NDI 450
5th Generation of
AUTOMATED DISTILLATION ANALYZER
for petroleum and petrochemical laboratories

About 90 different equipments related to international standard methods

Main Specialties:
- Flammability,
- Volatility,
- Viscosity
- Cold flow properties,
- Fuel cleanliness and oxidation,
- Physical analysis of lubricants, bitumens and greases,
- ...
Automatic Atmospheric Distillation of Petroleum products
- MODEL NDI 450 –

**STANDARDS:**

**SCOPE:**
This test method covers the atmospheric distillation of petroleum products. Natural, motor and aviation gasolines, aviation turbine fuels, special boiling point spirits, naphtas, white spirit, kerosene, gas oils, distillate fuel oils.
Automatic Atmospheric Distillation of Petroleum products
- MODEL NDI 450 -

MAIN SPECIFICATIONS:

- Temperature measurement range: ambient to 400°C
- Temperature accuracy:
- Condenser temperature: 0 to
- Built-in Cooling System – PELTIER type
- Level follower accuracy: 0.1 ml with resolution of 0.05ml
- Receiver compartment temperature: 1 to 60°C
- Low voltage (24V) heating element offering 800W power (controlled by thermocouple)
- Ready for Biodiesels analysis
- Quick cooling of heater by fan
- Barometric pressure sensor 600 to 1100 mB
- Quick positioning of heating element
DESIGN BASED ON OPERATOR’s FEEDBACK

Ease of use

- 1 button for heating plate adjustment
- Intuitive software

Sensors:

- Alarms when doors remain open
- Probe and Flask detection
- Mechanical design to allow single way of use (receiver, probe, seepage finger)

LEADS TO SAFETY AND HIGHLY REPEATABLE RESULTS
Automatic Atmospheric Distillation of Petroleum products
- MODEL NDI 450 -

SOFTWARE FEATURES SUMMARY

- Result comparison and analysis
- Multilanguage software (English, French, Spanish...)
- Results database: > 1000 results (limited to 1GB).
- Product files database: > 1000 files (limited to 1GB).
- Export results: LIMS, E-MAIL, PDF, DOC and XLS.
- Printer - Network Printer: Any commercial printers
- USB Key: Anycommercial keys.
- Barcode Reader: Any commercial barcode readers
NDI 450 : General view

- **Graphic view**
- **Information tab**
- **Start test**
- **Results databases**
- **Standby set point**
- **Product files**
- **Configuration**
NDI 450: Information tab

- Test information
- Results information
- Shutdown instrument
- Distillation table
- Start test files
- Status of the unit
- Distillation results table
- Default calibration information
NDI 450 : Distillation tables
NDI 450 : Start the test (part 1)

Select default flask probe
Select default receiver

Automatic or manual barometric pressure
Enter a manual barometric pressure

Test information

Sample name: Enter the name
Operator name: Enter the name
Bar code: 

Sample probe: kompavi

Receiver: Re-NDI450

Barometric pressure
Automatic

Next
Exit
NDI 450 : Start the test (part 2)

Select a product file

Back

Next

Exit
NDI 450: Start the test (part 3)

### Test summary report

<table>
<thead>
<tr>
<th>Sample name:</th>
<th>Demo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator name:</td>
<td>Normalab</td>
</tr>
<tr>
<td>Bar code:</td>
<td></td>
</tr>
<tr>
<td>Sample probe:</td>
<td>kompavi</td>
</tr>
<tr>
<td>Receiver:</td>
<td>Re-ND450</td>
</tr>
<tr>
<td>Product file:</td>
<td>Gasoil</td>
</tr>
<tr>
<td>Standard:</td>
<td>ASTM D86-94</td>
</tr>
</tbody>
</table>

- Diameter of hole: 50mm
- Fask volume: 125ml
- Barometric pressure: Automatic
- Sample temperature: Ambient temperature

**Buttons:**
- Back
- Summary report
- Start the test
- Exit
NDI 450: Results database menu

- **Graphic view**
- **Select graphic view**
- **Distillation table**
- **Data processing**
- **Next result**
- **Exit**
- **Previous result**
- **Information tab**

**Graphic view**
- Distillation table

**Data processing**
- Next result
- Exit
- Previous result
Print the selected result:
*On local printer or network printer.*

Send the selected result to LIMS:
*By RS-232 connector.*

Send the selected result by e-mail:
*By Internet.*

Export the selected result to PDF:
*Use USB Key or Intranet network.*

Export the selected result to DOC+XLS:
*Use USB Key or Intranet network.*
NDI 450: Product files database menu

- Create a new file
- Modify selected file
- Delete selected file
- View selected files
- List of product files
- Standard databases
  - D1078 compounds database
  - D850 compounds database
- Exit
NDI 450 : Product file (part 1)

File information

- **Name:** Gasoil
- **Created by:** Normalab
- **Created on:** 01/12/10
- **Modified by:** Enter the name
- **Modified on:** 02/05/10
- **Standard:** ASTM D86-G4
- **File type:** Routine

Select default standard
Select type file (Routine or Learning)
Next
Exit
End test process:

**FBP:** The test can be stopped when the FBP is detected.

**Dry P:** The test can be stopped when the Dry Point is detected.

**FBP or Dry P:** The test can be stopped when the FBP or Dry Point is detected.

**FBP and Dry P:** The test can be stopped when the FBP and Dry Point are detected.

**IBP:** The test can be stopped when the IBP is detected.

**Volume:** The test can be stopped at a certain volume.

**Temperature:** The test can be stopped at a certain vapor temperature.
NDI 450 : Product file (part 4)

**Volume detection settings**

**Residue detection settings**

**Back**

**Next**

**Exit**
### NDI 450 : Product file (part 4)

#### Volume detection process (End test):

<table>
<thead>
<tr>
<th>Process</th>
<th>Automatic</th>
<th>Constant</th>
<th>Time</th>
</tr>
</thead>
</table>

- **Automatic:** The volume is observed until this volume changes by no more than 0.1mL in 2min.
- **Constant:** The volume is observed at fixed intervals until this volume changes by no more than a certain amount (adjustable parameters).
- **Time:** A waiting time after FBP.

#### Residue detection process (End test):

<table>
<thead>
<tr>
<th>Process</th>
<th>Manual</th>
<th>Constant</th>
<th>None</th>
</tr>
</thead>
</table>

- **Manual:** The operator must enter a residue after the test.
- **Constant:** Use of a default residue automatically entered.
- **No:** None residue reported.
Dry Point detection method:

**Automatic**: Automatic detection by Dry Point probe.

**Manual**: Manual detection by pressing a display button.

**Learning**: After a manual detection, the Dry Point value is stored in the dedicated product file.
Only for ASTM-D1078 and ASTM-D850 standards
NDI 450: Product file (part 8)

Temperature reported information

Add a new temperature
Delete selected temperature

Volume reported information

Add a new volume
Delete selected volume

Save and exit
Exit

10 noticeable temperatures and volumes
NDI 450 : Standard (part 1)

ASTM D86-G4

Standard information
- Name: ASTM D86-G4
- Created by: Normalab
- Created on: 01/11/10
- Modified by: Enter the name
- Modified on: 02/05/10

Next
Exit
Condenser bath and Receiver bath temperature process:

**Constant**: The bath temperature is defined at set point temperature.

**Ramp**: The bath temperature raises with recovered volume.

**Adjustable**: The bath temperature is modified when the vapor temperature reaches a set value.

**Ambient T°**: The bath temperature is set at the ambient temperature.
## Time Information

### IBP Time
- **5 min**
- **15 min**

**IBP between 5 min and 15 min**

- **5% time**: 0 s
- **10% time**: 0 s

**No detection of 5% recovered**

**No detection of 10% recovered**

### FBP Time
- **5 min**

**FBP lower or equal at 5 min**

---

**Back**

**Save and exit**

**Exit**

**Time information**
NDI 450: Calibration menu

Calibration menu

Software menu

Hardware menu

Exit

Touch to select option
NDI 450 : Calibration menu (options)

PT-100 probe calibration :
Sample probe, Receiver bath probe, Condenser bath probe and Ambient probe.

Thermocouple probe calibration :
Dry point probe and Heating probe.

Barometric pressure calibration

Receiver calibration

Touch screen calibration
NDI 450 : Software menu

Software setup

Touch to select option

Calibration menu
Software menu
Hardware menu
Exit
NDI 450 : Software menu (options)

Regional and language options :
*Date and time, Language and keyboard, Temperature units and Pressure units.*

User and password :
*User name, User account, Password and Security level.*

Software update :
*By USB key, Internet or FTP protocol.*

Instrument :
*Instrument name, Serial number and network informations.*
NDI 450 : Software menu (options)

Start test settings :
*Default sample name and operator name.*

Test Report settings :
*Printer, Bar code, LIMS, Mail, PDF file and DOC+XLS files*
NDI 450: Hardware menu

Touch to select option

Hardware setup

Input/Outputs
Connector
Printer
Self-diagnosis

Calibration menu
Software menu
Hardware menu
Exit
NDI 450: Hardware menu

Inputs/Outputs management:
Receiver chamber, Condenser bath, Level follower and Flask heater area.

Connection settings:
Internet protocol TCP/IP and Communication port COM1.

Printers:
Add a new local USB printer or a new network printer.

Self-diagnosis
The software is available in English and French. But the software can be translated into over 35 languages (on demand).

**List of optional languages:**

<table>
<thead>
<tr>
<th>Language</th>
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</tr>
</thead>
<tbody>
<tr>
<td>German</td>
<td>Russian</td>
<td>Greek</td>
<td>Slovak</td>
<td></td>
</tr>
<tr>
<td>Australian</td>
<td>Swedish</td>
<td>Hebrews</td>
<td>Slovenian</td>
<td></td>
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<tr>
<td>Danish</td>
<td>Czech</td>
<td>Hungarian</td>
<td>Thai</td>
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<tr>
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<td>Arabic</td>
<td>Irish</td>
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<tr>
<td>Finnish</td>
<td>Bosnian</td>
<td>Japanese</td>
<td>Vietnamese</td>
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<tr>
<td>Icelandic</td>
<td>Bulgarian</td>
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<tr>
<td>Italian</td>
<td>Chinese</td>
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<td>Dutch</td>
<td>Korean</td>
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<tr>
<td>Norwegian</td>
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<tr>
<td>Portuguese</td>
<td>Estonian</td>
<td>Serbian</td>
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</tbody>
</table>
The use of barcode to identify and manage products has become essential. The Instrument can read this information by using a barcode reader. The barcode reader must be compatible with Windows XP. Barcodes can also be printed out and added to the analysis report.
You can manage several types of barcode. All these types can be printed.
NDI 450 and the security

The instrument allows to set several security levels. The security levels are:

None: Unit configuration functions won't be password protected.

Simple: Unit configuration functions will be password protected (one password for all operators).

Heavy: The supervisor of the device can manage several operator’s accounts.
In the highest security level, the supervisor can also manage the access of the operators.
THaNK YOU VERY MUCH FOR YOUR TIME!

PETROLEUM TESTING INSTRUMENTS and manufacturing glassware

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