



TERMS OF REFERENCE FOR THE SUPPLY, DELIVERY AND TESTING OF ASPIRATION PSYCHROMETERS WITH DUAL-TUBE ALCOHOL FILLED THERMOMETER (AC/DC TYPE) AND RECORDING THERMOMETERS, QUARTZ TYPE (THERMOGRAPH)

A. BACKGROUND

Mercury-in-glass thermometers have a long history of use in meteorological observing networks especially for the measurement of temperature and humidity. As these instruments provided an excellent performance of stability and accuracy they have been the main reference for several decades. In 2013, The United Nations Environment Programme (UNEP) agreed on the “Minamata Convention on Mercury” at the fifth session of the Intergovernmental Negotiating Committee on mercury in Geneva. This Convention is a global treaty to protect human health and the environment from the adverse effects of mercury. It entered into force on 16 August 2017. As per the Convention, the National Meteorological and Hydrological Services (NMHS) are strongly encouraged to take appropriate measures to move away from the use of all instruments containing mercury.

While recording thermometer (thermograph) is good to read the temperature changes for a certain period at a glance and easily check the time of occurrence of maximum and minimum values.

B. APPROVED BUDGET FOR THE CONTRACT (ABC)

The Approved Budget for the Contract (ABC) is **ONE MILLION NINE HUNDRED SIX THOUSAND & FOUR HUNDRED PESOS ONLY (1,906,400.00)** inclusive of VAT and other applicable taxes prescribed by law.

C. PERIOD AND PLACE OF DELIVERY

The winning bidder shall Supply, Deliver and Test the Aspiration Psychrometers with dual-tube alcohol filled thermometer (AC/DC type) and Recording Thermometers, quartz type (thermograph) within a period of **Sixty (60) calendar days** commencing upon receipt of the Purchase Order (PO). The location of delivery at PAGASA Science Garden Compound, Agham Road, Diliman, Quezon City.

D. TECHNICAL SPECIFICATIONS

1. Assmann Type Psychrometer (AC/DC type)

Measuring range	:	0 to 50°C : Dual-tube alcohol filled thermometer
Accuracy of thermometer	:	±0.2°C
Speed of air flow	:	3 m/s to 5 m/s
Power requirements	:	3 VDC ("D" size manganese battery x 2) or AC adapter (in 100 to 240VAC use, 50/60Hz)
Dimensions	:	(W)80 x (H)452 x (D)110mm
Weight	:	approx. 0.74 kg (without batteries)
Accessories	:	Test result for thermometers, water supply bottle, dustproof cover, humidity conversion rule, humidity conversion table, 20 wicks, 2 "D" size manganese batteries, AC adapter (in 100 to 240VAC use), carrying case (possible to accommodate all accessories and a compact stand)

2. Alcohol-filled thermometers (a set of 2 pcs.)

Range:	:	0 to 50°C
Min. graduation:	:	0.2°C
Accuracy:	:	±0.2°C

3. Spare wicks (60 pcs./box)

4. Thermograph : including 1 box of 7-day chart **for one year use**, 2 manganese batteries, test result and one cartridge pen is a factory set.

Specifications:

Clock	:	Quartz type, Two "C" size batteries Battery life: about 1 year in continuous use
Drum rotation	:	1-day, 7-day and 32-day changed by a cylinder speed switch
Sensor	:	Aged bimetal strip
Measuring range	:	-10 to 50°C
Accuracy	:	±1°C at 10 to 30°C ±2°C other than above
Chart min. Graduation	:	1°C
Recording pen	:	Cartridge pen (violet)
Dimensions	:	(W)336 x (H) 295x (D)148 mm
Weight	:	approx. 2.9 kg
Accessories	:	7-day chart for 1 year use (55 sheets/box), chart holder "C" size battery x 2

5. No. 7230-62S spare : 7 day chart for thermograph, 55 sheets/box

Range : -10 to 50°C (HS code: 9025.90)

6. No. 7210-90 spare : 7 or 8 month-use per cartridge pen
cartridge pen (violet)

E. WARRANTY

Products are warranted to be free from defects in materials and workmanship for a period of one year from date of delivery.