



Oxygen scavenger
For test kit 2349500 (OS-1)

DOC326.97.00045

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This kit measures several oxygen scavengers, including diethylhydroxylamine (DEHA), erythorbic acid (Isoascorbic acid), hydroquinone and methylethylketoxime. Results are in µg/L of the oxygen scavenger compound.

Test preparation

- Do not complete this test in either direct or indirect sunlight.
- DEHA 2 Reagent is corrosive. Use applicable protective equipment when handling.
- Both the temperature and reaction time will affect the results. Sample temperature should be 25 ± 3 °C. Read the concentration exactly 10 minutes after DEHA 2 Reagent addition.
- Use a fluorescent light source to match the colors with the color comparator.
- Rinse tubes, optical viewing inserts and bottles after each test. Contamination from previous tests can cause errors in subsequent tests.
- Periodically measure the ferrous iron (Fe²⁺) concentration. Use the Low Range procedure without the DEHA 2 Reagent. Start the timing after DEHA 1 Reagent addition in step 3. Subtract this value from the sample results.
- Make sure to clean tubes and tube inserts after each test to prevent a purple film on the glass surface. Remove the film with a 6 N hydrochloric acid solution and rinse with clean water.
- If the color disc gets wet, carefully dry the comparator box and the color disc with a soft cloth.
- If the best color match is between two segments, use the middle value of the two segments.

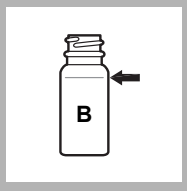
CAUTION: Handle chemical standards and reagents carefully. Review material safety data sheets before handling chemicals.

Sample preparation

Do these steps for all measurement ranges, then do the measurement instructions for the applicable test range:



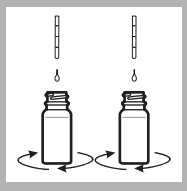
1. Thoroughly rinse one mixing bottle with sample, and fill to the 25-mL mark. Write an "S" on the bottle to identify the sample.



2. Thoroughly rinse a second mixing bottle with demineralized water that contains no oxygen scavengers or ferrous iron, and fill to the 25-mL mark. Write a "B" on the bottle to identify the solution.

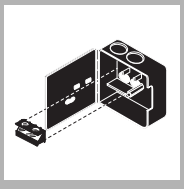


3. Add the contents of one DEHA 1 Reagent Powder Pillow to each bottle. Swirl to mix.

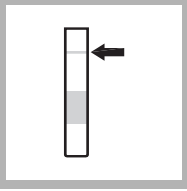


4. Use the marked dropper to add exactly 0.5 mL of DEHA 2 Reagent to each bottle. Swirl each bottle for 5 seconds to mix and start timing the test.

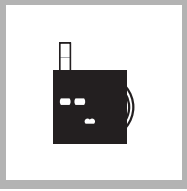
Low-range measurement



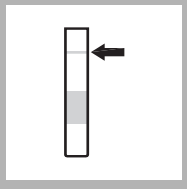
1. Insert the long path viewing adapter and the color disc.



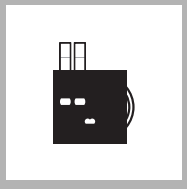
2. Rinse and fill a tube to the top line with solution B.



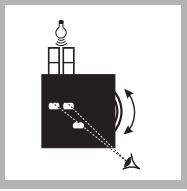
3. Insert the tube in the left opening of the comparator.



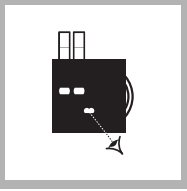
4. Rinse and fill another tube to the top line with the prepared sample S.



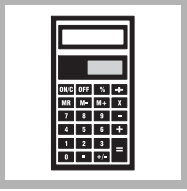
5. Insert the second tube in the right opening of the comparator.



6. Exactly 10 minutes after DEHA 2 addition, hold the comparator so that the light source is directly above the tubes. Turn the color disc to find the color match.

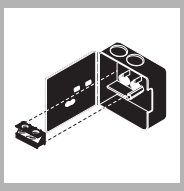


7. Read the result. If the match is between two segments, use the middle value of the two segments.

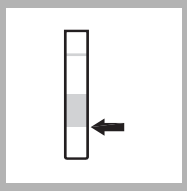


8. Multiply the value in the scale window by the applicable factor from [Table 1](#). Results are in µg/L.

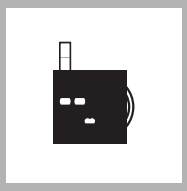
Mid-range measurement



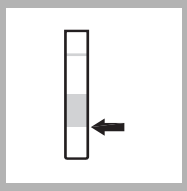
1. Remove the long path viewing adapter. Insert the color disc.



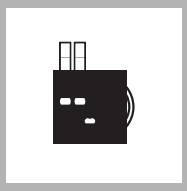
2. Rinse and fill a tube to the bottom line with solution B.



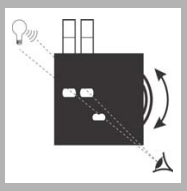
3. Insert the tube in the left opening of the comparator.



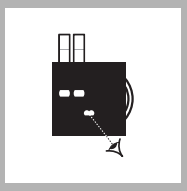
4. Rinse and fill another tube to the bottom line with the prepared sample S.



5. Insert the second tube in the right opening of the color comparator.



6. Exactly 10 minutes after DEHA 2 addition, hold the comparator so that the light source is directly behind the tubes. Turn the color disc to find the color match.

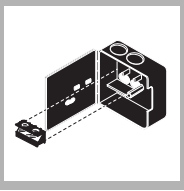


7. Read the result. If the match is between two segments, use the middle value of the two segments.

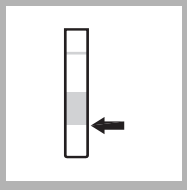


8. Multiply the value in the scale window by the applicable factor from [Table 1](#). Results are in µg/L.

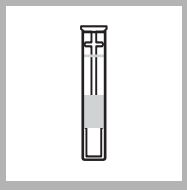
High-range measurement



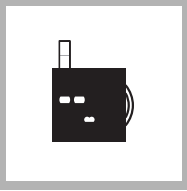
1. Remove the long path viewing adapter. Insert the color disc.



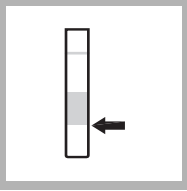
2. Rinse and fill a tube to the bottom line with solution B.



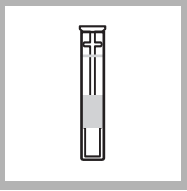
3. Insert a viewing tube insert into the tube.



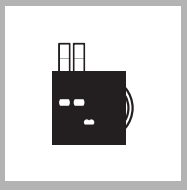
4. Insert the tube in the left opening of the comparator.



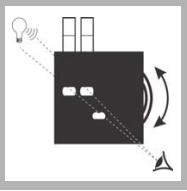
5. Rinse and fill another tube to the bottom line with the prepared sample S.



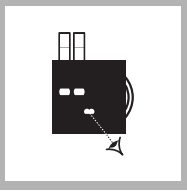
6. Insert a viewing tube into the tube.



7. Insert the second tube in the right opening of the comparator.



8. Exactly 10 minutes after reagent addition, hold the comparator so that the light source is directly behind the tubes. Turn the color disc to find the color match.



9. Read the result. If the match is between two segments, use the middle value of the two segments.



10. Multiply the value in the scale window by the applicable factor from [Table 1](#). Results are in µg/L.

Replacement items

Description	Unit	Item no.
Bottle, square with 25-mL mark	1	1704200
Color comparator box	1	173200
Color disc, oxygen scavenger	1	9265900
Color viewing tube, plastic	4/pkg	4660004
Long path viewing adapter	1	2412201
Viewing tube insert, optical	1	2128800
Dropper, 0.5 and 1.0 mL	1	1419700
DEHA 1 Reagent Powder Pillows	100/pkg	2167969
DEHA 2 Reagent	100 mL	2168042

Optional items

Description	Unit	Item no.
Caps, for color viewing tubes (4660004)	4/pkg	4660014
Hydrochloric acid, 6 N	500 mL	88449
Deionized water	500 mL	27249
Detergent, Liqui-Nox	1	2088153
Test tube brush	1	69000

Table 1 Multiplier Factors

Oxygen scavenger	Low range	Mid range	High range
DEHA (diethylhydroxylamine)	0.65	3.75	17
Erythorbic (isoascorbic) acid	2.3	13	59
Hydroquinone	1.6	9.3	42
Methylethylketoxime	2.3	13	58