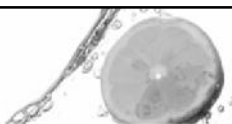


MANAGEMENT AND COST ACCOUNTING
7TH EDITION



Joint and by-product costing

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6.2b

Physical measures method

	Output (units)	Apportioned costs (£)	Sales (£)	Profit (loss)
Product X	4 000 ($\frac{1}{3}$)	20 000	30 000	10 000
Product Y	2 000 ($\frac{1}{6}$)	10 000	50 000	40 000
Product Z	6 000 ($\frac{1}{2}$)	30 000	20 000	(10 000)
	12 000	60 000	100 000	40 000

Sales value method

	Sales (£)	Apportioned costs (£)	Profit (loss)
Product X	30 000 (30%)	18 000	12 000
Product Y	50 000 (50%)	30 000	20 000
Product Z	20 000 (20%)	12 000	8 000
	100 000	60 000	40 000

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6.1

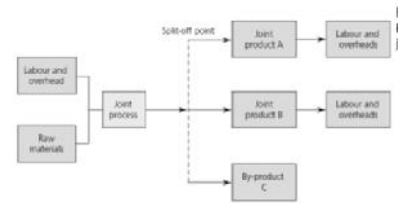


FIGURE 6.1
Production process for joint and by-products

- Joint products are not identifiable as different individual products until split-off point. Therefore, joint costs cannot be traced to individual products.
- By-products emerge incidentally from the production of the major products and have relatively minor sales value.

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6.3

Net realizable value (NRV) method

- Where further processing costs are incurred sales values at split-off point may not be available.
- Further processing costs are deducted from sales value to estimate NRV at split-off point.

Example

	Sales (£)	Further process costs (£)	NRV (£)	% Joint cost allocated
Product A	36 000	8 000	28 000	28%
Product B	60 000	10 000	50 000	50%
Product C	24 000	2 000	22 000	22%
	120 000	20 000	100 000	

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6.2a

Example of joint cost apportionments

Joint costs for the period £60 000
Output and sales

X = 4 000 units at £7.50
Y = 2 000 units at £25
Z = 6 000 units at £3.33

There are no further processing costs after split-off point.

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6.4

Constant gross profit percentage method

- Based on the assumption that the gross profit should be identical for each product.
- Joint costs are therefore allocated so that the gross profits at split-off point are identical for each product.
- Using the example on sheet 3 and assuming that joint costs are £60 000 the gross profit is £40 000 (£120 000 sales less £80 000 total costs). Therefore, the total gross profit is 33.33%.

	Product A (£)	Product B (£)	Product C (£)	Total (£)
Sales value	36 000	60 000	24 000	120 000
Gross profit (33.33%)	12 000	20 000	8 000	40 000
Cost of goods sold	24 000	40 000	16 000	80 000
Less further processing costs	8 000	10 000	2 000	20 000
Allocated joint costs (balance)	16 000	30 000	14 000	60 000

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6.5

Comparison of methods

- Cause-and-effect criterion cannot be applied so allocation should be based on benefits received.
- If benefits received cannot be measured allocation should be based on the principle of equity or fairness.
- Literature tends to advocate the net realizable method.
- Also note that with the physical units method the joint cost allocation bears no relationship to the revenue producing power of the individual products.

Accounting for by-products

- The major objective is to produce the joint products. Therefore the joint costs should be charged only to the joint products.
- Further processing costs should be charged to the by-product.
- Net revenues from the sale of the by-product should be deducted from the cost of the joint process.

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Thanks for your attention!

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6.6

Example

Joint product costs £3 020 000

Output of the joint products
A – 30 000 kgs
B – 50 000 kgs
C – 5 000 kgs

By-product C requires further processing at a cost of £1 per kg after which it can be sold for £5 per kg.

- The accounting entries are:

Dr. By-product stock (5 000 × £4)	20 000	
Cr. Joint process WIP account		20 000

With the net revenue due from the production of the by-product

Dr. By-product stock	5 000	
Cr. Cash		5 000

With the separable manufacturing costs incurred

Dr. Cash	25 000	
Cr. By-product stock		25 000

With the value of the by-product sales for the period

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6.7

Relevant costs for decision-making

Joint cost allocations are necessary for financial accounting, but they should not be used for decision-making.

Example

Joint product costs £100 000

Sales value at split-off point:

Product X (5 000 units at £16) £80 000

Product Y (5 000 units at £8) £40 000

If additional costs of £6 000 are incurred on product Y it can be converted into product Z and sold for £10 per unit.

- Note that the joint costs are irrelevant for this decision since they will be incurred irrespective of which decision is taken.

- The decision should be based on a comparison of relevant costs with relevant revenues:

Relevant revenues (additional revenues of 5 000 × £2)	£10 000
Relevant costs (additional costs of processing)	6 000
Additional profit from conversion	4 000

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