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AIMCAL (USA)



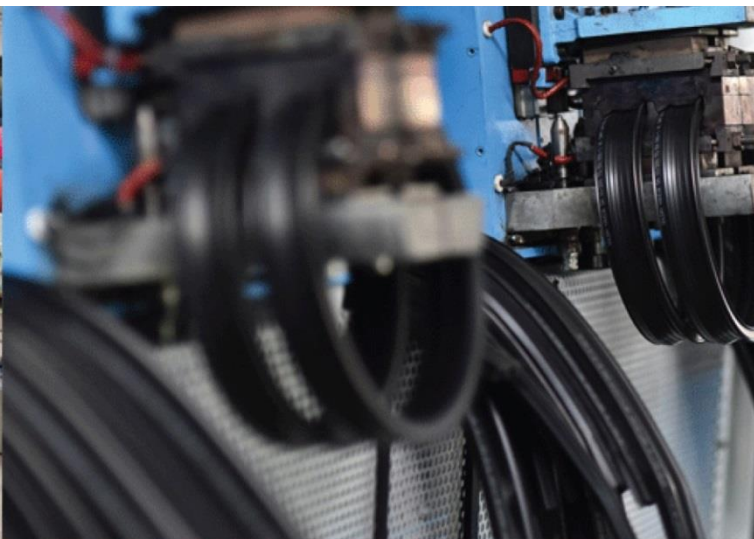
A.M.P.E.R.E (EUROPE)

In Association With



ELECTRO MAGNETIC innovative technologies

Kerone Research & Development Centre (KRDC),  
B/47, Addl. MIDC. Anand Nagar, Ambarnath (East), Thane- 421 506, India  
Tel- +91-251-2620542/43/44/45/46, Email-info@kerone.com, www.kerone.com



**Spray Drying Heat Treatment for  
Drying of Camel Milk**

ISO 9001-2008 | ISO 9001-2015 | EMS 14001 | OHSAS 18001  
In Association with SVCH-Technology, Moscow (Russia)



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Customer :	M/s. ASD Rajasthani Foods Pvt Ltd
Process :	Spray Drying Heat Treatment for Drying of Camel milk

**TEST REPORT No: 74/KRDC/LAB/59 Mum 30/05/2022**

Date Sample reception : 28/05/2022  
ID : 74/LAB/30

**SAMPLE DESCRIPTION:**

Sampling : As Requested  
Sample Condition : Acceptable  
Quantity : 500 gms.  
Sampling date : 30/05/2022  
Product : Camel Milk  
Requirement : Dried upto powder formation  
Start Date test : 30/05/2022  
End Date test : 30/05/2022

**LABORATORY EXPERIMENTAL SET UP:**



Format: F/R&D/01



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#### LAB ELECTRIC SPRAY DRYING SYSTEM SPECIFICATIONS:

Drying chamber Installed Power	4.5 KW
Drying chamber Heat Load	250°C maximum
Pneumatic Air Pressure	6 bar
Dossing pump	6-7 rpm min.

#### ENVIRONMENT-LABORATORY AMBIENT CONDITIONS:

Temperature (degree C)	33°C (±5°C)
Humidity (%)	≤65% RH
Dehumidifier Set Parameters	Temp. 50°C & RH- 10.0%
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 plant surrounding conditions.








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## EQUIPMENTS USED:

Name of Equipment	Picture of Equipment	Specifications
Compact Thermal Imaging Camera		<b>Model:</b> FLIR E-30 <b>Resolution:</b> 160x 120 <b>IR Thermal sensitivity of 0.10°C</b>
Moisture Analyzer		<b>Make:</b> Axis Balance <b>Description:</b> <b>Moisture range:</b> 1%(sample 0.02/0.05g), 0.1% (Sample 0.5/5g), 0.01%(Sample>5g)
Thermo Hygrometer		<b>Model No:</b> HTC-2  <b>Temperature accuracy:</b> $\pm^{\circ}\text{C}$ (1.8°F) <b>Temperature resolution:</b> 0.1°C (0.2°F)  <b>Humidity range:</b> 10%~99% RH <b>Humidity accuracy:</b> $\pm 5\%$ RH <b>Humidity resolution:</b> 1% RH

## SAMPLE PREPARATION AND METHOD/PROCEDURE:

The experiment has been performed on given sample of Camel Milk to speed up the drying rate. For this experimental run, given sample has been treated in spray drying system under different setting parameters. The observations are made on the basis final moisture content and physical appearance of final powder.



## ANALYTICAL RESULTS:

Initial Moisture Content: 87.7 %

Initial Weight: 500 gms.

Input Temperature (°C)	Cycle Mode	Dossing Pump (rpm)	Remark, if any
230	Continuous	7.2	Liquid convert to powder with desired particle size

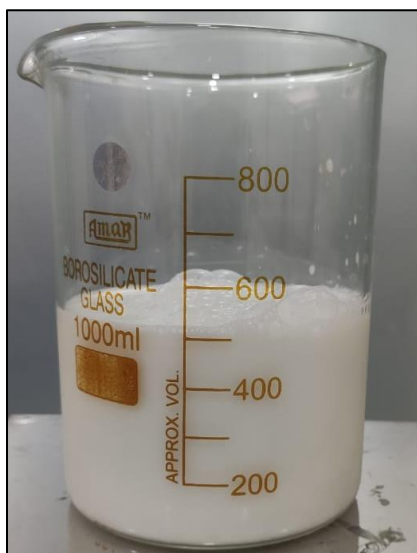
Time req. to reach 230°C: 20min.

Total cycle time: 45 min.

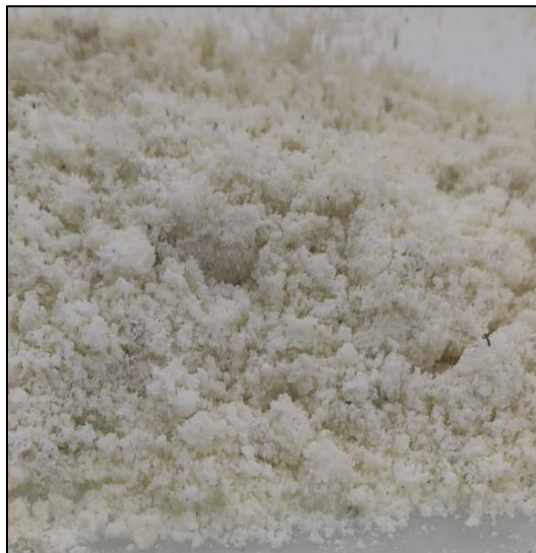
Final Moisture Content: 4.3%

Final sample recovered: 15g

## BEFORE AND AFTER TREATMENT PICTURES OF SPECIMEN SAMPLE:



Untreated



Treated



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**MOISTURE ANALYSIS REPORT:**

Drying started	Drying started
Date :30-05-2022	Date :30-05-2022
Time :13:26:38	Time :14:46:59
Model:AGS200	Model:AGS200
Serial number : 138	Serial number : 138
Drying parameters	Drying parameters
Product : 0	Product : 0
Drying temperature : 105.0 °C	Drying temperature : 105.0 °C
Drying profile : standard	Drying profile : standard
Mode : Short mode	Mode : Short mode
Calculation : $((m0-m)/m0)*100\%$	Calculation : $((m0-m)/m0)*100\%$
Finished : 3 samples	Finished : 3 samples
Initial weight : 0.763 g	Initial weight : 0.539 g
Final weight : 0.094 g	Final weight : 0.516 g
Drying time : 00:14:20s	Drying time : 00:02:00s
Sampling interval : 20 sec	Sampling interval : 20 sec
Moisture : 87.7 %	Moisture : 4.3 %
NOTE Initial moisture	NOTE Final moisture
The analysis performed by:	The analysis performed by:
Signature: <i>Anjali</i>	Signature: <i>Anjali</i>

Format: F/R&D/01



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#### OBSERVATION:

The drying behavior of Camel milk has been investigated under the Spray drying system. It has been found that the moisture content on the dry basis (%) decreases with respect to increase in input heating & dwell time. As per physical investigation, the solution become soft powder with desired particle size on drying. And the desired moisture content is obtained.

Tested By,  
Ms. Sayali Asole