

Nanotubes Plant Project

EXECUTIVE SUMMARY

Nanotubes are a versatile material that have emerging applications in a variety of fields. This report investigates the design and feasibility of a production facility for single-wall nanotubes (SWNT). Cost estimates on the capital investment and operating costs were generated for two scaleable production methods, HiPCO and CoMoCat. As a result of this analysis comparison, HiPCO was chosen as the production method for this facility. An extensive market forecast was created to determine the demand for SWNT and the resulting price. A deterministic model using tax and labor rates for various locations, the forecasted demand and price of nanotubes, and the raw material costs was used to find the optimum plant location and capacity. Output from the deterministic model showed the optimal location of the plant to be Oklahoma. The plant will have a capacity of 241 kg/year of SWNT. The facility will operate under capacity until the tenth year due to the change in the demand. Total capital investment needed for the project will be \$2.5 million. The expected net present worth for the project over the ten year span is \$16 million. This represents a 46% return on investment.