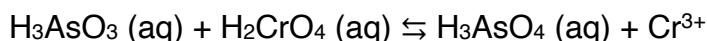


How does redox help us remove toxic compounds?

Depending on its oxidation state, chromium is either a toxic compound (*google Erin Brockovich*) or a possibly essential nutrient. Analyze the reaction below to see if mixing H_2CrO_4 with arsenic is a beneficial reaction.



- A. First, identify the oxidation state of As and Cr in the products and reactants. Show your work.

Having trouble? Review questions from Chapter 16: 1 and 2.

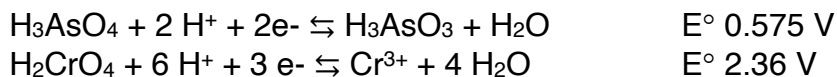
- B. Which compound is being reduced? Which compound is being oxidized? Which compound is the reducing agent? Which compound is the oxidizing agent? Explain your answer.

Having trouble? Review questions from Chapter 16: 5.

- C. Balance the redox reaction in acidic conditions. Clearly show all of your work.

Having trouble? Review questions from Chapter 16: 4.

- D. The relevant half reactions are shown below. Calculate the value of E°_{cell} . Is the reaction spontaneous or nonspontaneous? Explain.



Having trouble? Review questions from Chapter 16: 21 and 22.

- E. Chromium (VI) is a toxic species. Using specific information from Parts A, B, C, and D determine if the reaction shown above is beneficial in making chromium less toxic. Explain. Is arsenic a good choice for the reaction? Explain.