



Kinetics - Catalysis by Cobalt(II) Ion

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MATERIALS

- 300mL 8.3% (W/V) potassium sodium tartrate
- 100mL 6% (V/V) hydrogen peroxide
- 25mL 4% (W/V) cobalt(II) chloride hexahydrate
- 1 large demonstration test tube
- Hot plate
- 600mL beaker

PRESENTATION (perform procedure 2 first to use as a control)

1. (the catalyzed reaction)

1. Heat 300mL of 8.3% potassium sodium tartrate to a boil and pour it into the large test tube
2. Pour 100mL of 6% hydrogen peroxide into the large test tube
3. Add 24mL of 4% cobalt(II) chloride to the large test tube. The initial color of the solution in the test tube after this addition will be pink.
4. Within a few seconds, a reaction will start changing the color to a dark green
5. After about one minute, the color of the solution will revert back to pink

2. (the non-catalyzed reaction)

- Repeat steps 1 & 2 from procedure 1

HAZARDS (MSDS Links)

Sodium potassium tartrate: <http://www.sciencelab.com/msds.php?msdsId=9924692> [1]

Hydrogen Peroxide: http://sargentwelch.com/pdf/msds/Hydrogen_Peroxide_6Pct_347.00.pdf [2]

Cobalt II chloride: <http://www.sciencelab.com/msds.php?msdsId=9925768> [3]

REFERENCES

P.T. Ruda, J. Chem. Educ., 55,652 (1978)

[Undergraduate](#) [4]

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http://www.chem.arizona.edu/lecture_demos/catalysis_by_cobalt_ii_ion

Links:

[1] <http://www.sciencelab.com/msds.php?msdsId=9924692>

[2] http://sargentwelch.com/pdf/msds/Hydrogen_Peroxide_6Pct_347.00.pdf

[3] <http://www.sciencelab.com/msds.php?msdsId=9925768>

[4] <http://www.chem.arizona.edu/taxonomy/term/11>