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Kerone Research & Development Centre (KRDC),
B/47, Addl. MIDC. Anand Nagar, Ambernath (East), Thane- 421 506, India
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Spray Drying Heat Treatment for Drying of PVC Emulsion Solution

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

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IN ASSOCIATION WITH EMitech, ITALY

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Customer :	**M/s. TTCL Public Co. Ltd.**
Process :	**Spray Drying Heat Treatment for Drying of PVC Emulsion solution**

TEST REPORT No: 47/KRDC/LAB/59 Mum 25/10/2021

Date Sample reception : 24/10/2021
ID : 47/LAB/59

SAMPLE DESCRIPTION:

Sampling : As Requested
Sample Condition : Acceptable
Quantity : 20 liters
Sampling date : 23/02/2021
Product : PVC Emulsion solution LATEX (E1)
Requirement : Dried upto 0.3%wt
Start Date test : 25/10/2021
End Date test : 27/10/2021

LABORATORY EXPERIMENTAL SET UP:

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LAB ELECTRIC SPRAY DRYING SYSTEM SPECIFICATIONS:

Drying chamber Installed Power	16.5 KW
Agitator tank Installed Power	1.5 KW
Drying chamber Heat Load	200°C maximum
FD Fan Damper position	100% OPEN
ID Fan Damper position	100% OPEN
Pneumatic Air Pressure	7 Bar 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		Model: FLIR E-30 Resolution: 160x 120 IR Thermal sensitivity of 0.10°C
Moisture Analyzer		Make: Axis Balance Description: Moisture range: 1%(sample 0.02/0.05g), 0.1% (Sample 0.5/5g), 0.01%(Sample>5g)
Thermo Hygrometer		Model No: HTC-2 Temperature accuracy: ±°C (1.8°F) Temperature resolution: 0.1°C (0.2°F) Humidity range: 10%~99% RH Humidity accuracy: ±5% RH Humidity resolution: 1% RH

SAMPLE PREPARATION AND METHOD/PROCEDURE:

The experiment has been performed on given sample of PVC Emulsion solution LATEX (E1) 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.

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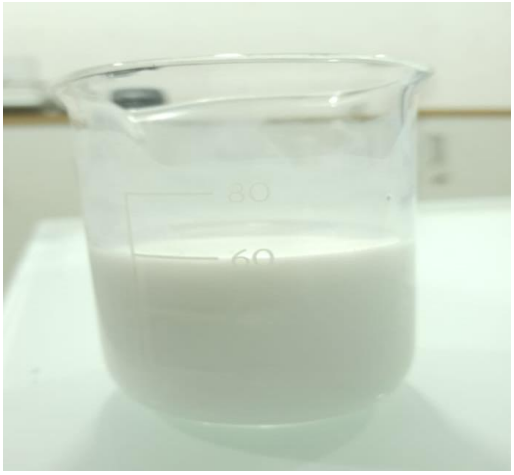
ANALYTICAL RESULTS:

Input Temperature on product: 170°C
Initial Moisture Content: 87.74%
Time req. to reach 190°C - 20min.
Output Temperature: 75-80°C
Final Moisture Content: 0.3%

PICTURES OF TREATED SPECIMEN SAMPLE:



BEFORE

AFTER

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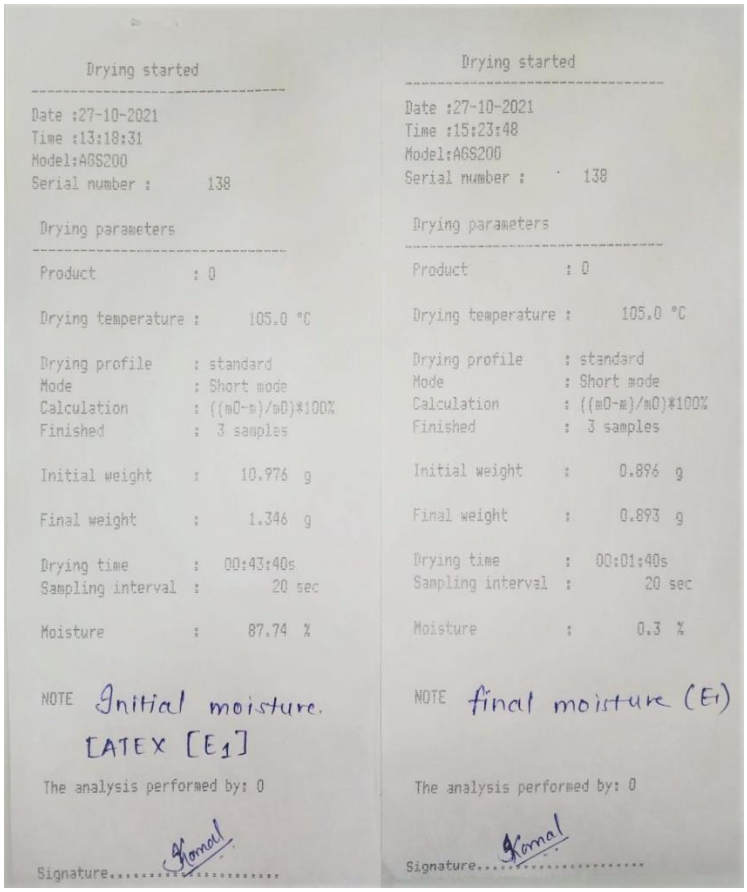
MOISTURE ANALYSIS REPORT:



Drying started

Date :27-10-2021
Time :13:18:31
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 : 10.976 g
Final weight : 1.346 g
Drying time : 00:43:40s
Sampling interval : 20 sec
Moisture : 87.74 %

NOTE Initial moisture. LATEX [E_1]

The analysis performed by: 0

Signature.....

Drying started

Date :27-10-2021
Time :15:23:48
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 : 0.896 g
Final weight : 0.893 g
Drying time : 00:01:40s
Sampling interval : 20 sec
Moisture : 0.3 %

NOTE final moisture (E_f)

The analysis performed by: 0

Signature.....

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OBSERVATION:

The drying behavior of PVC Emulsion solution LATEX (E1) 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 becomes fine powder on drying. And there is no colour change.

Tested By,
Ms. Komal Ingle