Competition Corner: Metric Tradeoffs

g11_u08_w30

Original fictional route-table challenges. No chemical operation is implied.

Challenge 21. Route C has $m_{\text{desired}} = 84.0$, $m_{\text{reactants}} = 120.$, $m_{\text{actual}} = 63.0$, $m_{\text{theoretical}} = 84.0$, and $m_{\text{waste}} = 126.$ g. Calculate atom economy, yield, and E-factor. Write a bounded comparison to Route A from the worksheet.

Challenge 22. A fictional table gives D: E-factor 0.50 with an omitted energy column; E: E-factor 0.90 with a lower listed energy value. Explain why no overall sustainability ranking follows. Name two more data columns that would make the comparison stronger.