**Decision-making: methods and tools**

***Management Accounting***

The Jerle Company assemblies four types of packaging: Bek, Leah, Predd and Walker. The production cycle is based on three production units: R1, R2 and R3. Bek and Leah pass for R1 and R2, while Predd and Walker must pass to another additional phase in R3.

At the beginning of September the production of two batches ( batch 595 and batch 596) is already started. Costs of these batches (related to the beginning of September) are reported in the following table:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **N. of batch** | **N. of units** | **Direct material** | **Direct labor** | **OVH** | **Tot.** |
| 595 (Bek) | 12.000 | 78.000 € | 33.000€ | 15.600€ | 126.600€ |
| 596 (Walker) | 7.500 | 67.500 € | 22.500€ | 8.850€ | 98.850€ |

During September, the company:

* ends the production of batch 595 and 596;
* starts and ends the production of the batch 597 (Leah) composed by 15.000 units
* starts (without completing ) the production of the batch 598 (Predd) composed by 6.000 units.

Related costs are reported in the following table (DM= Direct material; DL= Direct labor[[1]](#footnote-1)).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Batch** | **R1** | | **R2** | | **R3** | |
| *DM (€)* | *DL (h)* | *DM (€)* | *DL (h)* | *DM (€)* | *DL (h)* |
| 595 | 165.000 | 1.200 | 45.000 | 1.800 | -- | -- |
| 596 | 180.000 | 3.600 | 67.500 | 2.100 | 90.000 | 1.650 |
| 597 | 120.000 | 5.700 | 54.150 | 3.150 | -- | -- |
| 598 | 150.000 | 1.500 | 75.000 | 450 | 60.150 | 600 |

Total overhead (OVH) related to September are reported in the following table:

|  |  |  |
| --- | --- | --- |
| **OVH Item** | **Organizational/production unit** | **€** |
| Depreciation | Maintenance | 22.500 |
| Depreciation | R1 | 75.000 |
| Depreciation | R2 | 49.500 |
| Depreciation | R3 | 13.500 |
| Supervisor | Maintenance | 22.500 |
| Supervisor | R1 | 37.500 |
| Supervisor | R2 | 15.000 |
| Supervisor | R3 | 7.500 |
| Material | Maintenance | 30.000 |
| Material | R1 | 30.000 |
| Material | R3 | 4.500 |
| Energy | R1 | 7.500 |
| Energy | R2 | 3.000 |
| Energy | R3 | 7.500 |

The percentage of use of Maintenance services for each of the three production unit is:

* R1: 40%
* R2: 50%
* R3: 10%

You also have the following additional information:

* The Jerle uses Job Order Costing
* Overhead are allocated using direct labour
* The company uses the FIFO method for the valorization of inventories
* At the end of September the company has:
* Sold 4.500 units of Predd (price for each unit 125 €); 11.700 units of Bek (price for each unit 55€); 6.900 units of Walker (price for each unit 130 €) and 13.500 units of Leah (price for each unit 38€)
* Bought direct material (total cost 750.000€)
* Administrative costs, 225.000€
* Initial inventories of direct material equal to 450.000€
* Initial inventories of finished goods are 750 units of Bek (unitary cost 39€) and 6.000 units of Predd (unitary costs 98€)

You are required to calculate:

1. The unitary full cost of completed batches of product
2. The value of final inventories of direct material, WIP and finished goods
3. The gross profit and the net operating results
4. **TOT. OVERHEAD (OVH)**
   1. Maintenance tot= 22.500+ 22.500+ 30.000= 75.000€

Maintenance R1= 75.000\*0,4= 30.000€

Maintenance R2= 75.000\*0,5= 37.500€

Maintenance R3= 75.000\*0,1= 7.500€

* 1. OVH in each unit

R1= 75.000 + 37.500 + 30.000 + 7.500 + 30.000= 180.000€

R2= 49.500 + 15.000 + 3.000 + 37.500= 105.000€

R3= 13.500 + 7.500 + 4.500 + 7.500 + 7.500= 40.500€

* 1. Tot. Allocation Base (A.B.)

R1= 1.200 + 3.600 + 5.700 + 1.500= 12.000 h

R2= 1.800 + 2.100 + 3.150 + 450= 7.500 h

R3= 1.650 + 600= 2.250 h

* 1. K = tot OVH/ tot A.B.

K1= 180.000/12.000= 15€/h

K2= 105.000/7.500= 14€/h

K3= 40.500/2.250= 18€/h

Unit Full Cost= WIP + C dm + Cdl + (K\*h dl)

U.F.C (Bek)= 126.600 + 165.000 + 45.000 + (1.200\*30) + (1.800\*30) + (15\*1.200) + (14\*1.800) = 469.800€

= 469.800/12.000= **39,15 €/u**

U.F.C. (Walker)= 98.850 + 180.000 + 67.500 + 90.000 + (3.600\*30) + (2.100\*30) + (1.650\*30) + (15\*3.600) + (14\*2.100) + (1.650\*18)= 769.950€

= 769.950/7.500= **102,66 €/u**

U.F.C. (Leah)= 120.000 + 3.150 + (5.700\*30) + (3.150\*30) + (15\*5.700) + (14\*3.150)= 569.250€

= 569.250/15.000= **37,95 €/u**

1. **FINAL INVENTORIES**

Final inventories of DIRECT MATERIAL= initial inventories + purchase – consumption

Consumption:

R1= 165.000 + 180.000 + 120.000 + 150.000 = 615.000€

R2= 45.000 + 67.500 + 54.150 + 75.000= 241.650€

R3= 90.000 + 60.150= 150.150€

TOT= 1.006.800€

Fin. Inv. DM= 450.000 + 750.000 – 1.006.800= **193.200€**

WIP – Predd

WIP= 150.000 + 75.000 + 60.150 + (1.500\*30) + (450\*30) + (600\*30) + (15\*1.500) + (14\*450) + (18\*600)= **401.250€**

FINISHED GOODS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | In. Inventories | Q. produced | Q. sold | Final invent. | Value |
| Bek | 750 | 12.000 | 11.700 | 1.050 | 41.107,5€ |
| Leah | 0 | 15.000 | 13.500 | 1.500 | 56.925€ |
| Predd | 6.000 | 0 | 4.500 | 1.500 | 147.000€ |
| Walker | 0 | 7.500 | 6.900 | 600 | 61.596€ |

Tot = **306.628,5€**

1. **GROSS PROFIT AND NET RESULT**

Gross profit= net sales – cost of sales

Net sales= (11.700\*55) + (13.500\*38) + (4.500\*125) + (6.900\*130)= 2.616.000€

Cost of sale= (750\*39) + (10.950\*39,15) + (13.500\*37,95) + (4.500\*98) + (6.900\*102,66)= 2.119.621,5 €

Gross profit= 2.616.000 - 2.119.621,5= **496.378,5€**

Net result= gross profit – period costs

Net result= 496.378,5 – 225.000= **271.378,5€**

1. Cost of direct labor is 30€/h. [↑](#footnote-ref-1)