

**AUTOMATED  
CLEVELAND  
OPEN CUP  
FLASH POINT  
TESTER**



## **ACO-7 Asphalt Version**

### For bitumen & surface skin forming samples

Model ACO-7 Asphalt Version is a new addition to the latest version of the automated Cleveland Open Cup(COC) flash point tester from Tanaka. While maintaining the features of the regular ACO-7 flash point tester, a unique skimmer was added to automatically remove the surface skin that forms on the sample when bitumen or some other samples are tested. Surface skin removal has been known to improve the precision and the safety of the COC flash point testing of such samples, and some test methods including JIS recommend it

When this seventh generation automated flash point tester series was designed after 35 years of delivering the this product line to the petroleum industry, ease of operation and maintenance was sought.

**SINGLE ACTION SETTING:** The flash detector rings, the temperature sensor and the skimmer are permanently mounted on a swing-arm assembly, which allows an easy setting of the specimen

**EASY OPERATION:** Select a test mode and enter the expected flash point ; while the instrument executes the test, you are free to do other lab work. The tester follows the exact procedures prescribed in the test method, and the completion of the test cycle is signaled by beeps. The test result is brightly shown on the VFD module.

**AUTO FIRE POINT DETECTION:** In addition to the flash point, fire point can be determined automatically. The fire point is detected when the double Ionization rings detects 5 sec of continuous burning.

**AUTO FIRE CONTAINMENT:** ACO-7 is equipped with a fire containment lid which activates automatically to help putting out fire when ACO-7 detects a fire point or specimen is burning up heavily.

**DATA HANDLING:** The unit is equipped to store up to 50 successive test results and export to an optional printer or to a LIMS through an RS232 port.

**MODULAR DESIGN:** The tester consists of a computer control unit and a test head unit, allowing remotely placing the test head unit up to 3 meters away. An optional Changeover unit can be purchased to attach the control unit to another type of flash point test head unit (APM-7 or ATG-7). The control unit is designed to control any type of the three different flash point test head unit, but one at a time.

## SPECIFICATIONS:

### CONFORMING STANDARDS:

ISO 2592, ASTM D92, IP 36, etc.

### MEASURING RANGE:

Ambient to 400°C

### TEST MODE:

ASTM D92 Flash + Fire, Special (Fast Search),

Skim, User's Custom

### DISPLAY:

Fluorescent display tube (VFD Module)

### TEMPERATUR SENSOR:

PT-100 in stainless steel sheath

### FLASH DETECTOR:

Ionization Ring

### HEATER:

Nichrome Coil heater: 800W@100V or 800W@220V

### IGNITION SOURCE:

Gas ignition with automatic lighting

### SKIMMING MECHANISM:

Teflon Paddle rotates to skim the surface film off specimen.

Skimming start temp. and interval are programmable. When not in use, the paddle can be removed.

### COOLING DEVICE:

Forced air cooling by sirocco fan

### BAROMETRIC CORRECTION:

By built-in barometric pressure sensor

### DATA OUTPUT:

RS-232C 1 channel (for PC or Optional Printer)

### SAFETY MECHANISM:

Fire containment lid which activates automatically to help putting out fire when ACO-7 detects a fire point

Automatically shuts off and the problem is reported by buzzer and display, in case:

- EFP+30°C or at 400°C is reached,
- Temperature sensor is found defective,
- Flash detector is found defective,
- Thermofuse is blown (Also fire containment lid activates),
- Built-in battery is found drained out,
- Arm is not set in place, or
- Control computer runs away (no display)

### DIMENSION & WEIGHT:

Control unit: 230W x 455D x 110H (mm), 6.0kg

Test unit: 230W x 450D x 345H (mm), 14.5kg

### INSTALLATION SITE:

Ambient temperature: 0 to 40°C

RH: Less than 90%(no condensation)

### UTILITY:

#### POWER SUPPLY:

AC100/120V or 220/240V 50/60Hz

(set at the factory) 1.0kW(max.)

#### GAS SUPPLY:

LP gas or natural gas (Max. pressure<9.8kPa)

### ORDERING INFORMATION:

#### STANDARD ACCESSORIES:

- |  |      |
|--|------|
| 1. Test Cup Assembly                                 | 1pc  |
| 2. Power Connecting Cable, 0.6m                      | 1pc  |
| 3. Signal Connecting Cable, 0.6m                     | 1pc  |
| 4. AC Power Cord, 3.0m (<AC125V<br>or 2.5m (>AC200V) | 1pc  |
| 5. Thermal Insulation (Heating Plate)                | 1pc  |
| 6. Spare Thermofuse                                  | 3pcs |
| 7. Insulation tube for Thermofuse, 0.1m              | 1pc  |
| 8. Spare Paddle                                      | 4pcs |
| 9. Gas Hose 9x16x1500mm                              | 1pc  |
| 10. Gas Hose Band                                    | 2pcs |
| 11. Instruction Manual                               | 1pc  |

#### OPTIONAL ACCESSORIES:

Mercury Thermometer Holder for Calibration

Power Connecting Cable, 3m

Signal Connecting Cable, 3m

Built-in Clock Board (for time/date verification)

Printer, BS2-80TS (we recommend that optional Built-in  
Clock Board be purchased with this Printer)

Changeover Unit, Model: CHG-7

#### SUGGESTED SPARES:

- |   |      |
|---|------|
| 1. Test Cup Assembly                      | 1pc  |
| 2. Igniter Top (Ignition Filament)        | 2pcs |
| 3. Thermofuse (pack of 5, with Insulator) | 1pk  |
| 4. Temperature Sensor                     | 1pc  |
| 5. Inner Detector Ring                    | 1pc  |
| 6. Outer Detector Ring                    | 1pc  |
| 7. Insulating Collar for Flash Detector   | 2pcs |
| 8. Teflon Paddle                          | 5pcs |
| 9. Nichrom Heater Coil 800W               | 1pc  |

Specifications subject to change without prior notice.

## TANAKA SCIENTIFIC LIMITED

7-10-3, Ayase, Adachi-ku, Tokyo 120-0005 Japan

Tel: +81-3-3620-1711 Fax: +81-3-3620-1713

URL: <http://www.tanaka-sci.com>

e-mail: [sales@tanaka-sci.com](mailto:sales@tanaka-sci.com) Printed in Japan 0912(E)