

What is the indirect global warming potential of n-hexane relative to CO₂?

- A. 1.96
- B. 6.00
- C. 3.06**
- D. 0.51

The indirect global warming potential is calculated based on the carbon number and molecular weight of a compound, using CO₂ as a reference:

$$GWP = \frac{NC_i/MW_i}{NC_{CO_2}/MW_{CO_2}}$$

where NC_i is the number of carbon in the compound and MW_i is the molecular weight of the compound; NC_{CO₂} is the number of carbon in CO₂ and MW_{CO₂} is the molecular weight of the compound. CO₂ is used as a reference and its GWP is 1.

Hexane has 6 carbons and a MW of 86:

$$GWP_{n\text{-hexane}} = \frac{6/86}{1/44} = 3.06$$

Indirect GWP is a simple metric to estimate the global warming potential of a short-lifetime compound. Direct GWP is always used when a more accurate and sophisticated estimation is required.

Useful links:

https://www.acs.org/content/dam/acsorg/greenchemistry/education/summerschool/Tamer%20Andrea_Choosing%20Greenest%20Synthesis.pdf

https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html