CHAPTER 4

IAS 2 INVENTORIES

1. Introduction

Jenny owns a chocolate bar factory where she makes and sells all chocolate bars to resellers. She knows she must use IAS 2 for inventories as it provides rules on how she needs to record changes in her inventory, but she has no idea what the different terms mean or how to measure them! Without this knowledge she won't be able to report her inventories properly, which could result in serious consequences!

We'll use Jenny's business to run through the standards set by IAS 2 for reporting inventories to demonstrate how the standard works.

Definition

According to the definition of IAS 2, which is the international accounting standard for inventories, **inventories are assets which are any one of the following**:

astranti

INVENTORIES

Held for sale in the ordinary course of business

Such as chocolate bars stored to be sold to resellers

In the process of production for sale

Such as chocolate bars that need to be packaged to sell on to resellers (often known as work-in-progress)

Material or supplies to be used in the production process or providing services

Such as the milk, cocoa and sugar used to make chocolate bars

So, here we have all **the stuff that makes up the basis of what a business sells or provides**. If you are a restaurant owner, your inventory will be the food and drinks; if you are a petrol station owner, your inventory is the petrol (and perhaps snacks and magazines, or whatever may be for sale in the shop); if you run a car dealership, your inventory is cars.

2. Recording inventory

There are a few aspects to understanding inventory. One of they keys is **distinguishing between opening inventory**, **purchases** and **closing inventory**. Let's look at the changes in inventory at Jenny's chocolate bar factory to understand the differences.

Opening inventory

This is the amount of inventory a business has at the beginning of the accounting period. So, let's say Jenny starts the financial period with £2,000 worth of chocolate bars in stock, her opening inventory would be £2,000.

astranti

Purchases

This is the amount spent on purchasing new inventory to be sold. So, if during the financial period, Jenny spent £500 on ingredients such as cocoa, her purchases would be £500.

Closing inventory

This is the remaining inventory at the end of the reporting period, after accounting for purchases and sales. Jenny sold £1,500 worth of chocolate bars in the financial period, so the closing inventory would be:

	£
Opening inventory	2,000
Purchases	500
Sales	(1,500)
Closing inventory	1,000

In this case, closing inventory is £1,000.

3. Measuring inventories

Earlier, we said that Jenny starts the financial period with £2,000 worth of chocolate bars in stock. The question is how was that value arrived at? Does it mean she spent £2,000 purchasing ingredients and producing chocolate bars in a previous period, or that she expects to make £2,000 from the sale of those chocolate bars?

Actually it could be either…

Under IAS 2, companies need to value their inventories as either of the following depending on which has the lowest value:

- **Cost**: **This is the total cost incurred in getting the product to its current location and condition**. So, this would be the cost to Jenny of actually producing the chocolate bars from ingredients.

- **Net realisable value (NRV)**: **This is the price at which the product is sold minus the cost of selling the item**. So, that would be the final price that

astranti

Jenny could expect to receive for the chocolate bars, less any costs for things such as delivery or packaging. If this is not available, then **fair value** is used (i.e. the fair price achievable on a free and open market).

A business would almost always aim to sell inventory for more than cost, particularly if that business wishes to make a profit. The rule to **always measure inventories at the lower of cost and net realisable value** (or fair value) may seem odd, because a company wouldn't want to hold inventory that cost them more than they could sell it for. Unfortunately, this is something that does occur in the business world. For example, if Jenny produced a new chocolate bar that proved unpopular she may have excess stock and be forced to sell it off at less than the amount it cost her to make.

MEASURING INVENTORY

Is NRV > cost?

Yes

No

Inventories recorded at cost

Inventories recorded at NRV
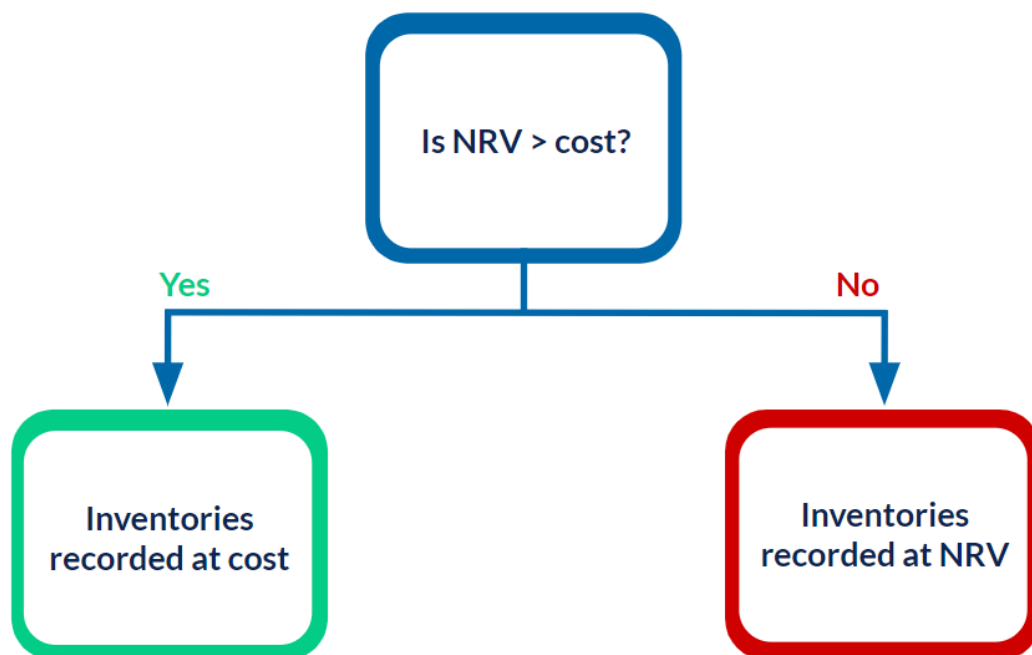
Example - Measuring inventory

Let's look some more at Jenny's situation: The cost of a chocolate bar is is 50p – so, that's the cost of production and carriage on bought items. The NRV of a chocolate bar is the retail price of £1 minus the 25p cost of packaging and delivery, which is 75p.

astranti

Therefore, we value a unit of inventory (one chocolate bar) at the cost price of 50p, because it is lower than the NRV of 75p.

Sometimes, inventory will decrease in value. For instance, if Jenny had some chocolate bars which were close to their sell by date, their retail price may decrease to 50p because they need to be sold quickly. If we take away the cost of packaging and delivery (25p) then we are left with an NRV of 25p. This means that chocolate bars close to their sell by date would have to be valued according to their NRV of 25p.

The cost of inventories

The age of the inventories will affect the total purchasing costs. This is because the cost of the most recent items to have been purchased or produced will have been affected by inflation.

For example, say the cost of ingredients increases for Jenny over time. This makes newer chocolate bars more expensive to produce, and so they will have a higher cost than older chocolate bars.

Therefore, before we can work out the value of inventory, we have to make an assumption regarding the relative age of the inventories we are valuing (because new items may have a higher relative cost than older items). There are three main ways of doing this:

First in/First out (FIFO)

To avoid the complicated task of working out the individual age of the inventory and the effect of inflation on it, we can make a simple assumption using the **first in/first out method**.

This method assumes that **items purchased the longest time ago are the first to be sold**. This usually has the effect of reducing cost of sales, because we are assuming the older and cheaper inventory is that used in production.

This is assumed for accounting purposes only, and is not necessarily an indication of actual stock rotation in the warehouse where they may actually sell the more recent items first.

If asked to calculate the value of inventory under FIFO, the assumption is that the closing inventory is the inventory which has been most recently purchased.

Therefore, **the value of the inventory is equal to the amount spent on the most recent purchases which cover the volume of items remaining in stock**.

Let's put this idea into practise in an example.

Example

Jenny makes the following purchases in August:

August 1st: Purchases = 150 units at 50p per unit

August 2nd: Purchases = 50 units at 45p per unit

August 3rd: Sales = 150 units at £1 per unit

August 4th: Purchases = 50 units at 60p per unit

To calculate the cost of Jenny's inventory using the FIFO method, the first thing we need to do is to calculate the amount of inventory she purchased and sold during the period. From these figures, we can calculate Jenny's closing inventory at the end of the period, to which we can apply the FIFO assumption. Based on the information in the question, total sales and purchases can be calculated to be:

Total purchases = 150 + 50 + 50 = 250 units

Sales = 150 units

Using this information, we can then calculate Jenny's closing inventory

Closing inventory = 250 units purchased – 150 units sold = 100 units

Now we can apply the first in/first out method. Remember, this method assumes that the oldest inventory is sold first.

Jenny's first purchase of inventory in August, was 150 units on the 1st. We can assume, therefore, that these were the first to be sold. Hence, Jenny's sales for August of 150 units would, therefore, be these same units!

Once these sales have been accounted for, the value of the remaining 100 units of inventory can be assumed to be equal to the purchases made on August 2nd and August 4th; 50 units were purchased at each date. Based on this assumption, the cost of Jenny's inventory using the FIFO method can be calculated as follows:

Closing inventory = August 2nd cost of purchases + August 4th cost of purchases

astranti

Closing inventory = (50 units x 45p) + (50 units x 60p)

Closing inventory = £52.50

Last in/First out (LIFO)

This method, conversely to FIFO, assumes that **the most recently bought stock is the first to be sold**. Again, this is assumed for accounting purposes only.

Using this method tends to generate a higher cost of sales and thus a lower gross profit. This is because items purchased most recently may have cost more due to inflation.

However, according to **IAS 2, LIFO is not an acceptable method for financial accounting**. So, if you ever have to measure inventory, **always make sure you adopt the FIFO method**!

Average cost (AVCO)

Under this method, the cost of inventory is calculated by dividing the **total cost of inventory purchased within the period by the total number of items purchased**.

This method is useful, if an entity has a large volume of indistinguishable products to value, as it is simpler and cheaper to implement given that individual items of inventory don't need to be tracked.

Example

Returning to Jenny's August sales and purchases of inventory:

August 1st: Purchases = 150 units at 50p per unit

August 2nd: Purchases = 50 units at 45p per unit

August 3rd: Sales = 150 units at £1 per unit

August 4th: Purchases = 50 units at 60p per unit

How will the **cost of this inventory** differ using the **AVCO method**?

The first part of this process is to **calculate the total cost of Jenny's inventory**. This is essentially the total Jenny spent purchasing inventory in August:

astranti

Total cost of inventory = (150 x £0.5) + (50 x £0.45) + (50 x £0.60)

Total cost of inventory = £127.50

This is then divided by the **number of units of inventory purchased** in the same period:

Total inventory purchased = 150 + 50 + 50 = 250 units

$$\text{Average cost} = \frac{\text{Total cost of inventory}}{\text{Total inventory purchased}}$$

$$\text{Average cost} = \frac{£127.50}{250 \text{ units}}$$

Average cost = £0.51 per unit

This average cost can then be applied to Jenny's closing inventory which we calculated earlier to be 100 units.

Total cost of closing inventory = 100 x 0.51

Total cost of closing inventory = £51 (compared with £52.50 under FIFO)

4. Components of cost

Each month, Jenny purchases the individual ingredients for her chocolate bars. The ingredients themselves come to £500 and the delivery is £50. Is the cost of the ingredients £500, or is it now £550 because of the cost of delivery?

When accounting, it is actually the latter, as **delivery costs contribute towards the overall cost of the inventory**.

So let's take a closer look at what the components of cost are, and how to determine the full cost of inventory.

astranti

Purchase costs

The purchase costs include the purchase price plus all the other costs of acquisitions such as freight charges, customs duty, taxes not recoverable and fees paid for acquisition.

So, let's look at Jenny's case in some more detail. Jenny sells chocolate bars in the UK, and she needs to import a lot of her ingredients (such as cocoa beans) from foreign countries. This is a breakdown of her purchases:

	£
Purchases	500
Freight charges	25
Customs duty	75
Non-recoverable tax	100
Total	**700**

And so her **total purchase cost will be £700**, even though the cost of purchases alone was only £500.

Conversion costs

This refers to the costs incurred when a company produces goods within the business. **These costs include direct costs** (direct labour – basically the cost of workers, and raw materials), **and also production overheads**.

Production overheads can be variable or fixed:

- **Variable production overheads are indirect costs that fluctuate with the level of business activity**, such as indirect materials (e.g. cleaning supplies, disposable safety equipment).

- **Fixed production overheads, on the other hand, are indirect costs that remain the same despite fluctuating levels of business activity**, such as rental costs for a warehouse or insurance costs related to machinery.
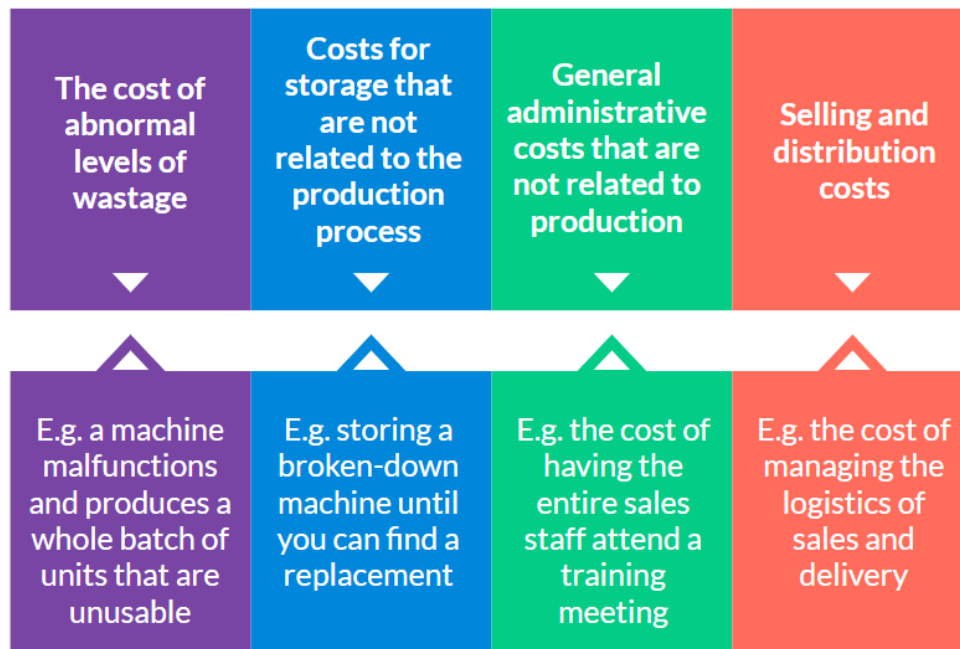
Usually companies work out a **standard fixed overhead rate at the start of the financial year and use that to work out their fixed production overhead amount to be included in each item of stock**. For example, if Jenny aims to produce 1m

chocolate bars and her fixed overheads are estimated at £250,000, then that amounts to 25p per chocolate bar which is included in the inventory valuation.

Conversion costs should be included in the inventory valuation, including the standard fixed overhead per unit.

The following costs are **not to be included as part of the inventory cost, but should rather be treated as expenses in the period they are incurred:**

EXPENSES NOT INCLUDED AS INVENTORY COST

The cost of abnormal levels of wastage	Costs for storage that are not related to the production process	General administrative costs that are not related to production	Selling and distribution costs
E.g. a machine malfunctions and produces a whole batch of units that are unusable	E.g. storing a broken-down machine until you can find a replacement	E.g. the cost of having the entire sales staff attend a training meeting	E.g. the cost of managing the logistics of sales and delivery

Example

It's a new year and business is booming. Inventory at Jenny's chocolate factory has an estimated NRV of £30,000. Using the information below, we are going to calculate the total production cost for the period, and state whether inventory should be recorded at cost or NRV.

In the table below are the expenses for October:

£

astranti

Raw materials	15,000
Direct labour costs	10,000
Associated consumables	8,000
Lighting and heating	6,000
Variable factory overheads	2,400
Administration costs	3,000
Selling and distribution costs	1,800
Depreciation of production equipment	1,200
Actual fixed overheads	7,000
Storage costs	1,150

Jenny's standard fixed overhead rate per chocolate bar is 25p.

Additional information:

- 80% of lighting and heating costs relate to production

- Administration costs are fixed, and of these, 30% do not relate to production

- Storage costs are those incurred when Jenny's goods are awaiting sale

- During the month 6,400 products were produced and half were left in stock at the end of the period. No stock remains from previous periods

Solution

First, we know that 80% of the lighting and heating costs related to production, and so we need to include this figure in the overall cost:

£6,000 x 80% = £4,800

Next, we must work out the fixed overhead costs. These should be based on the standard fixed overhead rate of 25p per chocolate bar (and not the actual amount spent). This means that fixed overhead costs for October were:

25p x 6,400 = £1,600

Of the administration costs, 70% are related to production, giving:

70% of £3,000 = £2,100

astranti

So, let's put these figures into a table combined with the other production overheads which are shown in full:

	£
Raw materials	15,000
Direct labour costs	10,000
Associated consumables	8,000
Lighting and heating	4,800
Variable Factory overheads	2,400
Depreciation of production equipment	1,200
	41,400
Fixed factory overheads	1,600
Administration costs	2,100
Total cost	**45,100**

And so, we have a total cost of £45,100. This is how much it costs to get from the raw materials to finished goods.

Half of this stock remains so the value of stock is £22,550.

This is less than the NRV of £30,000, and so this should be the figure used to value inventory.

5.   Disclosures for inventories

IAS 2 requires the following to be disclosed in the financial statements regarding inventories:

astranti

INVENTORY DISCLOSURES

The accounting policies adopted in measuring inventories, including the cost formula used	The total amount of inventories in classifications appropriate to the business	The carrying amount of inventories (opening inventory + purchases - sales) carried at net realisable value

So with the above example, we would need to include in the notes:

- The **method by which cost was calculated** (as in our example)

- A **breakdown of inventories into categories** such as raw materials, works-in-progress, and finished goods

- **The carrying amount of any inventories carried at fair value less selling costs**

The carrying amount is the same as the book value. It simply means the amount at which the asset, in this case inventory, has been valued by the company. Fair value is very similar to NRV, but means the selling price a company could expect for an item in an open market whereas NRV is the actual selling price of the item.

So in the example above we were told that selling and distribution costs were £1,800. Let's assume that the fair value and NRV are the same for simplicity:

£60,000 - £1,800 = £58,200

astranti