

# Deterministic estimating- In class practice

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The construction cost of a Carbon Black plant with the capacity of 20 tons/ day is equal to 50 M\$, estimate the cost of Carbon Black plant with a capacity of 130 tons/ day!

| Process                              | Unit      | Cost-Capacity Factor m | Capacity Range |
|--------------------------------------|-----------|------------------------|----------------|
| Aluminum (from alumina)              | Metric    | 0.76                   | 20M-200M       |
| Ammonia (by steam-methane reforming) | Tons/day  | 0.72                   | 100-3M         |
| Carbon Black                         | Tons/day  | 0.53                   | 1-150          |
| Ethylene                             | Tons/yr   | 0.72                   | 20M-800M       |
| Hydrogen (from refinery gases)       | Cu ft/day | 0.64                   | 500M-10MM      |
| Methanol                             | Gal/yr    | 0.83                   | 5MM-100MM      |
| Oxygen                               | Tons/day  | 0.72                   | 1-1.5M         |
| Power plants, coal, nuclear          | Mw(elec)  | 0.88                   | 100-1M         |
|                                      | Mw(elec)  | 0.68                   | 100-4M         |
| Styrene                              | Tons/yr   | 0.68                   | 4M-200M        |
| Sulfuric acid (100%)                 | Tons/day  | 0.67                   | 100-1M         |
| Water Treatment                      | Mgpd      | 0.67                   | 1-100          |

M = million dollars