

## 16.6 Half-life for First-Order Reactions (Video)

This project was preformed to supply **Libretext authors** with videos on General Chemistry topics which can be used to enhance their projects. Also, these videos are meant to act as a learning resource for **all General Chemistry students**.

### Video Topics

Half-life is the time required for one-half of a reactant to be consumed. When  $t = t_{1/2}$ ,  $[A]_t = 1/2[A]_0$

We can find  $t_{1/2}$  for the 1<sup>st</sup> order rate expression

$$\ln\{[A]_t/[A]_0\} = -kt$$

$$\ln(1/2) = -kt_{1/2}$$

$$-0.693 = -kt_{1/2}$$

$$t_{1/2} = 0.693/k$$

This means that  $t_{1/2}$  and  $k$  are related and  $t_{1/2}$  does not depend on  $[A]_0$

### Link to Video

**Half-life for First-Order Reactions:** <https://youtu.be/mBMOq0305W0>



### Attribution

- Prof. Steven Farmer ([Sonoma State University](#))

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