1. **PURPOSE:**

To describe the Operation and Calibration of TDS/CONDUCTIVITY Analyser

1. **SCOPE:**

This procedure is applicable to the TDS/CONDUCTIVITY Analyzer of Laboratory.

Make : Polmon

Model : CM-540

ID No. : DIPL/QC/INS/TDS/001

1. **RESPONSIBILITY:**
   1. Analyst-QC is responsible to follow this SOP.
   2. Head-QC/Designee is responsible for ensuring implementation of this SOP.
   3. Head-QA/Designee is responsible for monitoring overall compliance of this SOP.
2. **DEFINITIONS:**

Nil

1. **PROCEDURE:**
   1. **OPERATION:**
      1. Clean the instrument keep the area neat and clean.
      2. Switch on the main power supply.
      3. Press **PRG/CAL** key to enter into program mode PASSWORD menu is displayed**.**

|  |
| --- |
| **PASSWORD**  **XXX** |

* + 1. Using ↑ or↓ keys to set PASS WORD (100) and use OK Key display shows.

**PRG**

**1. Calib**

* + 1. To determine the **TDS of the**  sample select

**PRG**

**2. Option**

* + 1. Using ↑ or↓ keys and use OK Key display shows. **OPTION**

**PRG**

**1. READ**

* + 1. To select the MEASURE **MODE press** **OK** Key the display shows.

|  |  |  |
| --- | --- | --- |
| **Measure**  **TDS** | or | **Measure**  **Cond** |

* + 1. Use ↑ Key between **TDS** or **CONDUCTIVITY**
    2. Select then press **OK** key

**Measure**

**TDS**

* + 1. The display shows then set TDS factor 0.7 by using ↑ or↓ keys.

**TDS Fact**

**0.00**

* + 1. Press **OK** key the display shows.

**Option**

**2:T.Comp**

* + 1. Press **OK** Key the display shows. By using ↑ key.

**Temp Com**

**ON**

**Temp Com**

**OFF**

* + 1. Select

**Temp Com**

**ON**

* + 1. Press OK key the display shows .By using ↑ key.

**Temp**

**Auto**

**Temp**

**Man**

* + 1. Select

**Temp**

**Auto**

* + 1. Press OK Key the display shows then set temperature coefficient to 1% by Using ↑ or ↓ or keys

**T. Coeff**

**1%**

* + 1. Press OK key the display shows

**Option**

**3:Cell**

* + 1. Then press OK key the display shows adjust the cell constant given on the electrode **(Cell constant 1.02)** using **↓** or**↑** keys. Then press **OK** key.

**Cell**

**1.000**

* + 1. Press **PGR/CAL** key. Now instrument is ready for measuring **TDS.**
    2. Dip the electrode/electrode assembly into **the** sample .Wait for completion analysis.
    3. After completion the reading will display.
    4. To determine the CONDUCTIVITY of the sample select Using **↑** or↓ key and press **OK** display shows **OPTION** menu.
    5. To select the **MEASURE MODE** press OK key the display shows.

|  |  |  |
| --- | --- | --- |
| **Measure**  **TDS** | or | **Measure**  **Cond** |

Use ↓ or ↑ key between **TDS** or **CONDUCTIVITY.**

* + 1. Select then press OK key. The display shows

**Measure**

**Cond**

**Option**

**2:T.Comp**

* + 1. Press **OK** Key the display shows. By using ↑ key

**Temp Com**

**ON**

**Temp Com**

**OFF**

Select

**Temp Com**

**ON**

* + 1. Press OK key the display shows .By using ↑ key

**Temp**

**Auto**

**Temp**

**Man**

Select

**Temp**

**Auto**

* + 1. Press OK Key the display shows then set temperature coefficient to 1% by Using ↑ or ↓ or keys

**T. Coeff**

**1%**

* + 1. Press OK key the display shows

**Option**

**3:Cell**

* + 1. Then press OK key the display shows adjust the cell constant given on the electrode **(Cell constant 1.02)** using **↓** or**↑** keys. Then press **OK** key.

**Cell**

**1.000**

* + 1. Press **PGR/CAL** key. Now instrument is ready for measuring **CONDUCTIVITY.**
    2. Dip the electrode in to the water.
    3. Select the AUTO RANGE by using MODE key the display shows then press OK Key

**Range**

**Auto**

* + 1. Remove the electrode from the beaker wash with distilled water and wipe with tissue paper to remove the water droplets on the surface of the electrode.
    2. Immerse the electrode and solution whose **CONDUCTIVITY** to be measured
    3. Record the **CONDUCTIVITY**. Value in the equipment log book.
  1. **CALIBRATION:**
     1. **PREPARATION OF STANDARD KCL SOLUTION:**

**Preparation of 0.1 N KCl Solution:**

Weigh accurately about 0.7492 gr of KCl into 100 ml volumetric Flask dissolve in distilled water up to the mark with the same solvent.

**Preparation of 0.001 N KCl Solutions:**

Pipette out exactly 1ml of 0.01N KCl solution into a 100 ml Volumetric flask dissolve in distilled water make up to the mark with the same solvent.

* + 1. Press **PRG/CAL** key to enter into program mode PASSWORD menu is displayed**.**

|  |
| --- |
| **PASSWORD**  **XXX** |

* + 1. Using **↑** or **↓** keys to set PASS WORD (100) and use **OK** Key display shows.

**PRG**

**1. Calib**

* + 1. To calibrate the Instrument press **OK** key the display shows

**Sensor**

**Cal**

* + 1. Press OK key the display shows scrolling massage

**Dip Cell in STD Solu.**

* + 1. At this stage immerse the electrode in the known conductivity solution and press **OK** key the display shows

**Wait**

* + 1. After reading the stabilized **TDS/CONDUCTAVITY** segment display shows the measured value as shows below

**xxx**

* + 1. The LCD display shows

**XX.X0C**

**A**

**Do Calib**

* + 1. The LED lamp(ppm/µs or ppt/ms)glows as per the sample **TDS/CONDUCTAVITY**
    2. The measured value shows in segment play can adjusted to the required **STD** value as mentioned inthe Table 1 by using **↑** and **↓** keys. This will automatically update cell constant.
    3. Press **OK** keys to save the calibrated value. The display shows or by using **↓** or **↑** keys to toggle between **Y or N**

**Save Y**

**Save N**

* + 1. Then press **OK** keys to select the option
    2. Acceptance Criteria

|  |  |  |
| --- | --- | --- |
| **Grams KCL/Kg of solution** | **K 1NΩ-1Cm-1** | **Acceptance Criteria** |
| 0.001N | 146.9µ | ±0.5 µ |

* + 1. **Calibration Schedule**: Calibration shall be done every day.

1. **FORMATS / ANNEXURE(S):**

|  |  |  |
| --- | --- | --- |
| **S.No** | **Details** | **Format No. (Current version)** |
|  | Instrument Usage log book |  |
|  | TDS Analyser Calibration record |  |

1. **CHANGE HISTORY:**

| **Revision No.** | **Effective Date** | **Details of Revision** | **Ref CCF No.** |
| --- | --- | --- | --- |
| 00 | 01.06.2007 | New SOP Calibration of Equipments is introduced across all the API manufacturing facilities of Discovery. | -- |
| 01 | 01.08.2009 | Formats changed more clear and clarity | -- |
| 02 |  | Formats are the part of SOP. So prepared Separately. | -- |
| 03 | 01.01.2017 |  |  |