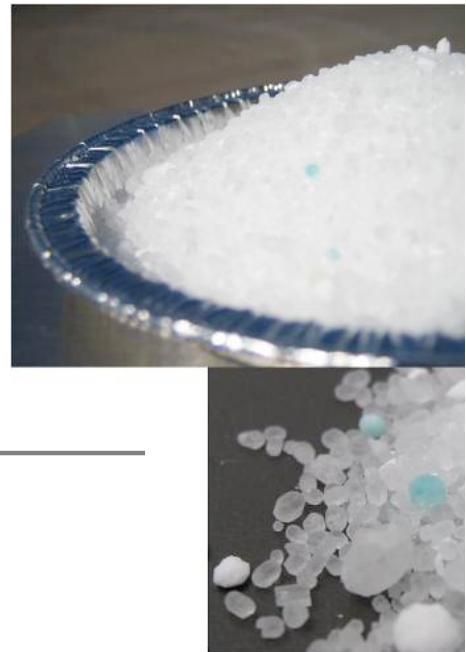


TEST REPORT



Application: **AMMONIUM SULPHATE COOLER**

Client: **Sample Company**

Location / Plant: **Sample**

Test no.: **LT09- Q07CF0038**

Ref. Quote: **Q555-5555**

Report by: **C. Richard**

Reviewed by: **C. Forniciov**

Date of Report: **July XX, 20XX**

Sample

LT09-Q07CF0038

TEST OBJECTIVES

1. Perform standard laboratory tests to determine physical and thermal properties of bulk material
2. Determine flow characteristics and confirm plate spacing for plate bank design
3. Determine feeder design parameters

PRODUCT DESCRIPTION

Physical Properties

Thermal Properties



Thermal Conductivity k : 0.122 kcal/m·h·°C

Specific Heat C_p : 0.328 kcal/kg·°C

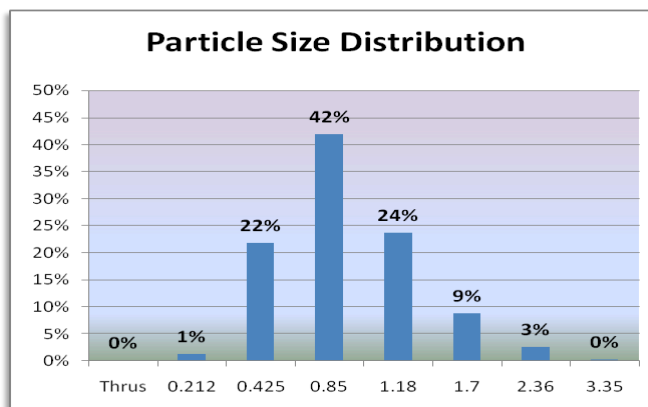
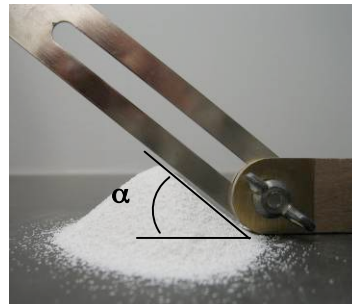
Color & Shape: Mix of white granules and crystals

Density: 1060 kg/m³

Angle of Repose α : 37°

Moisture content: 0.2%

Size: 95% between 0.2 and 2.3 mm



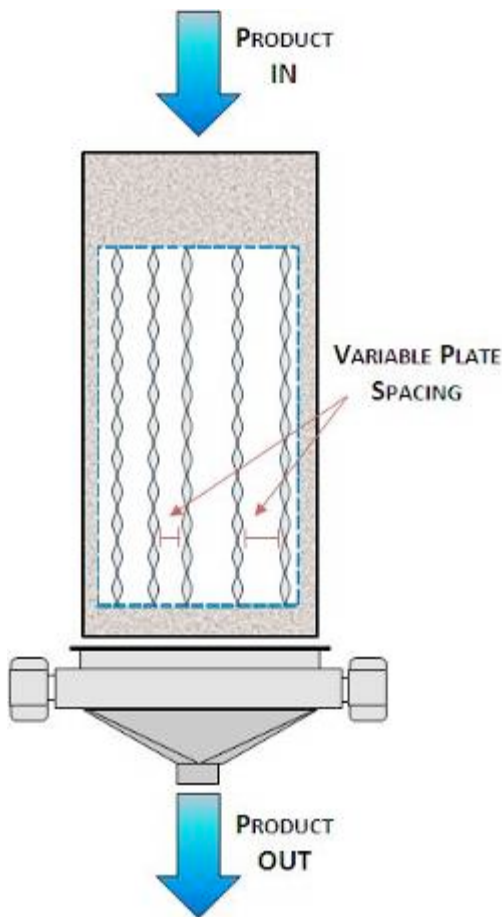
CONFIDENTIAL

EQUIPMENT SET-UP & TEST DESCRIPTION

For laboratory testing, the Solex test unit is used. The test plate bank has adjustable spacing and transparent walls that allow flow characteristics to be observed while the optimum distance between plates is assessed. A vibratory discharge feeder, combined with a variable frequency drive, controls the product rate.

The test unit is initially filled with product before the motors are turned on. Flowability is observed for every clearance section as the feeder empties the unit at various speed settings.

RESULTS & OBSERVATIONS



Feeder type: Vibratory feeder

Feed rate: 30-100 kg/min

TEST CONDITIONS & SUMMARY RESULTS

Plate Spacing C-C	Product Flow	Comments
19mm	Good	Uniform mass flow observed
22mm	Good	Uniform mass flow observed
24.5mm	Good	Uniform mass flow observed
28.5mm	Good	Uniform mass flow observed
32mm	Good	Uniform mass flow observed

RECOMMENDATIONS & CONCLUSIONS

The intent of this experimental testing was to determine the operability of the Solex heat exchanger for cooling ammonium sulphate.

Standard procedures have determined all necessary physical and thermal properties. The flowability test results have shown that a minimum clearance of 19mm between the heat exchanger plates (25mm center to centre) combined with a vibratory discharge feeder provides reliable mass flow at room conditions.

The use of a Solex cooler is recommended for this application.

APPENDIX: Test Pictures



Fig.1 - Thermal Conductivity test



Fig.2 – Particle Size Distribution



Fig.3 – Test Feeder



Fig.4 – Flowability test at different times