

## ANHYDROUS AMMONIA

# ANHYDROUS AMMONIA (NH<sub>3</sub>)TRANSFER

## From Nurse Tank Into A Caddy Applicator (Applicator)

- 1. SAFETY FIRST.** Take the following precautionary measures:
  - Wear NH<sub>3</sub>-rated goggles and gloves. Never wear contact lenses;
  - Readily accessible 5 gallon **CLEAN** water, on each nurse tank;
  - Stand upwind when (dis)connecting or bleeding transfer lines;
  - Position NH<sub>3</sub> equipment downwind from dwellings and livestock;
  - Use Quick Checklist to assess condition of NH<sub>3</sub> equipment;
  - Be familiar with your emergency response plan; and
  - Keep unauthorized persons out of the NH<sub>3</sub> handling area.
- 2. SET BRAKES** on tractor once applicator is in position for transferring ammonia. Note if applicator is hitched to the tractor via a heavy-duty hitch pin of sufficient strength for towing the applicator, secured with a clip. Secure safety chains on the tractor hitch. Stop the engine, unless the PTO to drive the applicator compressor is being used.
- 3. CONNECT** transfer hoses if compressor is being used. Connect the vapor valve from the vacuum (input) side of the compressor to the vapor valve on the applicator; Connect the vapor valve on the pressure (output) side of the compressor to the vapor valve of the nurse tank; Connect the withdrawal hose from the nurse tank liquid withdrawal valve to the applicator liquid fill valve.
- 4. CLOSE** all bleeder valves in transfer lines.
- 5. EQUALIZE** pressure between applicator and nurse tank.

### **Scenario #1 If pressure is higher in the applicator:**

Open the vapor valves, starting with the nurse tank and ending with the applicator, to allow pressure to equalize between both tanks. Once vapor has equalized open applicator liquid fill valve followed by the nurse tank liquid withdrawal valve. Start the compressor.

### **Scenario #2 If pressure is higher in the nurse tank:**

Open the liquid fill valve on the applicator followed by slowly opening the liquid withdrawal valve on the nurse tank. Once the pressure in the nurse tank drops to about 10 psi greater than the pressure in the applicator, open vapor valves, starting with the applicator valve followed by the nurse tank valve. Start the compressor.

### **Scenario #3 Applicator NOT equipped with a compressor:**

Open the applicator vapor stack valve. Vapor from the applicator will proceed into the atmosphere. Once the pressure in the applicator drops 10 psi **below** the pressure in the nurse tank, open the applicator liquid fill valve followed by the nurse tank liquid withdrawal valve.

No vapor line between the applicator and nurse tank is needed in this case.

- 6. OPEN** 85% fixed liquid level gauge to check the liquid level in the applicator. When liquid ammonia spews from the gauge the applicator is 85% full. Immediately close the 85% fixed liquid level gauge and stop the transfer by shutting down the compressor or closing the nurse tank liquid withdrawal valve.
- 7. RAISE** the withdrawal hose to drain into the applicator the liquid ammonia that is in the hose. Once drained, close the hose end valve on the withdrawal hose followed by the applicator liquid fill valve. Close application vapor stack valve. Close all other valves between the two tanks.
- 8. BLEED** all the liquid and vapor hose connections.
- 9. DISCONNECT AND SECURE** all hoses and other components. Inspect applicator and nurse tank to make sure all hoses have been disconnected and secured to their acme parking plugs. Make sure that all valves are closed. Replace protective valve acme caps. Detach the PTO shaft from the tractor.
- 10. ADJUST** the metering system on the applicator for the desired per acre application rate. Disengage brakes on tractor. Now you can begin to apply ammonia.