

Student experiment
(5th - 10th grade)

Blue bottle

🕒 Time: max. 10 min.

Safety:

safety glasses



Instruments:

- 2 bottles (one for each solution)
- 2 pipettes or syringes
- 1 100ml graduated cylinder
- 1 lidded jar with threads
- 1 spatula

Chemicals:

- sodium hydroxide pellets, NaOH (H: 314; P: 280-301+330+331-309-301-305+351+338)
- solid methylene blue (H: 302-315-319-335; P: 361-305+351+338)
- glucose, C₆H₁₂O₆
- water

Preparation:

Two solutions should be mixed:

1) lye solution

1,25 g sodium hydroxide pellets (NaOH) dissolved in 100 ml water

2) indicator solution

100 mg methylene blue in 50 ml water

Experiment:

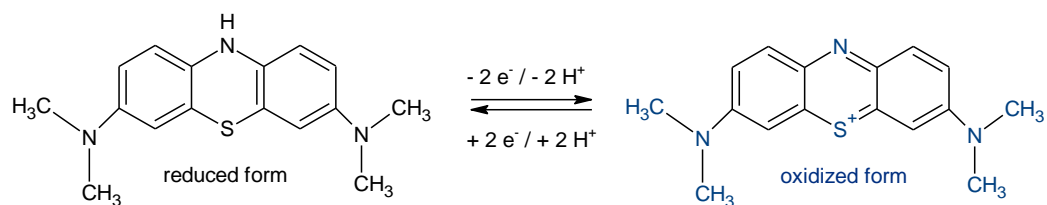
1. Place 10 ml of lye solution (see above) in a jar with a threaded lid.
2. Add about 40-50 drops of indicator solution to the jar.
3. Then add 2 spatulas of glucose to the mixture.
4. After a short time the blue color disappears.
5. Shake the jar - the blue color reappears!
6. Steps 4-5 can be repeated as wished.

Observations:

The blue color disappears if the jar is left alone. Shaking the mixture results in the reappearance of the blue tint. This can be done over and over.

Results:

Shaking the mix brings it in contact with oxygen in the air. The indicator is oxidized by this contact and turns blue. Letting the solution stand untouched causes the color to disappear, thanks to glucose, which reduces the indicator to its colorless state again.

**Disposal:**

Dispose of in the container for organic solvents.