

# CGA

Compressed Gas Association

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## **CGA P-26—1997**

REAFFIRMED 2021

(Formerly TB-2)

### **GUIDELINES FOR INSPECTION AND REPAIR OF MC-330 AND MC-331 ANHYDROUS AMMONIA CARGO TANKS**

FIFTH EDITION

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Bulk Distribution Equipment and Standards Committee

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NOTE—Technical changes from TB-2—1989 edition are underlined.

NOTE—No technical information has been changed from P-26—1997 edition. This reaffirmed edition may include minor editorial changes.

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## 1 Introduction

### 1.1

The U.S. Department of Transportation (DOT) Hazardous Materials Regulations in Title 49 of the U.S. *Code of Federal Regulations* (49 CFR) Part 180.407(g)(3) require that MC-330 and MC-331 anhydrous ammonia cargo tanks that are constructed of quenched and tempered steel or constructed of other than quenched and tempered steel but without post-weld heat treatment be internally inspected by the wet fluorescent magnetic particle method at certain prescribed intervals [1].<sup>1</sup> Cracks and other defects found during the inspection shall be repaired in accordance with the requirements in 49 CFR Part 180, Subpart E, "Qualification and Maintenance of Cargo Tanks," if a cargo tank is to be returned to transportation service [1].

### 1.2

In order to promote uniformity within the industry, the Compressed Gas Association (CGA) has prepared these guidelines for use by personnel having responsibility for the inspection and repair of these cargo tanks.

## 2 Inspection

### 2.1

The wet fluorescent magnetic particle method shall be used, and the test procedure shall be in accordance with the applicable portions of Section V of the *ASME Boiler & Pressure Vessel Code* (ASME Code) [2]. The alternating current yoke method shall be used.

### 2.2

The surfaces to be inspected shall be cleaned to remove oil, loose scale, and rust. All of these materials shall be removed from surfaces with sufficient care to clean crevices and corners so that the test solution will flow freely. Failure to do this will result in erroneous indications or the masking of indications. Care should be exercised to magnetize each area in directions that would cross any crack regardless of the crack's orientation. Yokes should be positioned to effectively overlap magnetized areas. The speed of inspection should be slow enough to allow particle buildup at cracks. The continuous method of inspection should be used so that current and test solution are flowing while the inspection is being made with the black light. Visible light should be eliminated entirely or kept at a level that does not appreciably lessen the fluorescent image. Fluorescent materials should be mixed according to the recommendations of the manufacturer and should be agitated frequently during use. Black light output diminishes with use and should be checked periodically with a light meter according to the recommendations of the fluorescent material's manufacturer.

### 2.3

The wet fluorescent magnetic particle inspection shall include:

- all welds in or on the interior surface of the tank, and the adjacent base plate extending 2 in (5 cm) from either side of such welds;
- the entire interior surface of tank heads; and
- all interior surfaces at least 2 in (5 cm) in all directions from exterior welds that are visibly discernible on the interior of the tank.

In addition, the entire interior surface of the tank should be visually inspected, and any areas showing evidence of grinding or other repairs or disturbances of the plate surface should be inspected by the wet fluorescent magnetic particle method. If any cracks are found, the entire interior surface shall also be inspected.

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<sup>1</sup> References are shown by bracketed numbers and are listed in order of appearance in the reference section.