

POSITION STATEMENT

DELIVERY OF CRYOGENIC OR REFRIGERATED LIQUIDS USING CONNECTED TRANSFER HOSES

Background

Delivery of cryogenic or refrigerated liquids to customers or end users is typically done with a single length of hose, one end connected to the delivery source and the other end connected to the receiving tank.

The Compressed Gas Association (CGA) recognizes that there are specific site situations that can affect the delivery of cryogenic or refrigerated liquids. In these situations, multiple transfer hoses may need to be used between the delivery source and the receiving tank.

Question

Can multiple transfer hoses be connected by unions during the delivery of cryogenic or refrigerated liquids?

Answer

Yes, but the use of transfer hoses connected by unions in the delivery of cryogenic or refrigerated liquids is only appropriate during short-term delivery site situations. Specific precautions should be considered based upon a risk analysis of conditions encountered in each delivery site situation.

Some delivery site situations that may require that the transfer hoses be connected by unions for the delivery of cryogenic or refrigerated liquids include but are not limited to the following:

- emergency deliveries;
- emergency response;
- temporary installation when the normal receiving tank is under repair;
- construction site obstacles;
- short-term use when a site is undergoing renovation;
- limited or remote access such as at ports; or
- specific applications such as oil field operations.

Some key safety checks that shall be undertaken when connecting and disconnecting multiple transfer hoses that are connected by unions include:

- specific safety precautions when delivering oxygen [1];
- design requirement of the union;
- design requirements of the transfer hoses;
- inspection requirements of the transfer hoses;
- ability to completely drain the transfer hoses;
- types of tethers used and their design; and
- lessons learned from field applications.

Additional considerations

While these safety precautions are based on current industry practices, they should not be considered interpretation of all applicable regulations or personal safety considerations while delivering cryogenic or refrigerated liquids using multiple connected transfer hoses.

See CGA P-35, *Guideline for Unloading Tankers of Cryogenic Oxygen, Nitrogen, and Argon*; CGA G-6.4, *Safe Transfer of Liquid Carbon Dioxide in Insulated Cargo Tanks, Tank Cars, and Portable Containers*; CGA G-6.6, *Standard for Carbon Dioxide Bulk Transfer Hoses*; CGA P-82, *Standard for Maintenance of Transfer Hoses*; and CGA V-6, *Standard Bulk Refrigerated Liquid Transfer Connections*, for more information [1, 2, 3, 4, 5].

References

Unless otherwise specified, the latest edition shall apply.

[1] CGA P-35, *Guideline for Unloading Tankers of Cryogenic Oxygen, Nitrogen, and Argon*, Compressed Gas Association, Inc. www.cganet.com

[2] CGA G-6.4, *Safe Transfer of Liquid Carbon Dioxide in Insulated Cargo Tanks, Tank Cars, and Portable Containers*, Compressed Gas Association, Inc. www.cganet.com

[3] CGA G-6.6, *Standard for Carbon Dioxide Bulk Transfer Hoses*, Compressed Gas Association, Inc. www.cganet.com

[4] CGA P-82, *Standard for Maintenance of Transfer Hoses*, Compressed Gas Association, Inc. www.cganet.com

[5] CGA V-6, *Standard Bulk Refrigerated Liquid Transfer Connections*, Compressed Gas Association, Inc. www.cganet.com

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