A TECHNICAL REPORT
ON
STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME (S.I.W.E.S)
UNDERTAKEN BY

REBECCA K. EFRETUEI

AT

PHARMATEX INDUSTRIES LIMITED.
NO 1 CRYSTAL GLASS CLOSE(MARBLE HOUSE) AMUWO-ODOFIN INDUSTRIAL LAYOUT,LAGOS STATE,NIGERIA.

MATRIC NO: 17/MHS07/031
COLLEGE OF MEDICINE AND HEALTH SCIENCES
DEPARTMENT OF PHARMACOLOGY AND THERAPEUTICS

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THIS TEXT IS SUBMITTED TO THE DEPARTMENT OF PHARMACOLOGY AND THERAPEUTICS, AFE BABALOLA UNIVERSITY ADO-EKITI IN PARTIAL FULFILMENT FOR THE AWARD OF THE DEGREE OF PHARMACOLOGY AND THERAPEUTICS

(BS.C) (HONS) PHARMACOLOGY

Technical report on student industrial work experience scheme (SIWES)

ACKNOWLEDGEMENT

Thank be to Almighty GOD for his blessing, guidance, protection, the courage and the opportunity given to me to the successful completion of my SIWES program, may His

protection and blessing continue to be with us (Amen).
I wish to express my thanks to my beloved parents for their moral and support toward the completion of this program.
My last acknowledge the effort of my supervisors Dr. Ajayi and the entire staff of the pharmacology department for their relevant suggestion and contribution toward the completion of this program and I also thank the staff and management of Pharmatex industries limited for their understanding and opportunity given to me to work in their organization.

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1.0 INTRODUCTION

The student industrial training is the training programme which forms part of the academic standards in the various degree programmes for all Nigeria Tertiary Institutions. It seeks to bridge the gap existing between technology and other professional education programmes in Nigerian Tertiary Institutions.

1.1 MEANING OF SIWES

The student industrial work experience scheme (SIWES) is the skills training program, which form part of the approved minimum academic standard in the various

degree program for all tertiary institution in Nigeria.
It is the gap between practical aspect and theory aspect of either engineering and science technology and other professional educational programs in Nigerian tertiary institution.

1.2 PURPOSE OF SIWES

The objective of student industrial work experience scheme (SIWES) is to enable every student who passed through university or other institution to acquire a practical knowledge of what he/she has learned. Therefore it is compulsory for every student to satisfy the requirement in his/her academic pursuit.

1.3 AIMS AND OBJECTIVE OF SIWES

i. To provide an avenue for students in the university to acquire industrial skill and experience in their course of study.

ii. To prepare students for the work situation they are likely to meet after graduation.

iii. To expose students to work methods and techniques in handling equipment and machinery that may not be available in the university / Institute.

iv. Provide student an opportunity to apply their bridging the gap between Higher Education and actual practice.

v. Make transition from the university to the world of work easier and thus enhance students contact for later job placement after graduation.
vi. Enlist and strengthen employer's involvement in the entire educational process of preparing university graduates for employment in industry.

1.4 BRIEF HISTORY OF THE ORGANIZATION

PHAMATEX Industries Limited was incorporated in Nigeria as a private limited company on the 29th day of July 2010. Its share capital stands at N10, 000,000.00(Ten Million Naira only).

The company situates at 1, Crystal Glass Close, (Mable House) Amuwo Odofin, Lagos, Nigeria.

Mission Statement

To be the preferred provider of excellent pharmaceutical brands, recognised for best practices delivered by a team of highly-motivated professionals of diverse background that consistently create value to surpass customer expectation(s).

Vision Statement

To be a leading manufacturer of pharmaceutical products and

services with an international outlook, bringing innovative solutions to customers around the world

Principal Activity

The company is engaged in the manufacture, marketing, distribution and importation of drugs, foods, beverages and pharmaceutical products, livestock feed and livestock medicaments in Nigeria.

PHAMATEX has the required professional skills, experience as well as human and material resources required to do good

business and is an ideal business partner with any financier banker that accepts to support its activities. Above all, the operations of the company are guided by high moral standards.

WORK DEPARTMENTS

Production departments: Here the drugs are largely produced using the various equipments and apparatus taking production GMP measures to avoid contamination.

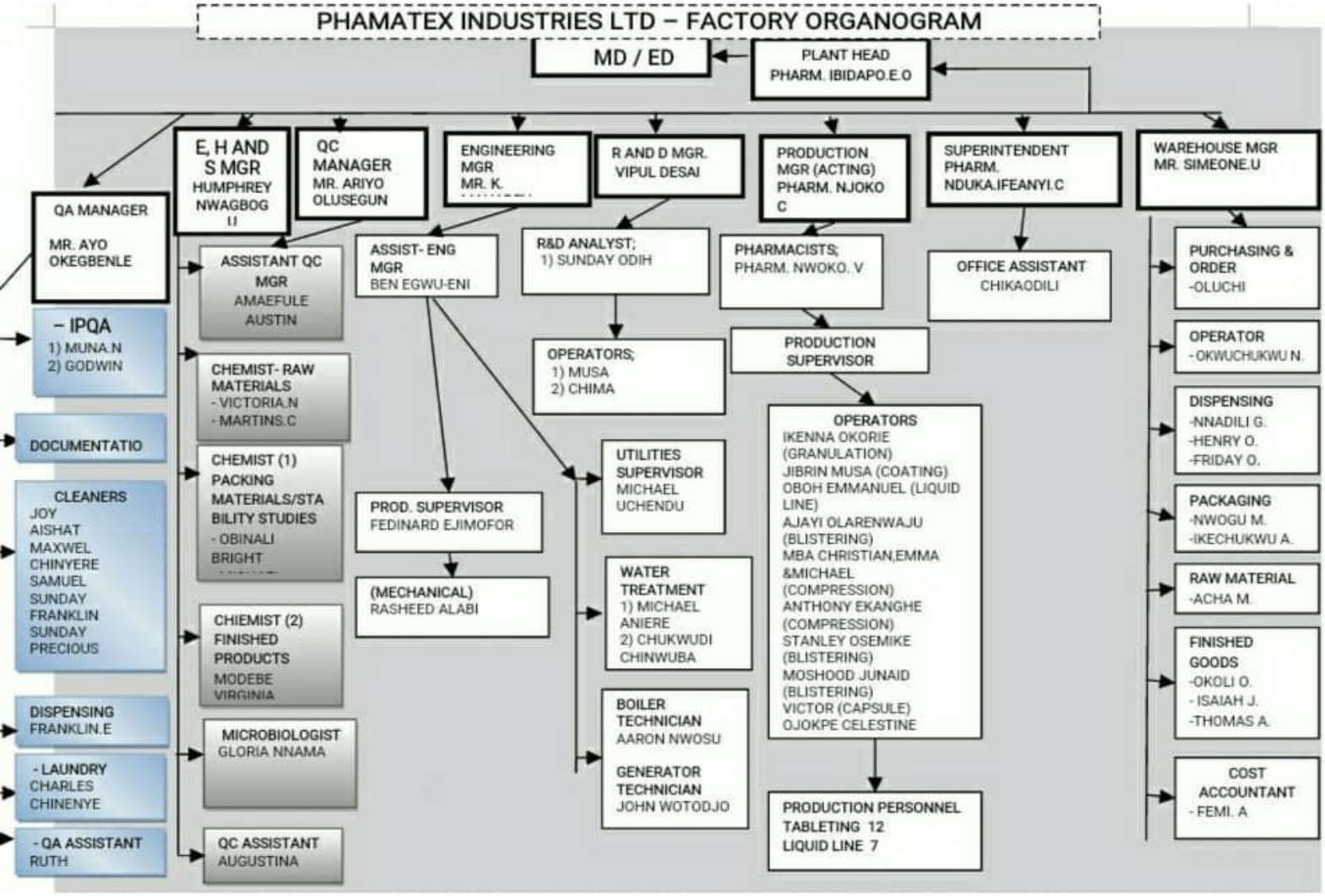
QUALITY CONTROL

Here the drugs and water are being tested and approved for further production. This process is called the In-process.

LIST OF PRODUCTS

Pilotrim
Piloxicam
Famoretic
Paratex
Paratex syrup
Lexaprin
Famagyl
Areactin
Paracetamol

ORGANOGRAM


PHAMATEX INDUSTRIES LTD – FACTORY ORGANOGRAM
MD / ED
PLANT HEAD
PHARM. IBIDAPO.E.O
E, H AND S MGR
HUMPHREY NWAGBOG
QC MANAGER
MR. ARIYO OLUSEGUN
ENGINEERING MGR
MR. K.
R AND D MGR.
VIPUL DESAI
PRODUCTION MGR (ACTING)
PHARM. NJOKO C
SUPERINTENDENT PHARM.
NDUKA.IFEANYI.C
WAREHOUSE MGR
MR. SIMEONE.U
QA MANAGER
MR. AYO OKEGBENLE
– IPQA
1) MUNA.N
2) GODWIN
DOCUMENTATIO
CLEANERS
JOY
AISHAT
MAXWEL
CHINYERE
SAMUEL
SUNDAY
FRANKLIN
SUNDAY
PRECIOUS
DISPENSING
FRANKLIN.E
- LAUNDRY
CHARLES
CHINENYE
- QA ASSISTANT
RUTH
ASSISTANT QC MGR
AMAEFULE AUSTIN
CHEMIST- RAW MATERIALS
- VICTORIA.N
- MARTINS.C
CHEMIST (1) PACKING MATERIALS/STABILITY STUDIES
- OBINALI BRIGHT
CHIEMIST (2) FINISHED PRODUCTS
MODEBE VIRGINIA
MICROBIOLOGIST
GLORIA NNAMA
QC ASSISTANT
AUGUSTINA
ASSIST- ENG MGR
BEN EGWU-ENI
PROD. SUPERVISOR
FEDINARD EJIMOFOR
(MECHANICAL)
RASHEED ALABI
R&D ANALYST;
1) SUNDAY ODIH
OPERATORS;
1) MUSA
2) CHIMA
UTILITIES SUPERVISOR
MICHAEL UCHENDU
WATER TREATMENT
1) MICHAEL ANIERE
2) CHUKWUDI CHINWUBA
BOILER TECHNICIAN
AARON NWOSU
GENERATOR TECHNICIAN
JOHN WOTODJO
PHARMACISTS;
PHARM. NWOKO. V
PRODUCTION SUPERVISOR
OPERATORS
IKENNA OKORIE (GRANULATION)
JIBRIN MUSA (COATING)
OBOH EMMANUEL (LIQUID LINE)
AJAYI OLARENWAJU (BLISTERING)
MBA CHRISTIAN,EMMA &MICHAEL (COMPRESSION)
ANTHONY EKANGHE (COMPRESSION)
STANLEY OSEMIKE (BLISTERING)
MOSHOOD JUNAID (BLISTERING)
VICTOR (CAPSULE)
OJOKPE CELESTINE
PRODUCTION PERSONNEL
TABLETING 12
LIQUID LINE 7
OFFICE ASSISTANT
CHIKAODILI
PURCHASING & ORDER
-OLUCHI
OPERATOR
- OKWUCHUKWU N.
DISPENSING
-NNADILI G.
-HENRY O.
-FRIDAY O.
PACKAGING
-NWOGU M.
-IKECHUKWU A.
RAW MATERIAL
-ACHA M.
FINISHED GOODS
-OKOLI O.
- ISAIAH J.
-THOMAS A.
COST ACCOUNTANT
- FEMI. A

SOME DRUG PRODUCTION PROCESSES

- PRODUCTION OF LEXAPRIN TABLET INGREDIENTS
- API; Acetylsalicylic acid
- Exipients include; Microcrystalline cellular, Gross carmellose sodium, sodium starch glucolate, Docusate sodium, magnesium stearate, pregelinated starch.

STEPS IN PRODUCTION

- Sieving; As this process does not involve the wet granulation procedure, sieving of the ingredients is carried out using the vibro sifter.

- Blender and lubrication; This is done to ensure thorough mixing of the ingredients using a cage blender.
- Compression; this is done by the compressing machine, it is the process whereby the powdered form of the drug after blending is converting into tablet or caplet.
- Coating; Preparation of the coating solution using instacoat transparent.
- Blistering and packaging; Finally blistering and packaging is done.

PRODUCTION OF PIROXICAM CAPSULE

INGREDIENTS

API: piroxicam

Excipients: Lactose, magnesium stearate, sodium starch glucolate

STEPS IN PRODUCTION

SIEVING: sieving of the ingredients is done here as it does does involve wet granulation. It is done using the vibro sifter.

BLENDING: Blending of the API with the excipients is done here and the sodium starch glycolate for librication.

FILLING: The hard gelatin capsules are filled with the powder using the AT90T machine(Automatic filling machine).

BLISTERING: The blistering and packaging is done. Blistering is done using the leak test machine.

PRODUCTION OF PILOTRIM CAPLET

INGREDIENTS

API: Sulphamethoxazolen
Excipients: sodium starch glycolate, pregelatinised stem, docusate Sodium, aerosol, magnesium stearate, gross carmellose sodium, water.

STEPS IN PRODUCTION

GRANULATION: This involves the wet granulation and mixing of the API and excipients using the rapid mixer granulator (RMG)

DRYING: The mixture is taken for drying in the fluidized bed drier(FBD) For about 45 minutes.

SIEVING:The drug was sieved into separate granules using the vibro sifter.

COMPRESSION: The powder is taken to the compression room to be

compressed into caplet form using the compressor.
BLISTERING: Using the leak test machine, the drug was taken for blistering and then packaged.

PRODUCTION OF FAMAGYL TABLET

STEPS IN PRODUCTION

DRY GRANULATION: This involves the dry mixing of API and the excipients and addition of corn which is the binder in paste form.
DRYING: The granules are taken to the fluidized bed dryer for drying for about 45 minutes.
SIEVING: The granules are sieved into separate granules using the vibro sifter.

COMPRESSION: The compression of the drug takes place here using the compressor. Where the drug is compressed to form shape.

EQUIPMENTS

SIFTER: An instruments used to sieve the ingredients of a tablet with a replaceable mess ware. In this technique, particles of a powder mass are placed on a screen made of uniform aperture. The sifter is attached to the vibrator that helps in sieving the material through the meshwork. The mechanism of action is to loosen the packaging of the particle in contact with the screen surface, permitting entrapped sub sieve particle to the screen surface.

FLUIDIZED BED DRYER: In the fluidized bed dryer, the fluidized air stream is introduced by a fan or

blower mounted at the top of the apparatus. The air heated to the required temperature in an air heater and flows upward through the wet materials, which remains in the drying chamber fitted with a wire mesh supported at the bottom. By this process the material is suspense and agitated in a warm air stream while the granulation is maintained in a motion.


BECTOCHEM
FBD 150 KG

COMPRESSION

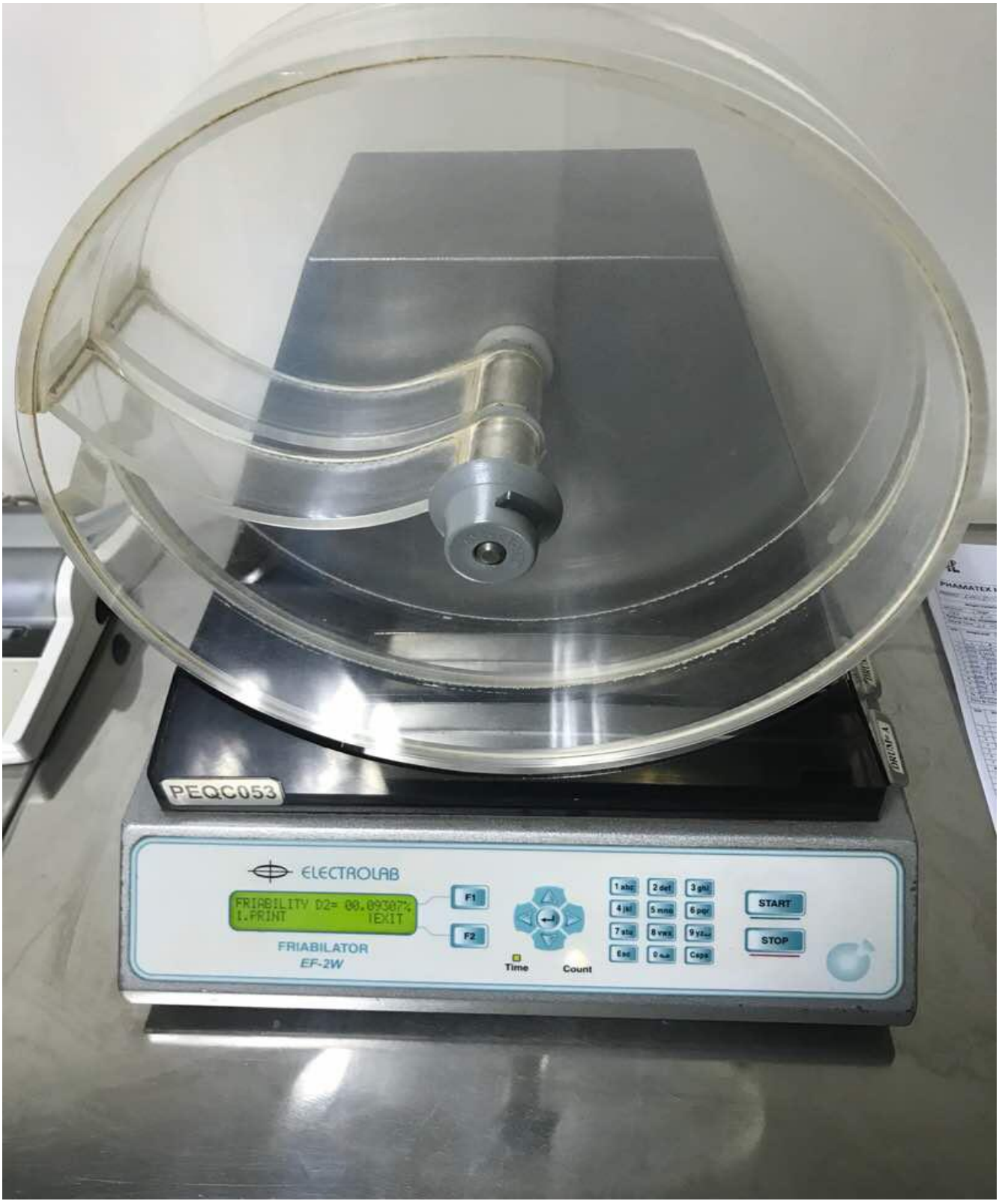
For increased production, rotary machine offer a great advantage: A head carrying a number of sets of punch and dies revolves continuously while the tablet granulation runs from the hopper through a feed frame and into a dies placed in a large steel plate revolving under it. Compression takes place as the upper and lower punches pass through a pair of rollers. This action produces a slow squeezing effect on the material in the die cavity from the top and bottom and so gives a chance for entrapped air to escape. The lower punch lifts up and ejects the tablet. The punches and dies an be

removed for inspection, cleaning and inserting different sizes to produce a great variety of shapes and sizes.


PEPR024
ADEPT
ADEPT
WEIGHT RIGHT OUTLET
THICKNESS RIGHT OUTLET
THICKNESS LEFT OUTLET
WEIGHT LEFT OUTLET
START
STOP

- Friability; This describes the tendency of a solid substance, the drug, to break into smaller pieces under duress. This is done to make sure the tablet is formulated to withstand stress during transit. Apparatus used is called a friabilator.

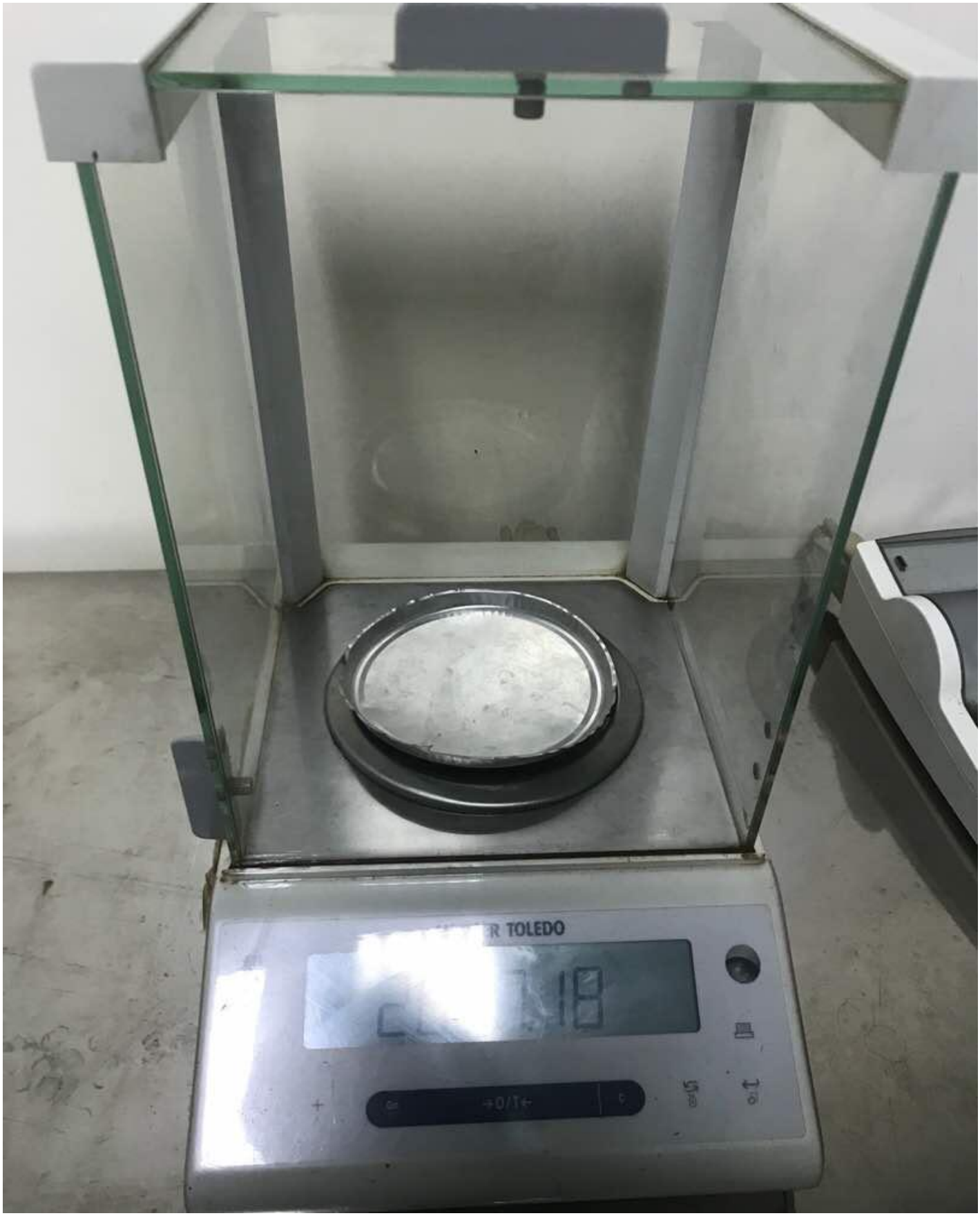
FRIABILATOR


PEQC053
ELECTROLAB
FRIABILITY D2= 00.09307%
1.PRINT
!EXIT
F1
F2
FRIABILATOR
EF-2W
Time
Count
START
STOP

WEIGHT VARIATION TEST

- This is a constant check carried out through out the compression stage at intervals to ensure that the tablets have uniform weight. The tablets are usually weighed in tens but this depends on their individual weights.

WENSER BALANCE



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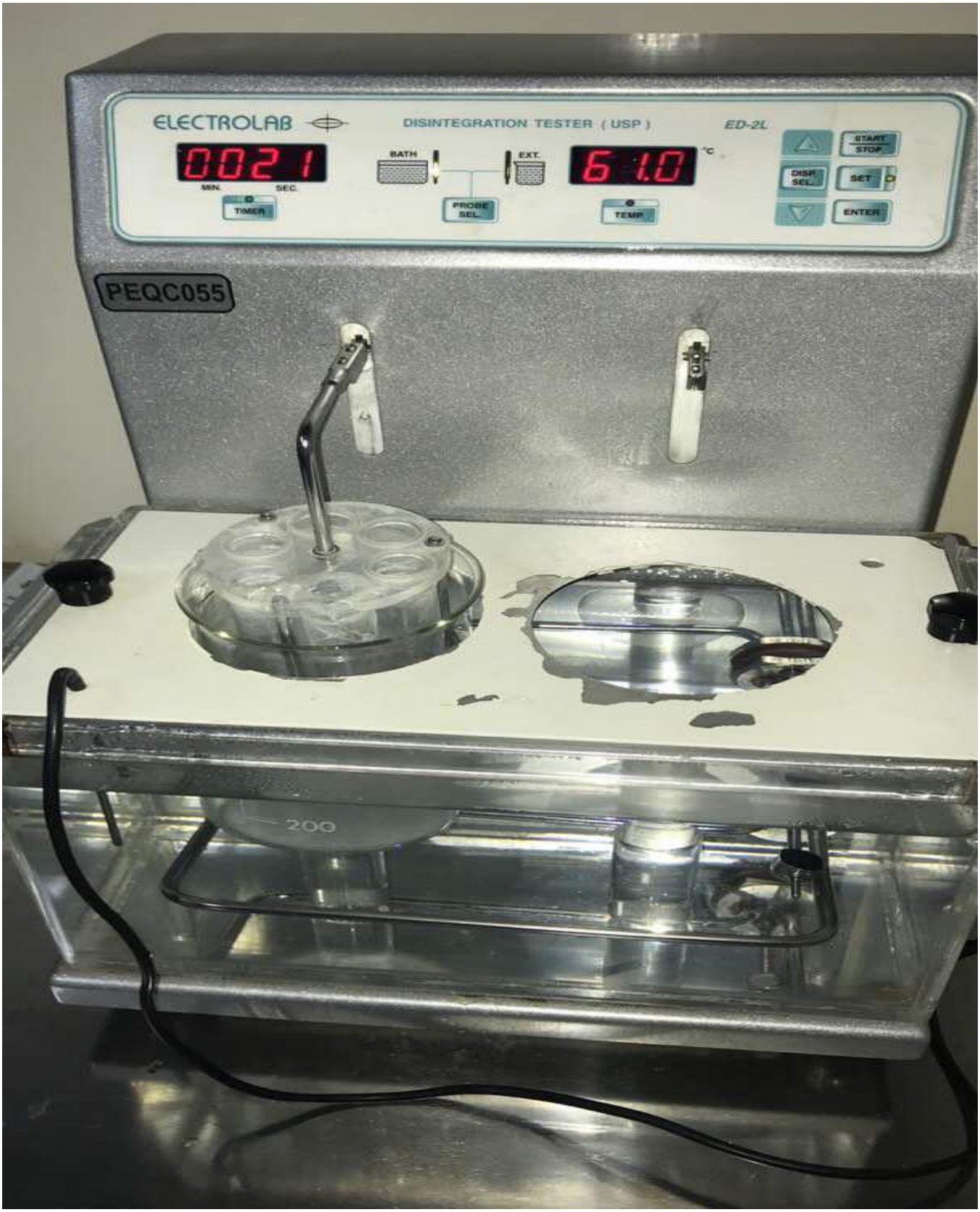
DISINTEGRATION TEST

- This is done to check the amount of time needed for the tablet to dissolve. Therefore it is used to determine how much time would be needed when ingested by a living organism.

DISINTEGRATION TESTER


ELECTROLAB
DISINTEGRATION TESTER (USP)
ED-2L
0021
MIN.
SEC.
TIMER
BATH
EXT.
PROBE SEL.
61.0
°C
TEMP.
START STOP
DISP SEL.
SET
ENTER
PEQC055
200

•It is the test done to calculate the force required to break a tablet. Tablets require a certain amount of hardness and resistance to friability to withstand mechanical shakes or handling in manufacturing, packaging and shipping. The apparatus used here is called the hardness tester.

LEAK TEST

•This is a test carried out on the blisters of the drug. This test is done to ensure that there are no leaks/holes on the blisters, if the blisters are air and moisture tight, then the go ahead to continue the production of the blisters and

packaging of the drugs would be given but if it isn’t, the blistering machine would have to be adjusted.

LEAK TEST MACHINE

CONCLUSION

Industrial training is very much important and essential for a pharmacology student. It is also a great opportunity to acquire practical knowledge. During my training period in the industry I acquired lots of experiences in pharmaceutical production and production management. This will help me to clarify my theory knowledge. I hope and pray that it will help me much in my future profession.

During the training, I had seen the various equipments and apparatus in the industry. The highly sophisticated instrument that work precisely must be operated with

intense care for optimum use. We acquired a lot of experience concerning the latest instruments and their given procedures.

It was taught to us that, the CGMP guidelines are to be exactly and strictly followed in the industries in each and every section as was seen in Pharmatex industries limited, the workers were seen dealing the active ingredients with hand gloves and nose masks. The quality control section was of high standard as everyone took precautions accordingly. Due to sufficient chemists, the basic tests of solid dosage forms like assay, disintegration test, dissolution test etc were carried out carefully and

precisely, hence the paper documents are in place as the authorities pay much attention on the quality of the products produced.

Due to all that, the training was very interesting with lots of things to be learned. It helped us to acquire knowledge on punctuality, regularity and working environment in industries. The friendly working environment in pharmatex industries limited will remain in our minds in the near future. Hence we can say our goal of attending the industrial tour is fulfilled. We acknowledge the great help of Pharmatex industries limited.