



**Maratha Vidya Prasark Samaj, Nashik**

**G.M.D. Arts, B.W Commerce and Science  
College, Sinnar.**

**A**

**Internship Report**

**On**

**Research And Development**

**Submitted By-**

**Mr. Hire Sagar Kailas**

**M.Sc. (Organic Chemistry)**

**Dept. Of Chemistry**

**Year : 2022-2023**



Maratha Vidya Prasark Samaj, Nashik

**G.M.D. Arts, B.W. Commerce and Science College,  
Sinnar.**

**Examination Seat No:**

***Certificate***

This is to Certified that the internship report

**“Research And Development”**

Has been carried out in our premises by-

**Hire Sagar Kailas**

Under my guidance in partial fulfilment of the requirement for

Second year of M.Sc. during the academic year 2022-23

In

SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE-411007

*M. Gaware*

Prof. M.Gaware

Head Of the Department  
**HEAD**

DEPARTMENT OF CHEMISTRY  
G.M.D. Arts, B.W. Commerce  
and Science college, Sinnar

*Hire Sagar Kailas*  
2.05.2023

External Examiner

Dr .P.V Rasal

*P.V. Rasal*

Principal

**PRINCIPAL**  
G.M.D.Arts, B.W.Commerce and  
Science College, Sinnar, Dist. Nashik

# ARSS BIOFUEL PRIVATE LIMITED

CIN- U24119OR2003PTC007115

FACTORY ADD: GAT NO: 196, WADIVARHE, DARNA ASWALI ROAD, TALUKA - IGATPURI, NASHIK-1  
EMAIL ID - [arss112000@yahoo.com](mailto:arss112000@yahoo.com) PH +91 9422271148 / 8830665543.

**ARSS**  
BIOFUEL PVT. LTD.

## APPRENTICESHIP LETTER

### To whom it may concern

This is to certify that Mr. Sagar Kailas Hire worked with ARSS Biofuel Pvt. Ltd. as a Chemist from November 2022.

He has a wide knowledge in chemical process intensification and optimization and has worked on several projects regarding the same for our company.

His efforts and skills are commendable and have contributed towards the successful operation of the company in the research and operational fronts. He has performed his duties in diligent manner and is a valuable resource of our company.

His job role included:

- Assessing existing processes and taking measurements
- Perform process Simulation and troubleshooting issues
- Assisting optimizing and upgrading systems

wishing him good luck for future endeavors.

For ARSS BIOFUEL PVT LTD



Authorized Signatory



Place: Nashik

Date:

# ACKNOWLEDGEMENT

I wish like to thank the owner of **ARSS Pingle Mohan** for permitting me to use all the facilities available in the industry for my internship work. I would also like to thank the all the worker of **ARSS** for their cooperation . I am grateful to his encouragement, guidance and supervision of my internship work during the year. I must acknowledge the financial support given to my training by my parents. I would also like to thank principle of G.M.D college **Dr. P.V Rasal** and head of the department **Dr. Manoj Gaware** and all the teaching and non-teaching staff for their help.



**Hire Sagar Kailas**

M.Sc. II (Organic Chemistry)

## INDEX

Sr.no	TITLE	Page no
1.	Abstract	5
2.	Introduction	6
3.	About Company	7
4.	Bio Fuel	10
5.	Company Product 1. Ethanol 2. Denature Anhydrous Ethanol 3. Ethanolic Hydrochloride 4. Sanitizer	11
6.	Job Description	19
7	Conclusion	20
8	Reference	21

## **Abstract**

I have undergone my industrial training in ARSS Biofuel in Igatpuri in November 2022. ARSS bio fuel is company that specialized in manufacturing anhydrous ethanol and sanitizer. I was placed in sanitizer department as a lab technician under a senior supervisor.

During my one month internship I have learnt the basics knowledge of doing maintenance of machine. Furthermore, I have learnt about the sanitizers manufacturing.

They always focus more on safety of worker as they are dealing with chemical.

All in this industrial training has given me the valuable insight of being a professional chemist.

## **Introduction**

Internship program has become the bridge for those who want to enter to corporate level from the college life, through internship I got to know the real working environment that was very much different from my course study.

The primary object objective of the internship is to generate a through understanding of the work place relationship, performing of the activities and engaging oneself in the working environment. It was more to get practical implication of all the studies, theories that I had acquired so far. This would help me to pave a way towards growth in my academic as well as personal development.

- To learn and apply theoretical knowledge practically.
- To develop interpersonal managerial and communication skill.
- To come up with possible strategies to gain competitive advantage.
- To fulfill the partial requirement for the Master of Chemistry of SPPU.



## **About Company**

Name : ARSS BIOFUEL PRIVATE LIMITED

CIN – U24119OR2003PTC007115

Add : GATE.NO : 196 , WADIVARHE,DARNA ASWALI ROAD , TAL,  
IGTAPURI NASHIK-1

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It is a non government company, incorporated on 17 April 2003 . it's a private unlisted company and is classified as company limited by shares.

The company authorised capital stands at Rs 100 lakhs and 62.90% paid –up capital which is Rs 69.3 lakhs. ARSS Biofuel Private limited last annual general meet happened on 2017.

Arss Biofuel is majorly in manufacturing (Metal & Chemicals) .

## **Bio-Fuel**

- Unlike other renewable energy sources, biomass can be converted directly into liquid fuel called “Bio fuel”.
- It helps to meet transportation fuel need.
- Bio fuel is commonly advocated as a cost effective and environment friendly.
- Bio fuel is the fuel which produce from organic product and wastage.
- The common commercially used bio fuel are Bio Ethanol, Bio Diesel and Bio Methane.
- Bio ethanol is made from sugar, alga, wheat and sugar beet .
- Bio diesel is made from vegetable oils, algal lipids and animal fats.

## Company Product

### **1.Ethanol**

- Ethanol is an organic compound.
- It is an alcohol with the chemical formula  $C_2H_5OH$ .
- Ethanol is volatile, flammable, colourless liquid with a characteristic wine like odour and pungent test.

**Molar mass: 46.07 gm/mo**

**Boiling Point: 78.37°C**

**Density: 789 kg/m<sup>3</sup>**



## 2. Denatured Anhydrous Ethanol

- Production of Ethanol is large scale has been made by extractive distillation using conventional solvent like ethylene-glycol.
- Extractive distillation process is done to obtain pure ethanol using ethylene-glycol as solvent. Residue curve maps are used to analyse the proposed distillation process in interpreting mixture behaviour and feasibility of distillation column.
- Ethanol forms a minimum – boiling azeotrope with water at about 90mol% at 1 atm.
- This azeotrope must be broken to achieve anhydrous ethanol.
- The usual solvent applied in the industries to promote ethanol and water separation is the ethylene-glycol.



Posted on May 10, 2018

We are manufacturer and exporter of Denatured Ethanol.

## **Application Of Anhydrous Ethanol**

- Chemical Reagent
- Organic Solvent
- Raw Material for drugs
- Raw material for cosmetics
- It also used to remove the paint, ink from fabrics.

### 3. Ethanolic HCL

Hydrochloric acid in ethanol for microscopy is used for human medical cell diagnosis and histological investigation of sample material of human origin. Acid fast bacteria are difficult to stain because of the high proportion of lipid and wax in their cell wall.

Structure of ethanolic HCL:  $C_2H_7ClO$

Price of Ethanolic HCL : pure grade Ethanolic HCL for ARSS biofuel liquid at is 550/kg in Igatpuri Nashik-1.



#### **4.Sanitizers:**

- Hand Sanitizer (also known as hand antiseptic) hand disinfectant hand rub or hand.
- Alcohol based hand sanitizer that is at least 60% alcohol in water (specially ethanol) or isopropyl alcohol or isopropanol is recommended by the united state centre for Disease Control and Prevention (CDC).
- The CDS recommends the following step's when using an alcohol based hand sanitizers.
  1. Apply Product to palm on hand.
  2. Rub hand together.
  3. Rub product over all surface of hand and finger's until hand are dry.
  4. Do not go near flame or gas banned or any burning object during application of hand sanitizer.

## Preparation of institizer (sanitizer)

### Steps:

Isopropyl alcohol (95%)



Hydrogen peroxide (3%)



Glycerin ( $C_3H_8O_3$ )



Distilled water



Shake or stir well



Clear or contain in plastic

Many hand sanitizer must be stored at below  $25^{\circ}C$ .

Do not store hand sanitizer in car or anywhere it will get too hot hand sanitizer is flammable so don't store it next to heat source. Spark or open flames.



- Instead stored in following plastic bottles:

Plastic used for hand sanitizers.

PET- polyethylene terephthalate

HDPE- high density polyethylene

LDPE- low density polyethylene

PP - polypropylene



**Job Description:**

**Job title and grade:** Internship-Laboratory chemist

**Job purpose:** Laboratory

**Key Responsibility:**

- Conduct testing under supervision of either chemist/senior or under laboratory technician.
- Evaluation /test quality of specially chemicals for sanitizer.
- Handling and cleaning laboratory and apparatus (laboratory hygiene).
- Packaging sample requested by customer.

## **Conclusion**

The experience and knowledge during the internship at ARSS Bio fuel was great. This industry has a superb work culture, great mind and very high quality of work. At the laboratory, they provide many instrument and their worker will conduct the entire instrument by their own. During the internship, I was introduced and learned to handle equipment such a high machine used to manufacture ethanol and other product. The knowledge and skill get from the internship will be use to apply a worker and do the final year project. Working with their people was a rare chance and it was another opportunity to make friends and share ideas. Overall experience is very helpful.

## Reference

- <https://m.indianmart.com>
- <http://arss-biofuel-pvt-ltd.business>
- <http://www.thecompanycheck.com>