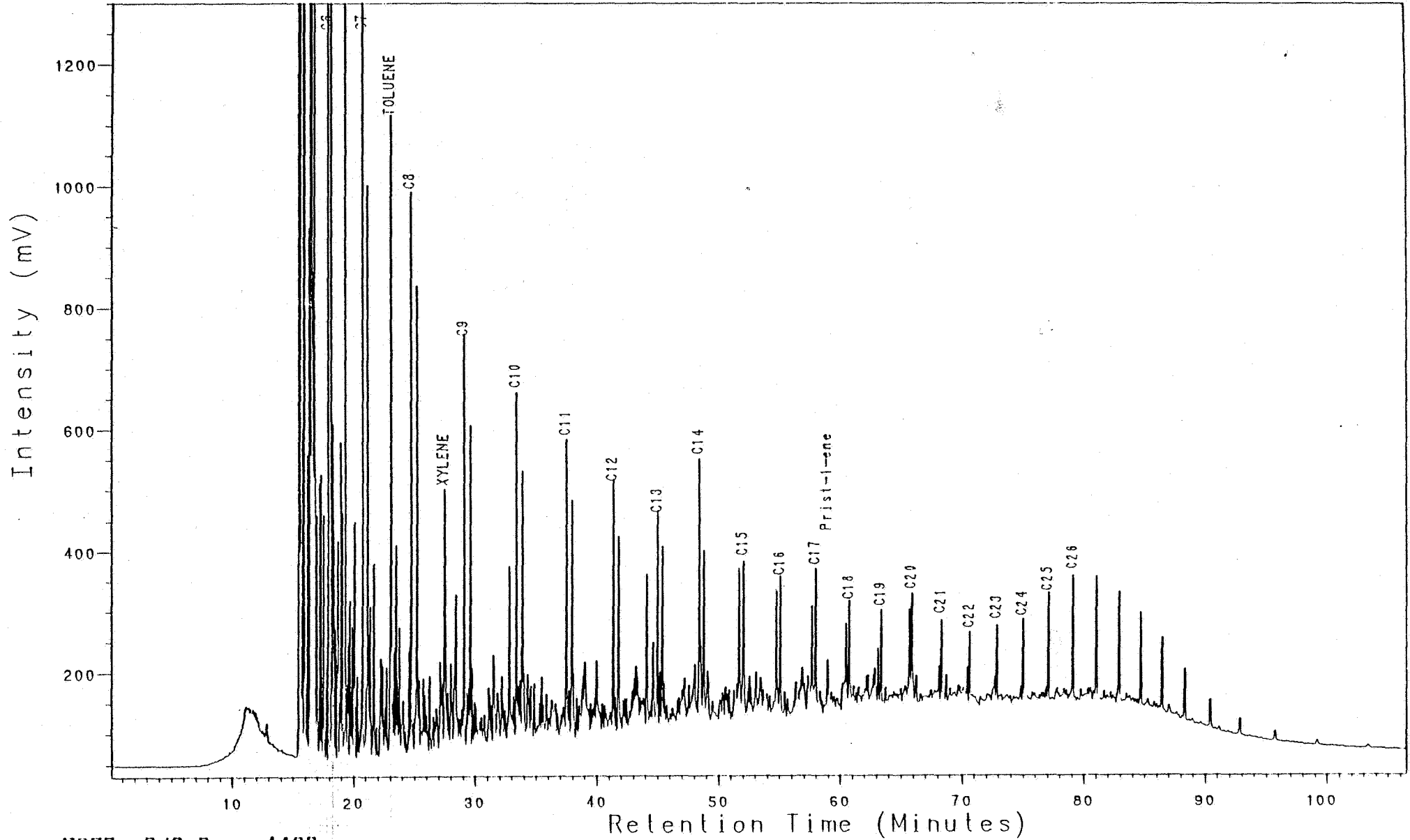


NOCS 2/6-2 4440m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100701L

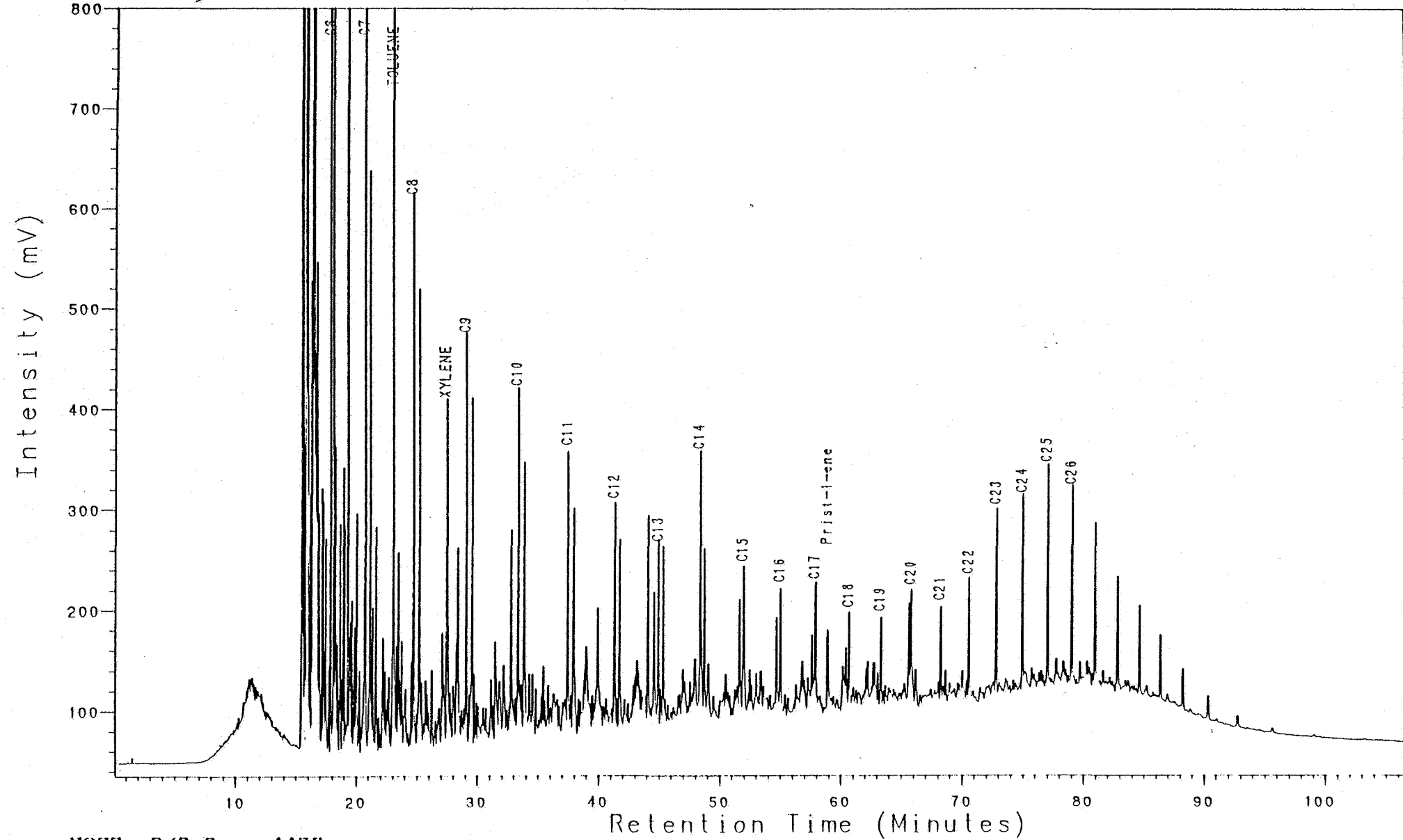
23, 1, 1

2/6-2, 4468m, S2



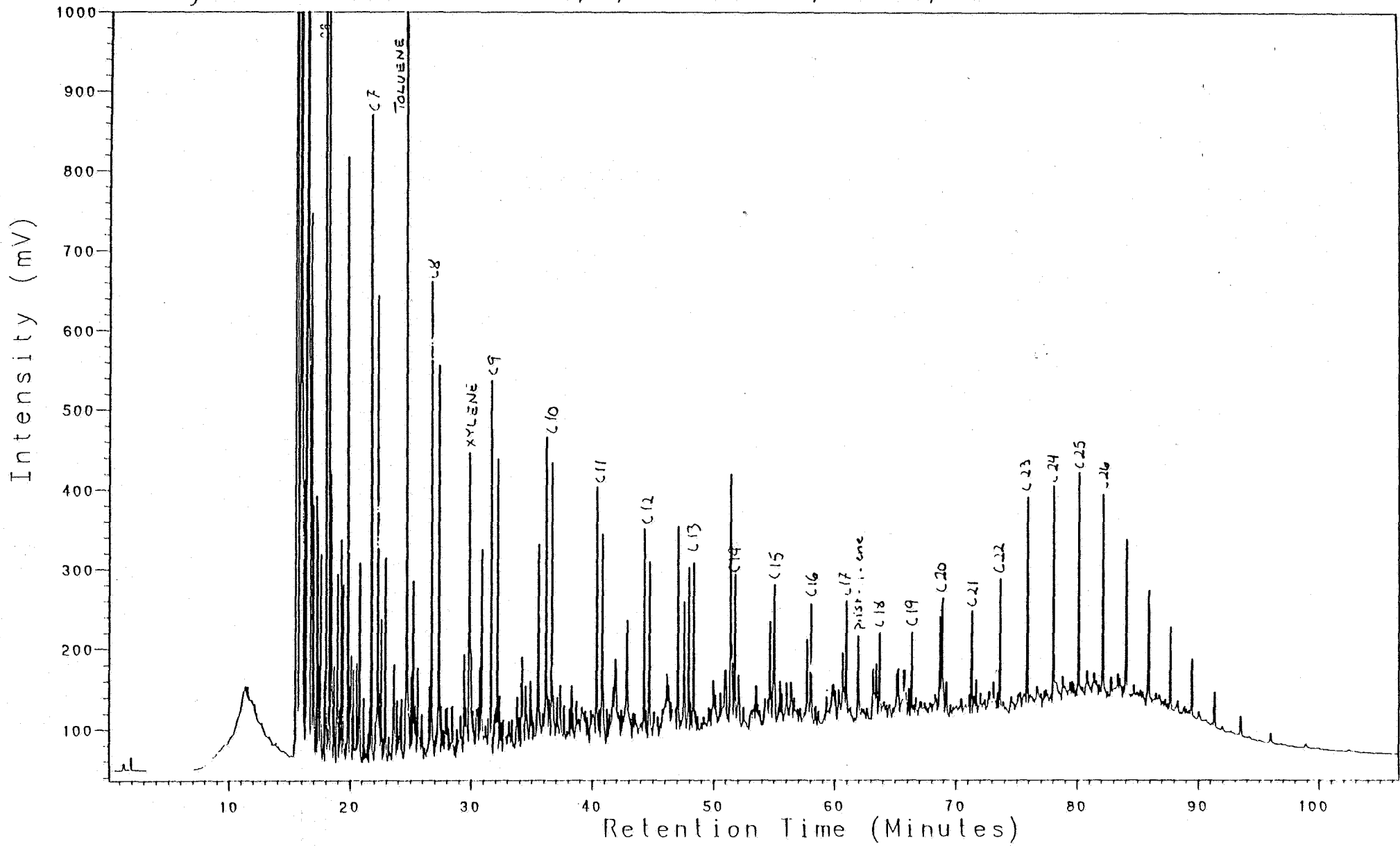
NOC5 2/6-2 4468m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100721L 23, 1, 1 2/6-2, 4478m, S2



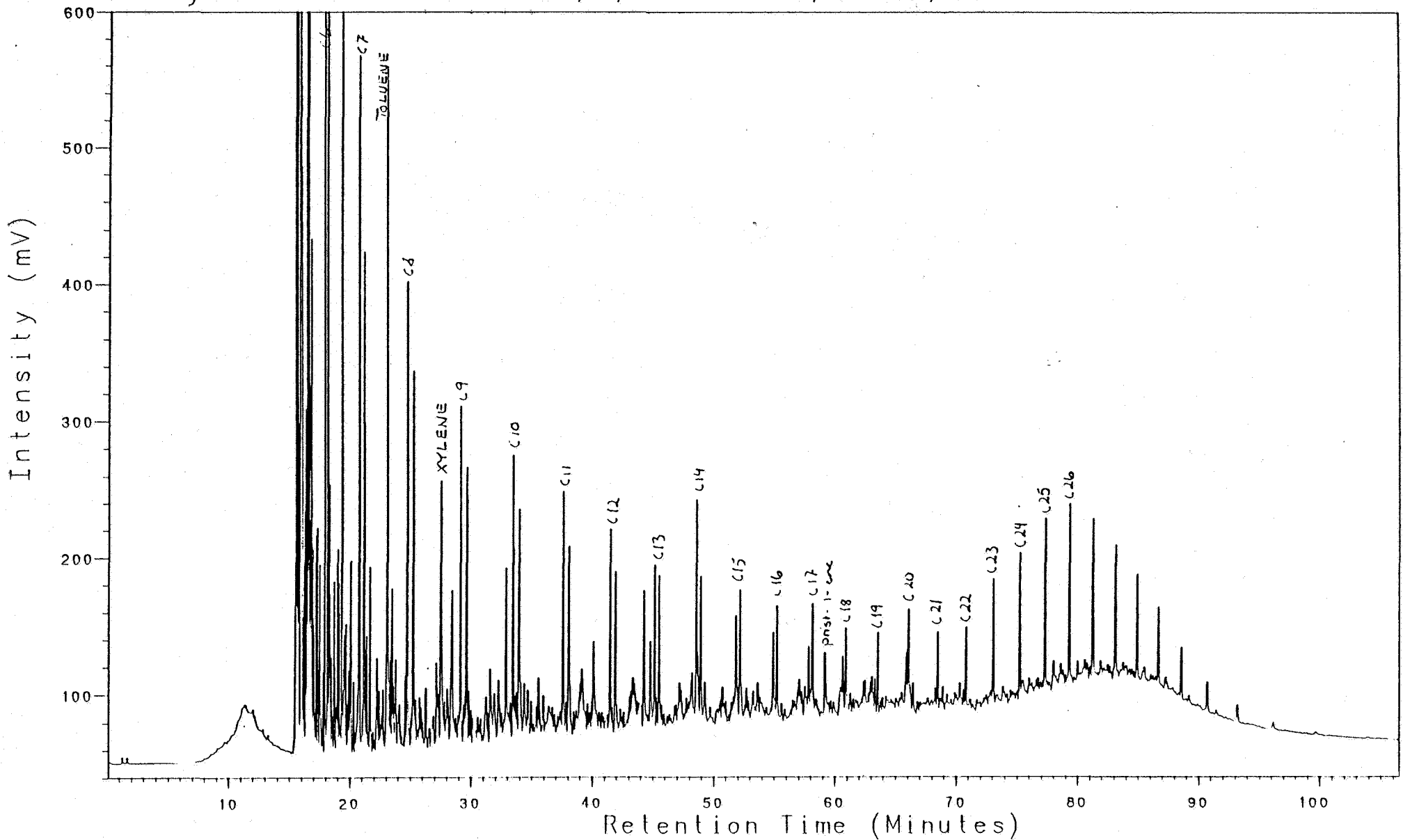
NOCS 2/6-2 4478m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100741L 23, 1, 1 2/6-2, 4486m, S2



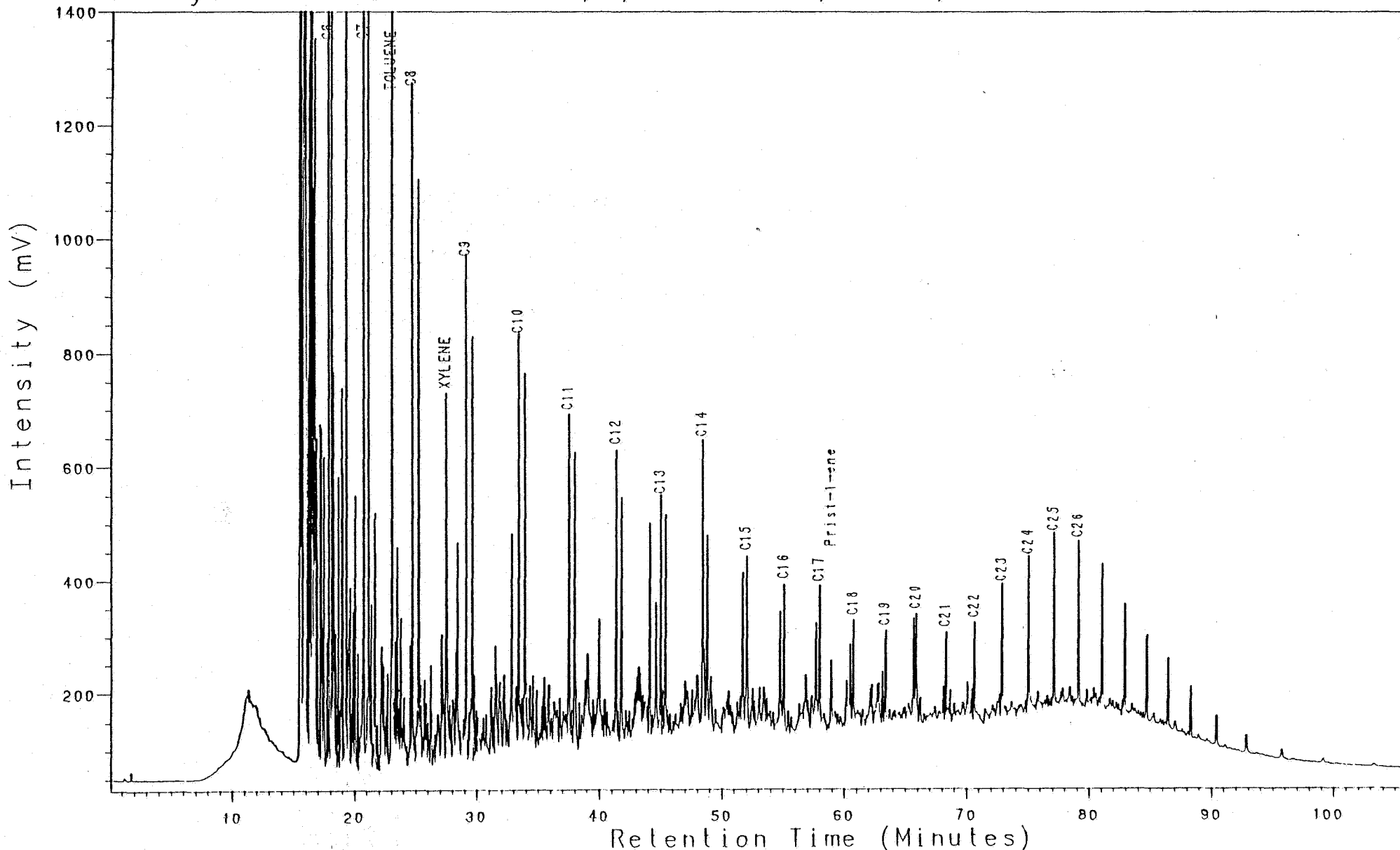
NOCS 2/6-2 4486m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100781L 23, 1, 1 2/6-2, 4494m, S2



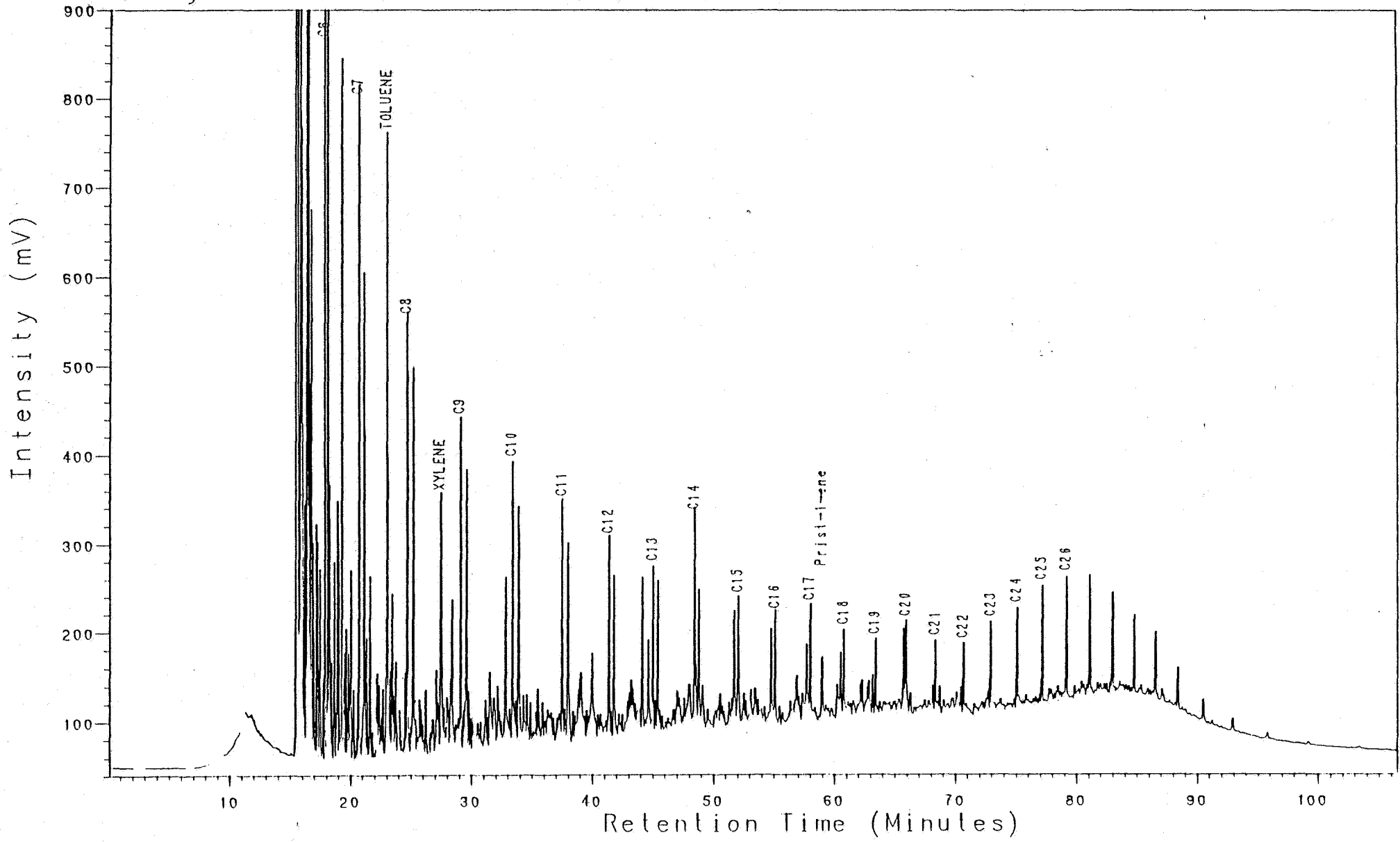
NOCS 2/6-2 4494m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100781L 23, 1, 1 2/6-2, 4506m, S2



NOCS 2/6-2 4506m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100811L 23, 1, 1 2/6-2, 4522m, S2

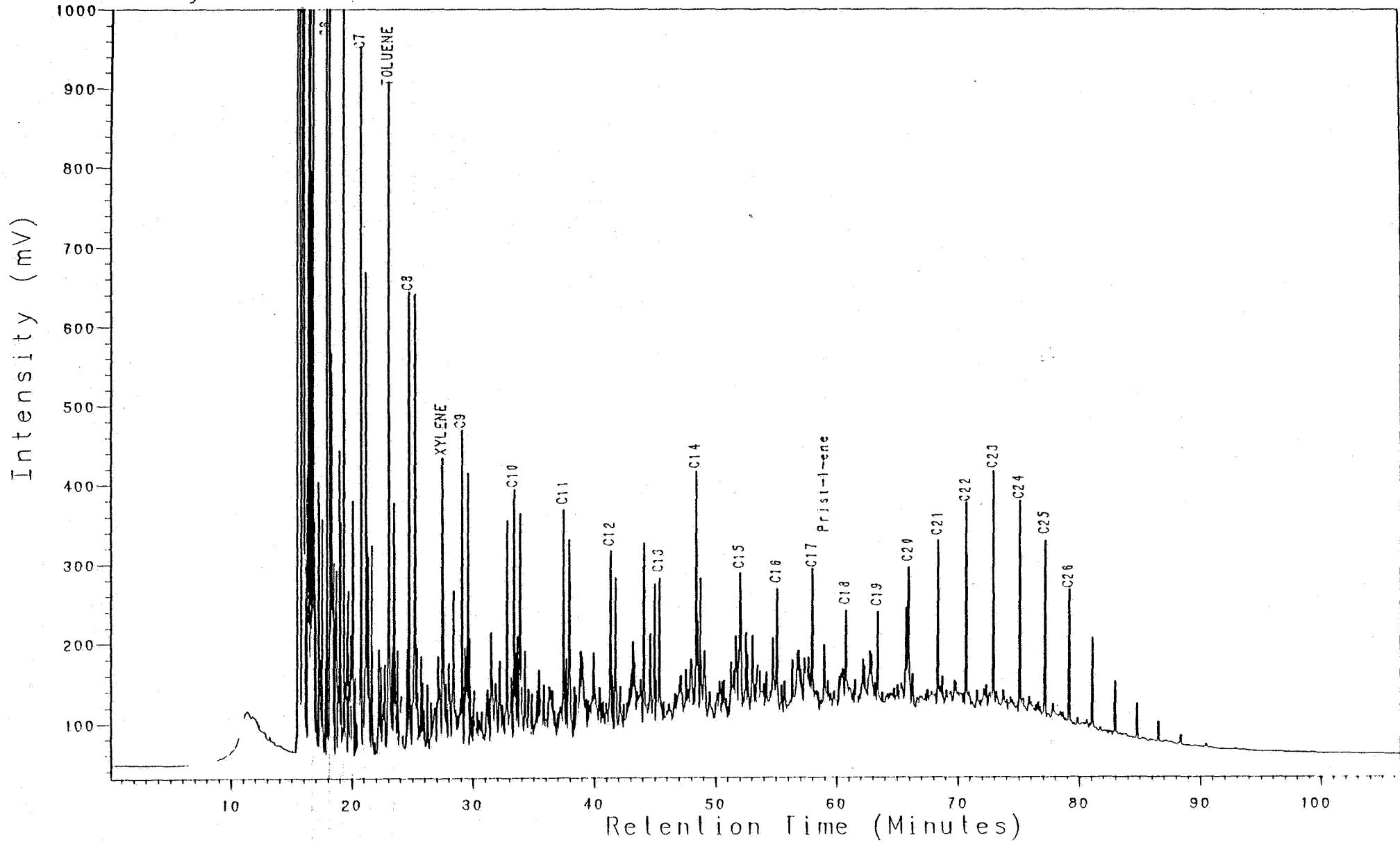


NOCS 2/6-2 4522m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100831L

23, 1, 1

2/6-2, 4532m, S2

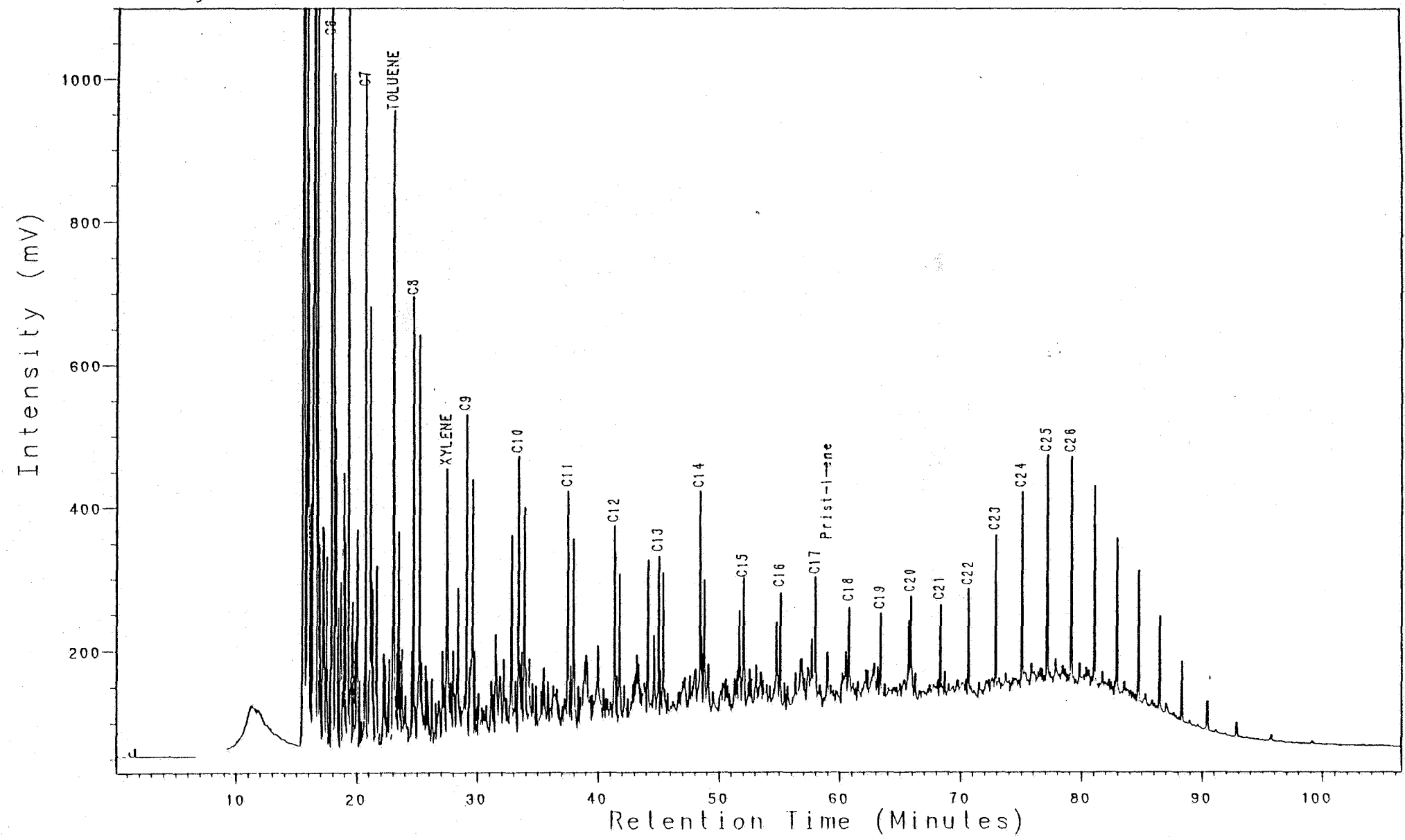


NOC5 2/6-2 4532m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100851L

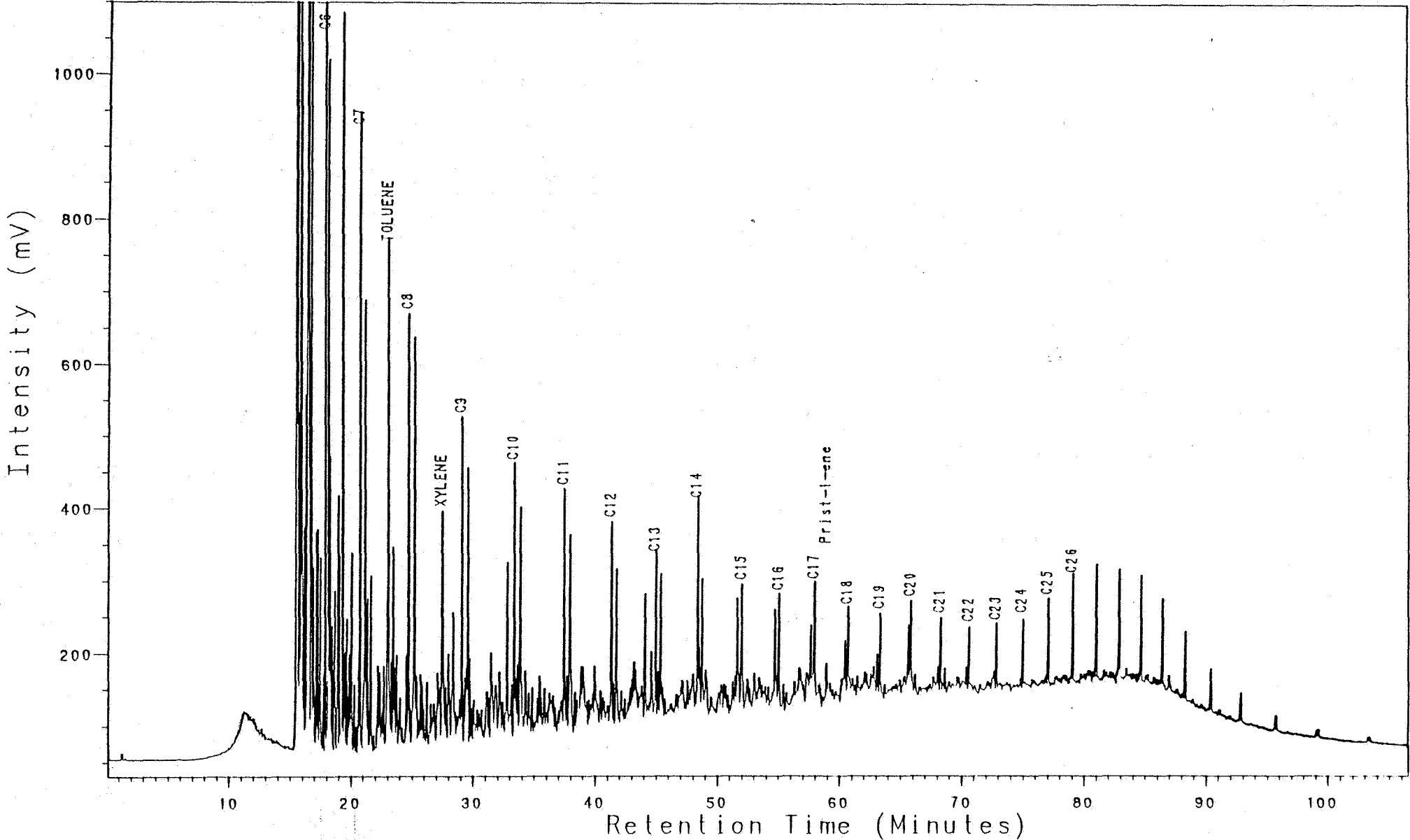
23, 1, 1

2/6-2, 4540m, S2



NOC5 2/6-2 1540m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100871L 23, 1, 1 2/6-2, 4550m, S2

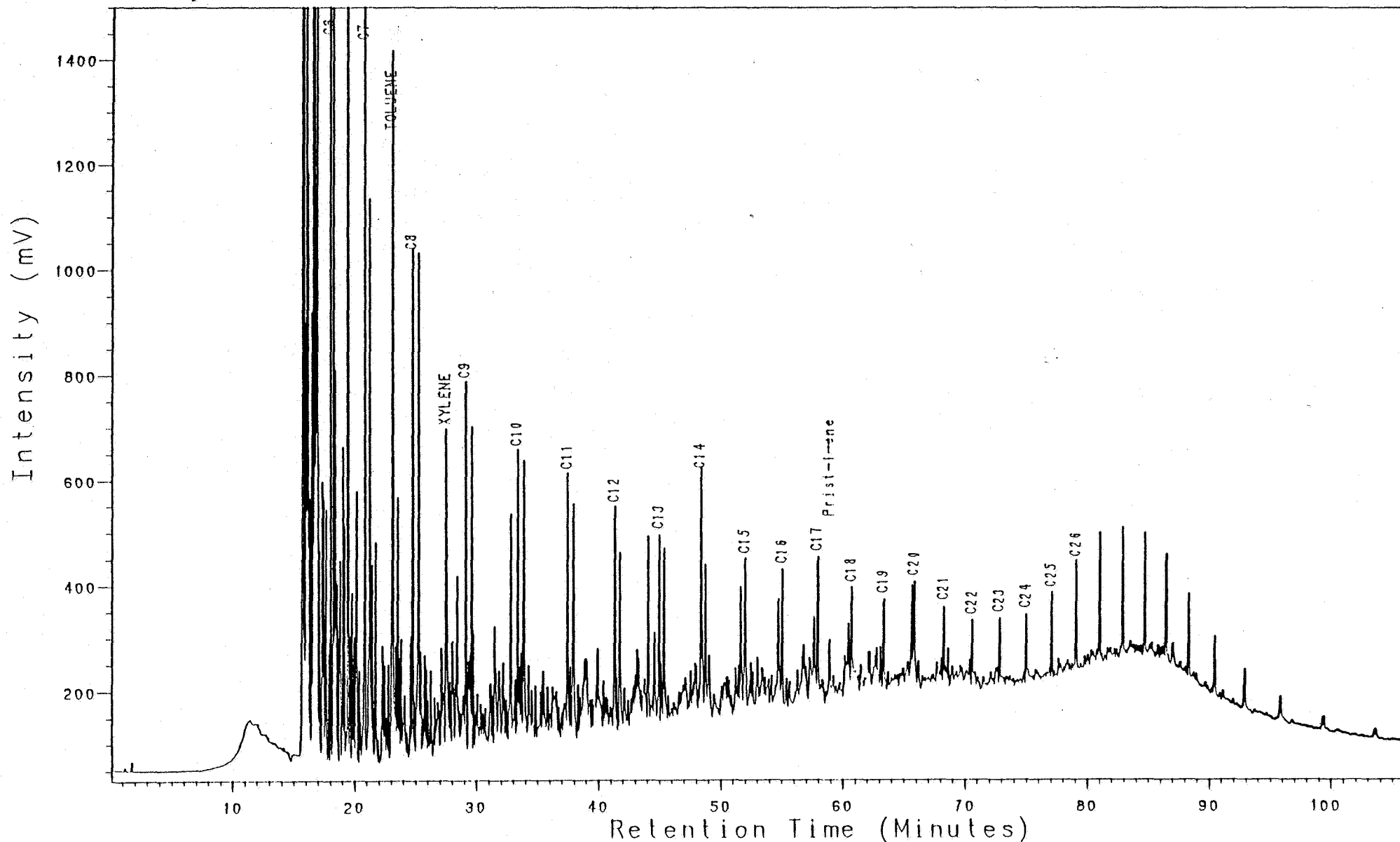


NOCS 2/6-2 4550m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100901L

23, 1, 1

2/6-2, 4580m, S2

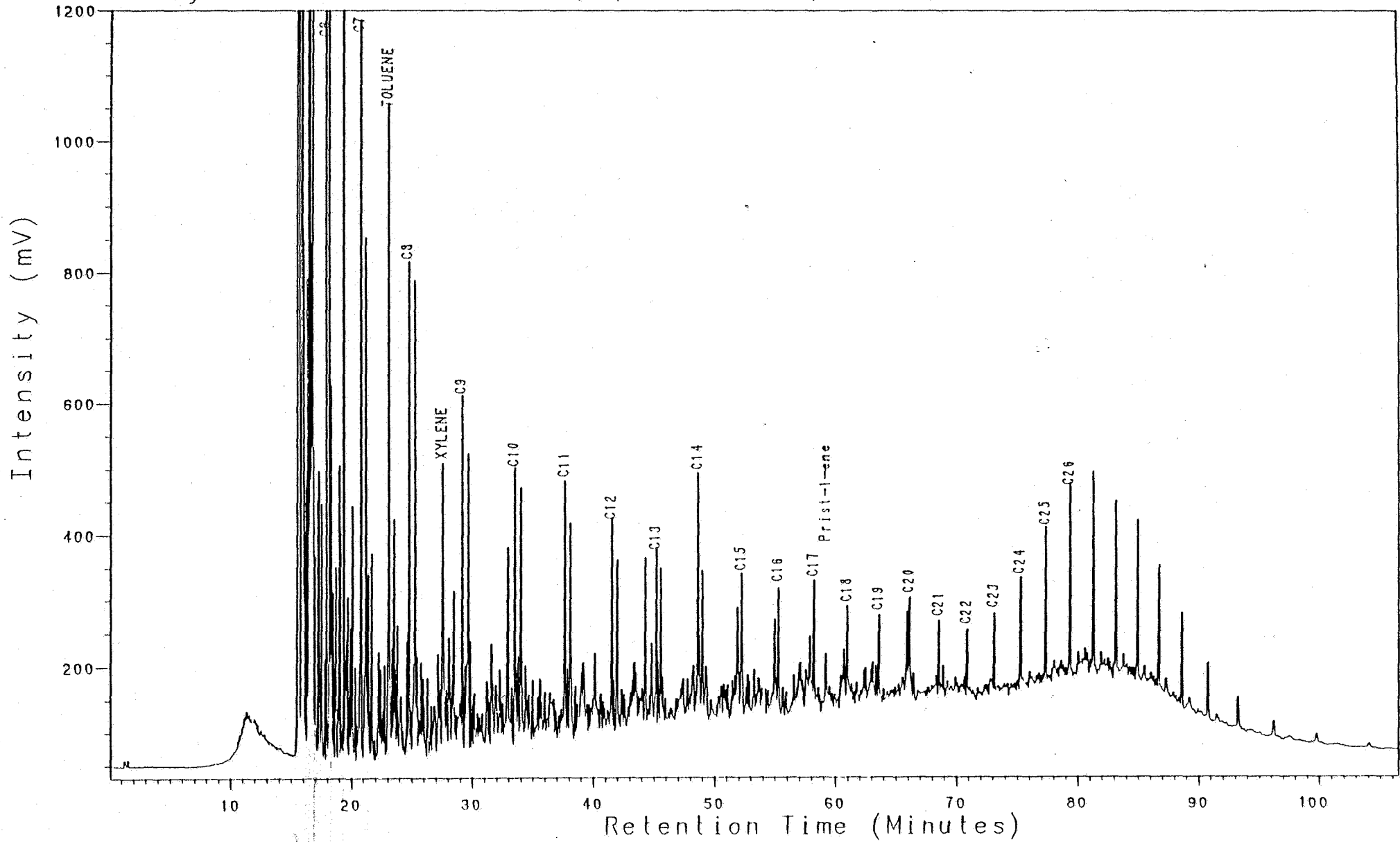


NOCS 2/6-2 4580m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100931L

23, 1, 1

2/6-2, 4602m, S2

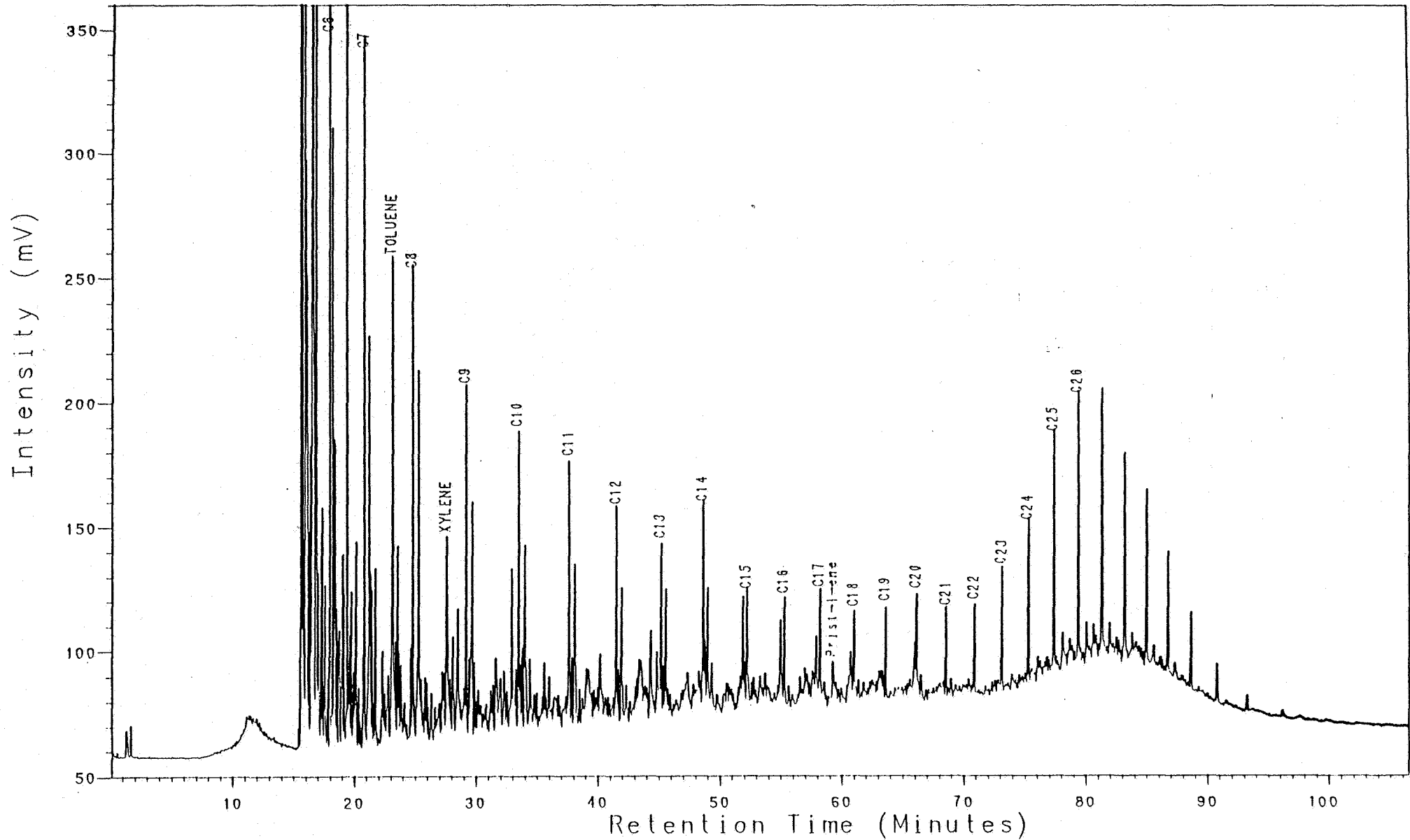


NOCS 2/6-2 4602m
PYROLYSIS GC (S2)
CLST:gy blk, brn blk

Analysis PC100961L

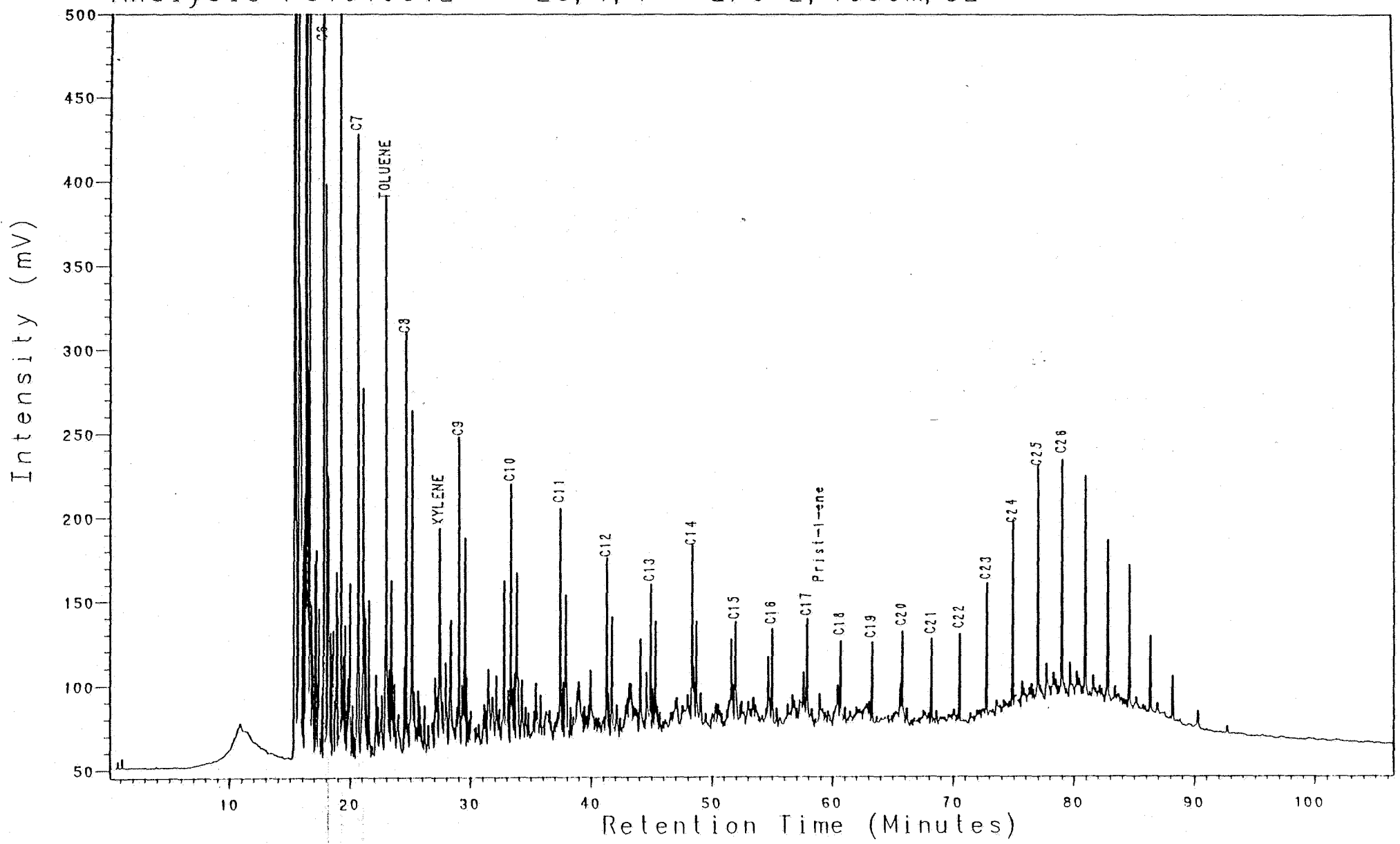
23, 1, 1

2/6-2, 4616m, S2



NOCS 2/6-2 4616m
PYROLYSIS GC (S2)
CLST:gy, gy red, m gy

Analysis PC101051L 23, 1, 1 2/6-2, 4656m, S2

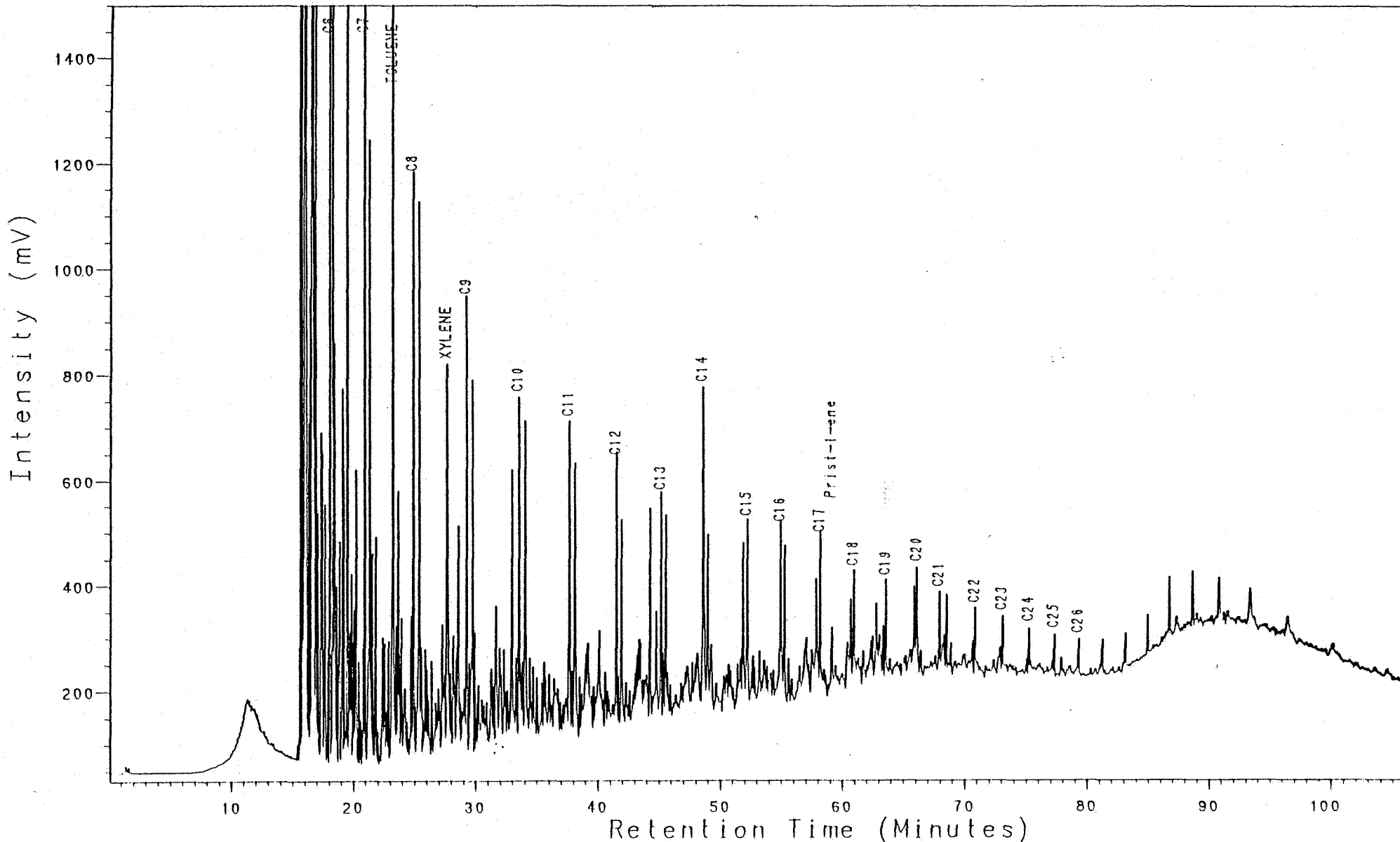


NOUS 2/6-2 4656m
PYROLYSIS GC (S2)
CLST:gy, gy red

Analysis PC101081L

23, 1, 1

2/6-2, 4670 m, S2

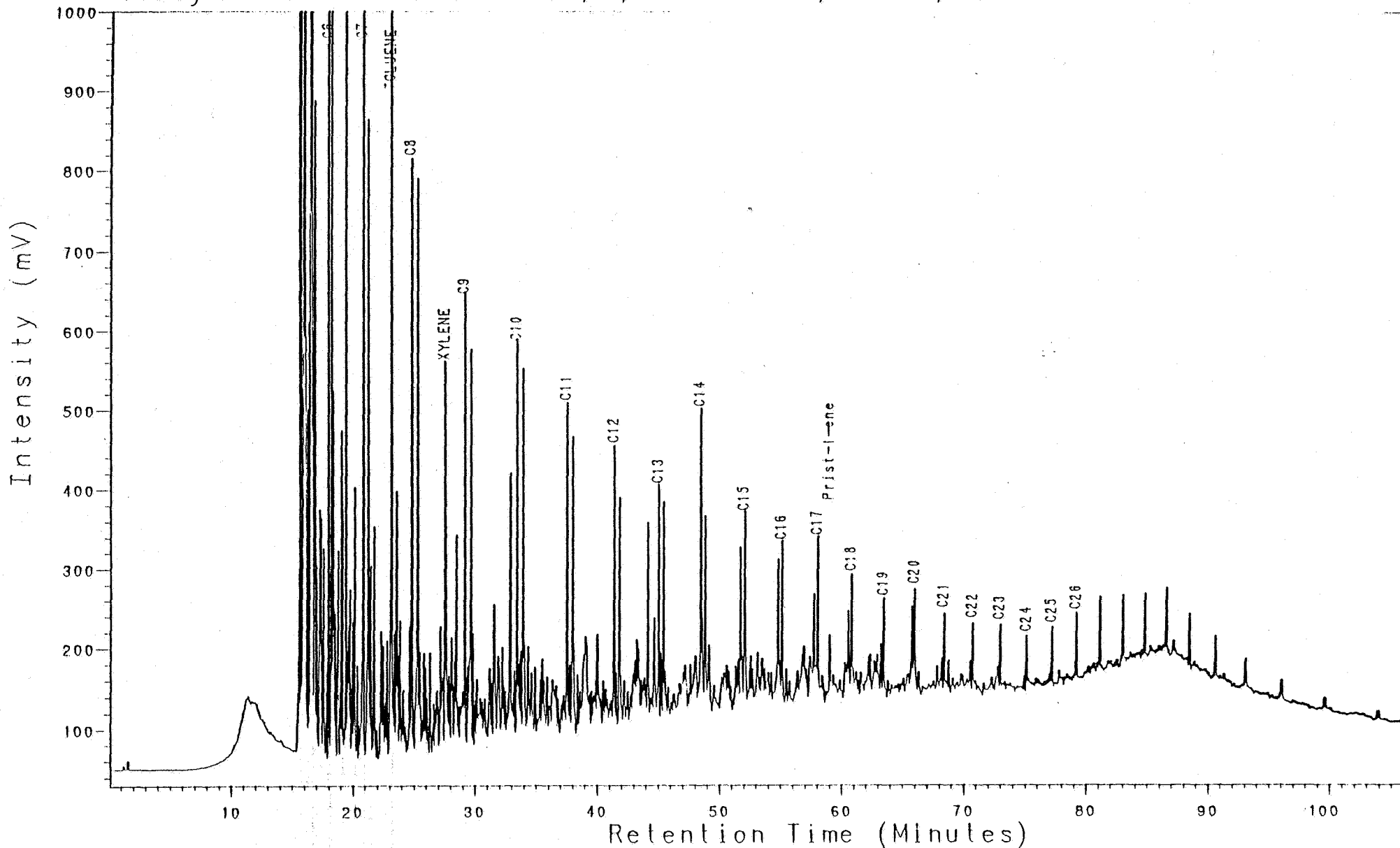


NOCS 2/6-2 4670m
PYROLYSIS GC (S2)
CLST:drk gy, gy blk

Analysis PC101181L

23, 1, 1

2/6-2, 4714m, S2

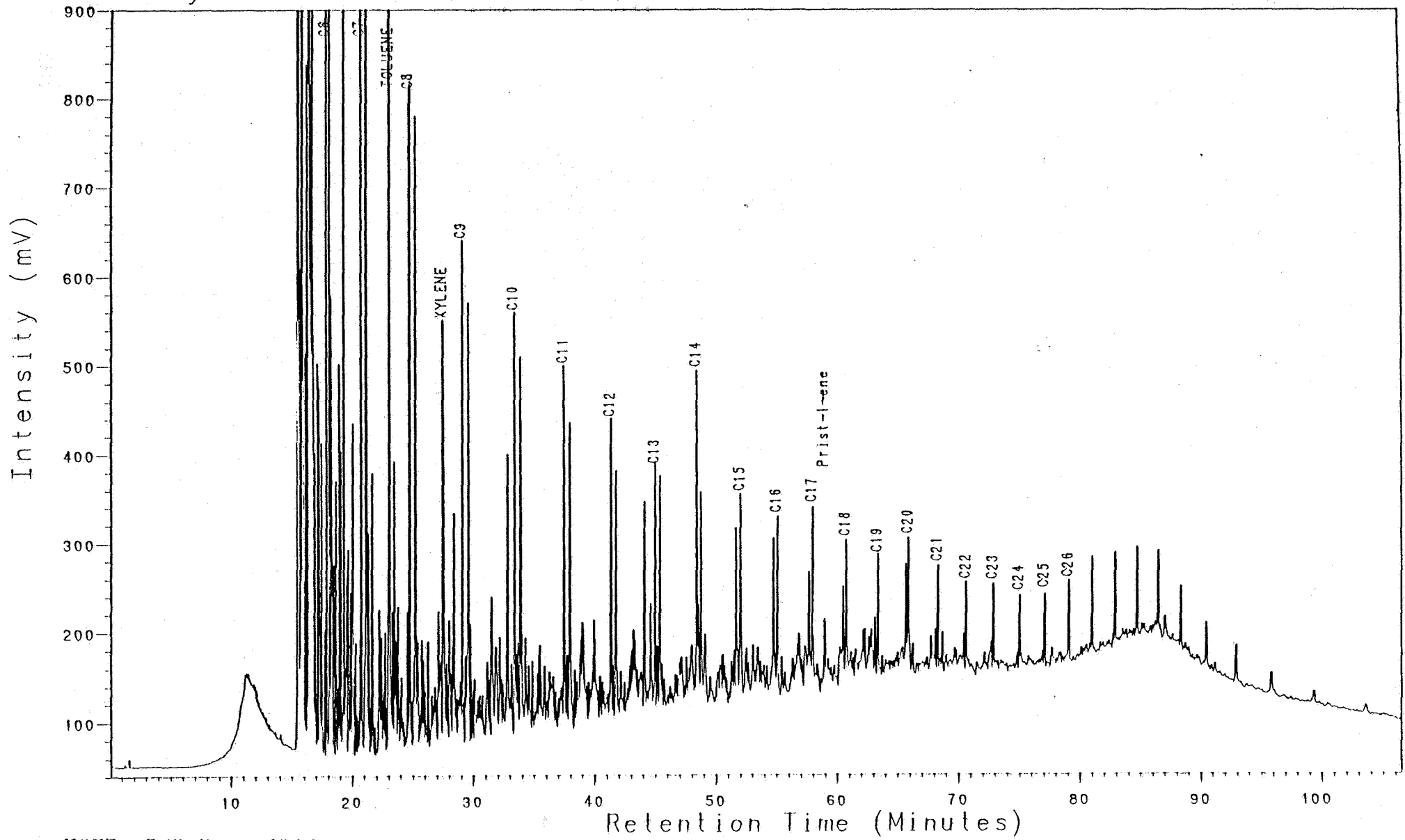


NOCS 2/6-2 4714m
PYROLYSIS GC (S2)
CLST:gy red

Analysis PC101182L

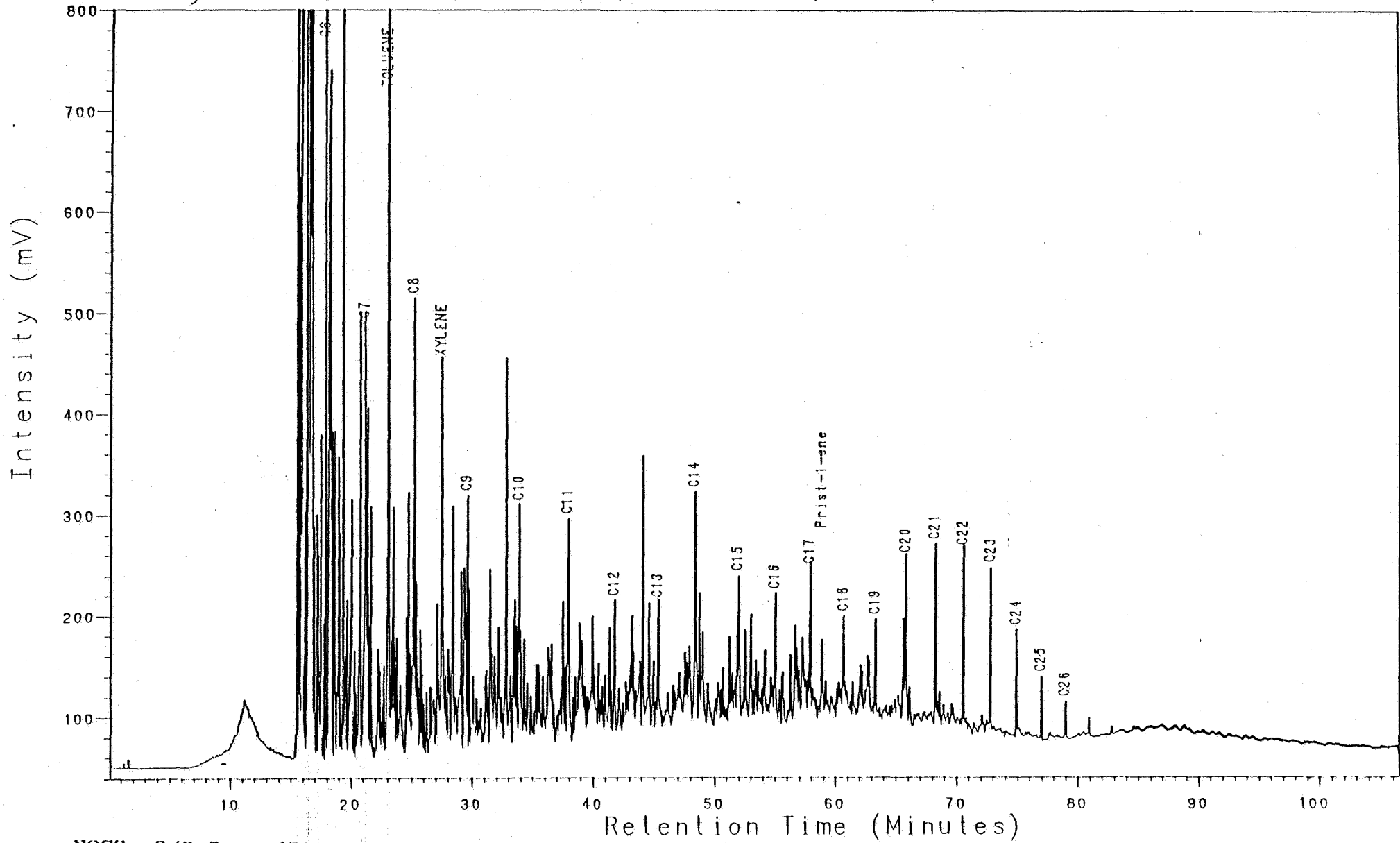
23, 1, 1

2/6-2, 4714m, S2



NOCS 2/6-2 4714m
PYROLYSIS GC (S2)
CLST:m gy to drk gy

Analysis PC101253L 23, 1, 1 2/6-2, 4760m, S2



NOCS 2/6-2 4760m
PYROLYSIS GC (S2)
CLST:gy blk, ol blk