

## Automatic Pour / Cloud / Freezing Point Tester

# mpc-6

Tanaka's new Automatic Pour / Cloud / Freezing Point Tester mpc-6 is designed with "Simple, Reliable, and Robust" concepts. The mpc-6 requires a mere 4.5 mL sample and provides quick automatic determination of 3 key cold property measurements with high precision.

### INNOVATIVE

- Tanaka's original mini test methods which require much less sample volume (4.5 mL) and short testing time compared to conventional manual methods.

### SMALLEST FOOTPRINT

- Very small width of 16 cm allows for most efficient use of bench space.

### 3-in-1

- Test pour point, cloud point, and freezing point with just one instrument. Pour and cloud can be run simultaneously in a single run.

### Eco-friendly

- Equipped with CFC-free cooler achieving low noise, low vibration, and energy-saving. Sample temperature of -90 °C can be reached without external chiller.



## Intuitive 7-inch Touch-Screen Operation

Simplicity ensures smooth operation

## Extremely Simple

Set sample cup, input expected points and then press START. Pre-heat and cooling sequence are run automatically. Pour and Cloud point results can be obtained in a single run.

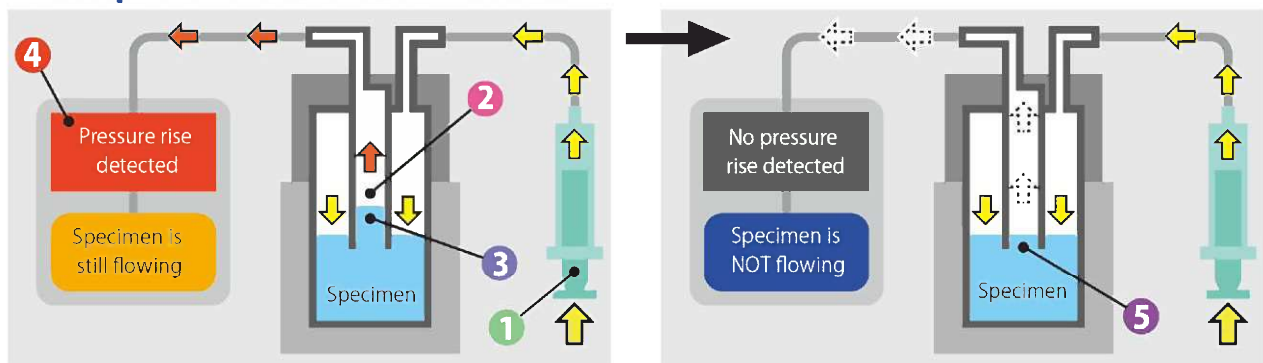
## Search Mode for Unknown Samples

The new SPE mode will test pour point with different pressures so that parameter optimization can be easily done.

## Data Connectivity and Management

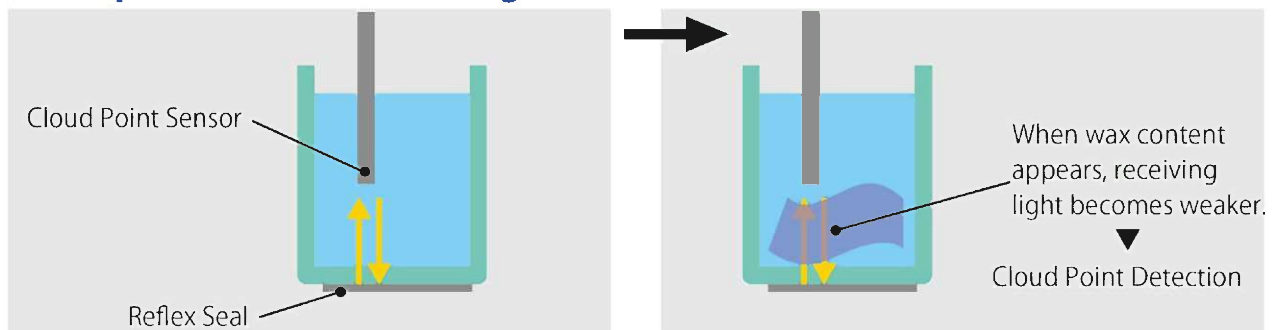
Data can be exported to LIMS or optional printer via Ethernet.  
Data storage for up to 50 data can be secured with password.

## Principle of Pour Point Detection



mpc-6 detects the pour point using our unique Air Pressure Method. The test specimen is preheated up to a specific temperature, then cooled at a controlled rate by the sequence program. At certain preset points reached during cooling, the specimen surface is subjected to air pressure from the connected **Pressurizing Syringe ①** whose pressure is applied onto the circumference of the specimen surface. The central surface area of the specimen has the **Pressure Conducting Tube ②** inserted into it. The increased air pressure onto the circumference surface causes its surface level to fall slightly. As a consequence (using the principle of the U-tube), the **surface level of the specimen inside the Pressure Conducting Tube rises ③**, and the pressure change caused by this rise is detected by the **Pressure Sensor ④**, confirming that the specimen has not yet solidified. Cooling of the specimen continues and the pour point detection is performed at the preset detection intervals. As the specimen movement reduces (which means solidification has started), **the surface level outside the Conducting Tube becomes steady ⑤** in spite of the application of increased air pressure, and therefore no more pressure change occurs inside the Conducting Tube. The last point at which pressure change was detected is determined as the pour point. (For more details, refer to ASTM D6749.)

## Principle of Cloud/ Freezing Point Detection



The temperature sensor to measure the specimen temperature is installed as well as Cloud Point sensor on the detector head. The Reflex Seal is fitted on the bottom of specimen cup, which can reflect the light from the sensor. Sensor is a double structure that consists of projector and receiver, and it observes the automatically adjusted light level during a test. When wax content appears from the bottom of specimen, then receiving light becomes weaker. The cloud point is detected when it reaches down to specific level.

During a freezing point test, both the crystallization point and freezing point are detected by the same sensor.

# Specifications



Product	Automatic Pour / Cloud / Freezing Point Tester
Model	<i>mpc-6</i>
Compliant Methods	PP : ASTM D6749 CP : ASTM D7683
Reference Methods	PP : ASTM D97, ISO 3016, JIS K 2269 CP : ASTM D2500, ISO 3015, JIS K 2269 FZ : ASTM D2386, ISO 3013, JIS K 2276
Specimen Volume	4.5 mL
Measurement Modes	PP/CP, PP, CP, FZ PP Pressure : L, H, VH, UH, SPE, Custom PP Intervals : 1.0 °C, 2.5 °C, 3.0 °C, Custom CP Intervals : 0.1 °C, 1.0 °C FZ Intervals : 0.1 °C, 0.5 °C
Measuring Range	-90 °C to +51 °C (at room temperature of 25 °C)
Bath Temperature Range	-100 °C to +70 °C (at room temperature of 25 °C)
Display Device	7 inch wide color LCD touch screen
Temperature Sensor	Platinum resistance thermometer (100 Ω/0 °C, PT100)
Specimen Cooling Rate	Customizable Default for PP/CP : <ul style="list-style-type: none"> <li>● 4 °C/min from START to 40 °C above expected point</li> <li>● Thereafter, 1 °C/min until end of test</li> </ul> Default for FZ : <ul style="list-style-type: none"> <li>● 10 °C/min from START to 40 °C above expected point</li> <li>● Thereafter, 1 °C/min until end of test</li> </ul>
Safety Function	Thermostat (built in the cooling unit)
Data Save	50 sets of data are stored
Test Mode Save	10 test modes are stored
External Output	USB2.0 : 2ch Ethernet: 1ch
Operating Environment	Temperature: 10 °C to 35 °C (fluctuation <10 °C within the day), Humidity: 80 %RH or less (no condensation)
Dimension (W × D × H)	W160 mm × D600 mm × H620 mm
Weight	30 kg
Power Supply	Voltage and power consumption: AC single phase 100 V to 240 V/160 VA Frequency: 50 Hz/60 Hz Voltage fluctuation should be within ±10 % of nominal voltage

Note: Specifications and appearance are subject to change for product improvement without prior notice.

## Standard Accessories

Code No.	Part Name	Qty	Remarks
1007496	Specimen Cup with Reflex Seal	1	4.5 mL sample volume
1001488	Pressure Conducting Tube	1	A glass tube for pour point test
1004814	Glass Tube Fuse $\phi$ 5.2 5A	1	
	Fall prevention fixture	1	with Screws
	AC Power Cord	1	2.0 m for 100 V to 120 V
	AC Power Cord	1	2.5 m for 220 V to 240 V
	USB Memory	1	Instruction & Maintenance Manuals

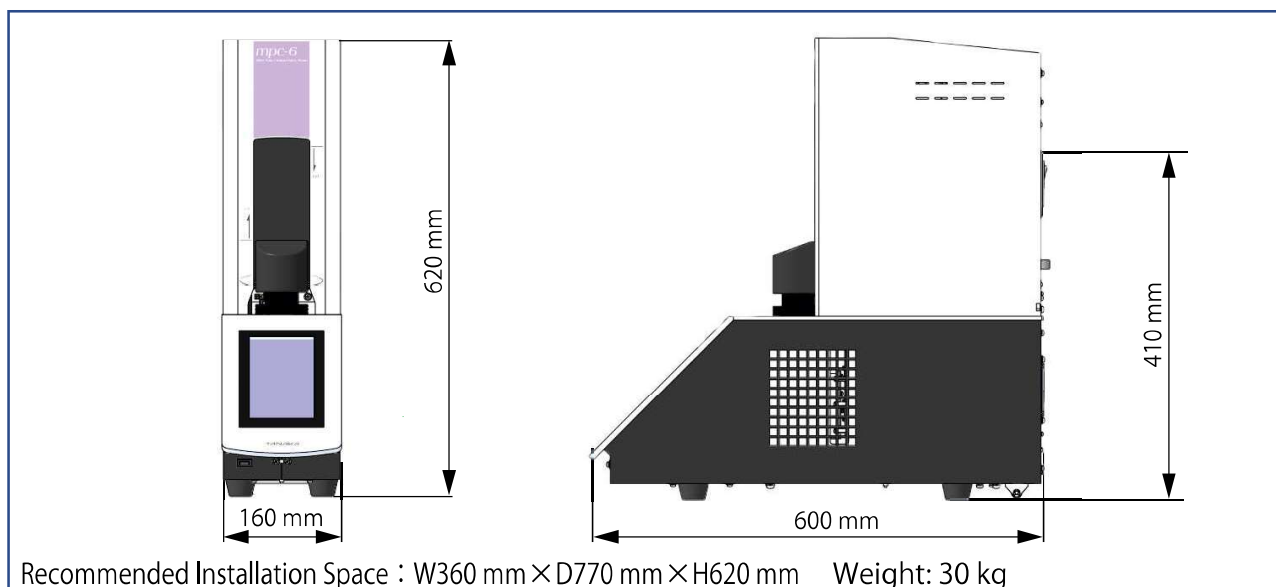
## Optional Accessories

Code No.	Part Name	Remarks
1005593	Printer NEX-C200U01 100 V to 120 V	Print out test data and instrument settings
1005594	Printer NEX-C200U05 220 V to 240 V	
1005861	Printer Roll Paper	W58 × $\phi$ 50

## Suggested Spares for 2 years

Code No.	Part Name	Qty	Remarks
1007496	Specimen Cup with Reflex Seal	20	Refer to Standard Accessories
1001488	Pressure Conducting Tube	20	Refer to Standard Accessories
1001501	Reflex Seal	30	Spare seal to putting on the bottom of specimen cup.
1000396	O-Ring P-8	2	
1000411	O-Ring G-35	2	

## Dimension



Distributed by

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