

# MANAGEMENT ACCOUNTING 378

## MANAGEMENT DECISION-MAKING AND CONTROL

### Variance Analysis

#### Study material:

- Drury Chapter 17 (excluding "Joint price usage variance", p.446)
- Drury Chapter 18 (excluding "sales mix and quantity variances" up to the end of the chapter, p.480-488)
- Management Accounting 278 note – Standard cost revision & Revision kit (Available on SUNLearn)
- Class notes

#### SAICA - Knowledge reference list:

<b>A1. Cost Accounting</b>
<b>Costing and cost management: Material</b>
<ul style="list-style-type: none"> <li>• Recording material costs (direct and related)</li> <li>• Bases of inventory valuation <ul style="list-style-type: none"> <li>◦ Standard cost</li> </ul> </li> </ul>
<b>Costing and cost management: Labour</b>
<ul style="list-style-type: none"> <li>• Management of labour costs</li> </ul>

<b>A2. Planning and control</b>
<b>Standard costing</b>
<ul style="list-style-type: none"> <li>• Design of standard costing systems</li> <li>• Variance analysis</li> <li>• Reporting on variance analysis</li> <li>• Reconciliation of budget to actual</li> <li>• Investigation of variances</li> <li>• Pro-rating of variances and compliance with the relevant accounting standard</li> </ul>

#### SAICA – Competencies:

<b>VI-2 Manages an entity's budgeting process and control system</b>
<b>VI-2.1 Designs, prepares, analyses and monitors financial budgets (Level X)</b>
<p>Designs entity budgets which are in accordance with the entity's strategic plans and appropriate to the level of accountability of the respective responsibility centres, taking into account behavioural aspects. These behavioural aspects include factors influencing –</p> <ul style="list-style-type: none"> <li>• effective cost control</li> <li>• decision making</li> </ul>

#### Module outcome for the topic:

- After studying this topic the student should be able to provide information to the management of an organisation for planning and control purposes

### Class notes – Variance analysis:

*In preparation for tests and exams the prescribed textbook should also be thoroughly studied.*

- 1) Purpose: analyse why actual results differ from planned results
- 2) 'Standard': pre-determined amount or quantity that should apply under efficient operating conditions
- 3) Standard costs are appropriate for repetitive (routine) activities where specific inputs are required for a given output
- 4) If selling and distribution activities are of a repetitive nature, standard costing can also be applied to it (otherwise the actual expense should merely be compared with the budget)
- 5) Can also be used in service organisations where repetition occurs
- 6) Advantage: standard costs usually represent targets that the organisation wants to achieve in future, and can therefore be seen as more appropriate than historical cost for decision-making
- 7)
- 8)
- 9) etc...

### CLASS EXAMPLE 1 (DONE IN NORMAL LECTURES)

#### ACCOUNTING AND RECONCILIATION EXAMPLE

Antixs Ltd manufactures and sells wooden dining sets and uses a standard costing system both for management purposes as well as for accounting purposes.

During June, 530 dining sets were manufactured and sold, although it was budgeted that 540 sets would be manufactured and sold. The managing director dearly wants to know the reason(s) for each income or expenditure item not being on budget.

The original budget for June is presented below:

	kg/hours/apportion	RAND
Sales	540 sets	1 728 000.00
Cost of sales:		-1 406 160.00
Direct material	43 740 meters	306 180.00
Direct labour	52 380 hours	419 040.00
Variable overheads	Labour hours	157 140.00
Fixed overheads	Labour hours	523 800.00
Budgeted profit		321 840.00

The company uses an *absorption costing system* to apportion overheads, show all inventories (finished good and raw materials) at standard cost and uses the first-in-first-out method for inventory valuation.

etc...

### ILP QUESTION 1 (DONE IN INDIVIDUAL LEARNING PROGRAMME CLASSES)

Sha Limited is a company that only manufactures one product of fuel and makes use of a standard costing system. According to Mr Ryk Sha the standard cost per 50ℓ drum fuel is as follows:

	Inputs	Rand/input unit	Rand per 50ℓ drum
Material A	50ℓ		400
Material B	12.5kg		100
Direct labour	2 hours		50
Overhead costs			35
Selling costs			10
Total costs			<u>R595</u>

The following flexible cost budget was drawn up at the beginning of the year:

Total overhead costs	R37 000	R39 000	R41 000
Number of 50ℓ drums	500	600	700

Material B is added at the beginning of the production process. All stock is issued on a first-in-first-out basis. Materials are carried at standard prices. Overhead costs are apportioned on the basis of direct labour hours.

etc....

#### YOU ARE REQUIRED TO:

a) Show the following accounts in the costing general ledger:

- i) Material A
- ii) Material B
- iii) Labour
- iv) Overhead costs
- v) Incomplete work

### TUTORIAL QUESTION 2 (DONE IN TUTORIAL CLASSES – HIGHER LEVEL)

#### Round all numbers to the nearest Rand.

Concrete World (Proprietary) Limited (hereafter "Concrete World") is interested in purchasing the business of CA Cement (Proprietary) Limited (hereafter "CA Cement") situated in Atlantis. You are an advisor representing Concrete World and have been tasked with performing a review of CA Cement.

CA Cement uses a combination of limestone and clay which is crushed and milled into cement powder. The ratio of limestone and clay mixed depends on the quality of limestone used. When the quality of limestone is higher it naturally contains more iron ore; the ratio can then be altered to include less limestone and more clay per ton of cement powder manufactured while still adhering to quality requirements. The cement is sold in large bags.

Negotiations between Concrete World and CA Cement is at an advanced stage and have been based on prior year results and budgets prepared by the management team of CA Cement. The audited results for the current year (ended June 2015, hereafter "FY2015") have however been released and reveal a much worsened result than what was anticipated.

The management team of CA Cement is convinced that the decrease in anticipated profit for FY2015 has been the result of a temporary closure of the plant as a consequence of a legal battle. The legal battle relates to contaminated wastage from the plant which was deemed unsafe and environmentally damaging by the Department of Environmental Affairs and Tourism (hereafter "DEAT"). The DEAT ordered CA Cement to cease operations during September 2014; the matter was however resolved in October 2014 and normal production levels could be resumed. As a result, normal capacity was not reached and total machine time amounted to 10 850 hours for FY2015. During September 2014, employees were asked to stay home but still received their normal pay.

Concrete World is aware of the closure; however, no one anticipated that the effect on CA Cement's profitability would be so drastic. As an experienced advisor to Concrete World, you are sceptical as to the validity of CA Cement management team's explanation of the reduction in profitability and you plan to use variance analysis to provide your client with insight.

#### INTERVIEW WITH CA CEMENT'S CHIEF EXECUTIVE OFFICER

As part of your review, you interviewed the Chief Executive Officer (hereafter "CEO") of CA Cement, Mr Naicker:

##### Profitability

In the interview you focussed particularly on the decline in profit for FY2015. He reiterated the fact that the reduction in profitability was related to the closure of the plant for one month and as a result, production and sales targets were not achieved.

He also mentioned that they changed suppliers of limestone during the year due to the previous supplier being liquidated. The new supplier is more expensive, but provides a higher quality limestone to CA Cement.

##### Risk indicators

When asked about the level of risk of Concrete World's investment in CA Cement, the CEO replied as follows:

"Our budgeted breakeven level of production is 32 635 bags of cement (you can assume this budgeted break-even point to be correct), and our capacity and normal production levels are almost double that figure, resulting in a very high safety margin. Therefore I believe this is a very low risk investment for Concrete World."

etc...

**APPLICATION QUESTION (DONE IN APPLICATION CLASSES – APPLICATION ON REAL-LIFE SCENARIOS)** 50 marks; 90 minutes

You are the newly appointed management accountant of Ecozyme Limited ('Exozyme'), a company that manufactures a washing powder called Greenworx. Ecozyme is associated with global leaders in the manufacturing of green cleaning agents and they have a February year-end.

Greenworx is known for the effective removal of dirt and stains. This is made possible by a standard mixture that is at the forefront of global science and biotechnology. This washing powder's cost price is also much cheaper compared to other traditional washing powders, which makes it possible to sell the product at competitive selling prices.

The washing powder is sealed in solid containers and only sold to wholesalers who then distribute the product. Supply to wholesalers takes place in bundles of 20 containers per bundle.

**Manufacturing process and inventory valuation:**

Each container washing powder contains 250 gram direct raw materials, of which the standard mix and standard raw material cost per kilogram consist of the following:

Sodium carbonate \* 200 gram at R46 per kilogram  
Washing-soda\*\* 40 gram at R50 per kilogram  
Table salt 10 gram at R30 per kilogram

\*Sodium carbonate is a bleaching agent which releases hydrogen peroxide when it comes into contact with water. It contributes to the cleaning agent's effective removal of stains. If too much sodium carbonate is added to one container, it can negatively influence the effective functioning of the product and lead to possible bleaching.

\*\*Washing-soda contributes to the effective removal and dissolvability of dirt. It is important that enough washing-soda is added to the product in order to ensure effective removal of dirt.

Inventory valuation is done on the basis of a standard costing system. Finished goods are valued at standard cost, while direct raw materials are valued at the actual cost on a first-in-first-out basis.

etc....

APPLICATION QUESTION – REQUIRED		Marks	
		Sub-Total	Total
(a)	Write a short paragraph to top management in which you explain the calculation errors made by Mr. Kahn in the calculation of the direct labour variances. Support your discussion with appropriate calculations, if needed.	9	
	<i>Communication skills: Logic reasoning</i>	1	10

**EXERCISE QUESTION 1 (DONE THROUGH EXERCISE – APPLICATION ON REAL-LIFE SCENARIOS)** 50 marks; 90 minutes

You are part of the audit team that is auditing Pappi Ltd ("Pappi"), a company which manufactures high quality white paper and which sells the paper to various large printing presses.

Pappi has a standard costing system in place and shows all inventory at standard cost. The manufacturing general ledger accounts of the company are compiled in terms of an absorption costing system. Inventory is valued according to the first in first out method.

**You have already acquired the following information on the manufacturing process from your "knowledge on the business" audit procedures:**

The planning regarding manufacturing is done to ensure that there is no work in progress at the end of a month. The paper is manufactured by a process where wood and recyclable paper is mixed in a fixed quantity in order to be processed and to manufacture new paper. The recyclable paper is added since Pappi claims to use 38% recyclable materials to manufacture their paper (this claim also appears in the information supplementary to the financial statements).

Since drying and evaporation takes place, the weight of the output tons of paper is lighter than the sum of the weight of the wood and recyclable paper added. 0,8 tons of wood and 0,5 tons of recyclable paper is added to obtain 1 ton of paper.

Although the machinery does most of the work, a reasonable number of labourers are still needed to perform certain tasks in the manufacturing process.

A bleaching agent is added to the processed wood and paper mixture later on in the process in order to ensure that the paper has a bright white colour at the end of the process. This bleaching agent is also subject to drying and evaporation and therefore adds no noticeable weight to the final paper product.

The standard input to manufacture one ton of paper are as follow:

0,8 ton of wood and 0,5 ton recyclable paper

20 litres bleaching agent

30 machine hours processing time

15 labour hours

About two months ago, after negotiations with labourers, it was decided to grant factory labourers an increase of 13,6% with immediate effect.

**REQUIRED**

Your audit manager requested that you provide him with the following information in a report:

a) Calculation of the standard cost variances below (each separately):

- all raw material variances;
- all variances regarding the bleaching agent; and
- all sales variances.

(19 marks)