

**INDIVIDUAL SUPPLEMENTAL PROBLEM Set A-2**

Problem A5. [ 25 total project problem points ] **DUE Wednesday, September 24, 2008**

Using the fact that the fixed capital investment for a **50,000** tons/year sulfuric acid plant in 1985 was **\$1,500,000**. What should be the 2<sup>nd</sup> quarter 2008 selling price of sulfuric acid, produced at a rate of **75,000** tons/year, to reflect the normal **0.7** turnover ratio for the bulk chemical industry?

Update capital investment from 1985 to 2008 using CE Plant Cost Index

$$\$1,500,000 * 583.7 / 325.3 = \$2,691,500$$

Size scale capital investment from 50,000 to 75,000 using six-tenths rule

$$\$2,691,500 * (75/50)^{0.6} = \$3,432,800$$

Annual sales via Turn Over Ratio definition

$$\text{Turn over} = 0.7 = \text{Annual Sales} / \text{Fixed Capital}$$

$$0.7 * \$3,432,800 = \text{Annual Sales} = \$2,402,960$$

Selling price = Annual Sales / capacity

$$\text{Selling price} = \$2,402,960 / 75,000 = \$32.04 / \text{ton} = \$ 0.0160 / \text{lb}$$