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POSITION STATEMENT

BULK TRANSPORT VESSELS FOR THE DELIVERY OF FOOD GASES

End users often have questions about dedicated bulk transport vessels (i.e., trailers, railcars, ISO containers) for delivery of food gases in order to maintain integrity and cleanliness.

The Compressed Gas Association, Inc. (CGA) wants to emphasize the inherently low risk of food safety hazards entering the food gas product stream. The gas production and distribution system designs are closed and pressurized, minimizing the risk of external and cross contact contamination typical in food processing.

Question

Should there be dedicated bulk transport vessels for the delivery of food gases?

Answer

Few bulk transport vessels, if any, are exclusively dedicated to transporting food gases. However, a bulk transport vessel is exclusively dedicated to a specific gas product, for example, carbon dioxide, oxygen, or nitrogen, and if intended for food use, will meet or exceed food grade specifications.

Food gases are manufactured in plants registered with the U.S. Food and Drug Administration (FDA) as food facilities. Food gases are held and distributed in closed pressurized systems utilizing a quality systems approach in accordance with Title 21 of the U.S. *Code of Federal Regulations* (21 CFR) Parts 100 – 199 [1]. The gas characteristics combined with this unique supply process protects against chemical and physical contamination and substantially reduces food safety risks. In addition, food gases do not support microbial growth.

Reasons

1. Each transport vessel is dedicated to one product. To prevent the cross coupling of dissimilar products, industry connection standard CGA V-6, *Standard Bulk Refrigerated Liquid Transfer Connections* stipulates the use of varying threads, sealing surfaces, and positions with respect to the product specific thread connections [2]. Therefore, bulk containers for different products use different fittings to mitigate the risk of product cross contamination. All containers are inspected and qualified prior to use. For safety reasons, transport vessels do not change product service unless they undergo a deliberate and complex process in accordance with good manufacturing practices (GMPs).
2. Transport vessels are pressurized shipping containers that maintain pressurization with residual amounts of liquid food gas after completing each delivery to a customer. Therefore, these vessels do not require routine cleaning or sanitation between fills. Due to food gas product characteristics and storage conditions, there is no product deterioration or instability over time such as (i.e., unlimited shelf life). In the event the transport vessel needs to be fully emptied (i.e., for maintenance and repair), the vessel will be cleaned as appropriate, purged, and brought back into service in accordance with GMPs.

References

Unless otherwise specified, the latest edition shall apply.

[1] *Code of Federal Regulations*, Title 21 (Food and Drugs), U.S. Food and Drug Administration, www.gpo.gov

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

Additional References

CGA M-14, *Guideline for Bulk Liquid Oxygen and Bulk Liquid Nitrogen Trailer Change of Grade*, Compressed Gas Association, Inc. www.cganet.com

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Work Item 22-002
Food Gases Committee

NOTE—No technical information has been changed from the 2016 edition. This reaffirmed edition 2022 may include minor editorial changes.

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