

# Oxygen SA 10

Test kit for the determination of dissolved oxygen in water

**Method:**

Winkler method

**Contents of test kit (\*refill pack):**

sufficient for 100 tests where the average oxygen content is 9 mg/L O<sub>2</sub>

- 30 mL SA 10-1\*
- 30 mL SA 10-2\*
- 2 x 30 mL SA 10-3\*
- 10 mL SA 10-4\*
- 100 mL SA 10-TL\*
- 1 oxygen reaction bottle
- 1 test tube with ring mark
- 1 titration syringe 0–10 mg/L O<sub>2</sub>  
(1 gradation mark  $\triangleq$  0.2 mg/L)
- 2 dropping tips

**Hazard warning:**

Information regarding safety can be found on the box' label and in the safety data sheet. You can download the SDS from [www.mn-net.com/SDS](http://www.mn-net.com/SDS).

**Introductory Remark:**

For the sake of accuracy when carrying out this analytical determination, it is necessary to add the first reagents until the oxygen bottle overflows. The overflow will increase when the stopper is inserted. It is therefore recommended that the working surface be covered with a polyethylene-coated filter paper (e.g. MN 210 PE).

**Procedure:**

1. Rinse the oxygen bottle several times with the sample and fill up until it overflows.
2. Add 4 drops of SA 10-1.
3. Add 4 drops of SA 10-2.
4. Close the bottle with the stopper and mix by shaking.
5. After 2 min add 12 drops of SA 10-3, close the bottle and shake again until the deposit is dissolved.
6. Rinse the test tube with solution from point "5", then fill the test tube up to the ring mark.
7. Add 1 drop of SA 10-4. The solution becomes blue-grey to light blue. If need be, add more reagent until color arises.
8. Place the dropping tip on the titration syringe. Press down the plunger, dip the tip into the titration solution SA 10-TL and draw the plunger back slowly until the lower edge of the black plunger seal is level with value 0 on the scale. The small air cushion under the plunger will not effect the determination.
9. Adding the titration solution: We recommend holding the syringe in the left hand and the test tube in the right (see sketch), then add the titration solution slowly drop by drop, lightly swirling the test tube at the same time until the test solution is completely colorless. Just before the end of the titration, the solution changes color to light blue. The final change to colorless can be well followed against a white background. Read off oxygen content in mg/L from the syringe barrel (lower rim of the black plunger O-ring). The titration should not be carried out too slowly. After the end of the titration, another color change back to blue should be ignored.
10. Should the first syringe not be sufficient to produce the final change to colorless (i.e. concentrations in excess of 10 mg/L O<sub>2</sub>), then refill the syringe with the solution SA 10-TL and continue titrating until the test solution is colorless. Read off the result as above and add for each syringe filling 10 mg/L O<sub>2</sub>.

The method can be applied also for the analysis of sea water.

**Disposing of the samples:**

Information regarding disposal can be found in the safety data sheet. You can download the SDS from [www.mn-net.com/SDS](http://www.mn-net.com/SDS).

**Interferences:**

Oxidizing and reducing substances interfere, as for example active chlorine, sulfite, sulfide and higher manganese compounds. Organic compounds interfere, when the potassium permanganate level is in excess of 60 mg/L. To overcome this interference, it is possible to add afterwards 3 mL ammonium hydrogen carbonate solution (20 g in 100 mL distilled water). Iron(II) ions also interfere: 1 mg/L Fe<sup>2+</sup>  $\triangleq$  0.14 mg/L O<sub>2</sub>

