Temperature Distribution Committee

- Chair: Arturo Martinez, JBT – arturo.martinez2@jbtc.com
- Vice Chair: Chelsea Venable, Golden Food Tech – cvenable@goldenfoodtech.com

12/01/20 Temperature Distribution Committee Meeting Notes

- The main objective of this meeting was to get ideas and generate topics for the 2021 annual meeting. Next year due to the COVID-19 pandemic the meeting will be virtual. The IFTPS board wants to base the presentations on ideas or topics that the committee members would like to have discussed.

Meeting Agenda

Larry Harrold

- Larry brought up virtual reality as a tool to be able to troubleshoot issues/concerns in the production plants because of traveling restrictions.
    - This opened up a discussion to see the regulatory agencies' position on data that is collected remotely.
    - The P.A. is the responsible party to ensure that the data source conducting the T.D. tests and collecting the data is reliable and trustworthy. The Dan Gaffin saw no issue with submitting data collected by someone other than the process authority and left it up to the process authority's discretion on trusting that data source.
- Topic to discuss? "Virtual tools and methods to be used during this time of travel restrictions." And/or demonstration of the specific tool Larry mentioned:
    - The virtual reality tool used at Dairy Farmers of America that Larry Harrold was referring to is called RealWear HMT-1. It is an AR

headset (hands free) with voice commands and a camera. The person wearing the headset can connect with remote support group for help, equipment inspections, etc

Dan Gaffin (FDA)

- Dan Gaffin shared topic regarding filings on pouch processes.
- Lately he's been evaluating filings that reference T.D. studies with a different size pouch.
    - If a pouch was tested with a set size, can we submit a filing with a pouch that is a different size. What factors should we consider to determine if the temperature distribution is still adequate for a smaller/larger pouch?
    - Pouch thickness (full pouch) needs to be considered. A smaller pouch than the one used to establish the distribution profile should not be a concern for there should be more circulation (steam water spray retorts). However, if there is a smaller pouch but is thicker, this theoretically reduce heat media flow circulation and could affect the T.D. profile in a negative way.
    - Pouch volume and overall load volume should also be considered. Higher load volume could slow the temperature distribution toward the cold spot of the load.
- This will be a great topic to have discussed. "Things that need to be considered when processing flexible containers".

Others

- Glass container filings.
    - Do we list container dimensions when filing irregular shaped containers.
    - Yes: List maximum height and maximum width for glass containers that are irregularly shaped along with the container volume (i.e. 32 oz. glass).
        - If possible include container drawing from the supplier in the T.D. report.
    - For flexible containers, list internal diameter (plastic cups).

- Heat Distribution
    - It would be great if this would be taken into consideration for a presentation topic.
    - “Further Clarification and Guidance on Heat Distribution Studies”.

- Steps prior to the “Come-up” phase in the T.D. data filing.
    - Things can be confusing for regulating agencies when evaluating T.D. data if there is a step prior to the start of the CUT phase. Steam on could be interpreted as the start of the come-up.
    - If there is a pre-heat phase prior to the come-up phase.
        - This doesn’t need to be a part of the minimum come up of the process but do include notes in the T.D. report if there was a pre-heat or other phase prior to the start of the CUT.
        - This way it could be understood by the reviewers when the minimum CUT started if it is not at “steam-on”.

IFTPS Conference

Committee Meeting Notes 3/04/2020

Don Guan

- For personal reasons Don decided to step down from chair position
- New chair was nominated and elected: Arturo Martinez (JBT)
- Chelsea Venable (Golden Food Tech) was elected as vice-chair

Dan Geffin (FDA) Questions & Concerns for FDA

1. Dan Geffin shared some key points that FDA is on the lookout when talking about Temperature Distribution studies.

- How many leads should be included in a T.D. study?
    - No specific requirement from FDA

- IFTPS guidelines suggests a minimum of 5 leads per basket

- Good practices include 5 per basket to target top, middle and bottom of basket/pallet
- At minimum include 3 leads per basket middle and bottom.
- Logger location diagram is necessary for clarification

Containers to be tested

1. **Cylindrical can/jar/plastic container**

- Smallest container will yield the most conservative profile and will apply to larger containers of the same shape.

1. **Tray/Tubs**

- Container to cover most area within the basket will be most conservative in steam water spray, water cascade, and full immersion processes.

1. **Pouches**

- Dan requested that in the measurements line of the filing form one must list the dimensions of the "full" pouch.
    - This way we can state the pouch thickness once full of product.

- The pouch with the most volume will be the most conservative.
    - Steam/Air Retorts (continued)

- Heat Distribution Study is a must besides Temperature Distribution Study.
    - Must show uniform lethality distribution within the load

- The use of product/food as ballast test load can be questionable
    - Type of product must be listed and specified.

- Teflon Slabs are acceptable
    - Must make sure not to over drill into the slab when instrumenting the Thermocouples. Airgap if over drilling will give erroneous data.
    - When using bentonite in pouch, make sure tip of sensor is in the middle of solution.

- When conducting H.D. studies, one must evaluate fh values and not Fo values.
    - Initial Temperature of the load

- Target initial temperature to be tested: at least one test with lowest temperature that will be observed during production.

- Subsequent tests must be cooled to similar production initial temperatures prior to the start of the tests.
    - Thermocouple Location

- Please include a TC map or diagram within the report.

- Must be able to see slowest lead location within the load.
    - TD Revalidation: Testing at time of retort installation vs. confirmation testing

- No FDA requirements for confirmation testing after T.D. studies at the time of retort installation.

- Most companies do confirmation testing for good practices.

- Global Food Safety Institute requires confirmation testing every 3 years.

- Any changes to the system must be consulted with a Process Authority
    - Must evaluate possible effects on the process

- Maintenance department should have traceability of changes done to each system.
    - Accumulation of small changes in the retort necessitates revalidation for TD.

- Annual retort system audit is recommended.
    - This will reveal if any changes have been made to the system without proper documentation, such as valves, piping, pumps, even boiler changes.
    - FDA checklist can be used as template for annual retort audit/survey.

        - Increase in Overpressure Settings: should this incite confirmation T.D. testing?

- It is highly recommended to do confirmation studies.

- Include overpressure settings in the report.
    - Studies Referencing Previous Testing

- If TC location to target historically known cold spots, include the previous report in the summary section of the current study report.
    - Steam Air Retort

- CV of 5%

- Partial loads need to conduct new H.D.

- Should fan speed (rpm) be listed/required as a critical control?
    - Air flow tracking/recording is acceptable by FDA
    - Water Cascade Retorts

- Should water flow be listed as a critical control?
    - FDA does not list it as a requirement as of now but could be in the future.
    - Water Pump pressure is viewed as acceptable check as of now.
    - Retort Spray Nozzle Maintenance

- When a container explodes/breaks during a process in the retort, FDA strongly recommends a detailed inspection of the spray nozzles for the retort is exposed to food particles and this could incite blockages.
    - Could affect the Temperature Distribution

Hydrostatic Question Could TD committee propose a topic for 2021?

- Flight Number Verification

- How does everyone in the industry verify the flight location within the vessel?
    - How to accurately list specific flight location, pre-heat leg, steam dome, and cooling leg?
    - Run calculations based on retort drawing along with wireless probe readings.
    - Still a topic that is unclear. Needed more time to discuss.

Possible Presentation Topics

- Changes to a system and the impacts on T.D.
- Guideline for minimum amount of leads to include per T.D. study.

Attendee list

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Some other people who previously attended:

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