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| Anoxomat Instrument | | | | | | | | |
| **Purpose** | This procedure provides instruction for use of the Anoxomat instrument. | | | | | | | |
| **Principal and Clinical Significance** | The Anoxomat uses the widely known McIntosh and Fildes system of evacuation and replacement to create anaerobic environments. The Anoxomat quickly creates anaerobic, microaerophilic or capnophilic and hypoxic environments to cultivate bacteria in jars using a reliable automated evacuation/replacement method. The Anoxomat can create exact, repeatable conditions with gas mixtures within 0.5% of the required value. | | | | | | | |
| **Policy Statements** | This procedure applies to Microbiologists who perform culture set-up and plate reading. | | | | | | | |
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| **Materials** |  | |  | |  | | |  |
|  | **Supplies** | | | | **Equipment** | | | |
|  | * Jar and Petri dish holders AJ9049 & AJ9028 * Palladox disposable catalyst AN3146 * Oxoid Anaerobic pads R65055 | | | | * Anoxomat instrument 2110-0511A 1J1G * Gas hose and fittings * Jar tube test plug * Soft-touch pen * AC line cord | | | |
| **Specimen** | * Inoculated petri plates requiring anaerobic or microaerophilic conditions for incubation. | | | | | | | |
| **Special Safety Precautions** | Microbiologists are subject to occupational risks associated with specimen handling. Refer to the safety policies located in the safety section of the *Microbiology Procedure Manual***.**   1. [*Biohazard Containment*](file:///G:\Lab%20Procedures\Microbiology\1NEW%20Micro%20Procedure%20Manual.%20(same%20as%20in%20Starnet)\MCVI%203%20Safety\MCVI%203.1%20Biohazard%20Containment.docx) 2. [*Biohazardous Spills*](file:///G:\Lab%20Procedures\Microbiology\1NEW%20Micro%20Procedure%20Manual.%20(same%20as%20in%20Starnet)\MCVI%203%20Safety\MCVI%203.4%20Biohazardous%20Spills.docx) 3. [*Safety in the Microbiology Laboratory*](file:///G:\Lab%20Procedures\Microbiology\1NEW%20Micro%20Procedure%20Manual.%20(same%20as%20in%20Starnet)\MCVI%203%20Safety\MCVI%203.2%20Safety%20in%20the%20Microbiology%20Lab.docx) | | | | | | | |
| **Palladox disposable catalyst** | * The disposable palladium catalyst is in a permeable plastic pouch (sachet). It is for single-use only. Dispose each sachet into a biohazard bin after every incubation to ensure proper oxygen removal. * Use the appropriate number of sachets determined by the size of the jar. * Use 1 sachet for jars that hold 6-12 plates. * Use 2 sachets for jars that hold 24 plates. * Use 3 cachets for jars that hold 36 plates. * Clip the disposable cachet under the standard jar’s lid or place it in the ergonomic jar’s designated slot. | | | | | | | |
| **Oxoid Indicator Pads** | * Use the Oxoid Anaerobic pads with the Anoxomat jars. The Anoxomat jars are less humid and the BD Anaerobic Strips do not work well. * The Oxoid Anaerobic pads are stored in the Culture Bench refrigerator, top shelf. Use 1 pad per jar. Cut pad open with scissors and use a forceps to withdraw about 10 mm of the pad. Place immediately in jar, on top of plates, before placing the lid on the jar. Discard pad in normal trash after use. | | | | | | | |
| **Quality Control** | 1. QC testing is performed using an anaerobic indicator strip. Use the Oxoid Anaerobic Indicators.    * WHITE indicates redox has occurred and the atmosphere is suitable for the growth of anaerobic bacteria    * PINK indicates oxygen is present and the atmosphere is **not** suitable for the growth of anaerobic bacteria 2. Perform QC when the gas tank is replaced. Incubate anaerobic SB plate inoculated with *Fusobacterium nucleatum* ATCC 25586. Record results on Desk 3 QC chart. 3. Perform daily QC with each jar that is closed. Check **ALL** of the in use anaerobe jars in the incubator daily before opening the jars due to be opened that day. Observe the indicator strips to be sure that anaerobic conditions were maintained during incubation. If the indicator is pink, an anaerobic atmosphere was not maintained and the anaerobic culture result is **not** valid. Document jar failure on daily maintenance log and notify the appropriate personnel of failure. | | | | | | | |
| **Frequency of closing jars** | 1. Using the ergonomic jars, close a jar when an Anaerobic Culture (ANAC) is received/processed or when the purple bottle of a positive Blood Culture (BC) is processed.  * Samples can be batched, up to 12 plates.  1. Use the holding tank for Throat Culture (TC) and close a 1 day jar, once per shift, as needed. 2. Use Campy EZ bags for initial incubation of the Campy plate for Stool Cultures (STLC). One ergonomic Anoxomat jar will be use to consolidate all Campy plates. | | | | | | | |
| **Operating the Instrument** | 1. Before use, always check the jar for cracks of damage. 2. Place inoculated plates or tubes in the jar using the petri dish holder. 3. Add the required number of Palladox sachets to the jar for anaerobic or microaerophilic bacterial cultivation. 4. Obtain Oxoid anaerobic indicator pad from Culture Bench fridge, cut open and withdraw 10 mm with a forceps. 5. Place Oxoid anaerobic indicator pad in the jar, on top of the plates. 6. Place the lid on the jar. 7. Either close the clamps on each side of the jar lid for the ergonomic jar or slide the jar clamp over the lid and hand-tighten the jar clamp screw. Ensure you hear the **CLICK** with the ergonomic jars. If not, open and close again before connecting the tube. 8. Connect the jar to the Anoxomat by pushing the jar tube connector into the snap-shut coupling on the jar lid.      1. If the Jar tube connector does not snap in place, pull the outer ring of the snap-shut coupling downward or press the black tab on the ergonomic jar. 2. Using the soft-touch pen, choose the appropriate recipe on the Main screen by touching the Microaerophilic button for *Campy* plates or the Anaerobic button for anaerobic 1 or 2 day plates. The button is highlighted when the recipe is active. 3. Never use sharp objects, pens, pencils or anything that would leave a mark on the screen. 4. Always enable the Quality Assurance option during anaerobic and microaerophilic process to avoid any failure of loss of patient samples. For standard microaerophilic or anaerobic recipe, the standard quality assurance level has been set as a default. 5. The correct pressure reading is 1.75 Bar. 6. Press START located below the touchscreen. 7. Check the Process Report 8. Confirm recipe 9. Check Gas-input test 10. Check Jar–leak test-Checks the integrity of the jar and hose under a deep vacuum condition. 11. Check Seal-leak test-checks the integrity of the jar under a slight vacuum condition 12. Check Catalyst-activity test-confirms the catalyst is removing oxygen at a sufficient rate. 13. Run time is about 5-6 minutes. Run is completed when all green check marks are present.      1. Run did not pass if red boxes are present. Check gas connection, seal, or replace catalysts and try again.      1. Green check mark-Jar passed the test. Jar is ready to be disconnected and placed in the incubator. 2. Yellow tent-Jar is under vacuum 3. Red X-Jar failed the test. Processing stops on that jar. The jar may be disconnected. 4. As soon as the green check appears in the jar’s Ready column, the jar can be disconnected and is ready for incubation. 5. Disconnect the jar by pulling the outer ring of the snap-shut coupling downward, holding the black tube with your other hand. The jar tube should snap out of the coupling. This closes the snap-shut coupling and maintains air tightness of the jar. 6. To leave the process report screen, press START. The Anoxomat returns to the Main screen and is ready for the next jar. 7. Label the jar with tape for 1 or 2 days of incubation, open date and tech code. 8. Place jars in the large room air incubator. 9. Day shift: record internal quality control on Desk 1 daily checklist. 10. Day shift will use the 2 large jars for consolidating the cultures. | | | | | | | |
| **Troubleshooting** | 1. If the Gas-Input test fails, this means the pressure supplied by the regulator to the Anoxomat is lower than 1.6 Bar or higher than 1.9 Bar. Call facilities to adjust the gas pressure. 2. Jar-leak test failure is rare in a properly maintained system. 3. Seal-leak test fails occasionally, often due to a dirty o-ring seal. Wipe the seal with a lint free wipe soaked with Isopropyl Alcohol. 4. Catalyst-activity test failure occurs occasionally if an insufficient number of sachets are used or if the sachets are reused. 5. For further troubleshooting refer to the Anoxomat User Guide or call the hotline at 1-800-225-4034, extension 2123 (Mike on day shift) | | | | | | | |
| **Jar Maintenance** | Store jars between 0°C and 50°C.  Perform the following maintenance every 3 months   * Spray a little lubricant spray containing Teflon in the snap-shut coupling to keep the coupling lubricated. Push the gold cup inside the coupler with a stick or swab and then spray the lubricant. Push up and down a few times to work the lubricant in. * Clean and apply acid-free petroleum jelly on the rubber O-ring of the lid, only with the standard jars. Clean and leave dry (no petroleum) the seal in the ergonomic jar lids. * Clean jars with soap and water. Do not use alcohol or bleach to clean the jars as these chemicals can damage the inside of the jar over time. * Inspect jars for cracks and signs of excessive wear. Immediately discontinue use of the jar if either is noticed | | | | | | | |
| **Instrument Maintenance** | The Anoxomat requires little maintenance, however, some points should be observed.   1. Never allow the jar tubes to hang lose when unattached, as the system always tests all jar tubes to check for attached jars. Instead, place unused tubes in the holder on the side of the system. 2. Clean the housing with a slightly damp cloth only. You can use isopropyl alcohol or diluted bleach. Avoid spraying liquids onto the START button. 3. Visual check for cracks and kinks should be made regularly on all tubing and external cabling. In case of damage, new tubing and external cabling should be ordered and replaced immediately. Use only replacement parts form Advanced Instruments or an authorized distributor. | | | | | | | |
| **References** | Anoxomat User Guide Norwood MA 02062 2018 aicompanies.com or Anoxomat.com  Technical support/product service 800-225-4034 techsupport@aicompanies.com | | | | | | | |
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| **Training Plan/ Competency Assessment** | **Training Plan** | | | | | **Initial Competency Assessment** | | |
| 1. Employee must read the procedure. 2. Employee will observe trainer performing the procedure. 3. Employee will demonstrate the ability to perform procedure, record results and document corrective action after instruction by the trainer. | | | | | 1. Direct observation. | | |
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| **Historical Record** |  |  | |  | | |  | |
|  | **Version** | **Written/Revised by:** | | **Effective Date:** | | | **Summary of Revisions** | |
| 1 | Susan DeMeyere | | 10/1/2022 | | | Initial version | |
| 2 | Susan DeMeyere | | 10/27/2022 | | | Added to moisten the indicator strip and better instructions for snap coupler lubrication. | |
| 3 | Susan DeMeyere | | 12/19/2022 | | | Changed to Oxoid Anaerobic Indicator pad. Remove moisten indicator strip. | |
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