



## **MEDIA INSTALLATION PROCEDURES**

### **For AdEdge APU and Modular Treatment Systems Using AD26 media**

---

AdEdge Technologies, Inc. AD26 adsorption products for water treatment are granular, dry flowable materials designed for easy installation into conventional pressure filtration or adsorption equipment. Applications are operated in a down flow manner from top to bottom with the water inlet at the top of the vessel. Products are supplied in 55 lb bags or other appropriate containers. *These procedures are intended to be general guidelines for media installation into AdEdge Adsorption Package Unit (APU) and Modular treatment systems. Details may vary based on the specific equipment available at each site and mode of media delivery. Installation should be performed only by AdEdge personnel or trained mechanical or water treatment professionals familiar with bulk media handling and AdEdge APU and Modular systems. Also consult procedures and detailed information provided in the user O&M Manual for reference.*

#### **FILLING PROCEDURES**

- 1) It is advisable to perform a hydraulic test of the system checking all connections, fittings and joints for leaks prior to loading media. Repair any leaks in the piping to and from the treatment unit before opening the vessels.
- 2) Disconnect and Remove valve/flange and distributor (if present) from top of each vessel to be filled with media. This may require removal of the valve and/or a section of piping which should be disconnected at the flanges.
- 3) If hydraulic testing is conducted initially, the vessels will need to be partially drained prior to media loading.
- 4) Before filling operation, inspect the internals of the adsorption vessel(s) to ensure the collection hub and lateral at the bottom of the tank(s) appear securely connected to the outlet/inlet ports and are in good condition and free of debris or obstructions that may hinder flow or performance. Remove debris or any foreign objects before proceeding. For certain installations, the laterals will have to be installed through the bottom flange.
- 5) Wear the appropriate safety equipment per the MSDS and Site Health and Safety Plan
- 6) Assemble the internal hub/laterals and riser pipe (PVC) and fit together according to the manufacturer's instructions (if not already installed inside the vessels). Be sure that all components are clean and free of obstructions or debris.
- 7) Fill the vessels with 1/3-1/2 full of water before adding underbedding or adsorption media. This is very important to reduce the potential for the gravel/media to damage the internal hub/lateral(s) inside the tank while filling and provide the proper conditioning of the media.



## MEDIA INSTALLATION PROCEDURES

### For AdEdge APU and Modular Treatment Systems Using AD26 media

---

- 8) Be sure to cover the top opening of the riser tube (if present) with a piece of duct tape or equivalent to prevent any gravel or media from entering into the riser tube.
- 9) With the riser tube (if present) and bottom hub/lateral(s) in place, first pour in through the top access port (through a funnel or other means), an appropriate amount of the coarse underdrain media; specific quantities are designed for AdEdge APU systems (consult AdEdge for details); examples of typical media include layers of 1/8-1/16-inch washed gravel (suitable for drinking water contact use), enough to cover the bottom hub/lateral or distributor. On top of the coarse gravel, then pour in a 2" layer of the 1/8 x 1/16" stone which is a finer media (an appropriate size garnet can also be utilized).
- 10) The AD26 media is typically provided in 100 lb drums, 7 cubic feet drums or super sacks. Several methods can be used for filling. The most common methodology is manual filling with an appropriate funnel and 5-gallon buckets. Manual filling is typically utilized on all AdEdge Modular systems. Again, be sure that sufficient water is in the vessel before adding the adsorption media. Fill until the required (design) amount of media has been loaded into the vessel (fill quantities should be in accordance with AdEdge specifications). Use appropriate safety procedures during filling. Distribute the media in the vessels using a small tamping rod or small diameter PVC pipe to evenly distribute or level the material.
- 11) If 7-cu feet drums are utilized for larger APU systems, remove the lid and attach the drum-top cone adapter to an open drum. A short section of 4" flexible hose should be connected to the cone to allow flexibility in positioning the drum above the flange opening. Using a forklift and drum hoist, secure the drum lift to the drum and raise above the top opening of the vessel. Rotate the drum with the pull chain to the appropriate angle for emptying the container. Guide the flexible hose into the tank opening. Media should flow freely from the container.
- 12) Whether loading the media manually or with equipment described above, before completing the media loading, measure (with a tape measure) the amount of head space (in inches) from the top of the media bed to the top of the tank (bottom of tank threads or to the distribution lateral on the steel tank configurations). This should measure approximately 15-20" depending on the vessel configuration. In no case should this distance be less than 14 inches.
- 13) During the filling process, tap the vessel lightly with a rubber mallet to loosen clumps or prevent uneven filling during the process. Fill the vessel to the appropriate height or design volume with media (as mentioned above) allowing for the designed headspace in the vessels for backwashing. Backwashing of the media will require 40-45% expansion room above the media. Example: for a bed of media 30", there would be 14 inches of headspace needed for expansion to avoid loss of media from the backwash line.



## MEDIA INSTALLATION PROCEDURES

### For AdEdge APU and Modular Treatment Systems Using AD26 media

---

- 14) Once the appropriate amount of media is in the vessel, take a final measurement of the distance from the top of the media bed to the top of the tank (flange or distributor). Be sure that the vessels are not overfilled. Top off the vessel with water; allow the media to stand for a few minutes if possible to wet the material and eliminate entrapped air (which is the most common cause of pressure drop and channeling); re-secure the inlet flange and piping and tighten.
- 15) Before beginning water flow, be sure the backwash diaphragm valve (either on the unit or supplied) is partially closed. This valve is intended to both control flow rate during the initial media conditioning (backwashing) and will be set to a permanent setting to provide a maximum allowable flow rate when the vessels are put in service.
- 16) Using the controls on each vessel (one vessel at a time with the second vessel offline), manually backwash the media (upflow direction) for roughly 5-10 bed volumes at beginning at approximately 5-6 gpm per square foot of tank surface area and increase to 8-9 gpm per square foot very gradually. It is very important to begin at a low flow. AdEdge APU systems with an automatic control package will be programmed or pre-set for the appropriate time and gpm. AdEdge Modular systems will be preprogrammed as well. Some initial amber colored water and turbidity in the backwash water (first few bed volumes) is common due to the presence of fines that are evacuated. During the backwashing process, use the rubber mallet and lightly tap the sides of the vessel being backwashed to ensure that media will be fluidized and lift properly for conditioning.
- 17) The backwash water should become very clear with time. Two or more backwashing sequences may be required for each vessel to properly condition the media. Be careful to begin slowly and monitor the flow rate during backwashing to ensure that it is in the correct range for backwashing. High surges or excessive flow rates or pressure during backwashing can cause the adsorption media to be inadvertently evacuated out of the system through the backwash line. It is important that all fine particulate be evacuated from the vessels during this important conditioning step. Open bleed or sample valves during the initial flushing to also eliminate entrapped air in the vessel. Note: more than one initial backwash cycle may be needed to complete the conditioning step and obtain clear product water. Do not allow the water to flow in a service mode or forward downflow through the media / vessels (service mode) until backwashing has been completed and objectives achieved in that vessel.
- 18) After completing the backwash (water running clear), allow the suspended adsorbent media to re-settle. Then put the unit into a rinse cycle (forward flow) with the rinse going to the drain. Check the water for clarity; the water should be free of particulate or color after a minute or two. The adsorber is now ready to place into service. Check differential pressures across the vessels during normal service flow. Normal pressure drop across each vessel (which includes the media and vessel components) at max



## **MEDIA INSTALLATION PROCEDURES**

### **For AdEdge APU and Modular Treatment Systems Using AD26 media**

---

design flow may range from 1-4 psi at startup. This is typical and will provide an indication of the successful preconditioning. Consult AdEdge for normal values based on site specific conditions or if there are questions.

- 19) Operate according to the recommended design flow rates and operating conditions. After placing into service, allow forward (service) flow for a few bed volumes before obtaining any effluent samples for testing to ensure steady state conditions are achieved.

#### **MEDIA REPLACEMENT and DISPOSAL**

- 1) When media is determined by appropriate testing to be exhausted or spent, shut down system, isolate flow into the vessel and drain the vessel of all water; disconnect the valve from the face piping and open the vessel to atmospheric pressure. If a specific drain valve is not present, some water may need to be siphoned from the vessel.
- 2) If available at the site, flush the media for a couple bed volumes with potable water (preferably treated and free of target contaminants) to remove interstitial water in the media pores; drain the water from the vessel.
- 3) Use conventional means of removing spent media, either wet or dry methods, e.g., vacuum out with wet/dry vac equipment, vactor truck or equivalent; utilize proper safety equipment and procedures. If possible, avoid suctioning out gravel underbedding to allow re-use, unless determined impractical. If the unit is equipped with a lower hub and spoke lateral, exercise caution when removing spent media to avoid damaging or disconnecting the lower laterals.
- 4) Transport and dispose of the media in accordance with federal, state, and local regulations. Testing of the spent media in accordance with local and state requirements may also apply based on the requirements of the disposal facility.
- 5) Refill tanks with virgin media using INSTALLATION PROCEDURES as discussed earlier in this document.

#### **CONTACT INFORMATION**

For Questions or Technical Assistance Contact:

AdEdge Technologies, Inc.

5152 Belle Wood Court

Suite A

Buford, GA 30518 USA

Toll Free: 1-866-8ADEDGE

678-835-0057 Fax

[www.Adedgetechnologies.com](http://www.Adedgetechnologies.com)