1. Purpose and Application:

| Purpose | Application | Comments (Plant Specific) |
| --- | --- | --- |
| To define a work instruction to use the Ultrasonic Cleaner to properly clean Fresnel Lenses. | This work instruction applies to all O-I manufacturing facilities. | *Plants may enter text and images in the [ ] areas in this column. Place large images, tables etc. in the Appendix.* |

1. Safety:

| Safety Requirements | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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. | | | | | | | | | |
| [Picture](http://collaboration.o-i.intra/quality/Safety%20Symbols/Forms/AllItems.aspx)  Danger | https://www.iso.org/iobp/graphics/grs/ISO008556_200.png  Electricity | High Noise level | https://www.iso.org/iobp/graphics/grs/ISO008555_200.png  Slip | https://www.iso.org/iobp/graphics/grs/ISO008551_200.png  Trip | https://www.iso.org/iobp/graphics/grs/ISO008552_200.png  Drop | https://www.iso.org/iobp/graphics/grs/ISO008563_200.png  Crush Body | https://www.iso.org/iobp/graphics/grs/ISO008465_200.png  Counter-Rotate | https://www.iso.org/iobp/graphics/grs/ISO008568_200.png  Crush Hand | https://www.iso.org/iobp/graphics/grs/ISO008561_200.png  Hot Surface |
| https://www.iso.org/iobp/graphics/grs/ISO008558_200.png  Forklift | https://www.iso.org/iobp/graphics/grs/ISO008565_200.png  Flammable | https://www.iso.org/iobp/graphics/grs/ISO008567_200.png  Corrosive | https://www.iso.org/iobp/graphics/grs/ISO008570_200.png  Oxidizing | https://www.iso.org/iobp/graphics/grs/ISO008560_200.png  Toxic | https://www.iso.org/iobp/graphics/grs/ISO008553_200.png  Biological | https://www.iso.org/iobp/graphics/grs/ISO008569_200.png  Optical | https://www.iso.org/iobp/graphics/grs/ISO011211_200.png  Falling | https://www.iso.org/iobp/graphics/grs/ISO008564_200.png  Bump Hazard | [Picture](http://collaboration.o-i.intra/quality/Safety%20Symbols/Forms/AllItems.aspx)  Radiation |
| Compressed Air | Inhalation | https://www.iso.org/iobp/graphics/grs/ISO008562_200.png  Auto-Start | Steam | Sharp | Flying Debris | http://collaboration.o-i.intra/quality/Safety%20Symbols/ISO%20Entrapment%20(oi).png  Entrapment |  |  |  |

1. Instructions:
   1. Before starting the work instruction activity, perform the following steps:

| Step Standard Instruction | Standard Images | Images & Comments (Plant Specific) |
| --- | --- | --- |
| 1. 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. |  |  |
| 1. Gather necessary tools and equipment as identified below in the Equipment Section. |  |  |
| 1. Wear and use additional Personal Protective Equipment (PPE) and safety equipment required for this specific work instruction. |  |  |
| 1. Obey all applicable safety requirements and procedures. |  |  |
| 1. Notify appropriate personnel of the activity and estimated time needed to complete the tasks. |  |  |
| 1. Clearly identify, mark off, and secure the designated area defined by the work instruction activity. |  |  |
| 1. Follow all Lockout/Tagout procedures when work instruction activity requires isolating energy in the designated area. Verify energy is isolated before starting work. |  |  |
| 1. Only after energy is verified to be isolated, can the protective guarding be removed and safety interlock gates be opened. |  |  |

* 1. For proper Ultra-Sonic cleaning of the Fresnel Lens, perform the following steps:

| Step Instruction | Images | Images & Comments (Plant Specific) |
| --- | --- | --- |
| 1. Open the lid of the Ultra-Sonic cleaner by pulling straight up. |  |  |
| 1. Remove the basket by pulling straight up on the basket handles. |  |  |
| 1. Place lenses gently into the basket without overlapping items.    1. Fresnel lens must be placed into the basket with the groove side down.    2. Do not allow items to touch perimeter of the basket.    3. Do not stack the lenses.    4. Place the basket aside, do not place the basket back into the Ultra-Sonic cleaner. |  |  |
| 1. Add water with cleaning solution so it exceeds the “MIN” fill line and is sufficient to cover all items in the basket.    1. Use a mild detergent such as dishwashing liquid or general-purpose ultrasonic cleaning solution    2. The typical ratio is 16 ounces of water to 1 tablespoon of detergent |  |  |
| 1. Plug the power cord into side of unit and into wall.    1. Cleaning Cycle will appear. |  |  |
| 1. Press the “Set” button to display the cleaning cycle.    1. Repeat pressing the set button until the desired cleaning time is displayed.    2. The recommended cleaning time is 3 minutes (180 seconds). |  |  |
| 1. Press the TC button until the red heat light turns on .   NOTE: Do not turn on without water in tank.  The recommended temperature is 65 degrees C (150 degrees F).   * 1. Water will heat to 65 degrees C (150 degrees F) in approximately 20 to 30 minutes. |  |  |
| 1. After the water has reached the recommended temperature, place the basket with the lenses into tank. Shake slightly to dislodge air bubbles and ensure lenses are sitting flat on the bottom of basket. |  |  |
| 1. Replace cover. |  |  |
| 1. Press the “On” button to start the cleaning cycle. The unit will make a buzz noise as it is cleaning.    1. The timer will count backwards to show time left for cycle. |  |  |
| 1. Pressing the “Off” button during the cleaning will pause the cleaning process. |  |  |
| 1. When cleaning cycle is finished, carefully remove basket (remember that it is hot) and place on a towel.    1. NOTE: The heater does NOT turn off when timer goes off. Be sure NOT to leave lenses in the Ultra-Sonic cleaner.    2. If the lenses are still dirty, place the basket back in the Ultra-Sonic cleaner for an additional cleaning cycle. |  |  |
| 1. Rinse lenses in clean water. A bucket may be used to dunk basket into for rinsing. |  |  |
| 1. Place clean parts on towel. Allow to dry completely. |  |  |
| 1. Empty water from machine. |  |  |
| 1. Unplug power cord from wall. |  |  |

* 1. Upon completion of tasks, perform the following steps:

| Step Instruction | Images | Images & Comments (Plant Specific) |
| --- | --- | --- |
| 1. Replace protective guarding and close safety interlock gates. |  |  |
| 1. Confirm the designated work area is clear and communicate to personnel the intent to restart energy. |  |  |
| 1. After the designated work area is confirmed clear and personnel are aware of the pending restart, follow all Lockout/Tagout procedures to restart energy supplied to the designated area. Verify energy is active. |  |  |
| 1. Remove signs and markings from the designated work area. |  |  |
| 1. Perform basic housekeeping duties. Clean up the work space, tools and equipment. Dispose of trash. Put tools and equipment in assigned area. |  |  |
| 1. Notify appropriate personnel that the work instruction activity has been completed. |  |  |
| 1. Record and report findings and results. |  |  |
| 1. Follow appropriate instructions for notification of findings and results relating to specifications, targets and/or reaction limits. |  |  |

1. Required Training:

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

1. Equipment:

| Mandatory Equipment | Acceptable Models or Requirements | Model Used (Plant Specific) | |
| --- | --- | --- | --- |
| Ultrasonic Cleaner | Raytech Turbo Sonic Ultrasonic Cleaner 2500  Lyman Turbo Sonic Case Cleaner 2500 |  | |
| 409 Cleaning Solution or Dish Soap (ratio 100:1) |  |  | |
| Hex Tools |  |  | |
| If FPX2 – Philips Screwdriver |  |  | |
| Towel |  |  | |
| Air compressor or hair dryer (without heat setting) |  |  | |
| Optional or Recommended Equipment | Acceptable Models or Requirements | Model Used (Plant Specific) |
|  |  |  |

1. Definitions:

| Term | Definition |
| --- | --- |
|  |  |

1. References:

| External documents that were used in the development of this document |
| --- |
|  |

1. Appendix:

| Information referenced in previous sections. |
| --- |
|  |

1. Approval

|  |  |  |
| --- | --- | --- |
| Sanctioning Representatives of the Global Team | | |
| Region | Role | Representative |
| Asia Pacific |  |  |
| Europe |  |  |
| Latin America |  |  |
| Mexico |  |  |
| North America |  |  |
| Global Operations |  |  |

*NOTE: Modify the Region column as needed. For each representative/approver, include their role and name. Insert additional rows as needed to document cross-functional approvals as a result of touch points with other GMF disciplines. Remove any unused rows. Delete this note after use.*

1. Revision History

2017-08-30 Draft