Brent blend, U.K. North Sea marker crude, assayed

Anne K. Rhodes Refining/Petrochemical Editor

W orld marker crude

Brent blend was as-

sessed in August

1994. The price of this 38° API, 0.0 wt % crude from the U.K. North Sea is used to
determine the prices of many other world crudes.

The assay was supplied by

Enterprise Oil plc. London.-

Brent’s distillation curve is

shown in Fig. 1.

Brent’s qualities have

diminished since an assay

of the crude was last published in the journal, at which time the stream recently had been commingled with Ninian blend (July 8, 1991, p. 46).

API gravity has increased by

only 0.5° and sulfur content by 0.0 wt %, but the crude’s pour point has decreased from 12°C to 4°C.

Brent blend comprises

Brock, North and South Con-\n
brent, Terne, Bilir, Dunlin,\n
Owens, Murchison, Thistle,\n
Deerden, Den, Hutton,\n
N.W. Hutton, Ninian,\n
Heather, Magnus, North Al-\n
why, Lyell, Staffa, and\n
Strathclyde fields. Lyell, Staf-

fa, and Dehshape use some of Ninian’s spare processing ca-
yity. These fields have been added to the blend since an assay was last published.

Oil from Shell-Texaco’s Pel-

ican field is scheduled to be added to the stream at the Cormorant Alpha platform Start in late 1995. And as of last November, total

expected to bring in Dunbar in time via the Alwyn

North platform by the end of

the year (OGJ, Nov. 14, 1994, p. 31).

Some say Brent’s future as

a world marker crude is in

jeopardy. Brent fields are in

decline and BP’s lease at

the Sullom Voe terminal will

be in the Shetland Islands north of Scotland, expire in the year 2000. In fact, Shell Ex-

ploration & Production has

begun a program to redevelop

Brent for gas production, although this will recover additional crude as well.

According to Oil & Gas

Journal reports, Brent pro-

duction in 1994 averaged

about $15,000 bpd. That rate

has been projected to de-

cline to anywhere from

$45,000 bpd to as low as

$300,000 bpd over the next 4-5 years, as the fields that feed the Ninian and Brent sys-

tems decline.

BP’s Forthwell field is set
to be the first producer West of the Shetland Islands. In a recent test, a Forthwell well

flowed 17,800 bpd of waxy,

26° API oil for some 6 weeks


Forthwell will be produced by

using a floating storage, pro-

duction and offloading unit

beginning in late 1995 or ear-

ly 1996.

If the volume from such “West of Shetlands” de

evlopments becomes sufficient, the streams may be trans-

ported to Sullom Voe via

pipeline in the longer term. This may breathe new life into the aging Brent system.

Brent crude

U.K. North Sea

Whole crude

Density @ 60°F, 65°F: 0.8584

Gravity: API: 38.1

Sulfur, wt %: 0.40

Vac. @ 20°C, C9: 6.07

Vac. @ 30°C, C9: 14.67

Pour point, °C: -45

Additly, ng K2O/10: 0.1

Min. carbon residue, wt %: 2.13

Asphaltenes, wt %: 0.45

VNI, ppm: 6/1

K/B, wt %: <0.0003

Salt content (as NaCl), wt %: 0.015

Water content, wt %: 0.38

Light end (C.P.Ca)

Yield, wt %: 5.67

Range: °C: 150-220

Yield, vol %: 12.3

Density @ 60°F, 65°F: 0.8924

Sulfur, wt %: 0.006

Mercaptan, ppm: 91

Paraffins, wt %: 82.8

Naphthenes, wt %: 11.9

Aromatics, wt %: 5.3

n-Paraffins, wt %: 30.9

Range: °C: 95-180

Yield, vol %: 16.7

Yield, wt %: 15.4

Density @ 60°F, 65°F: 0.768

Sulfur, wt %: 0.014

Mercaptan, ppm: 74

Paraffins, wt %: 44.9

Naphthenes, wt %: 36.7

Aromatics, wt %: 18.4

n-Paraffins, wt %: 20.1

Fig. 1
| Range, °C | 185-210 | Yield vol % | 23.6 | Density @ 15°C, kg/L | 0.729 | Mecron 5 ppm | 21 | Fat content, % | 0.6 | Ash, % | 0.15 | “Pureflax,” wt % | 25.7 |
| Range, °C | 150-210 | Yield vol % | 13.9 | Density @ 15°C, kg/L | 0.8001 | Mecron 5 ppm | 42 | Fat content, % | 0.45 | Ash, % | 0.048 | “Pureflax,” ppm | 0.066 |
| Range, °C | 130-210 | Yield vol % | 12.3 | Density @ 15°C, kg/L | 0.846 | Salter, wt % | 0.24 | “Pureflax,” ppm | 0.22 | Fe content, % | 0.135 |
| Range, °C | 130-210 | Yield vol % | 22.2 | Density @ 15°C, kg/L | 0.861 | Visc. @ 50°C, cSt | 3.831 |
| Range, °C | 120-210 | Yield vol % | 23.5 | Density @ 15°C, kg/L | 0.861 | Salter, wt % | 0.24 | “Pureflax,” ppm | 0.22 | Fe content, % | 0.135 |

**Aniline pt., °C: 85-86**

Ceane index: 49.5

**Aniline pt., °C: 375-450**

Yield vol %: 20.7

Density @ 15°C, kg/L: 0.909

Salter, wt %: 0.61

Sepel, ppm: 26.2

Visc. @ 60°C, cSt: 56.5

Visc. @ 100°C, cSt: 77.71

Was content, %: 19

Total nitrogen, mg/kg: 1.447

Basic nitrogen, mg/kg: 0.94

Ash, %: 0.52

Aniline pt., °C: 85

Refractive index @ 60°C: 1.484

**Aniline pt., °C: 390-400**

Yield vol %: 36.4

Density @ 15°C, kg/L: 0.4876

Salter, wt %: 0.21

**Anísol FARRAR**

**Refineries construction (1946 Basis)**

| Pumps, compressors, etc. | 223,6 | 538,6 | 1,117,8 | 1,216,4 | 1,254,6 | 1,254.9 | 1,295.1 | 2,969 |
| Electrical machinery | 189.5 | 288.2 | 548.6 | 550.0 | 555.7 | 549.3 | 548.0 | 559.5 |
| Diesels, engines and compressors | 204.3 | 434.5 | 734.9 | 830.2 | 805.6 | 789.2 | 842.5 | 841.3 |
| Traction engines | 214.8 | 466.2 | 844.8 | 899.7 | 879.1 | 868.7 | 858.3 | 841.1 |
| Heaters | 216.5 | 478.5 | 772.6 | 746.6 | 704.1 | 695.4 | 681.8 | 689.3 |
| Misc. equip. & vehicle | 76.6 | 423.5 | 827.5 | 837.5 | 842.8 | 842.2 | 857.9 | 857.5 |
| Materials consumed | 205.5 | 455.2 | 872.3 | 862.4 | 867.5 | 862.7 | 879.1 | 860.5 |
| Labor component | 255.8 | 728.4 | 1,523.2 | 1,579.2 | 1,602.8 | 1,617.2 | 1,674.1 | 1,670.2 |

**Refinery (Finlay) Index**

| 237.5 | 615.7 | 1,250.9 | 1,273.7 | 1,314.3 | 1,323.7 | 1,356.0 | 1,360.5 |

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**Refinery operating (1956 Basis)**

| Fuel cost | 100.0 | 384.5 | 423.8 | 425.9 | 471.5 | 358.2 | 506.5 | 481.9 |
| Labor cost | 94.9 | 145.5 | 280.8 | 281.1 | 286.2 | 282.8 | 306.3 | 297.2 |
| Hoses | 123.0 | 254.3 | 475.4 | 572.4 | 826.9 | 860.6 | 870.0 | 850.4 | 470.3 |
| Piperazine | 131.8 | 218.4 | 394.4 | 393.3 | 393.0 | 392.4 | 392.5 | 392.4 |
| Invest., equip., etc. | 127.1 | 232.6 | 511.4 | 519.2 | 523.4 | 520.9 | 524.2 | 544.4 |
| Chemical costs | 96.7 | 105.1 | 208.5 | 216.8 | 216.0 | 208.0 | 206.4 | 222.3 |

**Operating Income**

| 143.7 | 261.2 | 390.2 | 393.1 | 396.3 | 395.0 | 411.3 | 418.3 |

**Profit center**

| 103.4 | 267.1 | 418.5 | 418.1 | 416.5 | 416.2 | 447.5 | 447.5 |

*All index numbers for chemical. If any are useful. See current (April) Cost Index, page 192, published by the American Oil & Gas Association.

These Indexes are published in the first issue of each month. They are compiled by Glenn L. Farrar, Junior Cost Indexing Editor.

Indexed series (additional individual items of equipment and materials) are also published with the Cost Index at the beginning of the month for the month of January, April, July, and October.