



## Safe Handling – Anhydrous Hydrogen Chloride Tube Trailers

### **1. Product Description – Physical Properties:**

Anhydrous Hydrogen Chloride is a colorless to slightly yellow liquefied compressed gas with an irritating odor, or a colorless fuming gas with a pungent irritating odor

Chemical Formula – HCl

CAS: 7647-01-0

### **2. Specific Hazards**

**DANGER!**

CAUSES SEVERE RESPIRATORY TRACT, EYE AND SKIN BURNS.  
HARMFUL IF INHALED.  
MAY CAUSE TARGET ORGAN DAMAGE BASED ON ANIMAL DATA  
CONTENTS UNDER PRESSURE

Do not puncture or incinerate container  
Do not breathe gas  
Do not get on skin or clothing  
May cause target organ damage, based on animal data  
Use only with adequate ventilation  
Keep container closed  
Do not get in eyes, on skin or on clothing  
Avoid breathing gas  
Wash thoroughly after handling  
Contact with rapidly expanding gases can cause frostbite

### **3. Material Safety Data Sheet (MSDS)**

Airgas MSDS # 1028 is available for download at [www.airgas.com](http://www.airgas.com) or ask your Airgas associate for a copy

### **4. First Aid**

See MSDS

### **5. Safety Equipment and PPE**

The following safety equipment is recommended at a minimum for use during all processes involving trailers in Anhydrous Hydrogen Chloride service

- Minimum of One SCBA kit (half hour type)
- One 10 lb. ABC dry powder fire extinguisher
- Hard hat with protective face shield for each operator
- Prescribed chemical safety goggles



- Ammonia free leak detection solution
- Gloves (Must be suitable for Hazard being handled)
- Safety Cones

**NOTE:**

Additional PPE may be necessary. Check with your corporate safety department for additional instructions

**6. Shipping Description**

UN 1050, Hydrogen Chloride, Anhydrous, 2.3, (8), Poison Inhalation Hazard, Zone C

Markings, Labels – Toxic, Corrosive, Poison Inhalation Hazard (Any Quantity)

**7. Trailer Discharge Valve Connection**

½” FNPT integrated into Discharge valve (unless otherwise noted)

**8. Pressure Relief Devices (PRD’s)**

Trailers are equipped with type CG-4 PRD’s. These devices are integrated into the bull plug of each separate tube. There are a total of twelve devices on each tube (six per end)

**9. General Handling**

- Do not get product in eyes, skin or clothing
- Keep all valves closed when not in use
- Use only with adequate ventilation
- High Pressure Gas
- Do not puncture or incinerate tubes or process piping
- Wash thoroughly after handling
- Use equipment rated for trailer pressure
- Close valves after each use and when empty

**10. Safe Storage**

**Trailer:**

- Ensure there is no residual pressure left in the manifold, as indicated by manifold pressure gauge (I-3)
- Ensure tube valves and process valves are tightly closed
- Ensure Trailer Fill fitting dust cap is installed and tight
- Ensure trailer is stored in a well-ventilated area
- External trailer temperature should not exceed 52° C (125° F)



**Stanchion:**

Ensure there is no residual pressure left in the stanchion, as indicated by stanchion pressure gauge (I-1)

Ensure process piping and hoses have been thoroughly purged with dry nitrogen

**NOTE:**

Stanchion piping and hoses must have a blanket of dry nitrogen while not in use

**CAUTION:**

Do not use any other medium than dry nitrogen or personal injury or damage to equipment can occur

Ensure stanchion valves, gauge valves and process valves are tightly closed

Ensure Transfer Hose connection fitting dust cap is installed and tight

**11. Trailer Hook Up and Disconnect Procedures:**

**CAUTION:**

Perform a thorough inspection of the cabinet area and the area near the trailer for any leakage. If leakage is detected, immediately don the SCBA, secure the area around the trailer and immediately notify your supervisor for further instructions. If no leaking condition is detected, proceed to step 11.1.1.

**11.1 Hook Up**

11.1.1 Visually check the manifold pressure gauge (I-03). If any pressure is present, immediately discontinue the hook up and contact your supervisor for instructions

11.1.2 Insure ALL Valves are TIGHTLY closed

11.1.3 Remove the Dust plug from the Trailer Discharge Valve (V-01)

11.1.4 Check the Product transfer hose (P-04) for moisture. If moisture or dirt is noted, purge the hose with nitrogen until clean

11.1.5 Check the Fill connection on trailer and if necessary, clean with a light abrasive Scotch Bright Pad

**CAUTION:**

Ensure there are no particulates (grease, oil, dirt) on the product transfer hose and trailer connection prior to hook up. Failure to comply can result in personnel injury and / or damage to equipment

11.1.6 Connect the clean product transfer hose (P-04) to the trailer discharge valve (V-01) and securely tighten

11.1.7 Insure the main stanchion valve (V-03), N2 Valve (V-02) and the scrubber vent valve (V-04) are closed

**CAUTION:**

DO NOT OPEN TUBE VALVES AT THIS TIME

- 11.1.8 Insure manifold purge valve (V-07) is closed and remove the dust cap
- 11.1.9 Connect and tighten the flexible nitrogen transfer hose (P-07) to the manifold purge valve (V-07)
- 11.1.10 Open the manifold purge valve (V-07)
- 11.1.11 Slowly open the N2 purge valve (V-06) and charge the manifold with a **MAXIMUM** of 245 PSIG (as shown on gauge valve)
- 11.1.12 Slowly open the trailer product discharge valve (V-01) and charge the entire system to a **MAXIMUM** of 245 PSIG
- 11.1.13 Perform a leak check of all components using an approved leak detection solution (Oxy-Tech® is recommended)

**NOTE:**

Do not use any leak detector that contains ammonia. Failure to comply can result in damage to equipment

- 11.1.14 Close N2 purge valve (V-06) and open the scrubber vent valve (V-04). Vent all the N2 through the scrubber
- 11.1.15 Close the scrubber vent valve (V-04) and repeat steps 11.1.11 and 11.1.14 a **MINIMUM** of 2 additional times
- 11.1.16 Once purge is complete, close the N2 Purge valve (V-06), trailer discharge valve (V-01) and scrubber vent valve (V-04)
- 11.1.17 Insure all pressure is removed from the trailer manifold, product transfer hose (P-04) and N2 transfer hose (P-07)
- 11.1.18 Insure the N2 purge valve (V-06) is closed. Close the manifold purge valve (V-07), disconnect the N2 transfer hose (P-07) and install both dust caps

**11.2 Disconnect Procedures:**

- 11.2.1. Ensure Trailer is no longer in service by getting verification from appropriate personnel
- 11.2.2. Ensure Main Stanchion Valve (V-03), Scrubber vent valve (V-04), N2 Valve (V-02) and all tube valves are closed
- 11.2.3. Open the trailer discharge valve (V-01) and the scrubber vent valve (V-04). Vent pressure and product from the Trailer manifold and transfer hose to the scrubber. Close both valves when complete
- 11.2.4. Insure manifold purge valve (V-07) is closed and remove dust cap
- 11.2.5. Connect and tighten the flexible nitrogen transfer hose (P-07) to manifold purge valve (V-07)
- 11.2.6. Open the manifold purge valve (V-07)
- 11.2.7. Slowly open the N2 purge valve (V-06) and charge the manifold with a **MAXIMUM** of 245 PSIG (as shown on gauge)

- 11.2.8. Slowly open the trailer product discharge valve (V-01) and charge the entire system to a **MAXIMUM** of 245 PSIG
- 11.2.9. Close N2 purge valve (V-06) and open the Scrubber vent valve (V-04). Vent all the N2 through the scrubber
- 11.2.10. Close the scrubber vent valve (V-04) and repeat steps 11.2.7 and 11.2.9 a **MINIMUM** of 2 additional times
- 11.2.11. Close the scrubber vent valve (V-04) and trailer product discharge valve (V-01)
- 11.2.12. Insure the N2 Purge valve (V-06) is tightly closed. Close the manifold purge valve (V-07) and disconnect the N2 transfer hose ((P-07). Install both dust caps
- 11.2.13. Remove the Product discharge hose (P-04) and securely install dust plug on hose and Product discharge valve (V-01)
- 11.2.14. Insure **ALL** valves are closed for transport and there is no pressure on the manifold (as indicated by the pressure gauge)

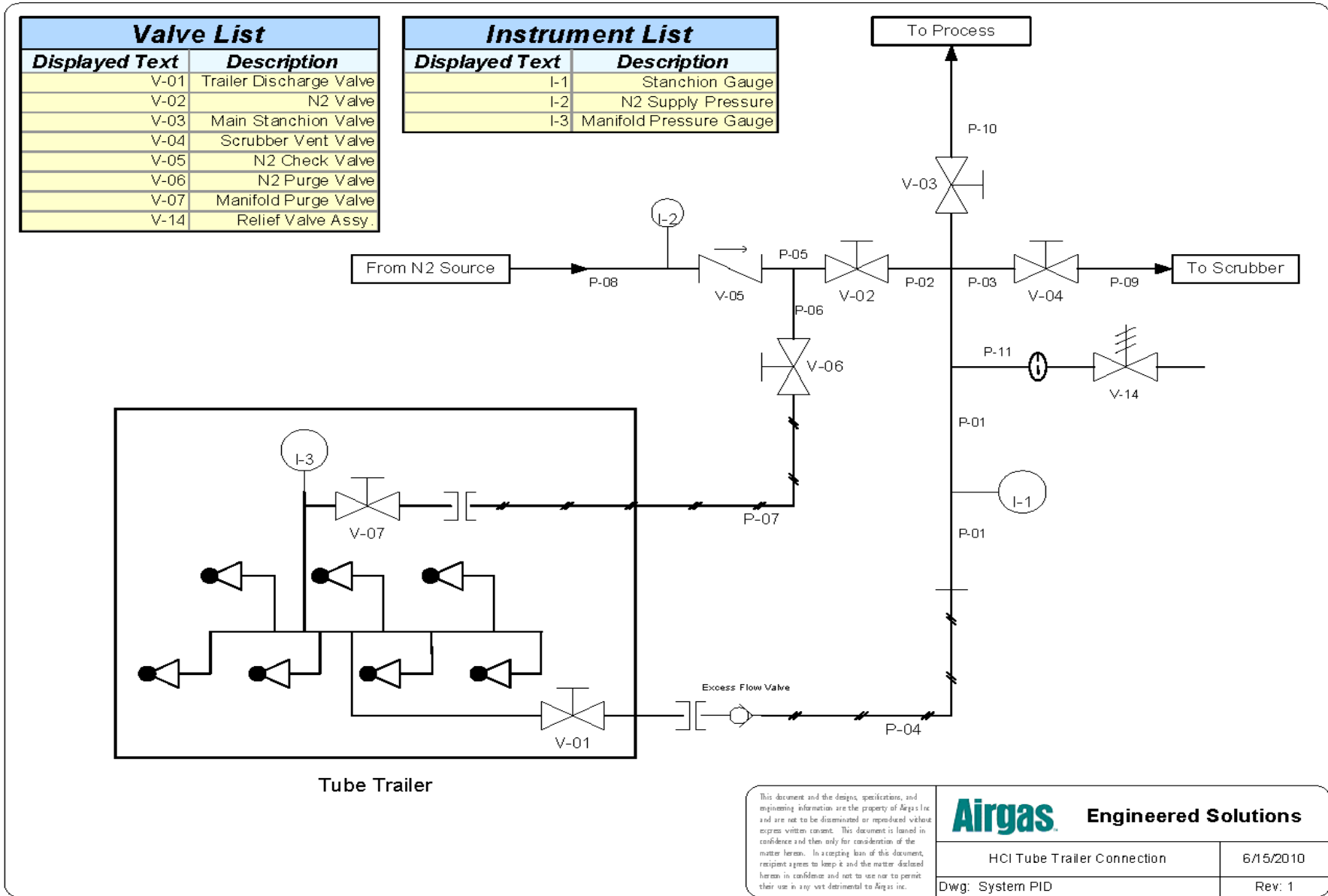
### **11.3 Initializing Product Flow**

- 11.3.1. Insure Trailer product discharge valve (V-01) is closed
- 11.3.2. Slowly open one lower tube valve and allow product to fill manifold. Insure manifold is charged by checking manifold gauge (I-3)
- 11.3.3. Once the manifold pressure has stabilized conduct a visual check of the manifold and rear cabinet area and check for vapors or odors. If vapors or odors are detected, immediately don adequate PPE equipment such as SCBA and close the tube valve that was opened, evacuate the area and notify your supervisor
- 11.3.4. If no odors, vapors or other evidence of a leak is noted, proceed to next step
- 11.3.5. Perform a leak check of all components using an approved leak detection solution (Oxy-Tech® is recommended)
- 11.3.6. If a leak is discovered, close the tube valve, evacuate the area and notify your supervisor immediately
- 11.3.7. Once leak check is complete, with the manifold charged, **SLOWLY** open the trailer Product discharge valve (V-01) allowing product to the main stanchion valve (V-03)

#### **NOTE:**

Do not to open the trailer discharge valve too fast. If the trailer discharge valve is opened too fast the excess flow valve will shut off product flow to the stanchion valve

- 11.3.8 Perform a leak check on the product fitting utilizing an approved leak detection solution (Oxy-Tech® is recommended)





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