

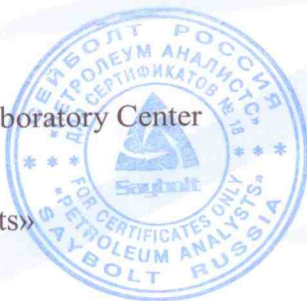
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**ASSAY**

**Research of  
Synthetic Crude Oil INFRA-VDR1  
for  
LLC «INFRA Technologies»**

Manager of Moscow Laboratory Center  
Moscow Division  
RC «Saybolt»  
JSC «Petroleum Analysts»



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## Contents

1. Introduction	3
2. Quality Indexes of Crude oil	4
3. Potential content of fractions in Crude Oil	5
4. Quality Indexes of the Distillate Fractions	6

## 1. Introduction

The research of synthetic Crude Oil has performed on the sample “INFRA-VDR1”, which was submitted by Client LLC “INFRA Technologies”, to MLC MD 08/08/2011. Sample of Crude Oil had been given in 10-liters container (1 piece). The sample which was marked as:

*ООО «ИНФРА Технологии».  
Синтетическая нефть.  
Количество 10 л.*

MLC MD Job Number – 26028/00582000/11.

The Quality Indexes of the Crude Oil were determined during the research:

- quality indexes of the synthetic Crude Oil;
- potential content of fractions was established by atmosphere distillation ASTM D 86;
- following fractions were collected during atmosphere distillation ASTM D 86:  
IBP-180°C, 180-360 °C, 360+°C.
- quality indexes of the fractions IBP-180°C, 180-360 °C were determined.

## 2. Quality indexes of Crude Oil

The following quality indexes were performed on the submitted sample of Crude Oil. The results are given in the Table 2.1.

### Quality indexes of Crude Oil

Table 2.1.

Nº	Test	Method	Result
1.	Density at 15°C, kg/l	ASTM D 5002	0.7491
2.	Flash Point by Tag, °C	ASTM D 56	Minus 9.0
3.	Water content, % v/v	ASTM D 4006/ API MPMS, ch. 10.2	Nil (Less 0.025) (*)
4.	Pour Point (upper), °C	ASTM D 5853(A)	Nil
5.	Distillation: °C	(+)ASTM D 86	
	- IBP		83.0
	- 5% v/v recovered at		110.5
	- 10% v/v recovered at		121.0
	- 20% v/v recovered at		136.0
	- 30% v/v recovered at		151.0
	- 40% v/v recovered at		167.5
	- 50% v/v recovered at		186.5
	- 60% v/v recovered at		206.5
	- 70% v/v recovered at		232.5
	- 80% v/v recovered at		265.0
	- 90% v/v recovered at		307.5
	- 95% v/v recovered at		351.0
	- FBP		366.0
	- Recovery % v/v		96.5
	- Residue % v/v		1.7
	- Loss % v/v		1.8

**Remarks:** (\*) – the actual result has been reported for information only.

(+) – this method is not applicable to this type of product.

### 3. Potential content of fractions in Crude Oil

According to the research program the Crude Oil sample was distilled into fractions in accordance to ASTM D 86.

During the atmospheric distillation ASTM D 86 the following fractions were collected: IBP-180°C; 180-360°C; residue 360+°C.

The data of Crude Oil distillation are given in Tables 3.1.

#### Material balance of Crude Oil distillation in accordance to ASTM D 86

Table 3.1.

№	Temperature, °C	Recovery, % m/m	
		Fraction	Total
1.	IBP-180	45.0	45.0
2.	180-360	50.0	95.0
3.	Residue 360+	3.2	98.2
4.	Loss	1.8	100.0

#### 4. Quality Indexes of the Distillate Fractions

The following quality indexes were performed on the Crude Oil Fractions. The results are given in the Table 4.1

##### Fraction IBP-180°C (+)

Table 4.1.

№	Test	Method	Result
1.	Density at 15°C, kg/l	ASTM D 5002	0.7191
2.	Bromine number, g Br <sub>2</sub> /100 g	ASTM D 1159	60
3.	Composition, % m/m / v/v	(**)(++)ASTM D 5134	
	- i-paraffines		9.12 / 9.02
	- n-paraffines		50.10 / 51.08
	- olefines		34.24 / 34.17
	- naphthenes		1.33 / 1.21
	- aromatics		2.36 / 1.95
	- C15+		0.20 / 0.19
	- unidentified		2.65 / 2.38
4.	Research Octane Number	(**)(++)ASTM D 5134/ Calculated	58.79

**Remarks:** (+) – the fraction was received by distillate fragmentation at carrying out of analysis ASTM D 86 on initial Crude Oil.

(\*\*) – modified.

(++) – this method is not applicable to this type of product.

##### Fraction 180-360°C (+)

Table 4.2.

№	Test	Method	Result
1.	Density at 15°C, kg/l	ASTM D 4052	0.7709
2.	Bromine number, g Br <sub>2</sub> /100 g	ASTM D 1159	27
3.	Total Aromatic Hydrocarbons content, % m/m	EN 12916/IP 391	
	- total aromatic hydrocarbons		Less 7.0 (0.8) (*)
	- MAHs		Less 6.0 (Less 0.1) (*)
	- DAHs		Less 1.0 (Less 0.1) (*)
	- Tri+AHs		0.8
	- PAHs		Less 1.0 (0.8) (*)

**Remarks:** (+) – the fraction was received by distillate fragmentation at carrying out of analysis ASTM D 86 on initial Crude Oil.

(\*) – the actual result has been reported for information only.