



## Safety Alert

10 June 2026

### **STRESS CORROSION CRACKS IN CGA 580 CYLINDER VALVES**

GAWDA has received notice of several incidents of stress corrosion cracks in CGA 580 cylinder valves. The affected brass valves came from several manufacturers, and an analysis by an independent materials testing and investigation firm has found no evidence of flaws in design or manufacturing.

The cracks appear to be the result of using leak detection solutions that corrode brass, such as ammonia, amines, sulfides or chlorides, and over torquing or otherwise stressing the valves.

GAWDA members are advised to make sure you use leak check solutions that will not corrode brass. Additional information is available from the Compressed Gas Association in document CGA V-12, "Leak Detection Fluids Use with Gas Cylinders Packages," Third Edition, 2020.

Attached is a Safety Alert sent out by one GAWDA member company addressing this issue, including recommended practices and general cylinder safe handling and storage practices.

The GAWDA Safety Committee is developing a sample safety practice to help member companies choose leak check solutions compatible with metals commonly used in the industrial and specialty gases industry.

If you have questions or need additional information, please contact Rick Schweitzer, GAWDA General Counsel and Government Affairs Consultant, at [rpschweitzer@rpslegal.com](mailto:rpschweitzer@rpslegal.com) or (703) 946-2548.

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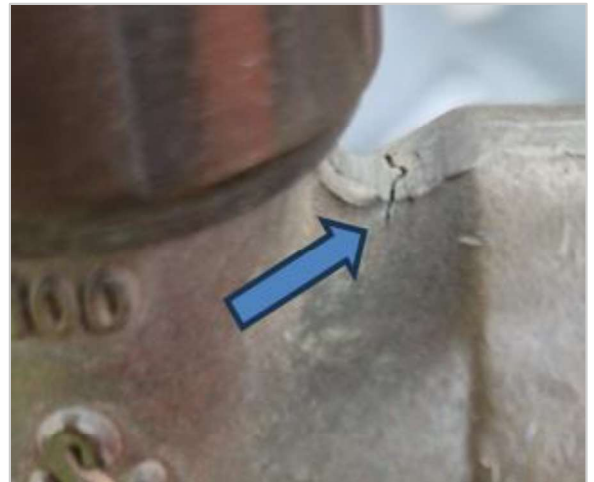
Date: March 2026

## SAFETY ALERT

Because you purchase high-pressure gas cylinders from us, we are notifying you of an event that occurred that stresses the importance of carefully inspecting a cylinder's valve before each use for evidence of damage (e.g., dents, gouges, warping, broken handwheels, corrosion stains, cracks).



*Severed valve inlet*



*Stress corrosion crack on another valve*

### What happened?

While we were filling a size 200 nitrogen cylinder, a CGA 580 valve failed at 1900 psi, causing the threaded inlet to shear off from the valve body. To our knowledge, this type of valve failure has never occurred in our long history of filling cylinders under high pressure. Fortunately, nobody was hurt.

### Why did the valve fail?

Expert analysis of the valve revealed that the most likely cause was the formation and failure of a stress corrosion crack on the outside of the threaded inlet section where the inlet meets the valve body. To the right are photos of the severed inlet, and visual evidence of a stress corrosion crack on another valve.

### What causes a stress corrosion crack?

(1) Exposing the brass to certain corrosives, and (2) stressing the corroded brass. Common brass corrosives include ammonia, amines, sulfides, and chlorides, in whatever form (liquid, solid, gas), and used for whatever purpose, including leak checking and cleaning. Common stresses on valves include residual stress from bending and shaping the brass during the valve's manufacture, and applied stress from regularly attaching gas regulators and cylinder refill fittings to the valve.

### What are we doing to try to prevent another valve failure?

We have reinspected our entire on-hand inventory of CGA 580 valves with a particular emphasis on detecting cracks and replaced any suspect valves. We have also confirmed that we only use valve manufacturer-approved leak detection solutions that do not corrode brass. We have also enhanced our already robust valve inspection process to better detect cracks.

### Safety Recommendations for our Customers

- **Carefully inspect valves for damage before each use.** Hairline cracks can be very difficult to see.
- **Don't use leak check or cleaning fluids containing ammonia, amines, sulfides, or chlorides.**
- **Don't store cylinders in areas with airborne ammonia, amines, sulfides, or chlorides.**
- **Don't overtighten or cross-thread regulators or put unnecessary weight or stress on the valve.**
- **Immediately remove from service** any cylinder with a valve that has signs of damage, including a crack, and notify us to retrieve and replace the cylinder.

See page 2 for additional general safe cylinder handling and storage practices.

## Additional General Safe Gas Cylinder Handling and Storage Practices

### Personal Protective Equipment

- Wear proper protective gear, such as safety glasses and gloves.
- When handling heavy cylinders, wear safety toe and metatarsal guard boots.
- When handling flammable gas cylinders, wear flame-resistant (FR) rated clothing.

### Safe Gas Cylinder Storage

- Store gas cylinders in an upright position, away from heat sources and flames.
- Secure gas cylinders to prevent them from falling over or being knocked over.
- When designed to accommodate one, always use a properly secured cylinder cap when transporting or storing a cylinder. Ensure that the cylinder cap is the correct size and thread match.
- Don't store cylinders in areas with airborne ammonia, amines, sulfides, or chlorides.
- Storage areas should be dry, well-drained, ventilated, and fire resistant.

### Safe Gas Cylinder Handling

- Carefully inspect gas cylinders and valves before each use for signs of damage, including cracks. Focus on the outside of the valve body, thread roots, and where the inlet meets the valve body.
- Use a gas cylinder cart or stand to transport cylinders, rather than rolling them on the ground.
- Never roll or drag a cylinder horizontally.
- Do not pick up a cylinder by the valve or the valve cap.
- Don't allow sparks or flames from welding or cutting torches or any other source to contact cylinders.
- Never tamper with the pressure relief device on a compressed gas cylinder. Also, if the pressure relief device is leaking, do not attempt to tighten it.
- If you open a cylinder valve to atmosphere, which is almost never called for, don't stand directly in front of the valve outlet. Stand to the side of it. And always open the cylinder valve slowly.
- If you have a regulator connected to a cylinder and you open the cylinder valve for outflow, don't stand facing the front or back of the regulator as you do this. And always open the cylinder valve slowly.
- Never tighten regulators or fittings under pressure.
- Never remove labels, or paint over markings.

### Safe Gas Regulator Use

- Always use the proper regulator for the gas in the cylinder.
- Gas regulators reduce the pressure inside the cylinder to a safe level of use.
- They are designed for use with specific gases, within prescribed pressure ranges.
- Different gases have different densities.
- The spring inside the regulator is designed to provide the correct flow rate for a particular gas.
- Some gases (e.g. acetylene, chemolene, oxygen) can react and degrade components inside the regulator, if an incompatible regulator is used.
- Cylinder valve outlets and inlet (CGA) connections on regulators also are designed to minimize the chances of using the wrong regulator. Avoid using adaptors.
- Never overtighten or cross-thread a regulator connection fitting when connecting it to a cylinder valve.