Lovibond® Water Testing
Tintometer® group

Wilhelmsen

MarineSafe Photometer

A methods and operating guide for the MarineSafe Photometer.

Items Supplied:

- MarineSafe Photometer
- Tablets:
    - 100x DPD No.1
    - 100x DPD No.3
    - 100x Chlorine HR (KI)
    - 100x Acidifying GP
    - 100x Iron LR
    - Copper No.1 & No.2 Combi Pack (50 each)
- 3x Sample Cells
- 3x Crushing Rods
- Cleaning Brush, Syringe and Screwdriver
- Download Cable
- Batteries

Good Practice:

- ☑ Keep instrument clean & dry
- ☑ Clean cells immediately after use
- ☑ Check vials for marks & scratches
- ☑ Discard of any damaged cells
- ☑ Always use o-rings to shield light
- ☑ Always align arrows on the vial and meter
- ☑ Allow the time required by the testing method
- ☑ Immediately clean any spills
- ☑ Keep sample chamber clean by using a soft cloth
- ☑ Ensure correct tablets are used and before expiry
- ☑ Use a clean crushing rod
- ☒ **NEVER** touch the tablets

Free Chlorine: Using DPD No.1 Tablets

1. Switch on the unit using the bottom/ arrow down button
2. Use up / down arrows and select the CLF M100 method by pushing the right button
3. A small picture of a clear vial should appear in the left hand corner of the display (if the vial shows a dark infill the unit is already zeroed so the following zero step can be ignored)
4. Fill one vial to the 10ml mark with sample water and add place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
5. Push the right ☑ button - the meter will zero shown by a row of arrows on the display.
6. Once the vial in the bottom corner shows a dark infill remove the vial and decant most of the sample into a second clean vial. Leaving a few drops in the original vial add 1 x DPD No1 tablet and crush. A pink / red colour indicates the presence of chlorine.
7. Pour the rest of the sample back into the vial. (if pink / red colour disappears this can indicate bleaching and very high chlorine levels)
8. Place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
9. Push the right ☑ button - the meter will read shown by a row of arrows on the display.
10. If the test has been carried out correctly, a reading will appear with a green background (this will disappear after a few seconds). This is the free chlorine reading.
11. A red screen indicates an issue with the test, instrument or an under/ over range value

Free, Combined and Total Chlorine: Using DPD No.1 & No.3 Tablets

1. Switch on the unit using bottom/ arrow down button
2. Use up / down arrows and select the CLC M100 method by pushing the right ☑ button
3. A small picture of a clear vial should appear in the left hand bottom corner of the display (if the vial shows a dark infill the unit is already zeroed so the following zero step can be ignored)
4. Fill one vial to the 10ml mark with sample water and add place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
5. Push the right ☑ button - the meter will zero shown by a row of arrows on the display.
6. Once the vial in the bottom corner shows a dark infill remove the vial and decant most of the sample into a second clean vial. Leaving a few drops in the original vial add 1 x DPD No.1 tablet and crush. A pink / red colour indicate the presence of chlorine.
7. Pour the rest of the sample back into the vial. (if pink / red colour disappears this can indicate bleaching and very high chlorine levels)
8. Place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
9. Push the right ☑ button, the meter will read shown by a row of arrows on the display. Please note at this stage no result will be displayed.
10. To the same vial, add 1x DPD No.3 Tablet and crush.
11. Place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pusheddown.
12. Push the right ☑ button and a 120 second count down will start.
13. At the end of this time the meter will automatically read the vial indicated by a row of arrows on the display
14. If the test has been carried out correctly a reading will appear with a green background) This is the combined chlorine reading.
15. The free and total chlorine readings can be displayed using the up/ down arrows.
16. A red screen indicates an issue with the test, instrument or an under/ over range value.

Bromine: Using DPD No.1 Tablets

1. Switch on the unit using bottom/ arrow down button
2. Use up / down arrows and select the CLF M080 method by pushing the right ☑ button
3. A small picture of a clear vial should appear in the left hand bottom corner of the display (if the vial shows a dark infill the unit is already zeroed so the following zero step can be ignored)
4. Fill one vial to the 10ml mark with sample water and add place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
5. Push the right ☑ button - the meter will zero shown by a row of arrows on the display.
6. Once the vial in the bottom corner shows a dark infill remove the vial and add 1x DPD No.1 tablet and crush. A pink/red colour indicates the presence of bromine.
7. Return the cell to the chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
8. Push the right ☑ button, the meter will read shown by a row of arrows on the display.
9. If the test has been carried out correctly, a reading will appear with a green background (this will disappear after a few seconds). This is the bromine reading.
10. A red screen indicates an issue with the test, instrument or an under/ over range value.

Chlorine HR: Using Chlorine HR (KI) and Acidifying GP Tablets

1. Switch on the unit using bottom/ arrow down button
2. Use up / down arrows and select the CL HR (KI) M105 method by pushing the right ☑ button
3. A small picture of a clear vial should appear in the left hand bottom corner of the display (if the vial shows a dark infill the unit is already zeroed so the following zero step can be ignored)
4. Fill one vial to the 10ml mark with sample water and add place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
5. Push the right ☑ button - the meter will zero shown by a row of arrows on the display.
6. Once the vial in the bottom corner shows a dark infill remove the vial and add 1x Chlorine HR (KI) tablet and crush.
7. To the same vial, add 1x Acidifying GP Tablet, crush and mix.
8. Place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
9. Push the right ☑ button, the meter will read shown by a row of arrows on the display.
10. If the test has been carried out correctly a reading will appear with a green background (this will disappear after a few seconds.) This is the total chlorine HR reading.
11. A red screen indicates an issue with the test, instrument or an under/ over range value.

Free Chlorine Dioxide: Using DPD No.1 Tablets

1. Switch on the unit using bottom/ arrow down button
2. Use up / down arrows and select the CLF (CLO2) M120 method by pushing the right ☑ button
3. A small picture of a clear vial should appear in the left hand bottom corner of the display (if the vial shows a dark infill the unit is already zeroed so the following zero step can be ignored)
4. Fill one vial to the 10ml mark with sample water and add place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
5. Push the right ☑ button - the meter will zero shown by a row of arrows on the display.
6. Once the vial in the bottom corner shows a dark infill remove the vial and decant most of the sample into a second clean vial. Leaving a few drops in the original vial add 1 x DPD No1 tablet and crush. A pink / red colour indicates the presence of chlorine dioxide.
7. Pour the rest of the sample back into the vial. (if pink / red colour disappears this can indicate bleaching and very high chlorine dioxide levels)
8. Place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
9. Push the right ☑ button, the meter will read shown by a row of arrows on the display.
10. If the test has been carried out correctly a reading will appear with a green back ground (this background will disappear after a few seconds). This is the free chlorine dioxide reading.
11. A red screen indicates an issue with the test, instrument or under/ over range value.

Please note, if chlorine is also present in the sample a DPD Glycine tablet should be added before the DPD No.1 to prevent interference.

Free Copper: Using Copper No.1 Tablets

1. Switch on the unit using bottom/ arrow down button
2. Use up / down arrows and select the CuF M150 method by pushing the right ☑ button
3. A small picture of a clear vial should appear in the left hand bottom corner of the display (if the vial shows a dark infill the unit is already zeroed so the following zero step can be ignored)
4. Fill one vial to the 10ml mark with sample water and add place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
5. Push the right ☑ button - the meter will zero shown by a row of arrows on the display.
6. Once the vial in the bottom corner shows a dark infill,remove the vial and add 1 x Copper No.1 tablet and crush.
7. Place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
8. Push the right ☑ button. A 120 second countdown will automatically start; at the end of this time the meter will read shown by a row of arrows on the display.
9. If the test has been carried out correctly a reading will appear with a green background (this background will disappear after a few seconds).
This is the free copper reading.
10. A red screen indicates an issue with the test, instrument or an under/ over range value.

Free, Combined and Total Copper: Using Copper No.1 and No.2 Tablets

1. Switch on the unit using bottom/ arrow down button
2. Use up / down arrows and select the Cu Diff M150 method by pushing the right ☑ button
3. A small picture of a clear vial should appear in the left hand bottom corner of the display (if the vial shows a dark infill the unit is already zeroed so the following zero step can be ignored)
4. Fill one vial to the 10ml mark with sample water and place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
5. Push the right ☑ button - the meter will zero shown by a row of arrows on the display.
6. Once the vial in the bottom corner shows a dark infill,remove the vial and add 1 x Copper No.1 tablet and crush. A 120 second countdown will automatically start.
7. Place the cell in the chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
8. Push the right ☑ button. A 120 second countdown will automatically start; at the end of this time the meter will read shown by a row of arrows on the display. (No result will appear at this point)
9. To the same vial add 1x Copper No.2 tablet and crush.
10. Place the cell in the chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
11. Push the right ☑ button. A 60 second countdown will automatically start, at the end of this time the meter will read shown by a row of arrows on the display.
12. If the test has been carried out correctly a reading will appear with a green background (this background will disappear after a few seconds). This is the combined copper reading. **The free and total values can be viewed using the up/down arrows.**
13. A red screen indicates an issue with the test, instrument or an under/ over range value.

Iron: Using Iron LR Tablets

1. Switch on the unit using bottom/ arrow down button
2. Use up / down arrows and select the Iron M220 method by pushing the right ☑ button
3. A small picture of a clear vial should appear in the left hand bottom corner of the display (if the vial shows a dark infill the unit is already zeroed so the following zero step can be ignored)
4. Fill one vial to the 10ml mark with sample water and place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
5. Push the right ☑ button - the meter will zero shown by a row of arrows on the display.
6. Once the vial in the bottom corner shows a dark infill,remove the vial and add 1 x Iron LR tablet and crush.
7. Place the cell in the chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
8. Push the right ☑ button. A 300 second countdown will automatically start; at the end of this time the meter will read shown by a row of arrows on the display.
9. If the test has been carried out correctly a reading will appear with a green background (this background will disappear after a few seconds).
This is the Iron LR reading.
10. A red screen indicates an issue with the test, instrument or an under/ over range value.

Hazen: No tablets required

1. Switch on the unit using bottom/ arrow down button
2. Use up / down arrows and select the Hazen M204 method by pushing the right ☑ button
3. A small picture of a clear vial should appear in the left hand bottom corner of the display. **For this test the unit needs to be zeroed each time.**
4. Fill one vial to the 10ml mark with deionized water and place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
5. Push the right ☑ button - the meter will zero shown by a row of arrows on the display.
6. Remove the cell and empty.
7. Rinse the cell several times with sample water and then fill to the 10ml mark with sample.
8. Place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
9. Push the right ☑ button, the meter will read shown by a row of arrows on the display.
10. If the test has been carried out correctly a reading will appear with a green background (this background will disappear after a few seconds).
This is the Hazen reading.
11. A red screen indicates an issue with the test, instrument or an under/ over range value.

Total Hardness: Using Hardcheck P Tablets (not supplied)

1. Switch on the unit using bottom/ arrow down button
2. Use up / down arrows and select the TH M200 method by pushing the right ☑ button
3. A small picture of a clear vial should appear in the left hand bottom corner of the display. (if the vial shows a dark infill the unit is already zeroed so the following zero step can be ignored)
4. Fill one vial to the 10ml mark with sample water and place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
5. Push the right ☑ button - the meter will zero shown by a row of arrows on the display.
6. Once the vial in the bottom corners shows a dark infill, remove the vial and add 1x Hardcheck P tablet and crush.
7. Place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
8. Push the right ☑ button. A 300 second countdown will automatically start; at the end of this time the meter will read shown by a row of arrows on the display.
9. If the test has been carried out correctly a reading will appear with a green background (this background will disappear after a few seconds).
This is the total hardness reading.
10. A red screen indicates an issue with the test, instrument or an under/ over range value.

Total Hardness HR: Using Hardcheck P Tablets (not supplied)

1. Switch on the unit using bottom/ arrow down button
2. Use up / down arrows and select the TH HR M201 method by pushing the right ☑ button
3. A small picture of a clear vial should appear in the left hand bottom corner of the display. (if the vial shows a dark infill the unit is already zeroed so the following zero step can be ignored)
4. To one vial, add 9ml of deionized water and 1ml of sample water
5. Mix and place the cell in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
5. Push the right ☑ button - the meter will zero shown by a row of arrows on the display.
6. Once the vial in the bottom corners shows a dark infill, remove the vial and add 1x Hardcheck P tablet and crush.
7. Place in the cell chamber ensuring the arrows on the cell and photometer are aligned and the O-ring is pushed down.
8. Push the right ☑ button. A 300 second countdown will automatically start; at the end of this time the meter will read shown by a row of arrows on the display.
9. If the test has been carried out correctly a reading will appear with a green background (this background will disappear after a few seconds).
This is the total hardness high range reading.
10. A red screen indicates an issue with the test, instrument or an under/ over range value.

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