A STUDY ON THE MANUFACTURING OF LEAD ACID BATTERIES

Report on internship trainning submitted tp periyar uiversity, salem in partial fulfillmentof requirements for the award of the degree of

BACHELOR OF CHEMISTRY

Submitted by

NAME : BHARGAVI. N

REG.NO: C21UG152CHE006

Under the supervision of

Mr.PREMNATH

EXIDE INDUSTRIES LTD



DEPARTMENT OF CHEMISTRY

ST.JOSEPH'S COLLEGE OF ARTS AND SCIENCE FOR WOMEN, HOSUR

(Affliated to periyar university, Salem)



PERIYAR UNIVERSITY

INTERNSHIP TRAINING REPORT

1.	Name of the Candidate	Bhargavi.N
2.	University Examination Registration Number	C21UG152CHE006
3.	Name of the college	St.joseph's college of arts and science for women, Hosur
4.	Name of the Department/Degree	Chemistry/ B.Sc., chemistry
5.	Name of the industry/ Institute in which for internship Training Undergone	Exide Industries LTD.
6.	Guide / Supervisor under whom the training undertaken	Mr.Premnath
7.	Title of the Training	Manufacturing of lead acid batteries
8.	Brief output training (not more than 2 Pages)	Annexure Enclosed
9.	Conclusion	Enclosed
10.	Outcome of the training	To ensure that a product manufactured met the specification

Submitted for B.Sc., Internship Examination held on .1.4.:.11.2023 at the Department of chemistry, St.Joseph's College of Arts and Science for Women, Hosur

Bhargaui N

Signature of the Student

Signature of the Guide

Head of the Department ST. JOSEPH'S COLLEGE OF ARTS & SCIENCE FOR WOMEN Mookandapalli, Sipcot, HOSU<mark>PFinCipal</mark>26,Krishnagiri-Dist.

Examiner:

- 1.
- 2.





REF : EIL/HR/2023/PC-77 Date : 08.02.2023

CERTIFICATE

This is to Certify that Ms. N. Bhargavi (Reg No. C21UG152CHE006), B.Sc Chemistry Student of St. Joseph's College of Arts and Science for Women, Hosur has successfully undergone Internship at our Factory from 23.01.2023 to 04.02.2023.

During her Internship, she has evinced keen interest and her conduct and character were satisfactory.

We wish her all the success in her future endeavours.

For Exide Industries Limited.

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C. Rajan Head – Plant HR & IR





Exide Industries Limited Exide House, 59E: Chowringtee Road, Kolkata 700,020 Phi (033) 2283,2120/03/36/50 (Faxi (003) 2683/2637 www.exide.ndustries.com (CIN L31402WB1947PLC014919

Manufacturing of Lead Acid Batteries

Exide Industries Ltd(EIL)., India's flagship of the storage battery industry,headquartered in Kolkata and the largest power storage solutions in south and south east asia. It manufactures the widest range of storage batteries in the world from 2.5 Abto 20,000Ab capacities,to cover the broadest spectrum of application. With about 4000 million gross sellers in 2003-04.

BASIC THEORETICAL KNOWLEDGE ON BATTERY :-

- A battery is an electrochemical device that generates electrical power from the chemical reactions occurring in it.
- Two or more electrochemical cells make up a battery.
- There are three main parts that make up a battery-two electrodes and an electroyte.
- The two electrodes are typically madeup of two different metals and the electrolyte is a chemical medium that allows the flow of electrical charge between the two electrodes.

INTRODUCTION :-

Internship training being a part of our curriculum helps us to get a practical insight of our theoretical knowledge. I went through every manufacturing process of the VRLA plant in Exide industries Ltd., Hosur. A lot of research activities and development projects are being done in the manufacturing unit to enhance the quality of the industrial VRLA battery. I was able to gain a better knowledge in this wide field of lead acid batteries through Exide Industries Ltd.,

EXIDE:-

Exide stands for excellent oxide. It is one of the largest manufactures of lead acid batteries. It is the one and only company that supplies batteries to navy and army of other countries in the world.

Lead acid batteries are one of the oldest and most used batteries that are presently running our devices. It has a wide range of applications ranging from small batteries in UPS to large batteries which are used in ships and tankers.

VRLA PLANT BATTERY MANUFACTURING PROCESS :-

CASTING :-

Grids are mesh like structures that serve as a framework for holding the active material. They serve as a base of a battery.

Their primary function is holding the active material.

They allow the current to pass through them.

- BALLMILL:-

Ballmill is one of the old way machines that is in use to make oxides.

In ball mill pure lead is only used as a raw material to prepare oxides.

Pure lead bars are put in a melting pot via a chain or belt type

conveyor. The melting is maintained at around 500 degree celcius which melts the lead.

This molten lead is passed through a circular mould to get into a form of thick thread like structure which is then cut into small balls.

These balls are then carried onto the lump hooper which is a holder for these balls after which these are sent into the drum.

So this drum is maintained at around 180-200 degree celcius .

The balls inside the drum collide with each other and with the help of air they turn into powdered form.

The powdered form is the oxide (pbo)which is 70-76 %.

The colour of the oxide here turn out to be greyish black.

REACTION POT :-

Reaction pot or barton pot is another machine that is used to make oxides.

Here high temperatures are maintained compared to the ball mill.

PASTE MIXING :-

Paste mixing is the process by which paste is prepared for the positive as well as negative plate.

The paste prepared for the positive and negative plates differ.

PASTING:-

Pasting process is the most important process that is responsible for the functioning of the battery.

First paste mixing is done which is the process by which the paste is made.

The main ingredient that is required for the paste to be made is oxide.

CURING:-

There are four main processes that happen in curing which are Crystallization, Oxidation, Adhesion, Cohesion.

Humidity and moisture content play a very important role here.

PLATE CUTTING :-

The pasted plate is then passed to plate cutting process.

- This process is mainly used to divide the plates into grids.
- The grids are brushed well.

ASSEMBLY :-

The paste in positive and negative plate is passed from the plate cutting process to stacker machine.

The negative plate is covered in poly ethylene (PE).

JAR FORMATION :-

Jar formation depends upon various processes they are

- Container checking
- Acid filling machine
- Charging tank
- Acid level checking
- Leak testing
- Vent plug clossing
- Pole brushing
- High rate discharge testing

CONCLUSION :-

Through Internship training at Exide Industries Ltd, Hosur a clear knowledge has been obtained about the various stages involved in the manufacturing of all types of VRLA batteries. It was indeed a very exciting and a interesting training to attend .I have developed a lot of practical knowledge .

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BACHELOR OF CHEMISTRY

Submitted by

NAME : UMA SARASWATHI. M

REG.NO: C21UG152CHE034

Under the supervision of

Mr.PREMNATH

EXIDE INDUSTRIES LTD



DEPARTMENT OF CHEMISTRY

ST.JOSEPH'S COLLEGE OF ARTS AND SCIENCE FOR WOMEN, HOSUR

(Affliated to periyar university, Salem)



REF : EIL/HR/2023/PC-79 Date : 08.02.2023

CERTIFICATE

This is to Certify that Ms. M. Uma Saraswathi (Reg No. C21UG152CHE034), B.Sc Chemistry Student of St. Joseph's College of Arts and Science for Women, Hosur has successfully undergone Internship at our Factory from 23.01.2023 to 04.02.2023.

During her Internship, she has evinced keen interest and her conduct and character were satisfactory.

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For Exide Industries Limited.

Vijanal

P. Vijavakumar Sr. Deputy Manager – Plant HR & IR





Exide Industires Limited Exide House, 59E, Chowringhee Road, Kolkata 700 020 Ph: (033) 2283-2120/33/36/50 | Fax: (033) 2683-2637 www.exideindustries.com | CIN: L31402WB1947PLCO14919

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