# **P481 Chapter 8 Example 3: SM Foam Manufacturing**

SM Inc. is a materials manufacturer that produces a large volume of foam that is used in furniture and other consumer goods. For example, the Super Soft product is used in sofa cushions, the high-density product is used in office chairs, and the firm luxury product is a layer used in certain mattresses. All product is made at a single plant with 243 employees. The employees work an average of 160 hours per month and are paid an average salary of $2,450 per month.

Information about the various products is given in Table 1 and the demand forecast is shown in Table 2 and Figure 1 (on attached page).

The production manager wants your help planning production given the following costs, to alert HR of any hiring or layoff plans, and to place orders with the subcontractor if necessary.

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| --- | --- | --- |
| **Action** | **Unit cost** | |
| Hiring | $ 1,500.00 | per employee |
| Layoff | $ 1,000.00 | per employee |
| Overtime | $ 25.00 | per hour |
| Inventory | $ 0.20 | per m^3 per month |
| Subcontract | $ 6.50 | per m^3 |
| Backorder | not available | |

1. The product information is given in a mix of units. What is an appropriate aggregate unit? Convert the information about the four products into a single aggregate unit.
2. Create an aggregate plan – what kind of strategy would be ideal for SM Inc?
3. Sourcing informs you that the subcontractor is willing to negotiate on price. At what price would SM be willing to subcontract some of the production?
4. HR informs you that the costs of hiring and layoffs are just approximations and the actual costs are highly uncertain. How do you respond?

**We will use sensitivity analysis to help answer questions 3 and 4.**