**Decision-making: methods and tools**

**Management Accounting**

*Job Order Costing*

The Siano Company realizes, produces and assembles kitchen furniture. It produces 4 types of furniture: *Aluminium*, *Black*, *Yellow* and *Wood*. All the products are produced based on wholesalers’ order. Furniture Aluminium and furniture Black pass only through two units (A and B), while Yellow furniture and Wood furniture pass not only through unit A and B, but also through an additional third unit ( C ).

At the beginning of June 2017 inventories of finished goods are the follow:

* 5 unit Alluminium (evaluated at 5.700€/furniture)
* 10 unit Yellow (evaluated at 10.000€/furniture)

At the beginning of June 2017, inventories of direct material are equal to 350.000€.

The Siano Company is also producing two batches. The first batch is composed by 25 units of Aluminium , that consumed direct labor (DL) and direct material (DM) for a total amount of 42.000€. The second batch is composed by 16 units of Wood and it has consumed resources for a total amount of 96.000€.

In June, the Siano Company ends the batches of Aluminium and Wood and it starts the production of other two batches: one composed by 45 units of Black and one composed by 15 units of Yellow. Although the production of these two batches (Black and Yellow) is not completed, they consumption of resources is reported in table 1:

**Table 1. Consumption of resources**

|  |  |  |  |
| --- | --- | --- | --- |
| **Furniture** | **Unit A** | **Unit B** | **Unit C** |
| DM | DL (h) | DM | DL (h) | DM | DL (h) |
| ***Aluminium*** |  18.000€ | 120 | 3.000€ | 78 | - | - |
| ***Wood*** |  60.000€ | 54 | 8.000€ | 21 | 5.000€ | 24 |
| ***Black***  | 135.000€ | 180 | 18.000€ | 126 | - | - |
| ***Yellow*** |  30.000€ | 39 | 6.000€ | 67 | 2.000€ | 54 |

Manufacturing overheads related to June 2017 are reported in table 2:

**Table 2. Manufacturing overhead**

|  |  |  |  |
| --- | --- | --- | --- |
| **Manufacturing unit** | **Item** | **Description** | **Monthly cost** |
| ***Unit A*** | Depreciation | Plants | 120.000€ |
| Labor | Supervisors | 20.000€ |
| Material | Utensils, shaping | 5.200€ |
| Consumption | energy | 12.000€ |
| ***Unit B*** | Depreciation | Plants | 60.000€ |
| Labor | Supervisors | 18.000€ |
| Material | Utensils, shaping | 4.200€ |
| Consumption | energy | 20.000€ |
| ***Unit C*** | Depreciation | Plants | 40.000€ |
| Labor | Supervisor | 9.000€ |
| Consumption | Energy | 5.600€ |

We also know that:

* The Siano Company uses direct labor to allocate overheads
* The cost of direct labor is 30 €/h
* The Siano sales 25 units of Alluminium (unitary price 8.000€), 10 units of Yellow (unitary price 12.000€) and 10 units of Wood (unitary price 18.000€)
* Purchase of raw materials for a total price of 100.000€;
* Administrative and selling costs equal to 80.000€

You are required to determine

* **Manufacturing full costs** (unitary cost) of the products (only for completed batches)
* The **value of final inventories of direct materials, WiP and finished goods** (The Siano Company uses the FIFO criteria for the valorization of inventories)
* **Gross profit and Net result**

**Solution**

QUESTION 1: FULL UNITARY COST

C(x)= WIP (x) + Ʃ DM (x) + Ʃ DL(x) + OVH(x)

OVH= k\*AB

k= tot. OVH/tot. DL

Tot OVH (A) = 120.000 + 20.000 + 5.200 + 12.000= 157.200€

Tot OVH (B) = 60.000 + 18.000 + 4.200 + 20.000= 102.200€

Tot OVH ( C )= 40.000 + 9.000 + 5.600= 54.600€

DL (A) = 120 + 54 + 180 + 39= 393

DL (B)= 78 + 21 + 126 + 67= 292

DL ( C )= 24 + 54

K(A)= 157.200/393= 400€/LD

K(B)= 102.200/ 292= 350€/LD

K( C )= 54.600/78= 700€/LD

We can now calculate the cost of each Batch, by applying the formula:

C(x)= WIP (x) + Ʃ DM (x) + Ʃ DL(x) + OVH(x)

B(A)= 42.000 + 18.000 + 3.000 + (120\*30) + (78\*30) + (400\*120) + (350\*78) = 144.240

B(W)= 96.000 + 60.000 + 8.000 + 5.000 + (54\*30) + (21\*30) + (24\*30) + (400\*54) + (350\*21) + (700\*24) = 217.720

We can calculate the **unitary full cost**

UC(A) = 144.240/25= **5.769,6 €/u**

UC(W)= 217.720/16= **13.607,5 €/u**

QUESTION 2: VALUE of INVENTORIES

*Direct Materials*

Final inventories= initial inventories (DM) + purchase (DM) – use (DM)

Use (DM) A= 18.000 + 60.000 + 135.000 + 30.000= 243.000€

Use (DM) B= 3.000 + 8.000 + 18.000 + 6.000= 35.000€

Use (DM) C= 5.000 + 2.000= 7.000€

Final inventories DM= 350.000 + 100.000 – 285.000= 165.000

*WIP*

WIP refers to Black and Yellow

C(B)= 135.000 + 18.000 + (180\*30) + (126\*30) \* (400\*180) + (350\*126) = 278.280€

C(Y)= 30.000 + 6.000 + 2.000 + (39\*30) + (67\*30) + (54\*30) + (400\*39) + (67\*350) + (54\*700)= 119.650€

Final inventories WIP= 278.280€ + 119.650€= 397.930119.650€

*Finished Goods*

We should consider initial inventories of finished goods, finished goods produced, sold finished goods and final inventories of finished goods.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type of furniture** | **Initial inventories** | **Furniture produced** | **Furniture sold** | **Final inventories** | **Value** |
| A | 5 | 25 | 25 | 5 | **28.848€** |
| W | 0 | 16 | 10 | 6 | **81.645€** |
| B | 0 | 0 | 0 | 0 | **0** |
| Y | 10 | 0 | 10 | 0 | **0** |

Final inventories finished goods= 28.848€ + 81.645€= 110.493€

QUESTION 3: GROSS MARGIN AND OPERATING RESULT

GROSS MARGIN= Net sales – cost of sale

Net operating result= gross margin – period cost

Net sale = p\*q

Net sale= (25\*8.000) + (10\*18.000) + (10\*12.000)= 500.000€

Costs of sale

Alumimium= (5\*5.700) + (20\*5.769,6)= 143.000€

Wood= 10\*13.607,5= 136.075€

Yellow= 10\*10.000= 100.000€

Cost of sale= 379.967€

GROSS MARGIN= 500.000€ - 379.967= 120.033€

NET OPERATING RESULT= 120.033€ – 80.000€= 40.033€