

CGA

Compressed Gas Association

The Standard For Safety Since 1913

CGA-P-94-2022
GUIDELINE FOR DETERMINING
THE EXTENT OF EXTERNAL
VESSEL CORROSION ON FOAM
INSULATED MC-331 CARBON
DIOXIDE AND NITROUS OXIDE
TANK TRAILERS

FIRST EDITION

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Work Item 18-095
Bulk Distribution Equipment and Standards Committee

NOTE—Appendices A and B (Informative) are for information only.

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1 Introduction

Some carbon dioxide and nitrous oxide trailers have been in service for 40 and 50 years without having had the foam removed for inspection of the vessel exterior. When these units are removed from service for refurbishment, extreme surface corrosion can be discovered, including areas that are pitted, corroded, or rusted. This corrosion is caused by water condensing between the foam and the tank surface as the tank cools and warms during filling and emptying. The corrosion and subsequent loss of pressure vessel shell thickness is a safety issue and is a primary reason for removing these tanks from service. See Figure 1 for an example of a tank trailer with the insulation removed.



Figure 1—Example of trailer with insulation removed

2 Scope

This publication establishes guidelines for the removal of insulation and the inspection of the vessel exterior on foam insulated carbon steel MC-331 carbon dioxide and nitrous oxide tank trailers.

It is recommended that any time a trailer is reinsulated, the pressure vessel be inspected for corrosion so problems can be identified, prevented, and/or repaired before the shell thickness is less than the minimum required thickness.

3 Definitions

3.1 Publication terminology

3.1.1 Shall

Indicates that the procedure is mandatory. It is used wherever the criterion for conformance to specific recommendations allows no deviation.

3.1.2 Should

Indicates that a procedure is recommended.

3.1.3 May

Indicates that the procedure is optional.

3.1.4 Will

Is used only to indicate the future, not a degree of requirement.