



KRDC
Kerone Research &
Development Center



48⁺ Year
Of experience

Dehydration Treatment For Drying Of Pulp By Conveyorized Microwave Oven



In Association with SVCH-Technologii, Moscow (Russia)
ISO 9001:2015 | ISO 14001:2015 | EMS 14001 | OHSAS 18001:2007

Customer:	
Process:	Dehydration Treatment for Drying of Pulp by ConveyORIZED Microwave Oven

Test Report No: 251/KRDC/LAB/17 Mum 23/06/2025

Date Sample reception : 10 /06/2025

Description:

Sampling : As Requested

Sample Condition : Acceptable

Sampling Date : 23/06/2025

Product : Pulp

End Date Test : 23/06/2025

Laboratory Experimental System –



Format: F/R&D/01

The value obtained is already corrected for possible recover value stated, if applicable.
This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in laboratory for 7days.

Address

Kerone Research & Development Centre (KRDC)
Plot No K2, Industrial Gala F4A, D-Wing, MGN Properties,
Opposite Godrej Co., Addl MIDC Anand Nagar,
Ambarnath (E)- 421506 (India) +91-2512620543/44

Specifications

Microwave Power	1.45 kW (CW)
Frequency	2450 MHz \pm 50
Infra-red Power	4 kW
Microwave Exposure Zone (Cavity)	1000 mm length wise
Web width	380mm
Entry Vestibule length	1200mm
Exit Vestibule Length	1200 mm
Exhaust Power	0.5 HP

Laboratory's Environmental Conditions –

Temperature (degree C)	29.4°C (\pm 5°C)
Humidity (%)	\leq 50% RH
Pressure (kN/m² or kPa)	Not recorded

Note for recommendation:

Environmental conditions have a direct impact on test results. Accuracy and consistency of test data are affected by the laboratory conditions.

Format: F/R&D/01

The value obtained is already corrected for possible recover value stated, if applicable.
This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in laboratory for 7days.

Address

Kerone Research & Development Centre (KRDC)
Plot No K2, Industrial Gala F4A, D-Wing, MGN Properties,
Opposite Godrej Co., Addl MIDC Anand Nagar,
Ambarnath (E)- 421506 (India) +91-2512620543/44

Laboratory's Environmental Conditions –

Name of Equipment	Picture of Equipment	Specification
Compact Thermal Imaging Camera		Model: FLIR E-30 Resolutions: 160x120IR Thermal Sensitivity of 0.10°C
Moisture Analyzer		Make: Axis Balance Description: Moisture Range: 1% (sample 0.5/5g), 0.01% (Sample > 5g)
Analytical Balances LINB-A10		Capacity: 100g Minimum Weighing: 0.0004g Resolution: 0.0001g Pan size: \varnothing 80 mm
Microscope		Par focal and Centered Strain free optics Optics with multi-layer coating Choice of halogen and LED illumination Easy access for lamp replacement

Format: F/R&D/01

The value obtained is already corrected for possible recover value stated, if applicable.
This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in laboratory for 7days.

Address

Kerone Research & Development Centre (KRDC)
Plot No K2, Industrial Gala F4A, D-Wing, MGN Properties,
Opposite Godrej Co., Addl MIDC Anand Nagar,
Ambarnath (E)- 421506 (India) +91-2512620543/44

Procedure of the Experiment –

- The experiment was performed on Pulp to speed up the heating rate.
- For this experimental run, the given sample was taken and passed in continuous Microwave heating system with suitable parameters.
- After the heating treatment, the sample was analysed.

Analytical Results:

Trial 1:

➤	<u>PARAMETERS</u>	<u>PULP SHEET</u>
➤	<u>INITIAL MOISTURE</u>	<u>85.5 %</u>
➤	<u>FINAL MOISTURE</u>	<u>17.5%</u>
➤	<u>BULK DENSITY</u>	<u>1.12 g/ml</u>
➤	<u>VISCOCITY (B4 CUP)</u>	<u>230 secs</u>
➤	<u>SET TEMP.</u>	<u>180C</u>
➤	<u>RESIDENCE TIME</u>	<u>2.5Hrs.</u>
➤	<u>PULP</u>	<u>60 %</u>
➤	<u>STARCH</u>	<u>45 %</u>
➤	<u>CELLULOSE</u>	<u>45 %</u>
➤	<u>INITIAL WEIGHT</u>	<u>120 g</u>
➤	<u>FINAL WEIGHT</u>	<u>15 g</u>

Format: F/R&D/01

The value obtained is already corrected for possible recover value stated, if applicable.
This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in laboratory for 7days.

Address

Kerone Research & Development Centre (KRDC)
Plot No K2, Industrial Gala F4A, D-Wing, MGN Properties,
Opposite Godrej Co., Addl MIDC Anand Nagar,
Ambarnath (E)- 421506 (India) +91-2512620543/44

Trial 2:

➤	<u>PARAMETERS</u>	<u>PULP SHEET</u>
➤	<u>INITIAL MOISTURE</u>	<u>85.5 %</u>
➤	<u>FINAL MOISTURE</u>	<u>24.1 %</u>
➤	<u>BULK DENSITY</u>	<u>1.12 g/ml</u>
➤	<u>VISCOCITY (B4 CUP)</u>	<u>230 secs</u>
➤	<u>SET TEMP.</u>	<u>180C</u>
➤	<u>RESIDENCE TIME</u>	<u>3 Hrs.</u>
➤	<u>PULP</u>	<u>120 %</u>
➤	<u>STARCH</u>	<u>80 %</u>
➤	<u>CELLULOSE</u>	<u>80 %</u>
➤	<u>INITIAL WEIGHT</u>	<u>150 g</u>
➤	<u>FINAL WEIGHT</u>	<u>32 g</u>

Format: F/R&D/01

The value obtained is already corrected for possible recover value stated, if applicable.
This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in laboratory for 7days.

Address

Kerone Research & Development Centre (KRDC)
Plot No K2, Industrial Gala F4A, D-Wing, MGN Properties,
Opposite Godrej Co., Addl MIDC Anand Nagar,
Ambarnath (E)- 421506 (India) +91-2512620543/44

Images During Trials:

Trial 1:

Initial



Final



Trial 2:

Initial



Final



Format: F/R&D/01

The value obtained is already corrected for possible recover value stated, if applicable.
This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in laboratory for 7days.

Address

Kerone Research & Development Centre (KRDC)
Plot No K2, Industrial Gala F4A, D-Wing, MGN Properties,
Opposite Godrej Co., Addl MIDC Anand Nagar,
Ambarnath (E)- 421506 (India) +91-2512620543/44

Moisture Analysis Report:

Trial 1:

Initial

```

Time: 22:34:51
Model: AGS200
Serial number : 139

Drying parameters
-----
Product : 0
Drying temperature : 105.0 °C
Drying profile : standard
Mode : Short mode
Calculation :  $((m0-n)/m0)*100\%$ 
Finished : 3 samples

Initial weight : 1.091 g
Final weight : 0.158 g
Drying time : 00:19:00s
Sampling interval : 20 sec
Moisture : 85.5 %

NOTE

The analysis performed by:

Signature: .....
```

Final

```

Time: 14:39:50
Model: AGS200
Serial number : 139

Drying parameters
-----
Product : 0
Drying temperature : 105.0 °C
Drying profile : standard
Mode : Short mode
Calculation :  $((m0-n)/m0)*100\%$ 
Finished : 3 samples

Initial weight : 1.355 g
Final weight : 1.118 g
Drying time : 00:36:00s
Sampling interval : 20 sec
Moisture : 17.5 %

NOTE

The analysis performed by:

Signature: .....
```

Format: F/R&D/01

The value obtained is already corrected for possible recover value stated, if applicable.
This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in laboratory for 7days.

Address

Kerone Research & Development Centre (KRDC)
Plot No K2, Industrial Gala F4A, D-Wing, MGN Properties,
Opposite Godrej Co., Addl MIDC Anand Nagar,
Ambarnath (E)- 421506 (India) +91-2512620543/44

Trial 2:

Initial

```

Time: 22:34:51
Model: AGS200
Serial number : 138

Drying parameters
-----
Product : 0

Drying temperature : 105.0 °C

Drying profile : standard
Mode : Short mode
Calculation : ((m0-m)/m0)*100%
Finished : 3 samples

Initial weight : 1.091 g
Final weight : 0.158 g

Drying time : 00:19:00s
Sampling interval : 20 sec

Moisture : 85.5 %

NOTE

The analysis performed by:

Signature: .....
```

Final

```

Model: AGS200
Serial number : 138

Drying parameters
-----
Product : 0

Drying temperature : 105.0 °C

Drying profile : standard
Mode : Short mode
Calculation : ((m0-m)/m0)*100%
Finished : 3 samples

Initial weight : 1.099 g
Final weight : 0.834 g

Drying time : 00:03:20s
Sampling interval : 20 sec

Moisture : 24.1 %

NOTE

The analysis performed by:

Signature: .....
```

Format: F/R&D/01

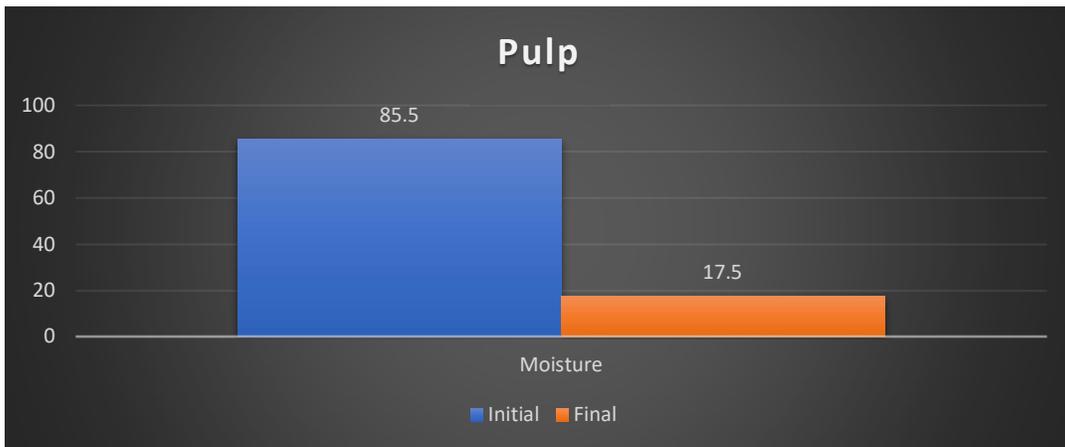
The value obtained is already corrected for possible recover value stated, if applicable.
This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in laboratory for 7days.

Address

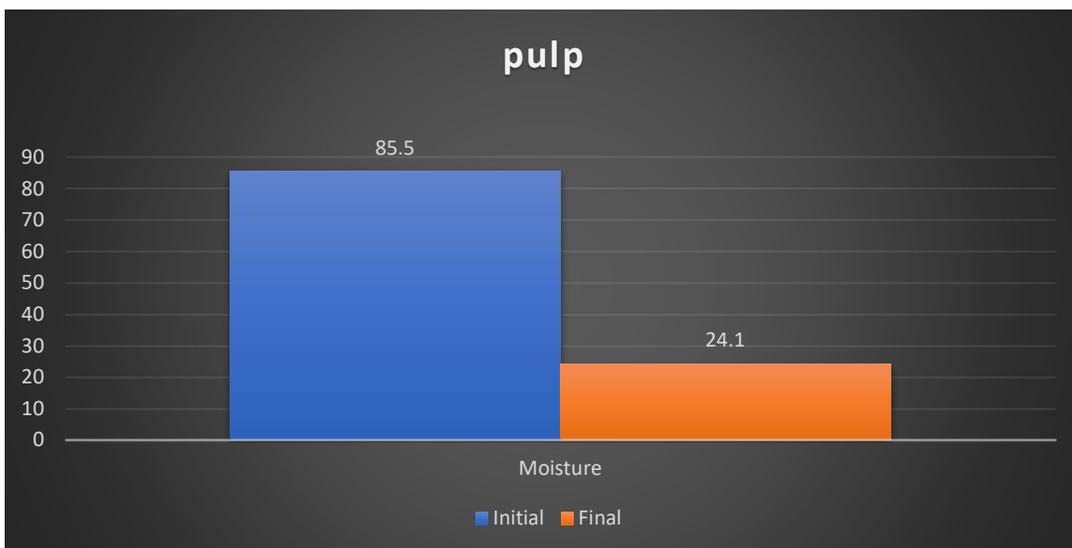
Kerone Research & Development Centre (KRDC)
Plot No K2, Industrial Gala F4A, D-Wing, MGN Properties,
Opposite Godrej Co., Addl MIDC Anand Nagar,
Ambarnath (E)- 421506 (India) +91-2512620543/44

LOD of Moisture in %:

Trial 1:



Trial 2:



Format: F/R&D/01

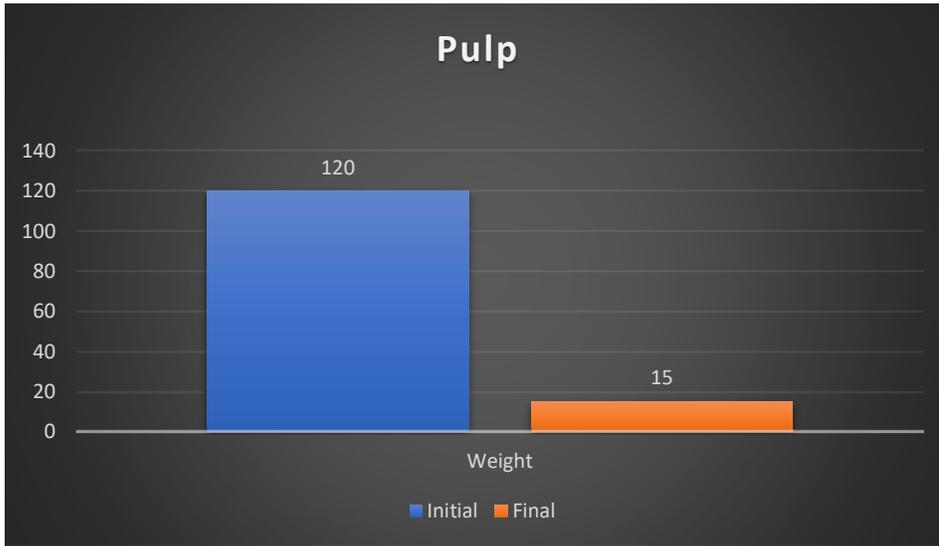
The value obtained is already corrected for possible recover value stated, if applicable.
This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in laboratory for 7days.

Address

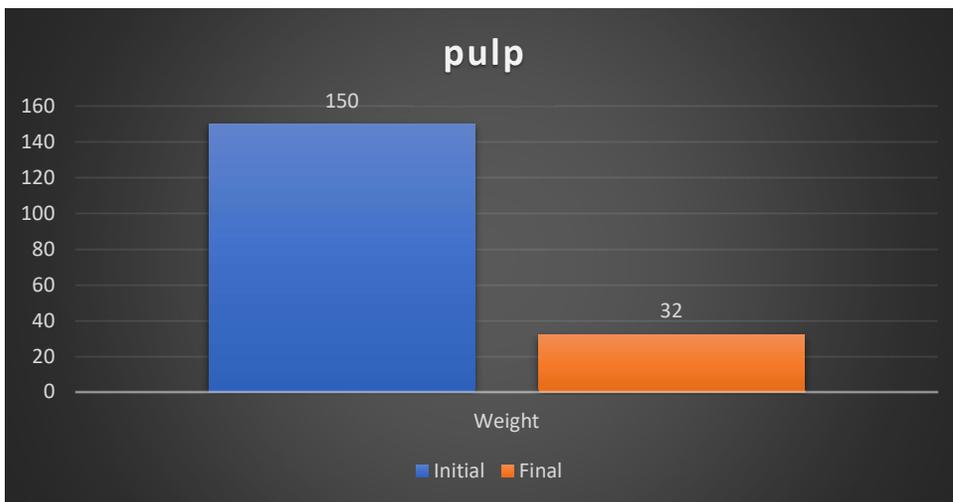
Kerone Research & Development Centre (KRDC)
Plot No K2, Industrial Gala F4A, D-Wing, MGN Properties,
Opposite Godrej Co., Addl MIDC Anand Nagar,
Ambarnath (E)- 421506 (India) +91-2512620543/44

LOD Weight in (gm):

Trial 1:



Trial 2:



Format: F/R&D/01

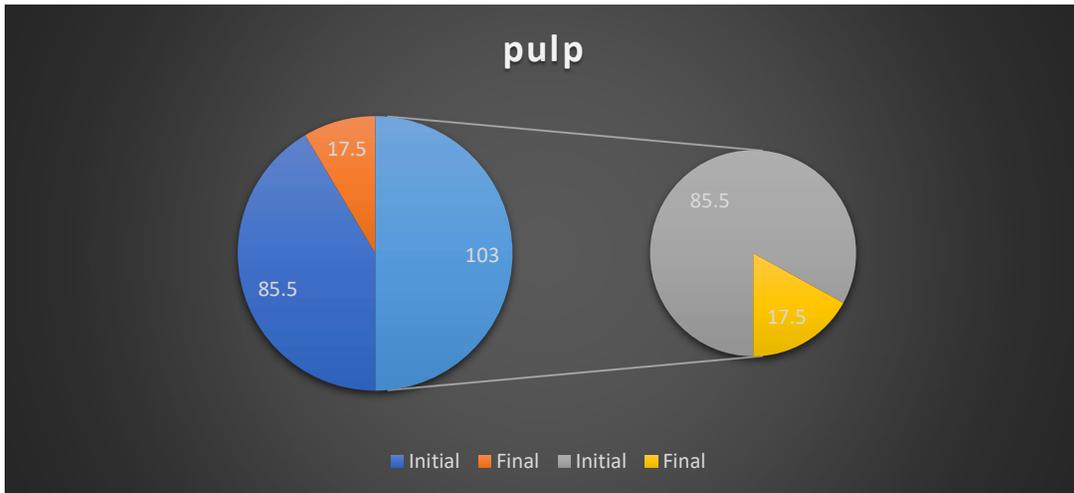
The value obtained is already corrected for possible recover value stated, if applicable.
This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in laboratory for 7days.

Address

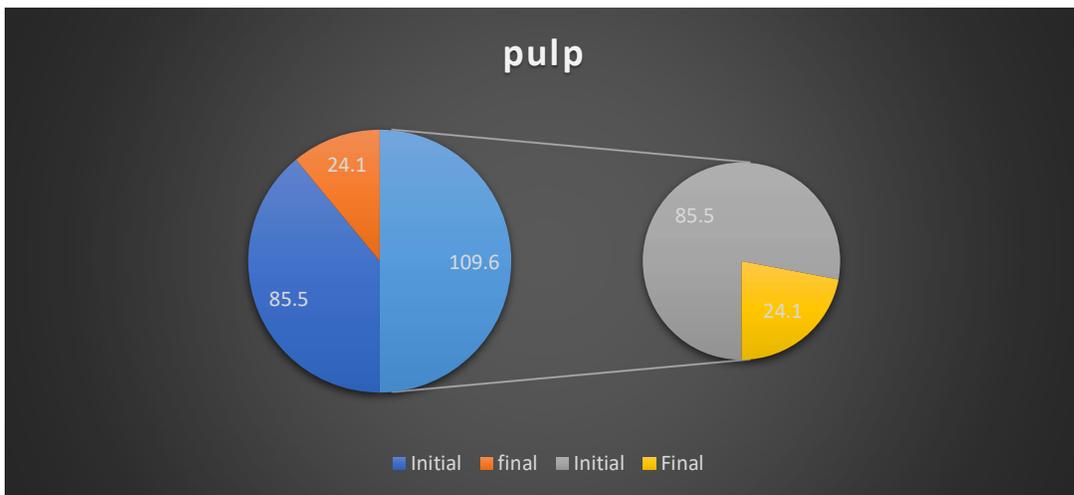
Kerone Research & Development Centre (KRDC)
Plot No K2, Industrial Gala F4A, D-Wing, MGN Properties,
Opposite Godrej Co., Addl MIDC Anand Nagar,
Ambarnath (E)- 421506 (India) +91-2512620543/44

Pie Chart of Moisture %

Trial 1:



Trial 2:



Format: F/R&D/01

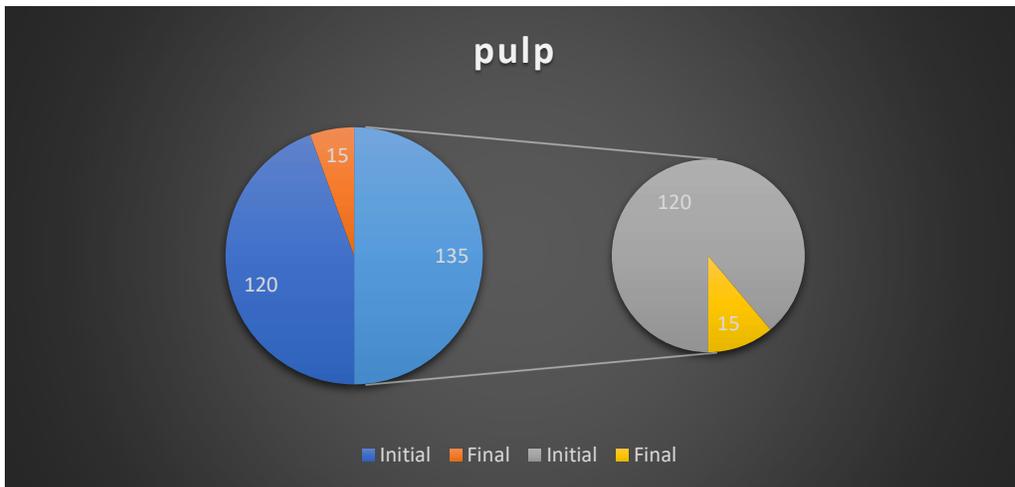
The value obtained is already corrected for possible recover value stated, if applicable.
This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in laboratory for 7days.

Address

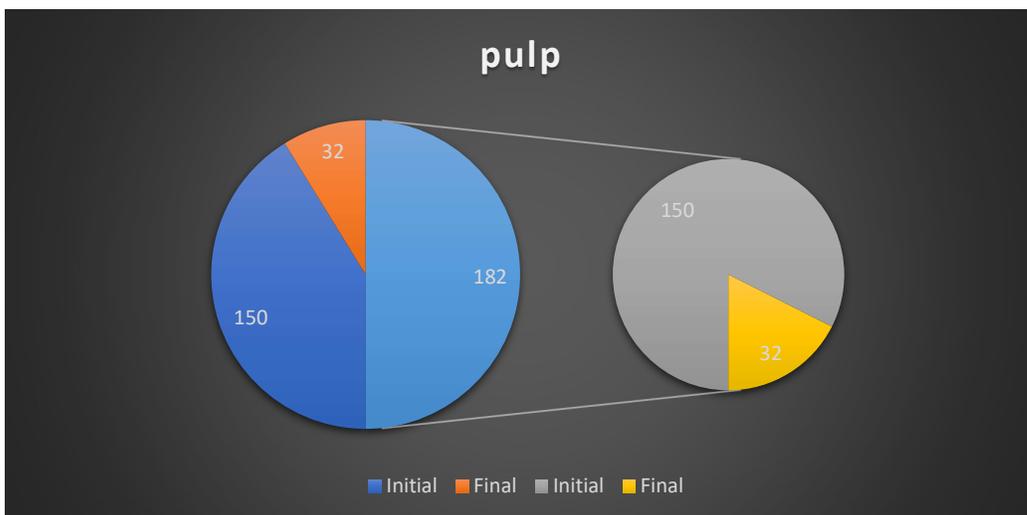
Kerone Research & Development Centre (KRDC)
Plot No K2, Industrial Gala F4A, D-Wing, MGN Properties,
Opposite Godrej Co., Addl MIDC Anand Nagar,
Ambarnath (E)- 421506 (India) +91-2512620543/44

Pie Chart of Weight:

Trial 1:



Trial 2:



Format: F/R&D/01

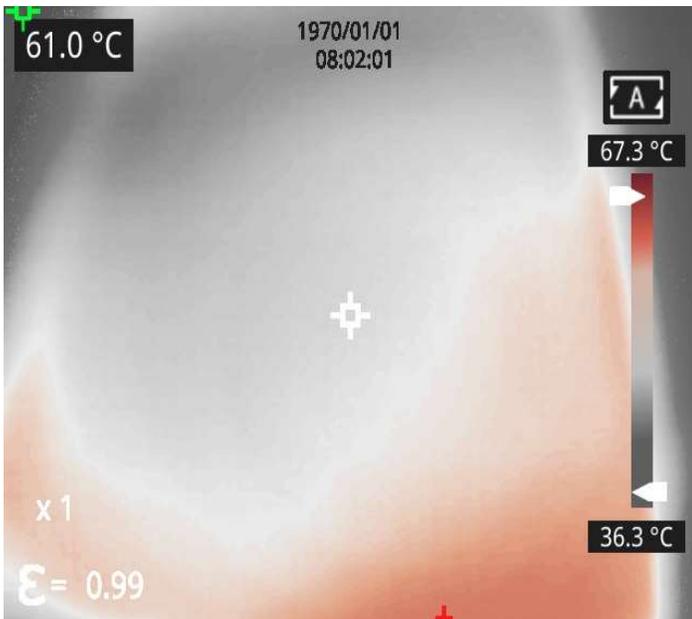
The value obtained is already corrected for possible recover value stated, if applicable.
This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in laboratory for 7days.

Address

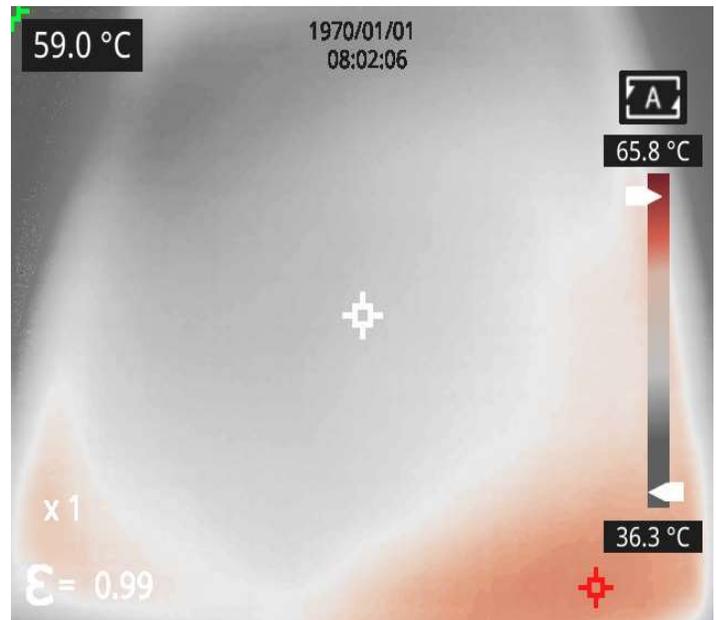
Kerone Research & Development Centre (KRDC)
Plot No K2, Industrial Gala F4A, D-Wing, MGN Properties,
Opposite Godrej Co., Addl MIDC Anand Nagar,
Ambarnath (E)- 421506 (India) +91-2512620543/44

Thermal Image:

Trial 1



Trial 2



Observations:

The heating behaviour of Pulp was investigated under the continuous Conveyorized Microwave heating system. The heating rate was found to be increasing with respect to the increase in time. As per the physical investigation it was observed that the product was dried to desired moisture content.

Mr. Pranay Yerunkar
(Tested by)

Format: F/R&D/01

The value obtained is already corrected for possible recover value stated, if applicable.
This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in laboratory for 7days.

Address

Kerone Research & Development Centre (KRDC)
Plot No K2, Industrial Gala F4A, D-Wing, MGN Properties,
Opposite Godrej Co., Addl MIDC Anand Nagar,
Ambarnath (E)- 421506 (India) +91-2512620543/44