

APPARATUS

CODE	PART NAME	REMARKS
MPC-00-018	MPC-102S	Mini Pour / Cloud Point Tester
230-03-040	CB-80C	Cryo Block Bath manufactured by SCINICS®.

STANDARD ACCESSORIES

CODE	PART NAME	SET	REMARKS
MPC-01-009	SPECIMEN CUP with REFLEX SEAL	1	Cylindrical glass test jar with 4.5ml sample volume with reflex seal on the bottom for cloud point test.
MPC-01-010	PRESSURE CONDUCTING TUBE	1	A glass tube for pour point test by air pressure method.
MPC-01-020	DETECTOR ASSEMBLY for PP and CP	1	Temperature sensor, CP sensor and air tube assembly.
520-00-243	DETECTOR REST	1	Place to put detector head while replacing sample.
MPC-01-420	DETECTOR INSULATOR	1	Prevent detector head from condensation.
MPC-03-029	POWER CONNECTING CABLE for COOLING UNIT	1	To supply AC power to cooling unit.
MPC-03-030	SIGNAL CONNECTING CABLE for COOLING UNIT	1	To make a communication with cooling unit.
MPC-02-032	AC POWER CABLE	1	For 100 to 120V
MPC-02-033			For 220 to 240V
320-00-021	FUSE	1	Glass fuse for AC power cable inlet (2A).
—	MPC-102S MANUALS	1	Manuals for MPC-102S and CB-80C.

OPTIONAL ACCESSORIES

CODE	PART NAME	REMARKS
070-00-068	PRINTER, BS2-80TS	Prints out test data and instrument settings.

SUGGESTED SPARES for 2 YEARS

CODE	PART NAME	SET	REMARKS
MPC-01-009	SPECIMEN CUP with REFLEX SEAL	20	Refer to Standard Accessories.
MPC-01-010	PRESSURE CONDUCTING TUBE	20	Refer to Standard Accessories.
MPC-01-411	REFLEX SEAL	30	Spare seal to putting on the bottom of specimen cup.
210-00-005	O-RING P-8	2	Sealing between detector head and conducting tube.
210-00-060	O-RING G-35	2	Sealing between detector head and sample chamber.

We reserve the right of changes without prior notice.
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TANAKA Automatic Petroleum Tester

MINI POUR / CLOUD POINT TESTER MPC-102S



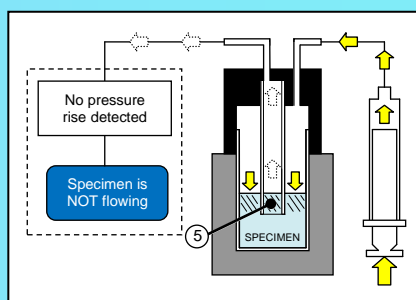
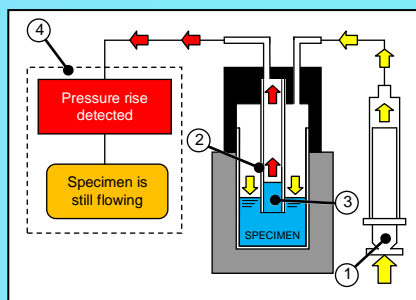
MPC-102S shown with optional printer "BS2-80TS"

- EASY & QUICK OPERATION
- NO LIQUID CHILLER
- HIGH PRECISION
- COMPACT DESIGN & ENERGY EFFICIENT
- ASTM STANDARD TEST METHOD
(ASTM D6749 for PP, and D7683 for CP)

TANAKA's MPC-102S has been designed for automatic determination of **POUR POINT (PP)** and **CLOUD POINT (CP)** with small specimen size and shorter test cycle time while securing better test precision than the conventional manual methods'. PP measurement is by "**AIR PRESSURE METHOD**" (ASTM D6749), and CP measurement is by "**SMALL TEST JAR METHOD**" (ASTM D7683). The epoch-making automatic PP test method yields 1°C test resolution, while the new CP method yields 0.1°C resolution.

PRINCIPLE of POUR POINT DETECTION

The MPC Series employs our unique air pressure method to detect pour points. As test starts, the specimen is automatically heated and then cooled at a controlled rate. When the specimen reaches certain temperature, air pressure is gently applied onto the specimen by a **pressurizing syringe (1)** that is connected to the outer region of the **pressure conducting tube (2)**. The pressure differential causes the specimen to flow, with the surface level inside the conducting tube **rising (3)** (principle of the U-tube), causing a change in pressure that is detected by the **pressure sensor (4)**, and the pressure switch is activated, indicating to the instrument that the specimen is still flowing. Specimen is kept cooling and air pressure is applied at certain temperature interval. When the specimen is not flowing, the specimen surface levels do not change despite the pressure differential. Thus, the pressure inside the conducting tube remains **unchanged (5)** and the pressure switch is not activated, indicating the specimen is not flowing (solidified), and the test completes. (More detail can be found in ASTM D 6749.)



NEW COOLING SYSTEM

With a cryo block bath model CB-80C manufactured by SCINICS®, MPC-102S works without an external liquid chiller!!

TESTING INTERVALS

PP can be determined at 1°C, 2.5°C or 3°C intervals. 1°C interval testing can allow for more precise process control, and therefore a considerable savings in the process can be realized.

Likewise, CP can be determined at either 0.1°C or 1°C.

HIGH PRECISION POUR POINT DETERMINATION

The typical repeatability and reproducibility are 1°C and 2°C respectively, when PP is determined at 1°C intervals.

EASY & QUICK DETERMINATION

Just set up a sample, select a test mode and expected pour point then press the “START” key. The sample is cooled at the steepest possible rate without affecting the formation/growth of wax crystal, which has been known to be a critical factor for PP/CP determination. The test cycle time is typically 1/3 to 1/2 of that of the conventional tilting methods. (*1)

*1: When a diesel fuel oil with PP of -30°C is tested, the Air Pressure method took 45 minutes while the conventional tilting method took 140 minutes.

EASY SAMPLE HANDLING

Since the required sample volume is a mere 4.5mL and the sample cup is a test-tube type removable jar, the sample handling is extremely easy.

COMPACT DESIGN & ENERGY EFFICIENT

A compact and energy efficient cryo block bath model CB-80C is capable of cooling the samples to -65°C without a liquid chiller. Electric energy consumption is only 20% comparing to MPC-102L with external liquid chiller!!

SPECIFICATIONS of MPC-102S

ORDERING INFORMATION	MPC-102S ; MINI POUR / CLOUD POINT TESTER Sequential CP and PP measuring capability. Sample cooling and pre-heating by cryo block bath.
TEST STANDARDS	PP : ASTM D6749 / D97, ISO3015 CP : ASTM D7683 / D2500, ISO3016
SPECIMEN VOLUME	4.5ml
MEASUREMENT MODES	Selectable from various modes. 1. CP mode: 0.1°C or 1.0°C intervals 2. PP mode: Programmed by the user. Programmable parameters are; *Amount of applied air pressure for PP detection, to accommodate different sample types: L (Low) for diesel fuels, H (High) for lube oils, VH (Very High) and UH (Ultra High) for residual fuels and similar samples. *Testing intervals: 1.0°C, 2.5°C or 3.0°C (in total, 4x3=12 modes for PP.) 3. CP / PP modes: CP is determined and then PP. PP detection is programmable by the user with the same parameters as PP modes'.
MEASURING RANGE	+51°C to -65°C
AUTOMATIC PRE-HEATING	Automatic preheating at either +45°C or EPP+10°C. (EPP= Expected Pour Point)
DISPLAY	Big digital display on VFD. For showing real time test parameters (sample temperature, bath temperature, test result) and instrument settings.
EPP SETTING	EPP needs to be set prior to test starts. (EPP= Expected Pour Point)
SPECIMEN CUP	Cylindrical glass test jar with 4.5ml sample volume with reflex seal on the bottom for cloud point test.
SENSORS	Compound type sensor assembly for PP and CP. PP detected by air pressure method (patented). CP detected photo-electrically. PT100 temperature sensors.
SAMPLE COOLING RATE	As standard, 4°C/min. till EPP+40°C, and 1°C/min. Thereafter cooling profile is programmable.
SAFETY SHUTDOWN	As hot side of TED reaches 60°C while preheating, warning buzzer beeps and heating stops.
DATA OUTPUT	RS-232C = 1 channel (for PC or Optional Printer)
POWER SUPPLY	100VAC to 240 VAC, 50/60Hz
POWER CONSUMPTION	160VA MAX (including CB-80C), approximately 80VA during a test.
ELECTRICITY CONSUMPTION	80Wh for 1 test (about 1 hour), 30gCO ₂ (@ 0.378kgCO ₂ /1kWh)
OPERATING TEMP. RANGE	10°C to 35°C
DIMENSIONS & WEIGHT	300mm (W) × 460mm (D) × 320mm (H) 11kg

SPECIFICATIONS of CRYO BLOCK BATH

ORDERING INFORMATION	CB-80C ; CRYO BLOCK BATH, manufactured by SCINICS®
TEMPERATURE RANGE	-70°C to +80°C
TEMPERATURE CONTROL	PID control (with 2 points of revision functions)
DIMENSIONS & WEIGHT	222(W) × 407(D) × 238(H) 13kg