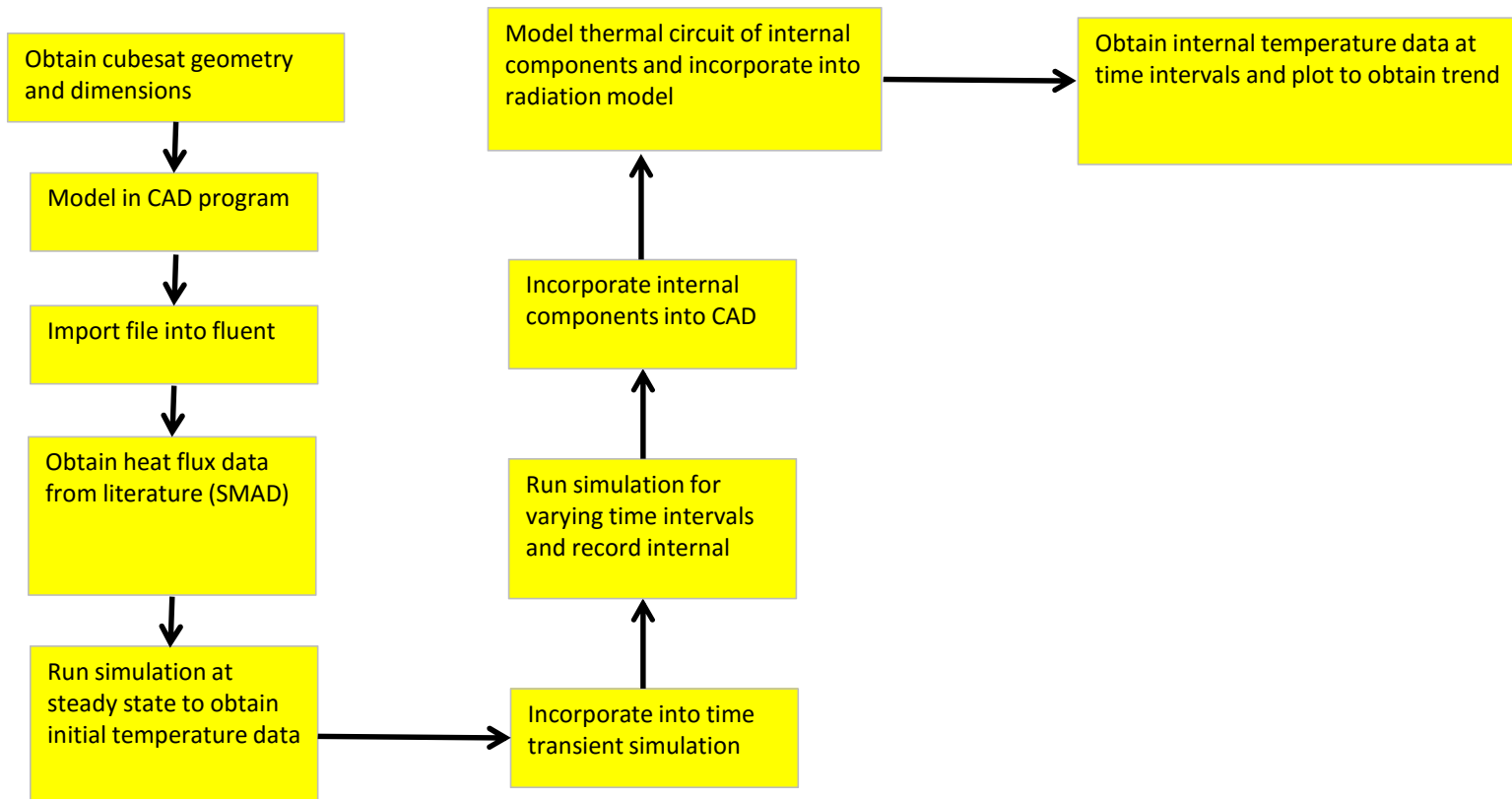
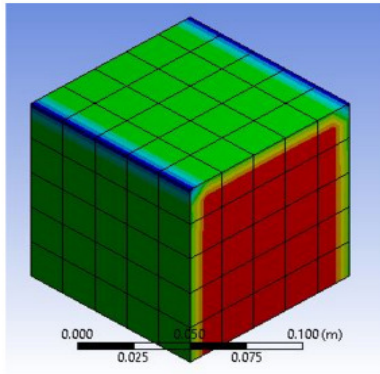


| <b>Subsystem/ Function/ Feature Name:</b>                 |  |        |            |                        | <h1>ER 15 Test Plan</h1>                             |                |             |                 |  |
|---|--|--------|------------|------------------------|--|----------------|-------------|-----------------|--|
| <b>Date of Test:</b> 11/10 - Present                      |  |        |            |                        |  |                |             |                 |  |
| <b>Performed By:</b> A.J.<br><b>Tested By:</b> A.J.       |  |        |            |                        |  |                |             |                 |  |
| Concluded Condition of meeting Engineering Specification: |  |        |            |                        | Need to Ensure temperature does not denature protein |                |             |                 |  |
| <b>I. TESTING SPECIFICATION</b>                           |  |        |            |                        |  |                |             |                 |  |
| Specification Number                                      | Importance   | Source | Function   | Specification (Metric) | Unit of Measure                                      | Marginal Value | Ideal Value | Comments/Status |  |
| ER 15   | 9  | CR 11  | Electrical | Temperature            | C  | -50 to 45*     | -40 to 35*  |                 |  |
| <b>II. EQUIPMENT REQUIRED</b>                             |  |        |            |                        |  |                |             |                 |  |
| Specification Number                                      | Equipment or Instrumentation required                  |        |            |                        |  |                |             |                 |  |
| ER 15   | Ansys - Fluent   |        |            |                        |  |                |             |                 |  |
| <b>III. DATA COLLECTION STRATEGY</b>                      |  |        |            |                        |  |                |             |                 |  |
| Specification Number                                      | Data acquisition strategy                              |        |            |                        |  |                |             |                 |  |
| ER 15   | Run simulation in CFD and plot results to obtain trend |        |            |                        |  |                |             |                 |  |

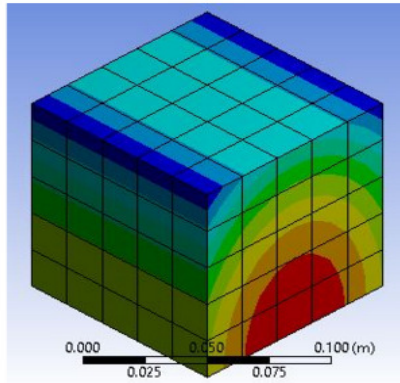
### III. TESTING FLOWCHART



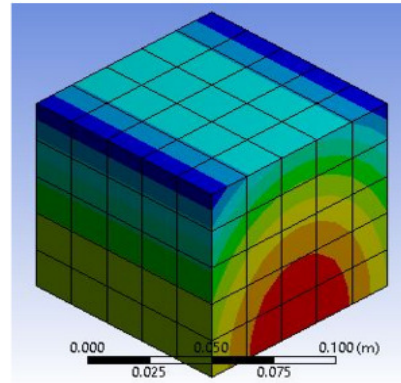
#### IV. RAW DATA ACQUISITION



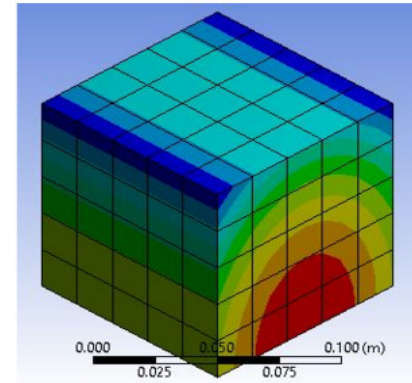
1s: 21.9°C - 22°C



1hr: 15.327 - 15.57°C

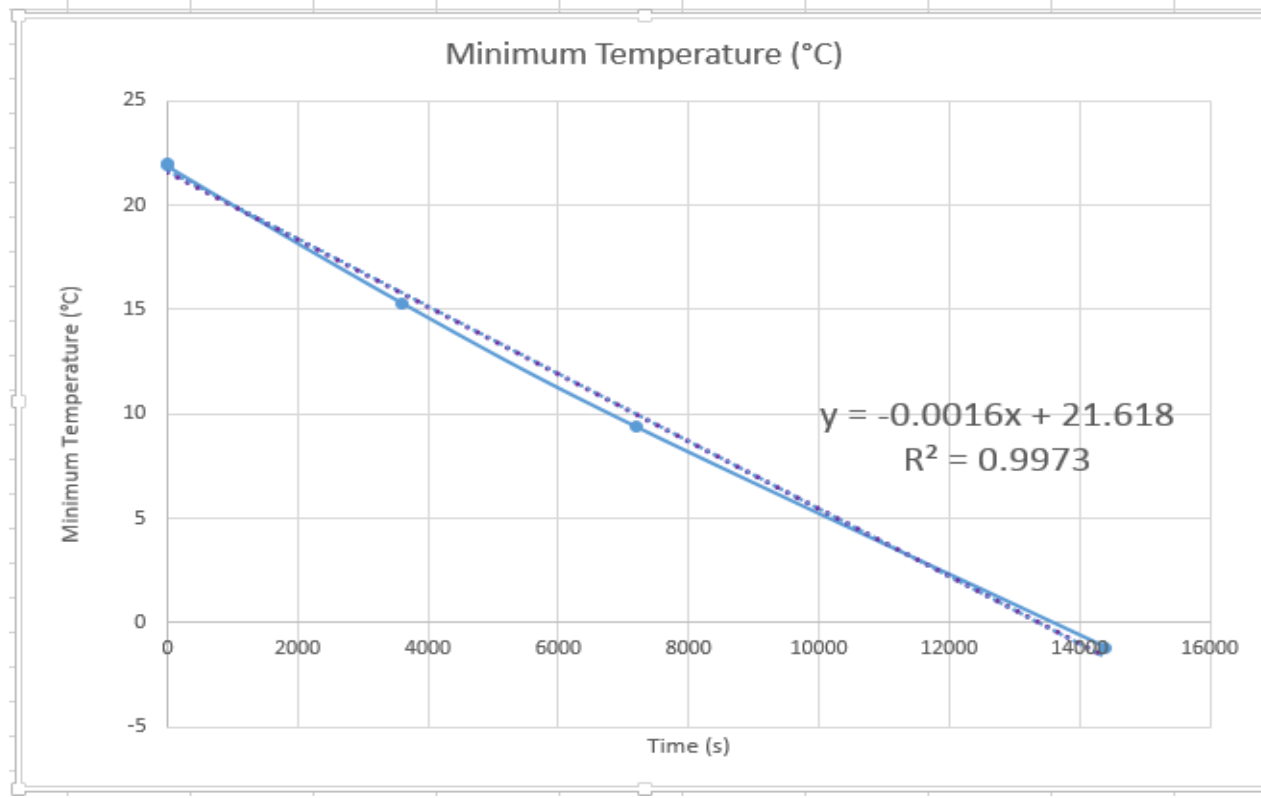


2hrs: 9.3679°C - 9.529°C



8hrs: -1.22°C - -1.03°C

## V. RESULTS



## VI. CONCLUSION

Temperature results show a sharp decrease in temperature. Need to ensure it does not drop too low and the proteins begin to denature. Will soon incorporate thermal circuits of internal components.