

SUMMER INTERNSHIP
REPORT
ON
DETERGENT QUALITY
ANALYSIS
(CENTRAL LAB)



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Acknowledgement

First I would like to thank RSPL, for giving me the opportunity to do an Internship within the organization. For me it was a unique experience to be in RSPL and to study a chemical analysis. It also helped me to get by my interest in quality analysis. It also helped to get back my interest in chemical research and to have new plans for my future career.

I also would like all the people that worked in the organization. With Their patience and openness they created an enjoyable working environment.

The journey of RSPL Group started in 1988 when Shri. Murli Dhar Gyanchandani and Shri. Bimal Kumar Gyanchandani started their journey from Kanpur with Ghadi Detergent. With a desire to create a lasting and successful impact on millions of consumers across the country, RSPL Group today has a presence in FMCG, Dairy & allied products, Real Estate, Footwear, Lifestyle & Fashion and Green Power.

RSPL Limited (formerly known as Rohit Surfactants Pvt Ltd) was established in 1988 in Kanpur (Uttar Pradesh) by late Mr. Dayal Das and his sons, Mr. Murli Dhar and Mr. Bimal Kumar. The company was renamed as RSPL Pvt Ltd and further reconstituted as a public limited company in August 2011 as RSPL Ltd. During the past decade, RSPL's promoters acquired several detergent manufacturing companies. In the year 2006, four companies—Kanpur Detergents & Chemicals Pvt Ltd, Rahul Detergents Pvt. Ltd., Singh Detergents Pvt Ltd and Rohit Soaps & Detergents Pvt Ltd were amalgamated with RSPL. In 2008, the promoters amalgamated holding company, Ghadi Industries Pvt Ltd, and its subsidiary, Calcutta Detergents Pvt. Ltd. with RSPL and hived-off RSPL's real estate division to Nimmi Build Tech Pvt. Ltd. (earlier known as Poonam Developers & Infrastructure India Pvt Ltd).

RSPL Group is driven by its principles of constant improvement and its strength lies in its unique offerings, focus on putting the consumer first, eye for detail, transparency in dealings, and innovation. With a rich heritage and domain knowledge, RSPL Group has built a huge conglomerate while providing employment across the country. RSPL Group has created a diverse portfolio of products that touch millions of Indians every day. Further, in 2011 RSPL hived off its Leather & Footwear division to Leayan Global Pvt Ltd.

RSPL limited has achieved a turn over of more than rupees 4500 crore during 2018-19.

BRANDS OF RSPL

1. GHADI DETERGENT (1988)

2. RED CHIEF (1997)

3. XPERT (2006)

4. NAMASTE INDIA (2011)

5. PRO-EASE (2015)

6. FURO (2017)

7. PRO-EASE LOVINGLE (2021)

8. GLORI (2021)

9. VENUS CREAME BAR

Analysis of detergent to calculate its Active matter

[A] APPARATUS AND EQUIPMENTS REQUIRED FOR TESTING ACTIVE MATTER

Digital balance with accessories

Heating plate

Funnel

Volumetric Flask(500 ml)

Pipette & Pipette Stand

Open Cylinder

Open Cylinder with stopper

Conical Flask

Measuring Cylinder

Burette and Burette stand

Glass rod

[B] REAGENTS

Chloroform

Methylene blue

Hyamine solution (0.004N)

[C] PROCEDURE

weight accurately about 5 g of sample & transfer into 250 ml of beaker then add around 100 ml of water into beaker & transfer into heating mantle till it shows bubble from bottom. Make up the

solution in 500 ml of volumetric flask with distilled water with help of funnel and glass rod & shake with the stopper & rest it for 5 min. pipette the 10 ml solution and transfer into graduated cylinder in which solution of 15ml of chloroform+25ml of methylene blue is already present. Titrate it with hyamine solution with constant shaking & clarifying till the end point of equal intensity coloration is seen in both layers. Note down the burette reading.

[D] CALCULATION

$$\text{ACTIVE MATTER \%} = \frac{342 \times \text{B.R} \times 0.004 \times 500 \times 100}{\text{Sample wt.} \times 10 \times 1000}$$

ANALYSIS OF DETERGENT TO CALCULATE SODIUM CARBONATE

[A] Apparatus and equipment required

Measuring cylinder

Conical flask

Burette & stand

Reagent bottle

[B] REAGENTS USED

Phenolphthalein

Methyl orange

1N HCL

[C] PROCEDURE

Measure 100 ml of the prepared detergent solution from 500 ml of volumetric flask & transfer into 250 ml of conical flask. Add 2-3 drops of phenolphthalein & titrate it with HCL ensure the flask is constant swirled till the color change into white. Note down the reading. Then add 2-3 drops of methylene orange & titrate it with HCL till the color change slightly reddish. Note down the reading.

*NOTE THERE WILL BE 2 READINGS.

$$\text{A.A\%} = \frac{\text{B.R} \times 31 \times 100 \times 500}{\text{Sample weight} \times 1000 \times 100} \quad \text{or} \quad \text{B.R} \times 3.1$$

$$\text{T.A \%} = \frac{\text{B.R} (1^{\text{st}} + 2^{\text{nd}} \text{ time}) \times 31 \times 100 \times 500}{\text{Sample wt.} \times 1000 \times 100} \quad \text{or} \quad \text{B.R} \times 3.1$$

$$\text{Na}_2\text{CO}_3 \% = \frac{\text{B.R} (1^{\text{st}} + 2^{\text{nd}} \text{ time}) \times 53 \times 100 \times 500}{\text{Sample wt.} \times 1000 \times 100} \quad \text{or} \quad \text{B.R} \times 5.3$$

ANALYSIS OF ACID SLURRY TO CALCULATE ITS ACIDITY AND ACTIVE MATTER

[A] APPARATUS AND EQUIPMENTS REQUIRED

Beaker

Weighing machine

Glass rod

Burette

Volumetric flask

Pipette

Measuring graduate 8. Heating mantle

[B] REAGENTS

Phenolphthalein

NaOH

Hyamine

[C] PROCEDURE

Measure around 1 gm of acid slurry in beaker with the help of weighing machine & add around 40 ml of distilled water & transfer into heating mantle stir it constant with the help of glass rod, remove it after it start boiling and rest it for 5 min to cool down. Add 2 drops of phenolphthalein. Prepare the burette by removing its air & titrate prepared acid slurry solution with NaOH [4 direct & then slow). Note down reading. Make up the solution into 500 ml volumetric flask with the help of funnel and glass rod. Pipette 10

ml from the solution & transfer into measuring graduate in which solution of methylene blue (25 ml) + chloroform (15) ml) already present. Titrate it with hyamine solution. Note down the reading.

[D] CALCULATION

$$\% \text{ACIDITY} = \frac{0.04 \times \text{B.R.}}{\text{SAMPLE WEIGHT}}$$

$$\text{ACTIVE MATTER} = \frac{320 \times 0.004 \times 5 \times \text{B.R.}}{\text{Sample weight}}$$

Where 320 = equivalent weight

0.004 = Normality of Hyamine

TO CALCULATE ALKALINITY OF SODA ASH

[A] APPARATUS AND EQUIPMENTS REQUIRED

Beaker

Glass rod

burette

moisture analyzer

[B] CHEMICAL

1N HCL Solution

Na₂CO₃ Powder

[C] PROCEDURE

First remove moisture through moisture analyzer. Then weight the sample almost 1 gm mix with 100 ml of water in a beaker & titrate it with 1N HCL till the color change. Note down the reading.

[D] CALCULATION

$$\% \text{ Alkalinity} = \frac{\text{B.R} \times 5.3}{\text{Sample weight}}$$

*TO PREPARE REAGENTS METHYLENE BLUE,
PHENOLPHTHALEIN, SILVER NITRATE,
POTASSIUM CHROMATE, METHYL ORANGE*

[A] Methylene blue (1 litre)

Measure 1 litre distilled water into litre of volumetric flask. Dissolve 7.5 gm $\text{Na}_2\text{S}_2\text{O}_4$ very well. Weight 0.05 gm powder indicator in distilled water. Mix slowly 6.8 $\text{H}_2\text{S}_2\text{O}_4$ (98%) into solution. upto mark. Shake well.

[B] Phenolphthalein (1 % Solution)

Measure 10 gm phenolphthalein indicator add into 500ml of distilled water. Add 500 ml ethanol slowly it continuously rest till the solution become clear.

[C] Silver nitrate (1litre)

Weight around 17.25 of powdered AgNO_3 pour into litre of volumetric flask. Shake well. it for 24 hrs it will dissolve automatically.

[D] Potassium chromate (5 % Solution)

Add 25 gm of potassium chromate powdered 500 ml distilled water. Shake till it dissolve.

[E] Methyl orange(0.1 % Solution)

Add 0.5 gm of potassium chromate into 500 ml of distilled water in a volumetric flask. shake well.

FOAM HEIGHT

[A] REQUIRED APPARATUS

Foam pipette (250 ml)

Foam burette (900ml)

Beaker (1000 ml)

cork

Volumetric Flask (500 ml)

[B] PROCEDURE

Measure around 1 gm of detergent and mix into 40 ml of distilled water. Heat till boil and makeup to the mark into 500 ml of volumetric flask by D/W & pour into beaker of 1000 ml in this way that foam not form. Then pipette the solution through foam pipette. Fix the cork into a burette. Then fix the pipette into a cork and open the the nob in this way the solution directly fall into solution at middle. Calculate the height of foam formed.

Foam Height (mm) = Measurement in cm x 10

Note: Check after 5 minute for remaining height in Foam Burette

WHITENESS OF POWDERED SAMPLE

PRINCIPLE :

Whiteness meter based on the principle of photoelectric effect & D65 light source as a illuminate ion condition. Meanwhile except Liquid solution, this instrument widely used for measuring the whiteness value of any substance such as: powder, board, paper sheet, fabric, clay, etc.

The unit of instrument is WB whiteness of blue.



TO CALCULATE BULK DENSITY

BULK DENSITY = Bulk density defined as amount of powder by weight present in a defined volume. It is usually expressed as gm/ml. and is obtained by measuring the volume of fixed weight of powder.

CALCULATION = Weight sample around 15 gm & transfer into 25 ml of measuring cylinder. Note the reading.

$$\frac{\text{10 GM OF SAMPLE WEIGHT}}{\text{MEASURING CYLINDER}} \quad \text{gm/ml}$$

TO CALCULATE SPECIFIC GRAVITY

[A] APPARATUS REQUIRED

Specific gravity

bottle

measuring apparatus



[B] PROCEDURE

Weight the empty specific gravity bottle note the weight. Then weight with water. Minus both the reading so you can get water weight. Then fill the bottle with sample overflow the bottle & wash it carefully. Then weight the sample & calculate the specific gravity.

[C] CALCULATION

Wt. of sample

Wt. of water

CONCLUSION

On the whole, this internship was a useful experience. I have gained new knowledge, skills and met many new peoples. I achieved several of my learning goals. I got insight into professional practice. Furthermore I experienced that is of importance that the education is objective and that you have to aware of the view of people.

At last this internship has give me new insight and motivation to pursue a future career and opportunities.