

**AMERICAN UNIVERSITY IN DUBAI**

**SESSION: FALL 2023**

**COURSE: ACCG311 - COST ACCOUNTING**

**ASSIGNMENT: COST ALLOCATION AND PERFORMANCE ANALYSIS: HI-TECH FIBERGLASS**

**FABRICATORS**

**INSTRUCTOR: DR. NADIA SBEI TRABELSI**

**DUE DATE: NOVEMBER 1, 2023**

**SUBMISSION: ON BLACKBOARD\***

\* Please submit an Excel file for numerical questions (1, 2, and 3) and Word file for analysis questions (4 and 5).

**Hi-Tech Fiberglass Fabricators** is a leading manufacturer known for its innovation and quality in custom fiberglass products. They specialize in creating durable and corrosion-resistant solutions for various industries. Two of their notable products are **ChemGuard™ Chemical Storage Tanks**, designed for the secure storage of chemicals, and **SafeStor™ Food and Beverage Storage Tanks**, engineered for hygienic storage of food and beverage products. These products are trusted for their reliability and quality.

### **A- Departments**

Hi-Tech Fiberglass Fabricators has two support departments - Plant Maintenance (PM) and Data Processing (DP) – and three operating departments - Machining Department (MD), Capping Department (CP), and Resin Application Department (RAD).

- 1. Plant Maintenance (PM):** The PM department ensures the smooth and safe operation of facilities and equipment.
- 2. Data Processing:** Data Processing manages essential information, supporting decision-making and efficient operations.
- 3. Machining Department:** In the Machining Department, skilled technicians use CNC machinery to precisely shape the fiberglass components for both ChemGuard™ and SafeStor™ tanks.
- 4. Capping Department:** The Capping Department ensures the secure sealing of both ChemGuard™ and SafeStor™ tanks. For ChemGuard™ tanks, specialized seals prevent chemical leaks. In the case of SafeStor™ tanks, the Capping Department applies food-grade seals to maintain the quality and safety of stored food and beverages.
- 5. Resin Application Department:** In this specialized department, a food-grade resin coating is applied to the interior surfaces of SafeStor™ Food and Beverage Storage Tanks. This resin creates a protective barrier, ensuring the safety and purity of stored food and beverages.

#### **Manufacturing overhead costs:**

Plant Maintenance	\$230,500
Data Processing	\$55,400
Machining	\$201,925
Capping	\$112,725
Resin application department	\$59,750

#### **Services furnished by support department to other departments:**

*By Plant Maintenance (machine-hours):*

to Data Processing	3,300
to Machining	5,900
to Capping	8,600
to Resin Application	2,200

By Data Processing (computer time):

to Plant Maintenance	600
to Machining	3,750
to Capping	750
to Resin Application	900

**Allocation base of operating departments**

Machining	Machine hours
Capping	Direct labor hours
Resin Application	Units produced

**Machine hours in operating departments**

	Machining		Capping		Resin Application
	ChemGuard™	SafeStor™	ChemGuard™	SafeStor™	SafeStor™
<b>MH per unit</b>	5	7	3.5	2.5	1.5

**B- Direct Materials**

A **ChemGuard™ Chemical Storage Tank** with a 100-gallon capacity, requires 45 pounds of Fiberglass Reinforced Plastic (FRP) with a cost of \$2.50 per pound.

A **SafeStor™ Food and Beverage Storage Tank** with a 50-gallon capacity, necessitates 25 pounds of FRP. Additionally, to enhance food safety, an inner coating of Food-Grade Resin would be needed, 1.20 gallons, with a cost of \$12.50 per gallon.

**C- Direct Labor**

Department	Product	Direct Labor Hours (per unit)	Salary Rate (Per Hour)
Machining Department	ChemGuard™	3.5 hours	\$25
	SafeStor™	3 hours	\$25
Capping Department	ChemGuard™	2 hours	\$30
	SafeStor™	3 hours	\$30
Resin Application Department	SafeStor™	1.5 hours	\$35

**D- Finished Goods for 2023**

	ChemGuard™	SafeStor™
Beginning inventory (Units)	150	270
Beginning inventory (Total cost)	\$ 62,250	\$ 193,860
Units produced	1,000	1,600
Units sold	1,050	1,700
Selling price per unit	\$ 650	\$ 1,050

## REQUIRED

1. Allocate the two support departments' costs to the operating departments using the reciprocal method. Use linear equations.
2. Compute the manufactured overhead allocated to each product in 2023 using department-based manufacturing overhead rates.
3. Calculate the total cost of **ChemGuard™ Chemical Storage Tanks** and **SafeStor™ Food and Beverage Storage Tanks** produced in 2023, based on departmental overhead rates. Determine the cost per unit.
4. How did **Hi-Tech Fiberglass Fabricators** perform during the year 2023? You need to support your answer by providing relevant calculations.
5. Tina Johnson, a recent graduate from a business school, has been hired in the "Cost Control and Performance Analysis Department" at Hi-Tech Fiberglass Fabricators. Her enthusiasm for the ABC (Activity-Based Costing) method, which she extensively studied in school, led her to suggest to the department manager that implementing an ABC system, involving the identification of distinct activities within each department, always results in enhancing the existing department-by-department costing system. Do you agree with Tina's viewpoint? Provide your reasoning.

American University in Dubai

ACCG311: Cost Accounting

Assignment: Cost Allocation and Performance Analysis: **Hi-Tech Fiberglass Fabricators**

Instructor: Dr. Nadia Sbei Trabelsi

Due Date : November 1, 2023

Submission: On Blackboard

Please submit an Excel file for all numerical questions (1, 2, and 3) and Word file for conceptual questions (4 and 5).