



# **Source Rock Analyses**

## **TOC, Rock-Eval and Maturity Testing**

**GHK**

July 8, 2010



SOURCE ROCK ANALYSES

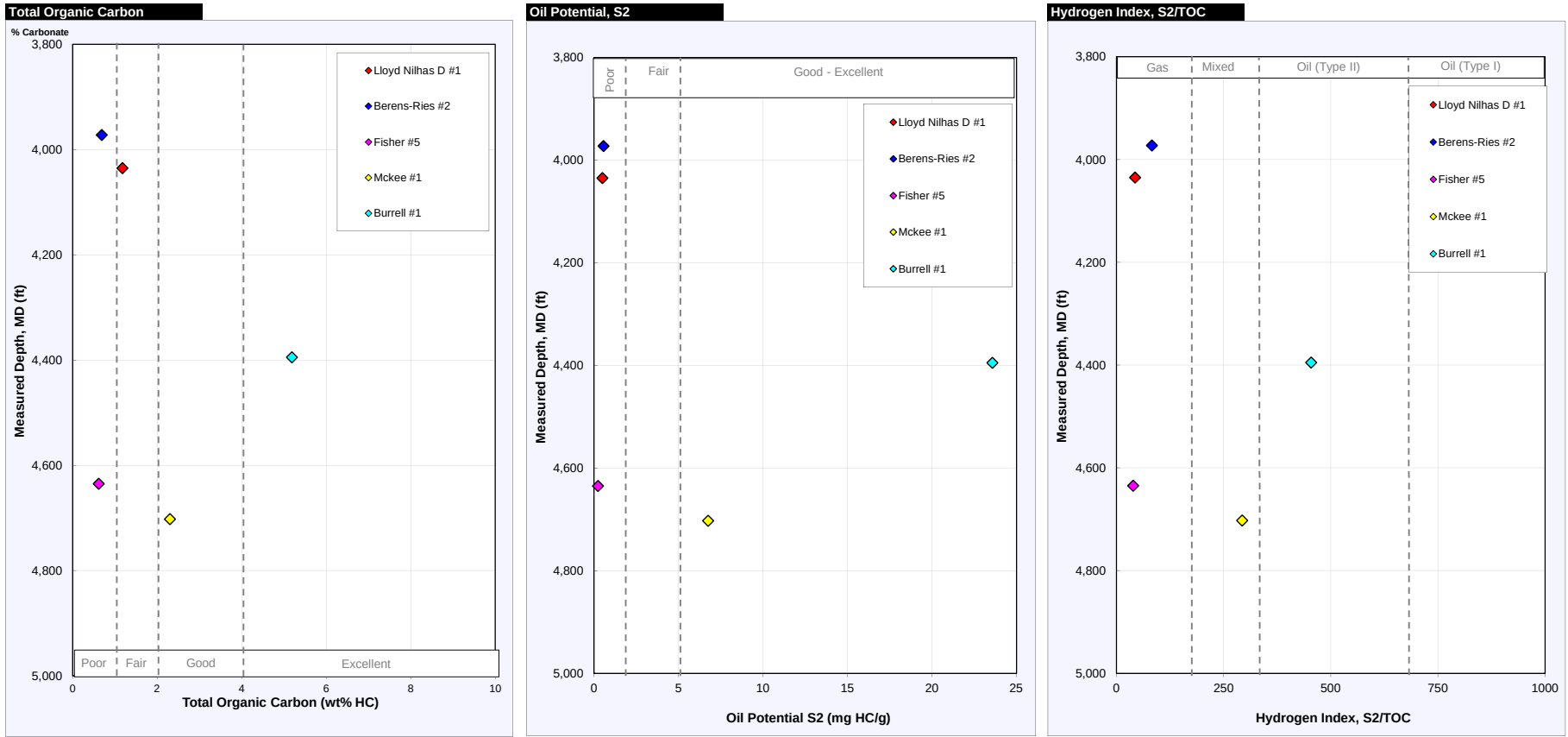
GEO MARK RESEARCH, LTD.

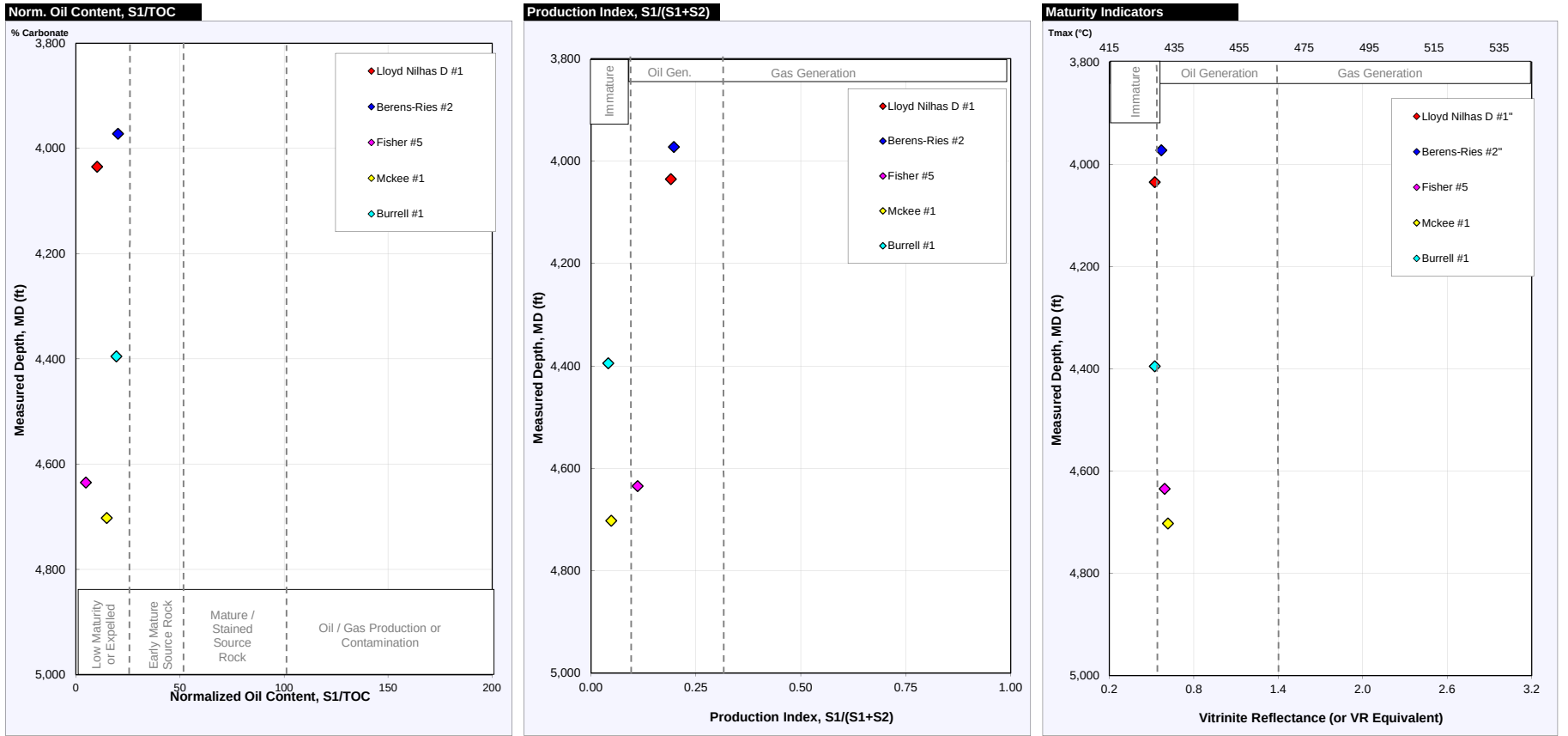
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| Sample ID           |              |                   |                       |               |                |                  |                  |                   |             | Source Rock Analyses    |                   |                        |                        |                         |           |                                |                          |                             |                           |                            |                          |                               |                        |
|---------------------|--------------|-------------------|-----------------------|---------------|----------------|------------------|------------------|-------------------|-------------|-------------------------|-------------------|------------------------|------------------------|-------------------------|-----------|--------------------------------|--------------------------|-----------------------------|---------------------------|----------------------------|--------------------------|-------------------------------|------------------------|
| Project / Sample ID | Rock ID      | Well Name         | Sampling Date         | Sampling Time | Formation Name | Upper Depth (ft) | Lower Depth (ft) | Median Depth (ft) | Sample Type | Percent Carbonate (wt%) | Leco TOC (wt% HC) | Rock-Eval S1 (mg HC/g) | Rock-Eval S2 (mg HC/g) | Rock-Eval S3 (mg CO2/g) | Tmax (°C) | Measured %Ro (Vitrinite Refl.) | Calculated %Ro (RE TMAX) | Hydrogen Index (S2x100/TOC) | Oxygen Index (S3x100/TOC) | S2/S3 Conc. (mg HC/mg CO2) | S1/TOC Norm. Oil Content | Production Index (S1/(S1+S2)) | Experimental Notations |
| RGHK-100601-001     | 15-195-20736 | Lloyd Nilhas D #1 | 29 11S 22W Trego Co   |               |                | 4,010.00         | 4,060.00         | 4,035.00          | Cuttings    | 14.76                   | 1.18              | 0.12                   | 0.51                   | 0.44                    | 429       |                                | 0.56                     | 43                          | 37                        | 1                          | 10                       | 0.19                          | Low temp Shoulder      |
| RGHK-100602-001     | 15-195-20554 | Berens-Ries #2    | 28 11S 22W Trego Co   |               |                | 3,960.00         | 3,985.00         | 3,972.50          | Cuttings    | 17.54                   | 0.69              | 0.14                   | 0.57                   | 0.35                    | 431       |                                | 0.60                     | 83                          | 51                        | 2                          | 20                       | 0.20                          |                        |
| RGHK-100603-001     | 15-023-20172 | Fisher #5         | 35 5S 37W Cheyenne Co |               |                | 4,620.00         | 4,650.00         | 4,635.00          | Cuttings    | 25.79                   | 0.62              | 0.03                   | 0.24                   | 0.45                    | 432       |                                | 0.62                     | 39                          | 73                        | 1                          | 5                        | 0.11                          |                        |
| RGHK-100604-001     | 15-023-20104 | McKee #1          | 36 5S 37W Cheyenne Co |               |                | 4,665.00         | 4,740.00         | 4,702.50          | Cuttings    | 33.63                   | 2.30              | 0.34                   | 6.75                   | 0.46                    | 433       |                                | 0.63                     | 293                         | 20                        | 15                         | 15                       | 0.05                          |                        |
| RGHK-100605-001     | 15-135-00480 | Burrell #1        | 27 16S 25W Ness Co    |               |                | 4,370.00         | 4,420.00         | 4,395.00          | Cuttings    | 33.89                   | 5.19              | 1.01                   | 23.57                  | 0.92                    | 429       |                                | 0.56                     | 454                         | 18                        | 26                         | 19                       | 0.04                          |                        |

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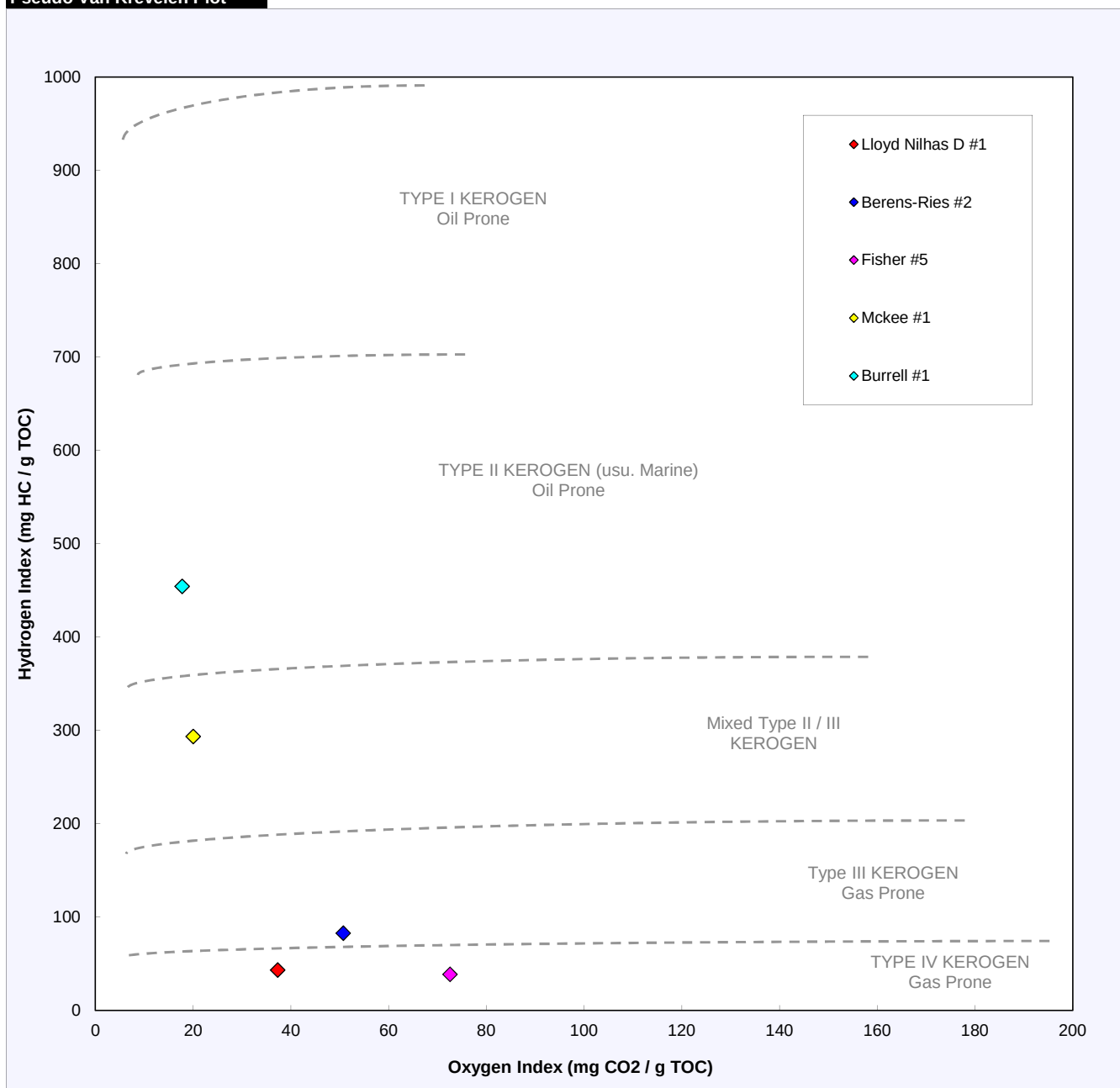


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### Pseudo Van Krevelen Plot



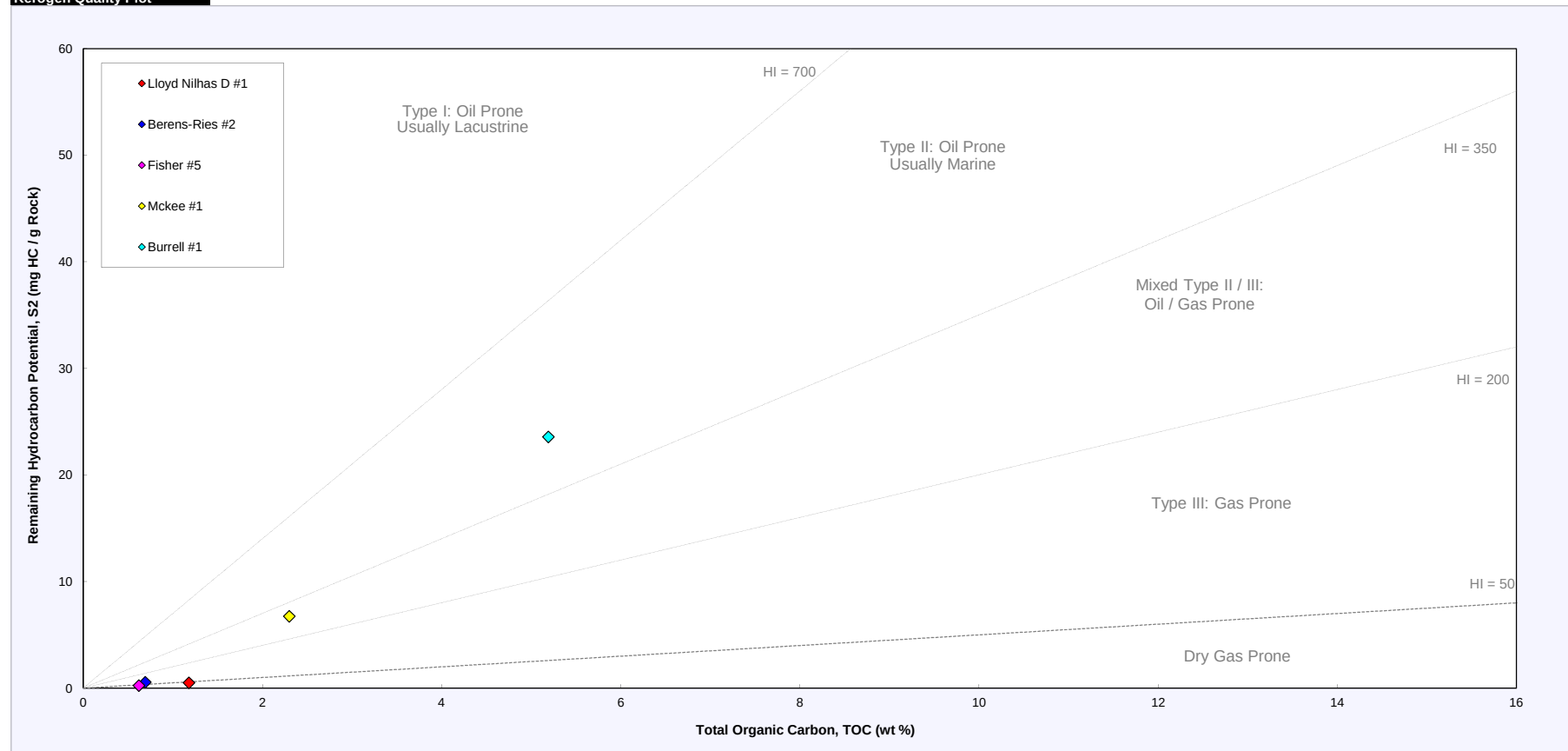


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### Kerogen Quality Plot



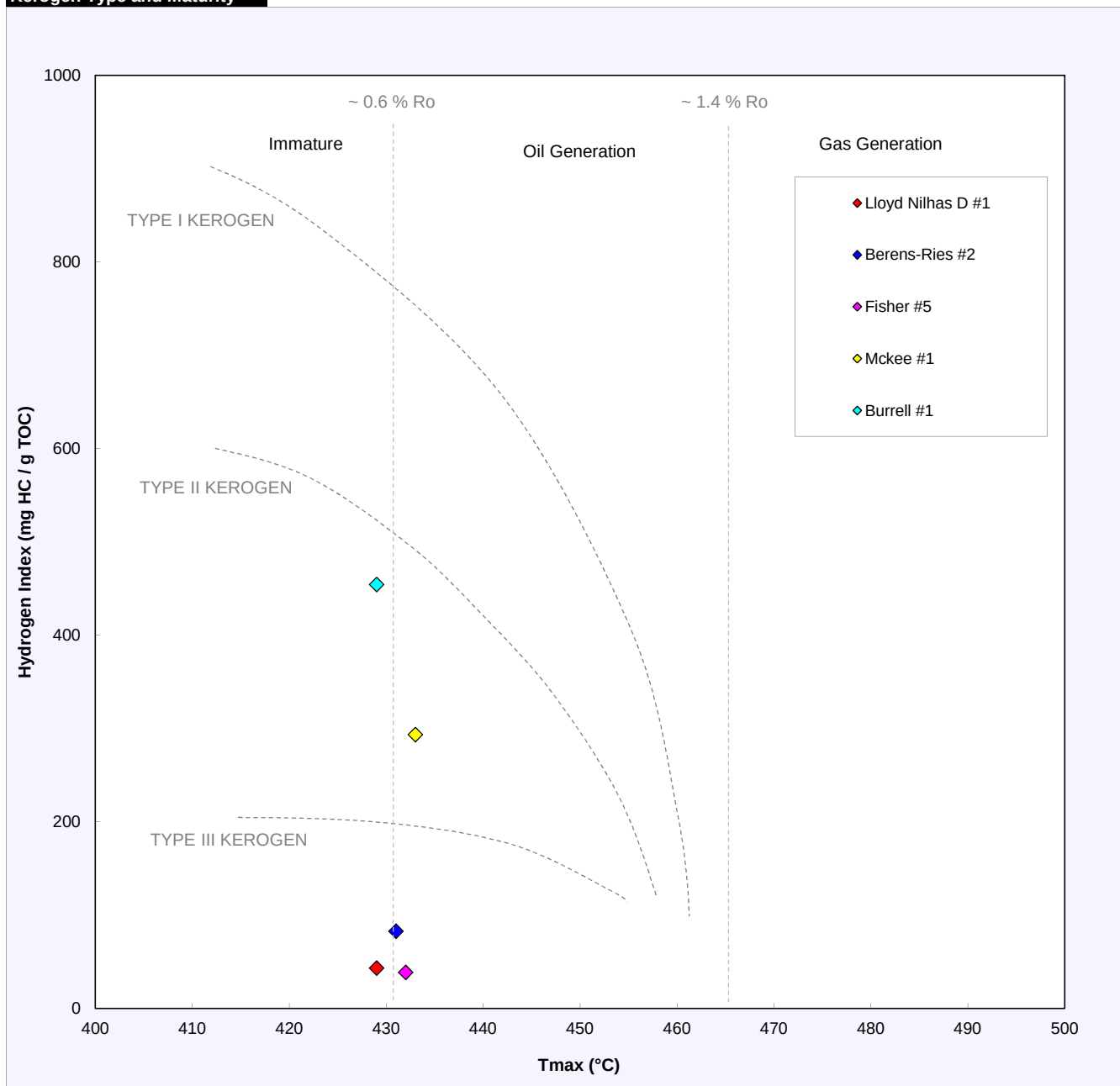


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### Kerogen Type and Maturity





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### Kerogen Quality Plot

