A SUMMARY ON

STUDENTS' INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)

UNDERTAKEN

AT

MOPSON PHARMACEUTICAL LIMITED

47, OSOLO WAY, AJAO ESTATE, ISOLO-OSHODI, OSHODI, LAGOS STATE.

BY

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OVERVIEW OF MOPSON PHARMACEUTICALS

MOPSON Pharmaceutical Limited develops, produces, and market drugs licensed for use as medications.

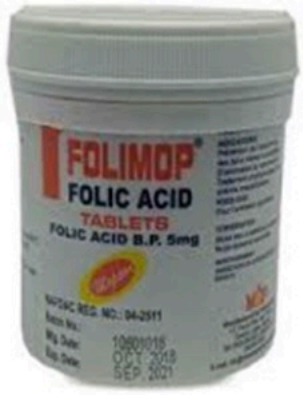
MOPSON Pharmaceutical Limited has been in the business of manufacturing and supply of medicines since 1977. The company has been the preferred supplier of most of the pharmaceutical requirements of government institutions like the Government Hospitals, University Teaching Hospitals, industrial clinics, private hospitals and clinics in Nigeria.

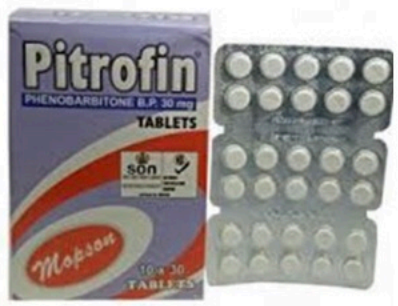
Today, the company is reputed for the quality of its pharmaceutical products with over 50 products developed by in-house research and development division of the firm.

MY EXPERIECE AT MOPSON PHARMACEUTICALS

During my internship at Mopson pharmaceuticals I worked at the QUALITY CONTROL DEPARTMENT as a QUALITY CONTROL CHEMIST as well as an IN-PROCESS OFFICER.

Here are some medicine produced at Mopson pharmaceutical limited.





WHAT IS DONE AT THE QUALITY CONTROL DEPARTMENT?

Quality Control, often abbreviated to QC, is the practice of ensuring consistent quality throughout a manufacturing process and also uniformity in a company's products.

All pharmaceutical companies should have a QC department, the range of the QC department depends on how big the company is.

Employees that work within the QC department are also referred to as QC Analysts, QC Chemists, In Process Chemists and In Process officers, Raw Materials Analysts, Finished Product Analyst and sometimes Analytical Chemists (however this often refers to the analysis of R&D samples via specialised instrumentation). A QC Analyst focuses on testing substances for compliance to standards and requirements. This could be at the start of the production process (Raw Materials Analyst), during production itself (In Process Analyst) or at the end of manufacture (Finished Product testing).

A QC Analyst utilises lab skills (chemistry usually, but could also include physical test methods, microbiology and other skills) to test and measure materials, generally in a manufacturing field such as pharmaceutical manufacturing, chemical manufacturing, and other industry sectors. A QC Analyst ensures that experiments are completed according to established Standard Operating Practices (SOPs), and also Good Laboratory Practices (GLP) or Good Clinical Practices (GCP) for highly regulated industries. Good Manufacturing Practices (GMP) is also adhered to for in process testing.

QC Analysts prepare and test samples from all phases of a manufacturing or other handling process, with the goal of determining if the substance meets the standards or requirements of the project. They prepare technical documents that report the results of their lab work.
They may also be responsible for minor equipment troubleshooting, calibration and repair.

WHATS THE WORK OF AN IN-PROCESS OFFICER?

1. Regular process checks of tablets parameter - hardness and thickness, friability and disintegration test
2. Documentation and record keeping and lone clearance
3. Ensure **GMP** in factory operations

IN-PROCESS WORKS AT TABLETING DEPARTMENT

Tablet as a dosage form comprises a mixture of active substance and excipients, usually In powdered form, pressed or compacted into a solid. The excipients can include binders, sweeteners to enhance taste, colour; to make it appealing to the consumers.

The manufacturing of tablets involves extensive powder handling. The powder must be blended for uniformity and converted into dosage form either through compression. Typical requirements include weighing, blending, mixing/granulation, compression and coating areas.

All these manufacturing process needs to be validated, that's where the in-process officers comes in to make sure the tablets produced are meeting the company's specification.

FRIABILITY TEST

Friability is when a tablet has the tendency to chip, crumble or break during compression. This usually happens when the tablet is been handled, packaged or transported. To investigate the durability of a tablet, we use the TABLET FRIABILITY TESTER with a single drum. It's used to test prototype tablets whether it will chip or break. Tablets friability testing involves weighing the samples of tablets and then placing them into the rotating drum for 4mins. The sample is then reweighed to find the % weight loss.

$$\text{Friability} = \frac{\textit{weight before friability} - \textit{weight after friability}}{\textit{weight before friability}} \times 100$$

The limit for friability is 1.0% (≤ 1%)

HARDNESS TEST

Tablets hardness testing is a technique used by the pharmaceutical industry to determine the breaking point of a tablet and how well it can keep its shape under conditions like transportation, packaging and handling before use.

Method: Take 5 tablets from both left and right then put it into the hardness tester then screw in a clockwise direction to apply force to get the breaking point of the drug.

MONSANTO HARDNESS TESTER

UNIFORMITY OF WEIGHT TEST

The weight uniformity is used to ensure that every tablet contains the amount of drug substance intended with variation among tablets within a batch. You pick 20 tablets at random from the machine (left and right)

Firstly you get the mean of 20 tablets (you weigh 20 tablets then you divide the value by 20)

Then you weigh each tablets

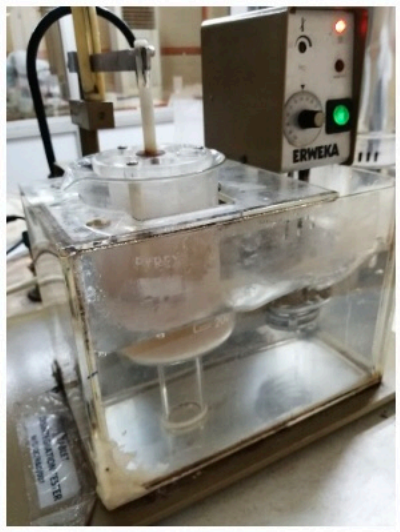
Then you get the percentage deviation by the mean of 20 tablets minus Weight of 1 tablets divided by the mean of 20 tablets times 100.

DISINTEGRATION TEST

For a drug to be readily available to the body, it must be in solution.

For most tablets, the first important step towards solution is breakdown of the tablets into smaller particles or granules, a process called disintegration.

THE MAXIMUM TIME FOR DISISNTEGRATION TEST IS 15 MINUTES



MOPSON PHARMACEUTICAL LIMITED

QUALITY ASSURANCE DEPARTMENT

TABLET/CAPLET PARAMETERS SPECIFICATION

S/N	PRODUCT NAME	COLOUR/ APPEARANCE	ODOUR/ FLAVOUR	PACK SIZE	HARDNESS (kgf)	WEIGHT OF 20 TABLETS (g)	AVERAGE WEIGHT (g)	PERMISSIBLE RANGE (g)
1.	Micpol Tablet	White	Odourless	X 1000, X 96	4.0 – 12.0	11.21 – 11.81	0.5755	0.5605 – 0.5905
2.	Micpol White Caplet	White	Odourless	X 1000	4.0 – 12.0	11.21 – 11.81	0.5755	0.5605 – 0.5905
3.	Micpol Yellow Caplet	Yellow	Odourless	X 1000	4.0 – 12.0	11.26 – 11.86	0.5780	0.5630 – 0.5930
4.	Co-trimoxazole DS (960mg)	White	Odourless	X 500	4.0 – 12.0	20.06 – 21.22	1.0320	1.0032 – 1.0608
5.	Chloroquine Tablet	White	Odourless	X 1000	3.5 – 8.0	6.79 – 7.09	0.3470	0.3395 – 0.3545
6.	Throtal - 500 Caplet	White	*Characteristic	X100	4.0 – 12.0	16.82 – 17.68	0.8625	0.8409 – 0.8841
7.	Metronidazole.	Yellow	Odourless	X 1000	3.0 – 5.0	6.40 – 6.79	0.3300	0.3201 – 0.3399
8.	Co-trimoxazole (480mg)	White	Odourless	X 1000, X 100	4.0 – 7.0	12.18 – 12.75	0.6232	0.6088 – 0.6376
9.	Ascorbion C-100	Orange	Orange	X 1000, X 100	3.0 – 5.0	6.51 – 6.63	0.3285	0.3253 – 0.3316
10.	Ascorbion C 100-W	White	Odourless	X 1000	3.0 – 5.0	6.51 – 6.63	0.3285	0.3253 – 0.3316
11.	Asmalyn Tablets	Pink	Odourless	10 X 30, X 1000	3.0 – 5.0	3.88 – 4.12	0.2000	0.1940 – 0.206
12.	Folic Acid Tablet	Yellow	Odourless	10 X 30, X 1000	3.0 – 5.0	2.14 – 2.26	0.1100	0.1067 – 0.1133
13.	Vitamin B Complex	Yellow	Odourless	10 X 30, X 1000	3.0 – 5.0	2.14 – 2.26	0.1100	0.1067 – 0.1133
14.	Pitrofin Tablet	White	Odourless	10 X 30, X 1000	3.0 – 5.0	3.88 – 4.12	0.2000	0.1940 – 0.206

Limit for friablity is 1.0% (≤ 1%)

Uniformity of weight limit is 2, 0. This means that for tablets with S/N 1 to 10, not more than 2 tablets from a set of 20 may have percentage deviation of up to 5% and none from the same set may deviate from the average up to 10%. However, for tablets with S/N 11 to 14, not more than 2 tablets from a set of 20 may have percentage deviation of up 7.5%, and none may deviate from the average up to 15%.

08/03/19
Awosuru Kolawole.
Q.C. Manager

08/03/19
Pharm. Banjo Adenike
Production Pharmacist

Effective Date: 08/03/2018

This is the parameters specification that every in-process officer follow for different products. It has been approved by a pharmacists.

IN-PROCESS REPORT SHEET

COMPRESSION SECTION

DATE: 12-07-2019

PRODUCTS NAME: ASCORBION C-100 CHEWABLE TABLET

BATCH NO: 10502319

BATCH SIZE: 160kg

MACHINE USED: 29 station

OPERATOR'S NAME: David and confidence

SPECIFICATION: AVCO·3253-0·3316), DT (chewable), H(3.0-5.0 Kst), Fr (≤1.0%)

Time	Appearance	Average Weight of Tablet	Friability	Hardness	D.T.	Colour Variation
8.30a.m						
9.00a.m	orange	0.3289	0.3053	6,6,4,5,6	Chewable	none
9.30a.m	orange	0·3314	0·6033	6,6,6,6,6	Chewable	none
10.00a.m	orange	0·3305	0·6125	6,3,4,6,5	Chewable	none
10.30a.m	orange	0.3266	0·4573	5,6,5,5,5	Chewable	none
11.00a.m	orange	0·3312	0·1512	5,6,5,5,4	Chewable	none
11.30a.m	orange	0·3255	0·4587	6,4,4,5,6	Chewable	none
12noon						
12.30p.m						
1-2p.m						
2.30p.m	Orange	0·3297	0.3061	4,5,4,6,5	Chewable	none
3.00p.m	orange	0·3289	0.1512	6,6,5,5,4	Chewable	None
3.30p.m						
4.00p.m						
4.30p.m						

In-process Officer's Comments: All In Process Checks were satisfactory

After all tests have been carried out the in-process officer will then write a report sheet for each batch for approval of the QC manager

REFERENCE

Olusegun A.T Mafe (2009), Guide to successful participation in SIWES, page 9 (4.3) panaf publishing inc. Abuja, Nigeria.