14. Chemical oscillators

Reviewer:
Team Romania

Opponent:
Team Greece-Fryganiotis

Reporter:
Team Russia-Uranium-239

Task

Examples of oscillating chemical reactions are the Briggs-Rauscher reaction or the Belousov-Zhabotinsky reaction which result in periodic color changes. While some of such reactions are difficult to reproduce, there are multiple ways to produce a simpler and more reliable chemical oscillator. Propose a problem about an interesting and simple chemical oscillator.

Briggs-Rauscher reaction & Belousov-Zhabotinsky reaction

- Theoretical information

Chemical oscillators

- Theoretical information

His own oscillator

- Experimental

Reporter summary

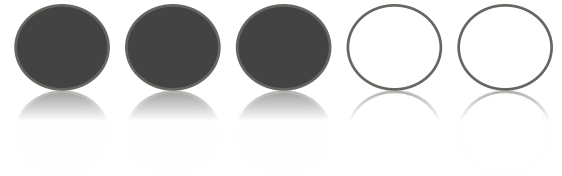
Strong points

- Good definition of terms
- Information about the BZ reaction was presented
- Clear and expressive visual aids for each experiment (graphs)
- Clear setup(quantitative data/solutions well presented)
- Good explanation of reaction
- Adequate scientific method of color measurement (Arduino)
- Good structure (theory, experiments, conclusions)

Weak points

- Theory not well explained
- Problem's task: "simpler and more reliable chemical oscillator" - the oscillator presented was not simpler
- Didn't explain how his reaction was different to Briggs Rauscher - his reaction was exactly the Briggs Rauscher (3 colours)

Opponent summary



Strong points

- Relevant questions
- The opponent noticed most of the errors and presented them, while also developing on them, providing additional insight.
- Challenged reporters solution

Weak points

- Hasn’t talked about his experiments instead he suggested what he COULD have done
- Not presented the scientific factors

Clashes during the fight

- O: Role of malonic acid?

  R: Increases time of oscillation.

  We: Agree with the opponent
- O: Role of compounds in the whole reaction: malonic acid?

  R: Malonic acid - oxidizing factor

  We: Agree with the reporter.
- O: Total time and period of reaction

  R: The total time of the reaction is when the malonic acid is consumed

  We: Agree with the reporter
- O: Which chemical reaction are in the solution?

  R: Iodine= increasing the rate of the colours

  We: Agree with the opponent.
- O:How measured the intensity of the colour?

  R: Used an Arduino with a sensor

  We: Very good answer from the reporter