General Setup - AGR- SPT2

2022-03-17

# Purpose and Application

## Purpose

To define a work instruction for proper job setup of the SPT2 Pressure Tester software.

## Application

This work instruction applies to all O-I manufacturing facilities.

# Safety

Observe O-I standard safety requirements and procedures defined by the Global Environmental Health & Safety (EH&S) organization, as well as all applicable local, regional, and national requirements. Safety equipment and instructions specific to the completion of this work instruction are detailed in the Instructions Section.

# Instructions

1. Before starting the work instruction activity, perform the following steps:
2. Do not begin these tasks without confirmation that personnel directly involved have completed the required training associated with the work instruction activity and have reviewed this document.
3. Gather necessary tools and equipment as identified below in the Equipment Section.
4. Wear and use additional Personal Protective Equipment (PPE) and safety equipment required for this specific work instruction.
5. Obey all applicable safety requirements and procedures.
6. Notify appropriate personnel of the activity and estimated time needed to complete the tasks.
7. Follow all Lockout Tagout procedures when work instruction activity requires isolating energy in the designated area. Verify energy is isolated before starting work.
8. To adjust the Neck Diameter Setting, perform the following steps:
9. If the bottle has a large bead (≥ 2.5-3 mm; 0.098-0.118 in. larger in diameter than the neck underneath it
10. Start at the nominal diameter.
11. If the seal leaks or the bottle leans in the pressure station:
12. Reduce by 0.5 mm (0.019 in.).
13. If it continues to leak or lean:
14. Reduce by additional steps of 0.1 mm (0.003 in.) to a maximum of 1.0 mm (0.039 in.) under the target diameter.

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1. If the bottle has a small bead (≥ 1-2 mm; 0.039-0.078 in. larger in diameter than the neck underneath it):
2. Start at 0.5 mm under the nominal diameter (0.019 in.).
3. If the seal leaks or the bottle leans in the pressure station:
4. Reduce by additional steps of 0.1 mm (0.003 in.) to a maximum of 1.0 mm (0.039 in.) under the target diameter

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1. For Brimful Volume Correction and Fill Height Correction, perform the following steps:
2. Brimful Volume Correction is a Job parameter with a default value of 0 and a range of -10.0 to 10.0 ml (-0.338 to 0.338 oz).
3. If a positive value is entered, the SPT2 will add that amount to the test result.
4. If a negative value is entered, the SPT2 will subtract that amount from the test result.

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1. Fill Height Correction is a system parameter with a range of -10.0 to 10.0 mm (-0.393 to 0.393 in.).
2. If a positive value is entered, the SPT2 will add that amount to the Target Height before calculating the volume.
3. If a negative value is entered, the SPT2 will subtract that amount from the Target Height before calculating the volume

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1. The following procedure uses gravimetric volume and fill height calculations to determine correction values for the SPT2. These correction values compensate for water and air properties. In the formula below, 1.0012 is the Air Buoyancy.

Volume = Weight x 1.0012 /   
Density at Temperature

1. On the General tab of the Settings screen, ensure that “ml” is selected as the Volume Unit and “mm” is selected as the Distance Unit.
2. Load the SPT2 Job for the bottle for which the correction values will be calculated.
3. Select a representative bottle to use for the gravimetric measurements and mark it as the Test Bottle.
4. Conduct gravimetric measurements of this bottle 10 times. Make sure it is dry between tests.
5. Measure the Volume at the Specified Fill Height (typically specified on the Bottle Drawing).
6. Measure the Brimful Volume.
7. Remove any outliers (more than 1 ml; 0.033 oz greater than or less than the average) and calculate the average of each of the two volumes using the remaining values.

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1. In the SPT2 Job:
2. Ensure that the Fill to Volume checkbox is checked and the Target Volume is the Nominal Volume (typically specified on the Bottle Drawing).
3. Ensure that the Fill to Brimful checkbox is checked and the Brim Vol. Correction value is 0.0.

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1. Place the system in Challenge Mode (on the General tab of the Settings screen).
2. Run the Test Bottle 10 times on the SPT2 (ensuring the bottle is dry between each test) and collect the results. Average the Brimful Volume and the Height results.

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1. Calculate the Fill Height Correction value in millimeters using the formula below:

SPT2 Average Fill Height –   
Specified Fill Height on Bottle Drawing

1. Enter the result as the Fill Height Correction value on the Configuration tab of the Settings screen. This entry can be a positive or negative number.
2. Touch the “Save” button.
3. Calculate the Brim Vol. Correction using the formula below:

Average Gravimetric Brimful Volume –   
SPT2 Average Brimful Volume

1. Enter the result as the Brim Vol. Correction value on the Job Setup screen. This entry can be a positive or negative number.
2. Touch the “Save” button.
3. Save the changes and run the Test Bottle through the system a few times to make sure the SPT2 results match the gravimetric results for both the Fill Height Volume and the Brimful Volume.
4. Repeat this procedure for each SPT2 job.
5. Job Setup Starting Points:
6. The following values are listed as starting points based on bottle volume and type.

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1. During a Job Change, perform the following steps:
2. Ensure that the correct Seal Assembly is installed.
3. Access the Job Screen.

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1. Copy a similar existing job or create a new job.

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1. Touch the “Description” field and enter a description for the job.

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1. Enter the Neck Diameter.
2. Enter the Clamp Height.
3. Enter the Brimful Volume.
4. Enter the Fast Fill Amount Percent.
5. Enter the Fill Time in seconds.

NOTE: The “Fill Time” parameter is essential, when the Volume measurement is turned OFF.

1. Set Define Fill Height. By default the Fill Height is set to “From top of bottle downward”.

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1. If volume is to be measured, select the Volume Test Type (one or more test types can be selected).
2. If Fill to Height is selected:
3. Enter the Target Height.
4. Enter the High Limit.
5. Enter the Low Limit.
6. If Fill to Volume is selected:
7. Enter the Target Volume.
8. Enter the High Limit.
9. Enter the Low Limit.
10. If Brimful Volume is selected:
11. Enter the High Limit.
12. Enter the Low Limit.

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1. If pressure is to be measured, select the Pressure Test Type (at least one test type must be selected).
2. If Proof is selected:
3. Enter the Target Pressure.
4. If Destruction is selected:
5. Enter the Nominal Pressure.

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1. Touch the “Save” button to save the job parameters.

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# Required Training

Before performing this work instruction, applicable personnel must be trained by an authorized trainer on the required training contents listed in this document.

# References

## Document Classification

* Efficiency and Throughput
* Quality

# Approval

Sanctioning Representatives of the Global Team

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| **Region** | **Representative** |
| Europe | Robert Kurpiel, Bruno Laumier, Stefano Lucidi, Hans de Willigen |
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# Revision History

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| --- | --- |
| 2022-03-17 | Approved by Bob Morin, Global Inspection Network Leader  Original Issue |