



ОАО "РН-РОСТОВНЕФТЕПРОДУКТ"

# JOINT-STOCK COMPANY "RN-ROSTOVNEFTEPRODUKT"

344010, ROSTOVSKAYA OBL, ROSTOV-NA-DONU G,  
UNIVERSITETSKIY PER, DOM 131 G, POMESHENIE 301  
RUSSIA FEDERATION

INN: 6165029228 OKPO: 40553298  
+79267740043

Attn: END BUYER

Issued 17<sup>th</sup> October, 2020

## OFFER LETTER

WE JOINT-STOCK COMPANY "RN-ROSTOVNEFTEPRODUKT" HEREBY ISSUE THIS SOFT CORPORATE OFFER WITH GIVEN TERMS AND CONDITIONS AND CONFIRM OUR READINESS AND WILLINGNESS TO ISSUE A FULL CORPORATE OFFER AND THEN STRAIGHT TO SALES PURCHASE AGREEMENT UPON ACCEPTANCE OF OUR TERM AND CONDITIONS STIPULATED HEREIN FOR THE BELOW.

### PRICE LIST

#### **AVIATION KEROSENE COLONIAL GRADE 54 JET FUEL RUSSIAN ORIGIN**

Monthly Quantity: 500,000BBLs-10,000,000BBLs  
Price Per Barrel: FOB \$25 Gross/\$21 Net.  
Price Per Barrel: CIF \$27 Gross/\$23 Net.  
Commission: \$2/\$2.

#### **JET FUEL A1 91/91**

Monthly Quantity: 500,000BBLs-10,000,000BBLs  
Price Per Barrel: FOB \$25 Gross/\$21 Net.  
Price Per Barrel: CIF \$27 Gross/\$23 Net.  
Commission: \$2/\$2.

#### **RUSSIA DIESEL GASOIL EN 590**

Monthly Quantity: 50,000MT-10,000,000MT  
Price Per MT: FOB \$145Gross /\$125 Net.  
Price Per MT: CIF \$160Gross /\$140 Net.  
Commission: \$10/\$10.

#### **DIESEL D6 VIRGIN LOW POUR FUEL OIL**

Min. Quantity: 25,000,000 Gallon. Max. Quantity: 50,000,000Gallon Per Week,  
FOB Price: \$0.52 Gross/\$0.50 Net Per Gallon  
CIF Price: \$0.54 Gross/\$0.52 Net Per Gallon  
Commission:0.1 Seller Side/0.1 Buyer Side.

#### **RUSSIA D2 GAS OIL EURO 4(50PPM)**

Monthly Quantity: 50,000MT-10,000,000MT  
Price Per MT: FOB \$155Gross /\$135 Net.  
Price Per MT: CIF \$170Gross /\$150 Net.  
Commission: \$10/\$10.

#### **RUSSIA EASTERN SIBERIAN PACIFIC OCEAN OIL (ESPO)**

Monthly Quantity: 500,000BBLs-10,000,000BBLs  
Price Per Barrel: FOB \$30 Gross/\$26 Net.  
Price Per Barrel: CIF \$34 Gross/\$30 Net.  
Commission: \$2/\$2.

#### **RUSSIA MAZUT M100 GOST 10585-75**

Monthly Quantity: 50,000MT-10,000,000MT  
Price Per Barrel: FOB \$100 Gross/\$90 Net.  
Price Per Barrel: CIF \$105 Gross/\$95 Net.  
Commission: \$5/\$5.



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## LIGHT CYCLE OIL (LCO)

Monthly Quantity: 50,000MT-10,000,000MT

Price Per MT: FOB \$50Gross /\$40 Net.

Price Per MT: CIF \$65Gross /\$55 Net.

Commission: \$5/\$5.

### NON NEGOTIABLE FOB TRANSACTION PROCEDURE

1. THE BUYER ISSUE ICPO WITH HIS INTERNATIONAL PASSPORT COPY (DATA PAGE) TO THE SELLER.
2. THE SELLER ISSUES NCNDA/IMFPA AND SPA FOR 13 MONTHS WITH R&E TO REVIEW AND SIGN
3. THE SELLER ISSUES COMMERCIAL INVOICE (CI) FOR THE AVAILABLE QUANTITY IN THE SELLER'S STORAGE TANK TO THE BUYER. THE BUYER SIGNS AND RETURN THE CI TO THE SELLER WITH THEIR SIGNED TANK STORAGE AGREEMENT (TSA) FOR THE SELLER'S VERIFICATION AND APPROVAL.
4. THE SELLER ISSUES THE PARTIAL POP DOCUMENTS AS BELOW AND SEND TO THE BUYER.
  - A. COMMITMENT TO SUPPLY
  - B. CERTIFICATE OF ORIGIN
  - C. AUTHORIZATION TO VERIFY (ATV)
  - D. TANK TO TANK INJECTION AGREEMENT (TTTIA)
  - E. UNCONDITIONAL DTA
  - F. FRESH SGS (NOT OLDER THAN 48 HOURS)
  - G. TANK STORAGE RECEIPT (TSR)
  - H. ATS - AUTHORIZATION TO SELL
  - I. INJECTION REPORT
5. THE BUYER CONDUCTS DIP TEST IN THE SELLER'S RESERVOIR AND PROVIDE TANK DETAILS TO THE SELLER, TO COMMENCE INJECTION OF PRODUCT INTO THE BUYER'S TANK.
6. WITHIN TWENTY-FOUR (24) HOURS, BUYER ISSUES 100% TT WIRE TRANSFER PAYMENT TO THE SELLER. THE SELLER TRANSFER THE TITLE OWNERSHIP TO THE BUYER.
7. THE SELLER PAYS COMMISSION TO ALL THE INTERMEDIARIES UNDER THE NCNDA.



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## NON NEGOTIABLE CIF TRANSACTION PROCEDURE

1. BUYER ISSUE IRREVOCABLE CORPORATE PURCHASE ORDER (ICPO) WITH SOFT PROBE.
  2. SELLER ISSUE FCO BUYER SIGNED SEND BACK WITH BANK DETAILS. SELLER ISSUE COMMERCIAL INVOICE FOR THE LIFT ABLE GOODS/DRAFT CONTRACT 12 MONTHS
  3. BUYER RETURN SIGNED AND ACCEPTED COMMERCIAL INVOICE/DRAFT CONTRACT TO SELLER ALONG WITH NCNDA/IMFPA SIGNED BY ALL BUYER GROUPS WITH COMMISSION STRUCTURES.
  4. BUYER ISSUES SBLC OR BG MT760 TO SELLER NOMINATED BANK ACCOUNT FOR FIRST MONTH SHIPMENT WITHIN FIVE (5) TO TEN (10) BANK WORKING DAYS, AND SELLER BANK SWIFT FULL SET OF POP WITH SHIPPING DOCUMENTS AND 2% PERFORMANCE BOND (PB) WITHIN 72 HOURS AFTER SELLER'S CONFIRMATION OF THE BANK INSTRUMENT.
- FULL POP DOCUMENTS LISTED BELOW:
- I. THE LETTER OF GUARANTEE OF AN OIL REFINING
  - II. COPY OF LICENSE TO EXPORT ISSUED BY THE MINISTRY OF ENERGY
  - III. COPY OF APPROVAL TO EXPORT ISSUED BY THE MINISTRY OF JUSTICE
  - IV. COPY OF STATEMENT OF AVAILABILITY OF THE PRODUCT
  - V. COPY OF THE REFINERY COMMITMENT TO PRODUCE THE PRODUCT
  - VI. COPY OF TRANSNEFT CONTRACT TO TRANSPORT THE PRODUCT TO THE PORT
  - VII. COPY OF THE PORT STORAGE AGREEMENT
  - VIII. COPY OF TRANSNEFT CONTRACT TO TRANSPORT THE PRODUCT TO THE LOADING PORT (INJECTION) (INJECTION FEES PAY BY SELLER)
  - IX. COPY OF THE CHARTER PART AGREEMENTS (CPA) TO THE PRODUCT TO THE DISCHARGE PORT (DUE TO CIF TERMS – SELLER PAY FREIGHT CHARGES)
  - X. COPY OF TANK STORAGE RECEIPTS (SELLER PAY PORT STORAGE FEES)
  - XI. COPY OF DIP TEST AUTHORITY
  - XII. SGS REPORTS FROM LOADING PORT.
  - XIII. OCEAN BILL OF LADING.
  - XIV. INSURANCE.
  - XV. ENDORSE AND LEGALIZE NCNDA/IMFPA
5. SHIPPING OF THE GOODS WILL COMMENCE WITHIN 10-15 DAYS FROM THE DATE OF THE SELLER'S RECEIPT OF THE ACCEPTABLE PAYMENT INSTRUMENT OR EARLIER.



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**6. BUYER ISSUE MT103 UPON DELIVERY AT BUYER'S PORT, AND SELLER PAYS COMMISSION TO ALL INTERMEDIARIES INVOLVED IN THE TRANSACTION ON BUYER AND SELLER'S SIDE 24 HOURS AFTER CONFIRMATION OF THE BUYER'S PAYMENT."**

| ANALYTICAL PRODUCTS SPECIFICATIONS DIESEL EURO 4 (50PPM)           |                        |                     |
|--|------------------------|---------------------|
| PARAMETER  | TEST METHOD<br>IP/ASTM | LIMITS              |
| Specific Gravity 15/15 deg C                                       | ASTM D4052             | 0.820min, 0.870 max |
| Distillation:<br>Recovered @ 357 deg C (% Vol. EBP deg.)           | ASTM D86               | 85 min, 385 max     |
| Color (ASTM)   | ASTM D1500             | 2 max               |
| Flash Point (deg. C)   | ASTM D93               | 55                  |
| Ignition quality: Cetane index**, Min.                             | ASTM D976              | 46, 0               |
| Total acid number, mgKOH/g, Max                                    | ASTM D664              | 0, 25               |
| Total Sulphur, mg/kg, Max.   | ASTM D5453             | 50, 0               |
| Water and Sediment, % Vol., Max                                    | ASTM D2709             | 0, 05               |
| Copper strip corrosion, 3h at 100°C, Max                           | ASTM D130              | 1b                  |
| Acidity (inorganic acid)   |                        | Nil                 |
| Lubricity at 60 Ć, (corrected wear scar diameter),<br>microns, Max | ASTM D6079             | 460                 |
| Oxidation Stability, g/m <sup>3</sup> , Max                        | ASTM D 2274            | 25                  |
| Polycyclic Aromatic Hydrocarbons, % m/m                            | ASTM D5186             | To be reported      |
| Water content  | % by volume max        | 0, 02               |
|  | mg/kg by mass max      | 200                 |
| Particulate Counts, Size Distribution                              | ASTM D7619             | 24, 0               |
| Particulate Matter, mg/l max                                       | ASTM D6217             | 5, 0                |



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## ANALYTICAL PRODUCTS SPECIFICATIONS AVAITION KEROSENE JP54

| PROPERTIES                              | UNIT       | RESULT  | TEST- IP | METHOD  | ASTM       |
|---|------------|---------|----------|---------|------------|
| <b>ADDITIVES</b>                        |            |         |          |         |            |
| Antioxidant in hydro processed fuel     | Mg/l       | Min     | 17       |         |            |
| Antioxidant non hydro processed fuel    | Mg/l       | Max     | 24       |         |            |
| Static dissipater first doping ASA-3    | Mg/l       | Min     | 24       |         |            |
| Stadis 450                              | Mg/l       | Min     | 1        |         |            |
| <b>COMBUSTION PROPERTIES</b>            |            |         |          |         |            |
| Smoke point                             | mj/lkg     | Min     | 18.4     |         | D4808      |
| Specific energy, net                    | Mm         | Min     | 19       |         | D1322      |
| Luminomitter number                     |            | Min     | 45       |         | D1740      |
| Naphthalenes                            | % volume   | Max     | 3        |         | D1840      |
| <b>COMPOSITION</b>                      |            |         |          |         |            |
| Total Acidity                           | mg KOH/g   | Max     | 0.01     | 354     | D3242      |
| Aromatics                               | % vol      | Max     | 22       | 158     | D1318      |
| Sulphur, Total                          | % mass     | Max     | 0.30     | 107     | D1266/2622 |
| Sulphur, Mercaptan                      | % mass     | Max     | 0.003    | 342     | D3227      |
| Doctor, test                            |            |         |          | 30      | D4952      |
| <b>VOLATILITY</b>                       |            |         |          |         |            |
| Initial Boiling Point                   | Centigrade | Max     | Report   | 123     | D96        |
| 10% vol at C                            |            |         | 240      |         |            |
| 20% vol at C                            |            |         | Report   |         |            |
| 50% vol at C                            |            |         | Report   |         |            |
| 80% vol at C                            |            |         | Report   |         |            |
| End point                               | Centigrade | Max     | 300      |         |            |
| Recovered residuals                     | % Vol      | Max     | 1.5      |         |            |
| Loss                                    | % Vol      | Max     | 1.5      |         |            |
| Flash Point                             | Centigrade | Max     | 42       | 170/303 | D56/3828   |
| Density at 15 C                         | Kg/m2      | min/max | 776/840  | 180/305 | D1256      |
| <b>LOW TEMPERATURE</b>                  |            |         |          |         |            |
| Freezing Point                          | Centigrade | Max     | -40      | 15      | D2256      |
| <b>CORROSION</b>                        |            |         |          |         |            |
| Corrosion, copper (2hrs at 100C)        |            | Max     | 1        | 154     | D130       |
| Corrosion, silver (4hrs at 50C)         |            | Max     | 1        | 227     |            |
| Thermal stability control, Temp. 280C   |            |         |          |         |            |
| Filter pressure, differential mm.Hg     |            | Max     | 323      |         |            |
| Tube deposit rating (visual)            |            | Max     | 25       | <3      |            |
| <b>CONTAMINATIONS</b>                   |            |         |          |         |            |
| Existent Gum                            | mg/100ml   | Max     | 7        | 131     | D361       |
| Water reaction, interface rating        |            | Max     | 16       | 258     | D1084      |
| Fuel with static dissipater additives   |            | Min     | 75       |         | D3648      |
| Fuel without static dissipater additive |            | Min     | 85       |         |            |



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## ANALYTICAL PRODUCTS SPECIFICATIONS JET FUEL A1

| PROPERTIES                              | UNIT       | RESULT  | TEST- IP | METHOD  | ASTM       |
|---|------------|---------|----------|---------|------------|
| <b>ADDITIVES</b>                        |            |         |          |         |            |
| Antioxidant in hydro processed fuel     | Mg/l       | Min     | 17       |         |            |
| Antioxidant non hydro processed fuel    | Mg/l       | Max     | 24       |         |            |
| Static dissipater first doping ASA-3    | Mg/l       | Min     | 24       |         |            |
| Stadis 450                              | Mg/l       | Min     | 1        |         |            |
| <b>COMBUSTION PROPERTIES</b>            |            |         |          |         |            |
| Smoke point                             | mj/lkg     | Min     | 18.4     |         | D4808      |
| Specific energy, net                    | Mm         | Min     | 19       |         | D1322      |
| Luminomitter number                     |            | Min     | 45       |         | D1740      |
| Naphthalenes                            | % volume   | Max     | 3        |         | D1840      |
| <b>COMPOSITION</b>                      |            |         |          |         |            |
| Total Acidity                           | mg KOH/g   | Max     | 0.01     | 354     | D3242      |
| Aromatics                               | % vol      | Max     | 22       | 158     | D1318      |
| Sulphur, Total                          | % mass     | Max     | 0.30     | 107     | D1266/2622 |
| Sulphur, Mercaptan                      | % mass     | Max     | 0.003    | 342     | D3227      |
| Doctor, test                            |            |         |          | 30      | D4952      |
| <b>VOLATILITY</b>                       |            |         |          |         |            |
| Initial Boiling Point                   | Centigrade | Max     | Report   | 176     | D96        |
| 10% vol at C                            |            |         | 210      |         |            |
| 20% vol at C                            |            |         | Report   |         |            |
| 50% vol at C                            |            |         | Report   |         |            |
| 80% vol at C                            |            |         | Report   |         |            |
| End point                               | Centigrade | Max     | 300      |         |            |
| Recovered residuals                     | % Vol      | Max     | 1.5      |         |            |
| Loss                                    | % Vol      | Max     | 1.5      |         |            |
| Flash Point                             | Centigrade | Max     | 42       | 170/303 | D56/3828   |
| Density at 15 C                         | Kg/m2      | min/max | 776/840  | 180/305 | D1256      |
| <b>LOW TEMPERATURE</b>                  |            |         |          |         |            |
| Freezing Point                          | Centigrade | Max     | -47      | 15      | D2256      |
| <b>CORROSION</b>                        |            |         |          |         |            |
| Corrosion, copper (2hrs at 100C)        |            | Max     | 1        | 154     | D130       |
| Corrosion, silver (4hrs at 50C)         |            | Max     | 1        | 227     |            |
| Thermal stability control, Temp. 280C   |            |         |          |         |            |
| Filter pressure, differential mm.Hg     |            | Max     | 323      |         |            |
| Tube deposit rating (visual)            |            | Max     | 25       | <3      |            |
| <b>CONTAMINATIONS</b>                   |            |         |          |         |            |
| Existent Gum                            | mg/100ml   | Max     | 7        | 131     | D361       |
| Water reaction, interface rating        |            | Max     | 16       | 258     | D1084      |
| Fuel with static dissipater additives   |            | Min     | 75       |         | D3648      |
| Fuel without static dissipater additive |            | Min     | 85       |         |            |





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| ANALYTICAL PRODUCTS SPECIFICATIONS DIESEL GASOIL(D2) EN590 PPM 10 USLD 10  |   |                       |             |               |
|--|---|-----------------------|-------------|---------------|
| COMPONENT  | METHOD OF ANALYSIS                      | UNIT                  | RESULT      |               |
|  |   |                       | Min.        | Max.          |
| Water and sediment   | EN ISO 12937                            | mg/kg                 | 200<br>0.05 |               |
| Kinematic Viscosity  | ASTM D445                               | cSt@40C               | 1.3         | 4.1           |
| Flash Point  | EN ISO 2719                             | C°                    | >55(1)      |               |
| Ash  | EN ISO 6245                             | % m/m                 |             | 0.010         |
| Lubricating power, average wear diameter (wwsd 1,4) at 60 ° C              | EN ISO 12156-1                          | µm                    |             | Report<br>460 |
| Cetane number  | EN ISO 5165 – EN 15195 – EN 16144       |                       | 51,0        |               |
| Distillation:<br>Recovered at 250 ° C<br>Recovered at 350 ° C<br>95% point | EN ISO 3405 – EN ISO 3924               | % V/V<br>% V/V<br>C°  | 85          | < 65<br>360   |
| Cetan index  | EN ISO 4264                             |                       | 46,0        |               |
| Polycyclic aromatic hydrocarbons   | EN ISO 12916                            | % m/m                 |             | 8             |
| Viscosity at 40 ° C  | EN ISO 3104                             | mm <sup>2</sup> /s    | 2.000       | 4.500         |
| Fog point (summer)<br>Fog point (winter)                                   | EN ISO 23015                            | C°<br>C°              |             | Report.<br>0  |
| Summer CFPP<br>CFPP winter   | EN ISO 116 – EN 16329                   | C°                    |             | 0<br>-10      |
| Oxidation stability<br>Acid number   | EN ISO 12205<br>EN 15751                | g/m <sup>3</sup><br>h | 20          | 25            |
| Total sulfur   | EN ISO 20846– EN ISO 20884- ENISO 13032 | mg/kg                 |             | 10            |
| Corrosion on copper foil (3h at 50 ° C)                                    | EN ISO 2160                             | Indice                | Classe 1    |               |
| Residuocarbonioso (su 10% del residuo di distillazione)                    | EN ISO 10370                            | % m/m                 |             | 0.30          |
| Alkaline metals (Mg+Ca)  | EN14108                                 | ppm                   |             | Nd            |
| Blend fraction   | EN14078                                 | vol. % <sup>2</sup>   |             | +/- 2%        |
| Density at 15°C  | EN ISO 3675-EN ISO 12185                | Kg/m <sup>3</sup>     | 820,0       | 845,0         |
| Content of F.A.M.E.  | EN 14078                                | % V/V                 |             | 7,0           |
| Manganese content  | Pr EN 16576                             | Mg/l                  |             | 2,0           |



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## ANALYTICAL PRODUCTS SPECIFICATIONS EASTERN SIBERIAN PACIFIC OCEAN OIL(ESPO)

| Test                                     | Units     | Method           | Result |
|--|-----------|------------------|--------|
| Density at 15oC                          | kg/L      | ASTM D 5002      | 0.8508 |
| Specific Gravity at 60/60°F              | kg/L      | ASTM D 5002      | 0.8512 |
| API gravity                              |           | ASTM D 1250      | 34     |
| Kinematic viscosity at 20°C              | CST       | ASTM D 445       | 6.949  |
| Total acid Number                        | mg KOH/g  | ASTM D 664       | <0.050 |
| Pour Point                               | °C        | ASTM D 5853      | <=-36  |
| Water by distillation                    | mass%     | ASTM D 4006      | 0.35   |
| Sediment by extraction                   | mass %    | ASTM D 473       | 0.01   |
| Chloride salt content                    | mg/dm3    | GOST 21534-75(A) | 17     |
| Organic chlorine content                 | mg/kg     | ASTM D 4929(B)   | *1     |
| Sulphur content                          | mass%     | ASTM D 4294      | 0.535  |
| Hydrogen Sulphide                        | ppm       | UOP 163          | less 1 |
| Mercaptan Sulphur                        | ppm       | UOP 163          | 111    |
| Ash content                              | mass %    | ASTM D 482       | 0.011  |
| Nickel                                   | ppm       | IP 470           | 4      |
| Sodium                                   | ppm       | IP 470           | 1      |
| Iron                                     | ppm       | IP 470           | 19     |
| Copper                                   | ppm       | AAS              | less 1 |
| Vanadium                                 | ppm       | IP 470           | 4      |
| Calcium                                  | ppm       | IP 470           | 2      |
| Paraffin Wax content                     | mass %    | UOP 46           | 3.3    |
| RVPE                                     | kPa       | ASTM D 5191      | 40.4   |
| Asphaltenes (heptane insolubles) content | mass %    | IP 143           | 0.2    |
| Distillation                             |           | ASTM D 5236      |        |
| Cut Range (°C)                           | Cum % vol |                  |        |
| LPG                                      | % vol.    |                  | 2.2    |
| C5-65                                    | % vol.    |                  | 6.1    |
| 65-100                                   | % vol.    |                  | 9.8    |
| 100-150                                  | % vol.    |                  | 16.7   |
| 150-200                                  | % vol.    |                  | 25.1   |
| 200-250                                  | % vol.    |                  | 32.7   |
| 250-300                                  | % vol.    |                  | 42     |
| 300-350                                  | % vol.    |                  | 50.9   |
| 350-370                                  | % vol.    |                  | 54.2   |
| 370-475                                  | % vol.    |                  | 70     |
| 475-515                                  | % vol.    |                  | 74.6   |
| 515-525                                  | % vol.    |                  | 76     |
| 525-553                                  | % vol.    |                  | 79.9   |

### Quality specifications

#### ESPO and other key crudes

|         |       |       |
|---------|-------|-------|
|         | 34.80 | 0.54% |
| ESPO    |       |       |
| Brent   | 37.50 | 0.46% |
| Forties | 40.60 | 0.59% |
| Dubai   | 30.40 | 2.13% |
| Oman    | 32.95 | 1.14% |
| Urals   | 31.55 | 1.30% |
| Sokol   | 39.70 | 0.17% |





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|            |       |                |
|------------|-------|----------------|
| Vityaz     | 34.40 | 0.22%          |
| <b>API</b> |       | <b>SULPHUR</b> |

| ANALYTICAL PRODUCTS SPECIFICATIONS DIESEL D6 VIRGIN LOW POUR FUEL OIL |  |                              |                    |
|---|--|------------------------------|--------------------|
| Method Units  | Test   | Result                       | Unit               |
| ASTM D5002  | Density and Relative Density of Crude Oils                                   |                              |                    |
|   | Average API Gravity  | 29.7 (29.7) (Min)            | API                |
| ASTM D1298-99   | Density @15 Deg C  | 0.87 (0.8775) (Max)          | Kg/t               |
| ASTM D97  | Pour Point of Petroleum Products   | < -33 (-36) (BELOW ZERO)     |                    |
|   | Pour Point   | < -27.4 (-32.8) (BELOW ZERO) | °C                 |
| ASTM D93-IP34   | Pensky-Martens Closed Cup Flash Point  |                              |                    |
|   | Corrected Flash Point  | 117 (137) (MIN)              | °F                 |
| ASTM D4294  | Sulfur Content in Petroleum Products by EDXRF                                |                              |                    |
|   | Sulfur Content   | 0.38 (0.358) (MAX)           | Wt%                |
| ASTM D445   | Kinematic/Dynamic Viscosity  |                              |                    |
|   | Kinematic Viscosity @ 122°F / 50°C   | 17.83 (18.12) (MAX)          | Mm <sup>2</sup> /s |
| ASTM D6304  | Water Content by Coulometric Karl Fisher Titration                           |                              |                    |
|   | Water Content  | 0.20 (0.7) (MAX)             | Wt%                |
| ASTM D482   | Ash from Petroleum Products  |                              |                    |
|   | Average Ash  | 0.279 (1.007) (MAX)          | Wt%                |
| ASTM D2161  | Conversion of Kinematic Viscosity To SUS/SFS 1 Saybolt furoi viscosity 122°F | 10.9SFS                      | (MAX)              |



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|   |                                   |            |       |
|---|-----------------------------------|------------|-------|
| ASTM D5184  | Aluminum and Silicon in Fuel Oils |            |       |
|   | by ICP-AES or AAS                 |            |       |
|   | Aluminum Content                  | 102 (MAX)  | Mg/kg |
|   | Silicon Content                   | 93 (MAX)   | Mg/kg |
| ASTM D95  | Water by Distillation, Vol%       | 0.70 (MAX) | Vol%  |
| ASTM D4530.06   | Carbon Residue                    | 1.11 (MAX) | Wt%   |
| <b>Method Test Result Units</b>   |                                   |            |       |
| IP 143 Asphlteness Heptane Insolubles   |                                   |            |       |
|   | Asphaltene Content                | 0.08       | Wt%   |
| <b>IP 501 Determination of AL, Si, V, Ni, Fe, Na, Ca, Zn, P in Fuel Oil-ICPES</b> |                                   |            |       |
|   | Aluminium                         | 372        | mg/kg |
|   | Silicon                           | 187        | mg/kg |
|   | Sodium                            | 117        | mg/kg |
|   | Vanadium                          | 1          | mg/kg |
|   | Calcium                           | 779        | mg/kg |
|   | Zinc                              | 298        | mg/kg |
|   | Phosphorus                        | 4176       | mg/kg |
|   | Iron                              | 545        | mg/kg |



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| ANALYTICAL PRODUCTS SPECIFICATIONS MAZUT M100 GOST 10585-75  |                            |
|--|----------------------------|
| COMPONENTS   | RESULTS                    |
| Ash content, not more %  | 0,14                       |
| Mass fraction of sulphur, not more %<br>-low – sulphur –n residual –oil                                | 0,5                        |
| Temperature of the flash, not less °C<br>- In the closed crucible<br>- In the open crucible °C 110 min | 110 min                    |
| The temperature of solidification, not higher °C   | 25                         |
| Kinematics viscosity   | 118 max                    |
| Water content  | 0.5%                       |
| Mechanical impurities  | Lower than 0.1%            |
| Acidity  | Lower than 5 mg KOH/ 100ml |
| Alkalinity   | Nil                        |
| Gross Calorific Value Kcal/kg / KJ/kg  | Min 9200/41300             |
| Density at 15.0 °C Kg/l  | 0.8900-0.9200              |
| Hydrogen Sulfide Content (H <sub>2</sub> S) ppm  | 0.5 max                    |
| Carbon Residual  | Lower than 7%              |
| Vanadium (V) ppm   | 30                         |
| Aluminium (Al) ppm   | 5                          |
| Silikon (Si) ppm   | 12                         |
| Nickel (Ni) ppm  | 29                         |
| Asphaltenes m/m  | 3.6%                       |
| Distillation @4 mm Hg<br>Extracted to 760 mm Hg  |                            |
| Initial Boiling Point °C   | 216                        |
| 5% recovered °C  | 259                        |
| 10% recovered °C   | 310                        |
| 20% recovered °C   | 358                        |
| 30% recovered °C   | 445                        |
| 40% recovered °C   | 502                        |
| 50% recovered °C   | 534                        |
| 60% recovered °C   | 538                        |
| 75% recovered °C   | 545                        |
| 80% recovered °C -   | -                          |
| 90% recovered °C -   | -                          |
| Final Boiling point °C   | 550                        |
| Percent Recovered vol  | 78%                        |
| Residu vol   | 22%                        |
| Total Nitrogen m/m   | 0.192%                     |
| Sodium (Na) ppm  | 15                         |



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## ANALYTICAL PRODUCTS SPECIFICATIONS LIGHT CYCLE OIL (LCO)

| TEST                 | UNIT     | METHOD        | GUARANTEE | TYPICAL |
|----------------------|----------|---------------|-----------|---------|
| Density @15 Deg      | Kg/L     | ASTM D1298    | max0.9    | 0.8719  |
| Viscosity50°C        | Cst      | ASTM D445     | 2-8       | 2.3     |
| Flash Point          | °C       | ASTM D93      | min55     | 65      |
| Water                | Vol%     | ASTM D95      | max0.1    | 0.005   |
| Sulphur              | WT%ppm   | ASTM 4294- WA | max800    | 388     |
| ASH                  | Vol%     | ASTM 482      | max0.0l   | 0.001   |
| Pour Point           | °C       | ASTM D97-06   | max 0     | -9      |
| Micro Carbon Residue | Vol%     | ASTM D189     | max0.1    | <0.01   |
| Total Acid Number    | Mg/KOH/g | ASTM 664      | max0.1    | <0.1    |
| Total Chlorides      | ppm(m/m) | UOP588        | maxl.0    | <1      |
| Inorganic Chlorides  | ppm(m/m) | UOP588        | maxl.0    | <1      |
| Organic Chlorides    | ppm(m/m) | UOP588        | maxl.0    | <1      |
| Aromatics            | wt%      | UOP744/IP491  | min50     | 51.9    |
| Distillation <210°C  |          | UOP 744-06    |           | 13.1    |
| Distillation >210°C  |          | IP 391-07     |           | 38.8    |
| Cetane number        |          | ASTM D613     | min38     | 42.2    |
| Colour               |          | ASTM D1500    | max4      | L1.0    |
| Vacuum Distillation  | Vol%     | ASTM D2887    |           |         |
| IBP                  | °C       |               | mini 75   | 167     |
| 5% Recovered         | °C       |               |           | 202.8   |
| 10% Recovered        | °C       |               |           | 213.5   |
| 50% Recovered        | °C       |               | max300    | 275.2   |
| 90% Recovered        | °C       |               |           | 345.6   |
| 95% Recovered        | °C       |               | max365    | 363.1   |
| IEP                  | °C       |               |           | 374     |

**During October – March winter specification:**

**Pour Point not more than -15 °C / Cloud Point -8 °C Max.**

**April – September summer specification:**

**Pour Point not more than -10°C / Cloud Point -5°C Max.**



**Tsutsiev Eduard Kazbekovich**  
General Director